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

# Progressive Taxation in Romania - An Analysis by Scenarios

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## Abstract

*The regional geopolitical tensions, the changes in the regional markets of energy products and food that led to the increase of prices and the stagnation of economic growth at the level of the European Union highlighting the need to review the management of public policies.*

*Thus, under the pressure of growing public and private debts, under the pressure of budget deficits, the fiscal policies of the EU27 states often have the unpleasant task of making substantial reforms of the taxation systems. Therefore, the article proposes the construction of a series of scenarios regarding the possibility of returning to the progressive taxation of the payroll tax in Romania. The article tries to highlight the advantages and where benefits can intervene for the structure of the national budget starting from the analysis of a series of scenarios regarding the progressive taxation of salaries and proposals are outlined in this regard.*

**Key words:** salary tax, income inequality, personal income tax, progressiveness

**J.E.L. classification:** H21, H24, H31

## 1. Introduction

The recent international developments, interspersed with local wars, rising inflation, declining economic growth increasingly outline the need for a consistent fiscal-budgetary space at the European level, which allows additional expenses to be made when the situation requires it. At the level of Romania, the entry into the excessive deficit procedure in the period close to the COVID-19 pandemic allowed its suspension as well as a momentary relaxation. However, it also led to constant pressure from the European Commission for the gradual realization of fiscal consolidation and the achievement of the deficit target for the next period 2024-2026. Fiscal consolidation involves simplifying taxation and harmonizing it with the business environment, careful control of expenses and increasing tax revenues. Thus, according to the report of the Ministry of Finance (2023), the general consolidated budget deficit according to the ESA should decrease from 6.2% of GDP in 2022 to 4.4% of GDP in 2023, reaching in 2025-2026 to 2, 9% of GDP. This evolution must also allow the reduction of inflation and the stimulation of healthy economic growth, as well as the protection of the vulnerable categories of the population and the correct placement of employment at wage levels that allow a decent and prosperous life.

In this sense, Romania, through its fiscal-budgetary authorities, must make efforts to restore the budgetary parameters, including through the system of taxes and fees. In addition to the recently announced measures, which can to some extent lead to the improvement of the budget performance, broader measures are also necessary, to frame taxation in the Western European reference system, in the implementation of a more or less progressive tax system (with more or less tranches). In this sense, using the primary data of the National Agency for Fiscal Administration (NAFA) for the year 2022, it has been built a set of scenarios, with three progressive rates. From these we selected a single model, with three rates, the most likely and potential to be implemented and used an Auto-Regressive Moving Average (ARMA) Box-Jenkins methodology, generally used for univariate time series forecasting. The real results can only be in agreement to a certain extent with the econometric simulations, and can indicate possible developments that can assist political decision-makers in order to implement sound fiscal policies.

## 2. Literature review

A number of important fields can only function properly with the support of the budgetary apparatus such as: infrastructure, defence, public order, education, research, culture, industry, etc. The financing of these fields constantly requires the improvement of the ratio between public revenues and expenditures. Thus, fiscal consolidation should be the preferred way to align demand more with supply, to reduce internal and external vulnerabilities, to avoid placing unnecessary burdens on monetary policy, but also to ensure the implementation of the reforms of the National Recovery Plan and Resilience (PNRR) (European Commission, 2023, SWD(2023) 642 final). Fiscal consolidation should be considered bearing in mind that there are numerous studies (Sargent and Wallace, 1981; Blanchard, 1993; Kawai and Maccini, 1995; Budina, and Van Wijnbergen, 2000, etc.) that talk about the fiscal roots of inflation and investigate the implications the sustainability of the fiscal policy on the stabilization of inflation in the region of Central and Eastern Europe and especially in Romania.

Equally, in the study of Cournède et al. (2014) state that if too little attention is paid to the mix of instruments used to achieve consolidation, it can undermine long-term growth, exacerbate income inequality and slow down the global rebalancing process.

So the control of adverse effects must be taken into account, and fiscal progressivity must be seriously considered for improving fiscal consolidation only after the structural elements of the labour market are regulated. However, in the case of Romania, there are still numerous exemptions, deductions, particular cases, anomalies, which make the existence of the pure single quota only theoretical. In the case of Romania, intervention should first be taken to reduce social contributions and cap them, as well as natural steps to raise the level of the minimum wage in the economy and the average wage, depending on the capacity of the labour market.

But in order to be able to integrate the idea of wage progressivity, the evolution of the phenomenon over time should also be seen. Thus, regarding prediction models, using time series, studies generally use AR(I)MA (Auto-Regressive (Integrated) Moving Average) models (Box, Jenkins and Reinsel, 1994) for a series of raw materials and products, for GDP evolution, but also for fiscal elements, such as deficit and public debt (Bowman & Husain, 2004; Stoian, 2008; Goswami and Hossain, 2013; Cortez et al., 2018; Ericsson, 2017; Abonazel & Abdelftah , 2019; Navapan and Boonyakunakorn, 2017; Zhuravka et al., 2019, etc.).

In specialized studies, despite some progress in the use of ARIMA/ARMA type modelling for a number of important budgetary fiscal indicators, regarding the budget deficit and domestic parameters such as personal income tax and, more specifically, payroll tax, there are still huge possibilities for developing new applications. In this sense, the aim of the paper is to predict the future values of the evolution of the salary tax, using the ARMA model, starting from the analysis of the evolutions of the receipts from this tax, on income tranches.

## 3. Research methodology

Considering the concerns for the future evolutions of the macroeconomic parameters, regarding the budget deficit, this article aims to develop a suitable model to predict, based on some time series, the evolution of the income from the salary tax in Romania. Thus, the paper uses NAFA monthly data for payroll tax for 2022 and extending the time series for the period 2020m1-2024m1, the forecast being made until 2030m1, based on the Box-Jenkins ARIMA model at the level of a single scenario, considered the most probable. For the year 2024, the payroll tax time series is adjusted according to scenarios of fiscal progressivity with 3 income rates. The income tranches are: t1 - 0-2549 lei; t2 - 2550-8000 lei; t3 - 8001-10000 lei; t4 - 10,001-15,000 lei; t5 - over 15,000 lei, according to NAFA information. From these scenarios, the forecast is continued based on the ARMA model in tranches only for a single scenario with three rates (scenario 2), namely with shares of: 10% (for t1 and t2); 18% (for t3) and 23% (for t4 and t5).

According to specialist studies (e.g. D'Amico, 2020) the Box-Jenkins (1970) models contain three stages of elaboration: identification, estimation and diagnosis and prediction. For the identification step, Auto Correlation Function (ACF) and Partial Auto Correlation Function (PACF) correlograms were used in this paper. For non-stationary time series, first-order

differencing is used to make the series stationary. If the series is non-stationary an ARIMA model is used, and if it is stationary ARMA.

In our case, the tranche analyses on the initial time series, demonstrate that both the analysis based on correlograms (see appendix) and based on the study of the Augmented Dickey – Fuller (ADF) test, which presents stationarity at the level, the selected model is ARMA type.

Table no. 1 Augmented Dickey - Fuller (ADF) Unit Root Stationary Test result on income brackets for payroll tax

Series	Level	Critical value	
		5%	1%
	Constant & Trend (t – statistic, and p-value)		
SC2T1	-4,913908	-3,487845	-4,121303
	0.0010*		
SC2T2	-5,962013	-3,487845	-4,121303
	0.0000*		
SC2T3	-3,757089	-3,510740	-4,170583
	0.0282*		
SC2T4	-3,636355	-3,508508	-4,165756
	0.0373*		
SC2T5	-4,604641	-3,508508	-4,165756
	0.0030*		

Source: Own research, using annual Eurostat data and Eviews12 software. Notations: SC- Scenario; t- tranche. Numbers with \* indicate critical unilateral p values of the ADF test (obtained from MacKinnon, 1996).

In the autoregressive (AR) process, the independent values will be the past values of the dependent variable, and the general form of the autoregressive model will be as follows:

$$y_t = a_0 + a_1 y_{t-1} + \dots + a_p y_{t-p} + \varepsilon_t$$

The above equation is the general representation of the AR (p) model, where  $a_0, a_1 \dots a_p$  are the constants and  $y_{t-1} \dots y_{t-p}$  are the past values of the dependent variable. As for the moving average (MA), the general form of the equation is as follows:

$$y_t = a_0 + \varepsilon_t + b_1 \varepsilon_{t-1} + \dots + b_q \varepsilon_{t-q}$$

In the above equation,  $a_0, b_1, \dots b_q$  are constants and  $\varepsilon_t, \varepsilon_{t-1} \dots \varepsilon_{t-q}$ , are the past values of the error terms. The combined process of AR and MA process is ARMA. Thus, the equation obtained after combining the above equations is the general representation of the ARMA (p, q) model:

$$y_t = a_0 + a_1 y_{t-1} + \dots + a_p y_{t-p} + \varepsilon_t + b_1 \varepsilon_{t-1} + \dots + b_q \varepsilon_{t-q}$$

This final equation is valid in our case, dealing with an ARMA model. At the same time, the primary data provided by NAFA for 2022 are presented below, and the series is completed with a minor adjustment for 2023, which we assume as a result of the fiscal measures taken by the government in 2023 to improve fiscal performance.

Table no. 2 The evolution of the salary tax in Romania in 2022 by income tranches and by calendar months (million lei)

2022 (months)	0-2549	2550-8000	8001-10000	10001-15000	>15000	Total
1	53.29	973.98	192.97	222.17	246.06	1688.47
2	51.8	976.18	194.16	219.68	258.72	1700.54
3	55.04	986.6	202.85	236.37	330.92	1811.78
4	50.5	991.15	206.78	253.07	326.43	1827.93
5	50.87	1011.98	218.45	250.52	292.6	1824.42
6	47.23	962.63	213.51	251.89	300.24	1775.5
7	45.99	966.09	206.03	252.77	293.67	1764.55
8	42.57	974.59	212.9	244.29	285.91	1760.26
9	45.67	951.47	217.43	252.87	305.64	1773.08
10	53.95	977.07	225.21	266.74	302.34	1825.31
11	43.62	968.19	235.1	288.93	341.77	1877.61
12	46.63	933.3	230.9	329.72	458.58	1999.13
<b>Total</b>	<b>587.16</b>	<b>11673.23</b>	<b>2556.29</b>	<b>3069.02</b>	<b>3742.88</b>	<b>21628.58</b>

Source: National Agency for Fiscal Administration (NAFA)



#### 4. Results and discussions

Taking into account the existence of the primary information provided by NAFA, we elaborate on the basis of the history of tranches of the salary tax used by Romania in the past three sets of scenarios with three income rates.

We thus observe in the “Difference” section that models offer some advantage in relation to current performance, and fiscal progressivity, understood even in the sense of a modest progressivity (with only 3 rates) can bring benefits to the state budget. However, we choose the most precarious scenario, scenario 2 with odds of 10%, 18% and 23% in order not to risk unnecessarily. It should be noted that the tax rate is seen in this study as applying only to the tranche in question, and if we take into account the possible separate classification of the income into several tranches (as it should actually be), we should adjust from the global amount annually with approximately 1 billion lei.

*Table no.3 The evolution of the salary tax in Romania in 2024 according to scenarios with three tranches (million lei)*

2024 (income tranches)	0-2549	2550-8000	8001-10000	10001-15000	>15000	Total	Difference Previous year
<b>Scenario 1 (rates)</b>	<b>10%</b>	<b>16%</b>	<b>16%</b>	<b>21%</b>	<b>21%</b>		
1	54.29	1559.97	310.35	468.66	518.83	2912.09	1218.62
2	52.80	1563.49	312.26	463.43	545.41	2937.38	1231.84
3	56.04	1580.16	326.16	498.48	697.03	3157.87	1341.09
4	51.50	1587.44	332.45	533.55	687.60	3192.54	1359.61
5	51.87	1620.77	351.12	528.19	616.56	3168.51	1339.09
6	48.23	1541.81	343.22	531.07	632.60	3096.93	1316.43
7	46.99	1547.34	331.25	532.92	618.81	3077.31	1307.76
8	43.57	1560.94	342.24	515.11	602.51	3064.37	1299.11
9	46.67	1523.95	349.49	533.13	643.94	3097.18	1319.10
10	54.95	1564.91	361.94	562.25	637.01	3181.07	1350.76
11	44.62	1550.70	377.76	608.85	719.82	3301.75	1419.14
12	47.63	1494.88	371.04	694.51	965.12	3573.18	1569.05
Total	599.16	18696.37	4109.26	6470.14	7885.25	37760.18	16071.60
<b>Scenario 2 (rates)</b>	<b>10%</b>	<b>10%</b>	<b>18%</b>	<b>23%</b>	<b>23%</b>	<b>Total</b>	<b>Difference Previous year</b>
1	54.29	974.98	349.15	513.29	568.24	2459.95	766.48
2	52.80	977.18	351.29	507.56	597.36	2486.19	780.65
3	56.04	987.60	366.93	545.95	763.42	2719.94	903.16
4	51.50	992.15	374.00	584.36	753.09	2755.10	922.17
5	51.87	1012.98	395.01	578.50	675.28	2713.64	884.22
6	48.23	963.63	386.12	581.65	692.85	2672.48	891.98
7	46.99	967.09	372.65	583.67	677.74	2648.15	878.60
8	43.57	975.59	385.02	564.17	659.89	2628.24	862.98
9	46.67	952.47	393.17	583.90	705.27	2681.49	903.41
10	54.95	978.07	407.18	615.80	697.68	2753.68	923.37
11	44.62	969.19	424.98	666.84	788.37	2894.00	1011.39
12	47.63	934.30	417.42	760.66	1057.03	3217.04	1212.91
Total	599.16	11685.23	4622.92	7086.35	8636.22	32629.88	10941.30
<b>Scenario 3 (rates)</b>	<b>10%</b>	<b>10%</b>	<b>16%</b>	<b>34%</b>	<b>34%</b>	<b>Total</b>	<b>Difference Previous year</b>
1	54.29	974.98	310.35	758.78	840.00	2938.40	1244.93
2	52.80	977.18	312.26	750.31	883.05	2975.60	1270.06
3	56.04	987.60	326.16	807.06	1128.53	3305.39	1488.61
4	51.50	992.15	332.45	863.84	1113.26	3353.20	1520.27
5	51.87	1012.98	351.12	855.17	998.24	3269.38	1439.96
6	48.23	963.63	343.22	859.83	1024.22	3239.12	1458.62
7	46.99	967.09	331.25	862.82	1001.88	3210.02	1440.47
8	43.57	975.59	342.24	833.99	975.49	3170.88	1405.62
9	46.67	952.47	349.49	863.16	1042.58	3254.36	1476.28
10	54.95	978.07	361.94	910.32	1031.36	3336.63	1506.32
11	44.62	969.19	377.76	985.76	1165.42	3542.75	1660.14
12	47.63	934.30	371.04	1124.45	1562.57	4039.99	2035.86
Total	599.16	11685.23	4109.26	10475.47	12766.59	39635.71	17947.13

Sources: author's calculations, initial NAFA data

However, given that in the proposed scenario, scenario 2, the first two tranches retain the current 10% share, to allow raising the minimum income to the average one, and the number of employees on these tranches is considerable, over 4 thousand employees from the 5.0673 million employees at the level of December 2022 (INS, monthly bulletin no. 6/2023), we can consider the calculations broadly correct.

Thus, after choosing scenario 2 with three tranches we continue the analysis. From the correlograms in the appendix and from the ADF test presented above, it is clear that the analysed time series are stationary and we will use an ARMA type model.

Correlograms for the autocorrelation function (ACF) and partial autocorrelation function (PACF) for all income tranches on the selected model (scenario 2 with three tranches) were presented in the appendix. Correlograms are used to correctly choose p, q, and d values for models and to identify AR and MA process terms. Thus, series of alternative models are built for the estimation process, being rather an art in establishing the most suitable ARMA model.

Thus, in the estimation phase, we must follow the significance of the AR and MA components, which must have a p-value below 0.05. At the same time, we should compare the Akaike, Schwartz and Hannan-Quinn information criteria, preferring the model with the three lowest information values (D'Amico, 2020). From the exposition of these values we can decide the most suitable model, without claiming that it is perfect, but that it is the best possible model to choose for the evolution of the payroll tax, on tranches. Centralized the result for all tranches is presented below. (Table 4).

*Table 4. - The result of the ARMA estimations and the selection of the appropriate ARMA model for scenario 2 with three rates*

	SC2T1	SC2T2	SC2T3	SC2T4	SC2T5
<b>Models (AR, integration, MA)</b>	<b>(1,0,3)</b>	<b>(12,0,7)</b>	<b>(1, 0,0)</b>	<b>(1,0,0)</b>	<b>(1,0,0)</b>
R2	0,350335	0,370129	0,942977	0,932539	0,865906
R2 adjusted	0,315531	0,336386	0,940977	0,930172	0,861201
AR p-value	0,0023	0,0000	0,0000	0,0000	0,0000
MA p-value	0,0047	0,0002	-	-	-
Log-likelihood	-167,7981	-250,0532	-264,7968	-309,0842	-347,5492
Akaike info criterion (AIC)	5,726604	8,468441	8,926561	10,402810	11,684970
Schwarz criterion (SC)	5,866227	8,608064	9,031278	10,507520	11,789690
Hannan-Quinn criterion (HQC)	5,781219	8,523056	8,967522	10,443770	11,725930

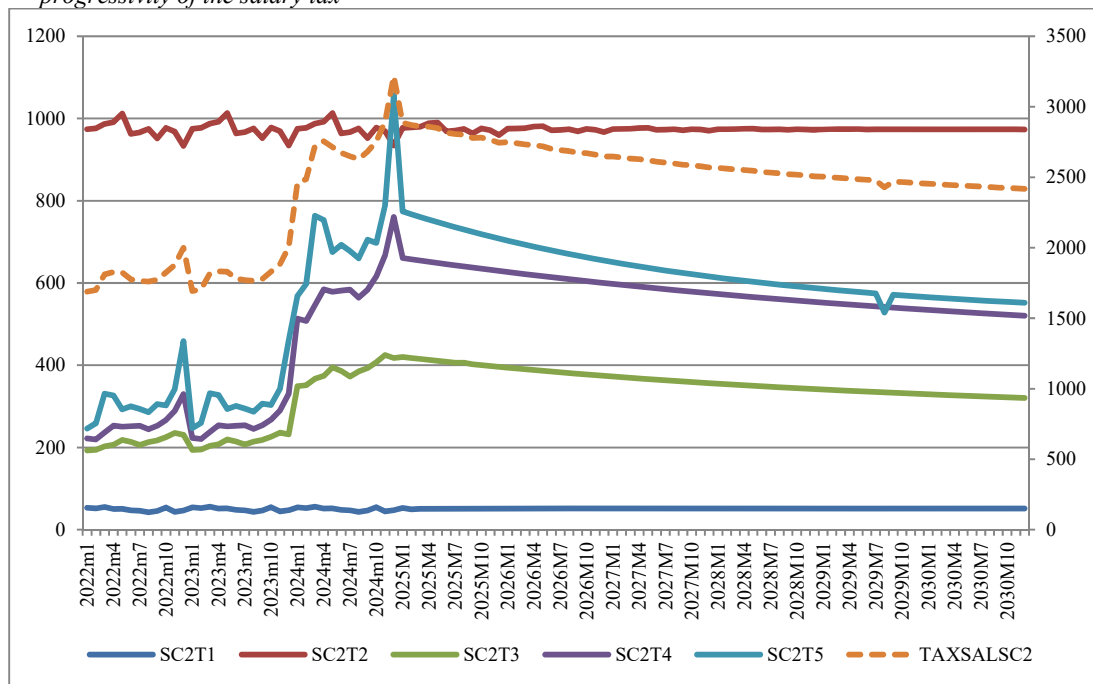
*Source:* author's calculations, initial NAFA data.

After choosing the model, in the diagnostic phase we will check if the residuals are white noise, then we will check if the roots are inside or outside the circles, for both MA and AR roots.

The roots of MA indicate whether the process is reversible and the roots of AR indicate that the process is stationary, so for both (AR and MA) they must be inside the circle (see Appendix).

If the roots AR and MA are inside the circle, we can perform the forecasting process. The synthetic forecast results are shown in the figure below (see Figure 1).

Figure no. 1. Forecast results according to scenario 2 with three rates: 10%, 18%, 23% of the progressivity of the salary tax



Source: author's calculations, initial NAFA data.

## 5. Conclusions

This article aims to develop a forecast model for the evolution of the payroll tax in Romania for the period 2025m1-2030m12. Using the ACF and PACF correlograms, we have identified a series of possible models for each salary income tranche; the placement on certain tranches is in accordance with NAFA data. Thus, three scenarios with 3 rates were developed, of which only one was chosen for the forecast, scenario 2, with the quotas of 10%, 18%, 23%, the most likely to be adopted in case the transition to fiscal progressivity is desired for salaries, even if it apparently brings the smallest benefits to the state budget. According to the Box-Jenkins methodology, for the payroll tax, the following models were selected for forecasting on the five tranches for scenario 2: ARMA(1,0,3); ARMA (12,0,7); ARMA (1, 0,0); ARMA (1,0,0); ARMA (1,0,0).

This type of forecasting model can help us understand the possible future evolutions of the salary tax, the personal income tax, including wealth and finally the way of reflection on the budget revenues and the budget deficit.

The article represents a partial capitalization of the study "Progressive taxation – theoretical and empirical analyses at the level of EU27 member countries" (coord. Ailincă, A.G.), of the 2023 annual research program of Centre for Financial and Monetary Research "Victor Slăvescu". At the same time, regarding the limits, the study presents an analysis on a limited time series, and only on a specific component: the salary tax. Thus, the study can be completed by extension, to be able to understand how it manifests itself on the budget deficit.

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7. Annex

Date: 11/06/23 Time: 00:57  
Sample: 2020M01 2024M12  
Included observations: 60

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.498	0.498	15.624	0.000	
2	0.358	0.146	23.827	0.000	
3	0.392	0.228	33.873	0.000	
4	0.232	-0.076	37.438	0.000	
5	0.126	-0.063	38.510	0.000	
6	-0.025	-0.209	38.552	0.000	
7	0.042	0.124	38.678	0.000	
8	-0.052	-0.102	38.871	0.000	
9	0.036	0.240	38.966	0.000	
10	0.015	-0.101	38.982	0.000	
11	0.059	0.177	39.242	0.000	
12	0.260	0.162	44.495	0.000	
13	0.067	-0.173	44.850	0.000	
14	0.019	-0.160	44.880	0.000	
15	0.029	-0.065	44.948	0.000	
16	-0.007	-0.031	44.952	0.000	
17	-0.090	0.006	45.655	0.000	
18	-0.116	0.068	46.847	0.000	
19	-0.106	-0.072	47.866	0.000	
20	-0.156	0.019	50.137	0.000	
21	-0.138	-0.137	51.956	0.000	
22	-0.133	0.017	53.675	0.000	
23	-0.123	-0.104	55.195	0.000	
24	-0.191	-0.223	58.945	0.000	
25	-0.075	0.244	59.540	0.000	
26	-0.030	0.117	59.638	0.000	
27	-0.042	0.106	59.833	0.000	
28	0.015	0.012	59.860	0.000	

Correlogram for the SC2T1

Date: 11/06/23 Time: 11:39  
Sample: 2020M01 2024M12  
Included observations: 60

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.171	0.171	1.8503	0.174	
2	0.051	0.022	2.0168	0.365	
3	0.187	0.180	4.2905	0.232	
4	-0.286	-0.369	9.7083	0.046	
5	-0.119	-0.001	10.672	0.058	
6	0.016	0.017	10.689	0.098	
7	-0.360	-0.284	19.771	0.006	
8	-0.266	-0.277	24.825	0.002	
9	-0.032	0.028	24.902	0.003	
10	-0.007	0.194	24.906	0.006	
11	0.057	-0.106	25.156	0.009	
12	0.396	0.288	37.305	0.000	
13	0.067	-0.085	37.665	0.000	
14	0.026	-0.002	37.721	0.001	
15	0.111	-0.218	38.748	0.001	
16	-0.063	0.135	39.085	0.001	
17	0.062	0.164	39.413	0.002	
18	-0.018	-0.156	39.443	0.002	
19	-0.172	0.053	42.140	0.002	
20	-0.047	0.130	42.343	0.002	
21	-0.109	-0.020	43.467	0.003	
22	-0.036	-0.257	43.596	0.004	
23	-0.049	-0.084	43.834	0.006	
24	-0.198	-0.268	47.888	0.003	
25	-0.025	0.096	47.953	0.004	
26	0.007	-0.061	47.958	0.005	
27	0.010	0.152	47.969	0.008	
28	0.125	-0.007	49.783	0.007	

Correlogram for the SC2T2

Date: 11/06/23 Time: 12:34  
Sample: 2020M01 2024M12  
Included observations: 60

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.925	0.925	53.997	0.000	
2	0.844	-0.083	99.733	0.000	
3	0.767	-0.015	138.15	0.000	
4	0.695	-0.012	170.24	0.000	
5	0.622	-0.049	196.41	0.000	
6	0.555	-0.005	217.61	0.000	
7	0.479	-0.101	233.74	0.000	
8	0.394	-0.116	244.86	0.000	
9	0.316	-0.005	252.15	0.000	
10	0.237	-0.073	256.34	0.000	
11	0.161	-0.047	258.31	0.000	
12	0.087	-0.050	258.90	0.000	
13	0.079	0.409	259.40	0.000	
14	0.070	-0.076	259.79	0.000	
15	0.061	0.007	260.10	0.000	
16	0.053	0.003	260.34	0.000	
17	0.045	-0.027	260.52	0.000	
18	0.038	0.007	260.64	0.000	
19	0.030	-0.115	260.72	0.000	
20	0.019	-0.104	260.76	0.000	
21	0.009	0.029	260.77	0.000	
22	-0.001	-0.063	260.77	0.000	
23	-0.011	-0.015	260.78	0.000	
24	-0.021	-0.032	260.82	0.000	
25	-0.050	0.047	261.09	0.000	
26	-0.083	-0.068	261.84	0.000	
27	-0.111	0.024	263.22	0.000	
28	-0.134	0.004	265.31	0.000	

Correlogram for the SC2T3

Date: 11/06/23 Time: 13:35  
Sample: 2020M01 2024M12  
Included observations: 60

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.890	0.890	49.986	0.000	
2	0.806	0.065	91.670	0.000	
3	0.733	0.018	126.70	0.000	
4	0.663	-0.010	155.90	0.000	
5	0.602	0.007	180.42	0.000	
6	0.532	-0.069	199.93	0.000	
7	0.460	-0.062	214.76	0.000	
8	0.387	-0.053	225.49	0.000	
9	0.305	-0.102	232.28	0.000	
10	0.229	-0.049	236.17	0.000	
11	0.159	-0.028	238.09	0.000	
12	0.074	-0.133	238.52	0.000	
13	0.059	0.261	238.79	0.000	
14	0.048	0.067	238.98	0.000	
15	0.040	0.041	239.12	0.000	
16	0.034	0.015	239.22	0.000	
17	0.030	0.033	239.29	0.000	
18	0.024	-0.042	239.34	0.000	
19	0.017	-0.047	239.37	0.000	
20	0.010	-0.043	239.38	0.000	
21	0.000	-0.091	239.38	0.000	
22	-0.009	-0.044	239.39	0.000	
23	-0.015	0.001	239.41	0.000	
24	-0.024	-0.075	239.47	0.000	
25	-0.066	-0.115	239.94	0.000	
26	-0.094	0.055	240.91	0.000	
27	-0.117	0.027	242.45	0.000	
28	-0.136	0.011	244.61	0.000	

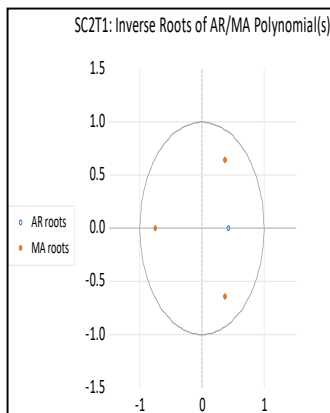
Correlogram for the SC2T4

Date: 11/06/23 Time: 10:54  
Sample: 2020M01 2024M12  
Included observations: 60

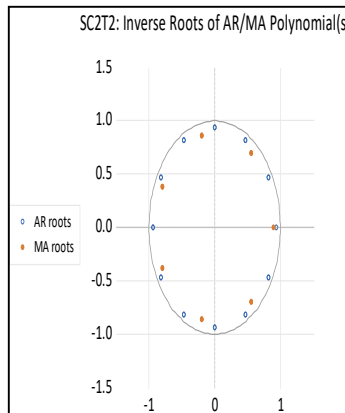
Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.836	0.836	44.037	0.000	
2	0.750	0.169	80.070	0.000	
3	0.697	0.121	111.80	0.000	
4	0.622	-0.043	137.54	0.000	
5	0.570	0.032	159.54	0.000	
6	0.520	-0.003	178.19	0.000	
7	0.461	-0.037	193.11	0.000	
8	0.424	0.029	205.98	0.000	
9	0.353	-0.115	215.08	0.000	
10	0.245	-0.208	219.54	0.000	
11	0.191	0.012	222.30	0.000	
12	0.135	-0.018	223.71	0.000	
13	0.097	0.052	224.47	0.000	
14	0.080	0.052	224.99	0.000	
15	0.073	0.084	225.43	0.000	
16	0.062	0.019	225.75	0.000	
17	0.057	0.033	226.03	0.000	
18	0.053	0.051	226.28	0.000	
19	0.046	0.001	226.47	0.000	
20	0.046	-0.021	226.67	0.000	
21	0.035	-0.059	226.79	0.000	
22	0.013	-0.114	226.80	0.000	
23	0.004	-0.044	226.80	0.000	
24	-0.004	-0.024	226.81	0.000	
25	-0.055	-0.153	227.13	0.000	
26	-0.082	-0.037	227.87	0.000	
27	-0.115	-0.047	229.36	0.000	
28	-0.137	0.041	231.54	0.000	

Correlogram for the SC2T5

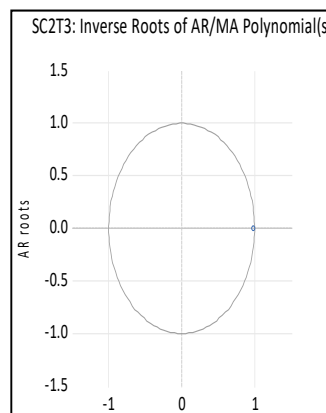




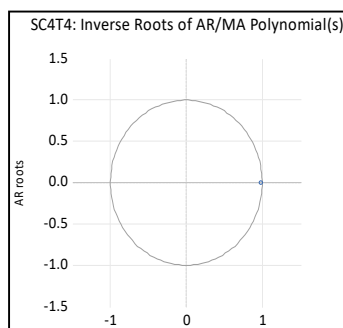
The structure of ARIMA roots according to the model chosen for SC2T1



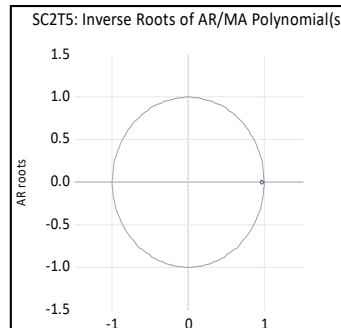
The structure of ARIMA roots according to the model chosen for SC2T2



The structure of ARIMA roots according to the model chosen for SC2T3



The structure of ARIMA roots according to the model chosen for SC2T4



The structure of ARIMA roots according to the model chosen for SC2T5

# E-Commerce Overview in the European Union

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## Abstract

*This paper investigates the landscape of the e-commerce in the European Union (EU), from several angles, bringing into discussion issues related to the concept of electronic commerce, trends and new legislative framework of this domain adopted at the EU level. At the same time, based on Eurostat data, a statistical analysis of the evolution of the e-commerce sector during the 2012-2021 interval with a focus on current period was carried out in terms of the number of companies and the turnover in this, both on aggregate levels of the EU region and of its member states in trying to achieve a deeper understanding of the trends and dynamics of this field. The paper below also drags into discussion aspects related to online sales' platforms and marketplaces as alternatives to the sales made by the firm through its own website and its own online applications. Last but not least, the prevailing business models in EU electronic commerce (business-to-business, business-to-consumer and business-to-government) are specified.*

**Key words:** e-commerce, web sales, marketplace online, e-business models, European Union

**J.E.L. classification :** L81, M20, M21

## 1. Introduction

This paper seeks to provide a comprehensive perspective on recent e-commerce market trends within the EU region, aiming for a better understanding of the relationship between online sales growth, consumer preferences, and technological development. Another paper objective is to highlight the differences in the current stage of the e-commerce development between the various EU member states, through analysing indicators such as: the number of enterprises, turnover and online sales channels. Of a special attention, in context, will benefit the EU's influential regulations and policies in this sector area – e.g. we focus on new EU-wide rules aimed at creating a safer and more open digital space (Digital Services Act package).

The *electronic commerce* – here onwards it also will be called *e-commerce* – is the sale of goods and services through the internet. The e-commerce is an important part of the e-business – a larger notion regarding digital technologies used to information and communication for the help/optimization of business. In other words, commercial transactions are carried out on the Internet, from purchasing products in online stores to making payments and delivering products or services to buyers.

Several influential factors made Europe witness a remarkable evolving of the electronic trade along the last decades: the Internet, together with its social impact, the same for the use of diverse afferent devices, the consumers' behaviour changing etc. (EGN, 2023). Actually, it is since the early 90<sup>ies</sup> that the roots of the electronic trade were emerging, i.e. together with the first ever on-line platforms made public for consumers to start acquiring goods and services in their absence from the classic stores. See the example of “Amazon”, at least one of such platforms – web-sites – starting in 1995 as a simple on-line bookstore and then becoming the greatest universal retailer world-wide.

Despite that, the e-commerce's early development was rather slow and to these the consumers' lack of confidence in the security of online transactions. Studies show that the individual user's propensity to on-line transactions sees itself influenced by at least two critical factors: the easiness



perceived by the user of the use of technology and his/her direct confidence in the online trade (Peiris, 2015). Ensuring the security and reliability of payment systems is the most important challenge in international e-commerce. One of the essential advantages of a robust payment system is its ability to process transactions quickly and securely (Basara,2023). Or, the new on-line payment systems and specific security measures taken do strengthen confidence in online transactions and enlarge the specific e-commerce’s related market area.

In context, the exceptional Covid-19 pandemic year 2020 was the one of a significant rise in the on-line sales, despite the converse evolving on tourism and services’ side all so contributing to the general growth slowing (Ecommerce Europe 2021). Then, in next 2021 the on-line sales were coming to be stabilized and “normalized” – i.e. back to the previous trend. In 2022, 68% of consumers of age groups between 16 and 74 years old in the EU area were observed to have bought more goods and/or to have ordered more services by 1.0 %, as compared to the previous 2021(EGN, 2023). An “economic turning point” was encountered by numerous advanced economies in 2023 (ibidem). But then the global consumer confidence has fallen back due to factors like inflation, geopolitical tensions and interest rates. Contrary to this, the e-commerce performed a notable resilience – i.e. just a minor dropping, then a constant recovery for the e-tourism, events and tickets.

## 2. Literature review

There is no single definition of *e-commerce*, but several ones offered by the literature (Rahayu and Day, 2016). According to Coppel (2000) the e-commerce refers to trade activities conducted on the Internet for physical goods and services traded both the traditional and on-line ways – i.e. here including non-traditional goods that are tradable only on-line, e.g. computers software and other digital materials. The author here equally emphasizes the role of the Internet in offering to firms, individuals and governments the electronic infrastructure able to create specific and unprecedented virtual markets here needed. This is the way of seeing e-commerce as “*the pillar of the firm’s competitiveness in the information era*” in the sense of new market areas offering, speeding up business flows and commercial policies ‘flexibility added (Dinu,2007), all associated to costs reduction for supply, distribution and promotion of products, as well as with all types of afferent procedures simplified.

Ansari, Mela & Neslin (2008) see the e-commerce as a „*new shopping model*” offering a different experience, as compared to the example of “*traditional brick-and-mortar stores*” -- i.e. especially regarding the shopping location which can be worldwide and used anytime, as compared to nearby store when shopping offline.

A comprehensive definition of the electronic commerce concept is to be found in Turban et al. (2015), as a *business framework* where transactions occur over electronic networks, predominantly the Internet. This consists in electronic exchange of buying and selling goods, services and information. Their study emphasizes that electronic commerce extends beyond simple transactions of buying and selling, to electronic communication, collaboration and information discovery. Joseph (2019) considers the e-commerce a *methodology of modern business* that helps businesses and customers save money, improve the quality of products and services, and make deliveries faster. Finally, according to Jain et. al. (2016), *any transaction that is completed solely through electronic measures* can be considered e-commerce belonging.

Internationally accepted definitions of *e-commerce* were set out by the OECD (2011, p.72): “*an e-commerce transaction is the sale/purchase of goods / services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders*”. A broader definition is provided more recently by Eurostat (2023): “*E-commerce can be defined generally as the sale or purchase of goods or services between businesses, households, individuals or private organizations, through electronic transactions conducted via the Internet or other computer-mediated (on-line communication) networks. The term covers the ordering of goods and services which are sent over computer networks, but the payment and the ultimate delivery of the goods or service may be conducted either on- or off-line*”. A new and brief definition is provided by Statista (2024): “*E-Commerce refers to the sale of physical goods via a digital channel to a private end consumer (B2C)*”. E-Commerce is not just technology itself, but *doing business using*

*the technology* (Shaji & Jose, 2015). E-commerce is also named an "*alternative marketplace*" for buying and selling distinctly from traditional offline shopping centers (Haryanti and Subriadi, 2020, p87). But as compared to traditional offline retailers' story, the e-commerce still encounters challenges like customers that cannot physically touch and try products, potentially leading to selections of items they may not desire (Nisar & Prabhakar, 2017).

E-commerce *has generated another revolution*, changing the way businesses buy and sell products and services (Waghmare, 2012). *E-commerce* includes all types of business activities, such as retail shopping, banking, investing and rentals (Niranjanamurthy et al., 2013). Pauwels et al. (2011) see the e-commerce as *a new strategy* in the help of the firms' competitiveness – these authors do insist on an essential question expecting its answer: *could the firms really increase their revenues basing on on-line sales and especially through on-line encouraging acquisitions from physical shops?* – i.e. the concept of *web-to-store shopping*.

Last, but not least, *e-commerce* – could be seen from at least two perspectives (i) the buyer, who orders for goods and services, and (ii) the firm, that makes them through the electronic system here in debate. Our below paper will examine these on-line sales in the EU member countries through the firm perspective, by recent Eurostat (2021, 2022) statistics.

### 3. Research methodology

This paper utilizes data, and statistics related to e-business and e-commerce topics based on the 2021 Eurostat survey on "*ICT usage and e-commerce in enterprises*" (Eurostat, 2023). Eurostat surveyed 148,000 out of 1.5 million enterprises in the EU through National Statistical Authorities. The sample studied by this survey contains about 83% small size enterprises (10-49 employees and self-employed persons), 14% medium size enterprises (50-249 employees and corresponding self-employed persons), and 3% large enterprises (250 or more employees and self-employed persons). The survey extends to enterprises with minimum 10 employed people and self-employed persons from the total of activities, except for the financial sector.

Based on these data, our methodology consists in a brief statistical analysis of the data regarding the e-commerce trend in the 2012-2021 interval at the EU aggregate level, followed by a more detailed analysis of the latest Eurostat data considered to be relevant regarding the current state of this sector. Thus, for the year 2021 the methodology assumed the analysis of the following indicators: number of EU businesses that carry out e-sales according to their size (micro, small, medium and large enterprises); number of enterprises and their turnover generated from e-commerce activity, as depending on the online sales channels used (sales through their own websites/applications or through marketplaces), at the level of the EU member states for which data were available; and propensity of businesses in the EU and member states to move towards a certain e-business model (B2C, B2B or B2G), depending on market requirements.

Basic concepts, definitions, types of e-commerce business models, names of platforms or marketplaces acting online, and legislation in digital sector were extracted from literature and recent EU legislation. This information provided from the paper help to a comprehensive understanding of e-commerce sector evolution in the EU at aggregate level but also in member countries.

### 4. Findings

#### 4.1. The EU businesses participation in e-commerce

Selling goods and services over the Internet has allowed businesses to gain a significant number of customers – i.e. on-line ones – so enriching the old traditional channels system (Eurostat, 2018). This was while businesses making the on-line trade were using their on-line websites and/or applications on existing platforms – i.e. marketplace.

In context, the European Commission suggests a definition for the on-line platform: *a firm acting in two- or multi-sided markets by using the Internet in making corresponding interactions between two or more distinct groups able to build-up value for at least one of these* – i.e. the online platforms are known as "double-sided" or "multi-sided" markets which's users are brought together

by a platform operator this-way responsible and skilled (Competition Council 2018, p. 16). The web-sales – i.e. that are supposed to be made on-line – see the sales of goods and services made through the own website or through a corresponding application. It is concomitantly supposed that the enterprise keeps under control both the sales process and consumers’ experience. But another aspect is that the same web-sales are assumed for a larger market, in which sellers and buyers do get in contact between, despite a potential loss in such a control this way on the marketplace-platform side.

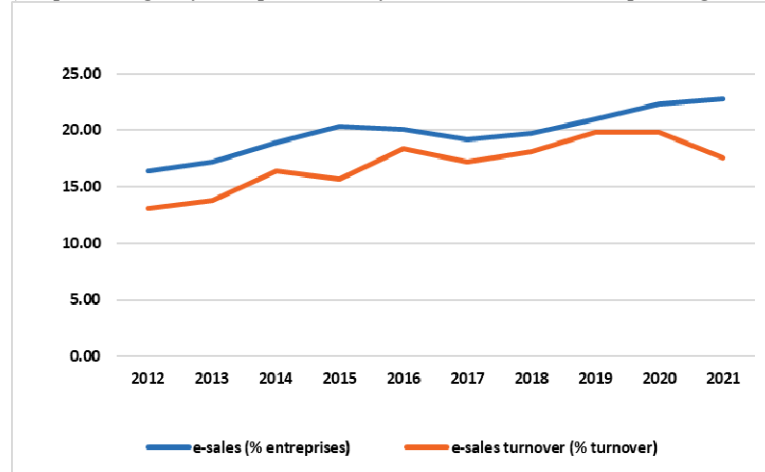
Marketplace examples that can be here offered might be the Amazon’s eBay and/or Etsy trade centres that offer various marks of products (Armetrics, 2022). Amazon is one of the largest and most popular on-line markets world-wide, so for a vast range of goods-products, including electronics, wearing and books. The eBay – i.e. global degree 110 -- can’t naturally be as large as the Amazon – i.e. global degree 12 – (Supdrop, 2024), but its obvious difference against competitors consists in flexibility allowed to platform sellers to list items with fixed prices or auction them. The other Etsy example is the case of an on-line marketplace for artisans, crafters, and vintage sellers where buyers can find unique, handmade, and personalized products such as jewellery, art, home decor, etc.

As for the EU, enterprises use besides web-sales through own website or applications, traditional selling channels and physical shops, events and fairs participation and not less alternative digital channels like social media or platforms for advertising. The example of social media – e.g. Facebook, Instagram, LinkedIn – is the substantial one for those following a specific company or brand, so here adding some individual and so human completion to enterprises.

#### 4.2. Online sales trends in the EU

Between 2012 and 2021, the weight of EU enterprises engaged in online sales in the total of enterprises saw a modest increase of 6.4 percentage points and the corresponding turnover from these online sales rose by 4.5 percentage points, according to Eurostat (2023). Their turnover experienced a decline of 2.2 percentage points in 2021, as compared to the figures recorded in the previous 2020 (fig. 1). In 2021 only 22.8% of total enterprises with 10 or more employees and/ or corresponding legal entities in the EU region have made electronic sales – i.e. e-sales. 44.1% of the large enterprises were among these, followed by 30% of the middle-size enterprises. As for the small ones – i.e. those of 10-49 employees – only 20.8% of them made e-sales, which, of course, comes below the whole average as such, to be seen in fig. 1.

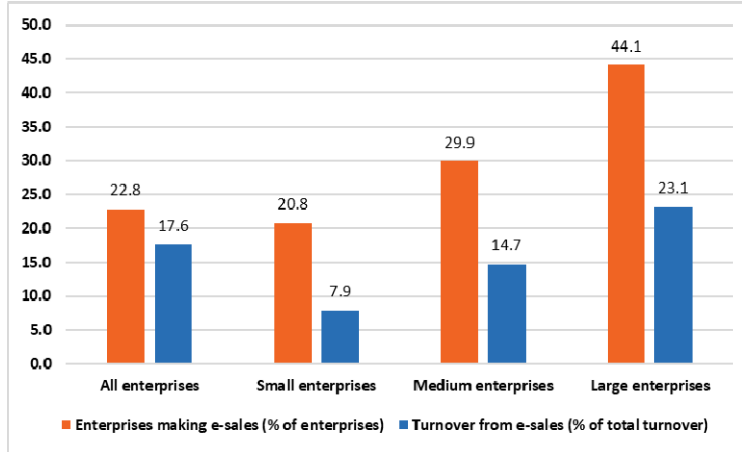
Figure no. 1. Businesses and turnover of the e-commerce in the EU region during the 2012-2021 interval (i.e. percentages of enterprises and of total turnover in corresponding totals)



Source: Calculations based on Eurostat (2023) data

As for the e-sales’ *turnover* in the EU, the same 2021 year, it made 17.6% of the total turnover of all enterprises with 10 or more employees. 23% of the largest size enterprises was here included in the same year. The middle-size businesses have got the same e-sales done at as high as 14.7% of their specific turnover, to which the small size ones add 7.9% of their turnover (fig. 2).

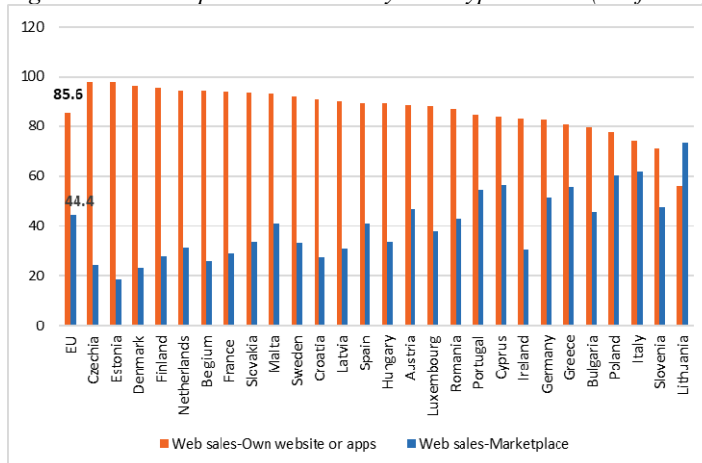
Figure no. 2. The EU e-commerce enterprises' turnover and e-sales by size class in 2021



Source: Calculations based on Eurostat (2023) data

The number of enterprises using their own websites and/or applications was nearly double, as compared to marketplaces for conducting web sales, according to Eurostat. The number of the EU region enterprises making web-sales through their own website or their own apps was representing 85% from total enterprises with web sales. Only 44% of enterprises with web sales made their sales through e-commerce marketplaces in 2021. And those percents are not totalizing 100 %, due to that some enterprises used both sales channels: own sites /apps or marketplaces channels. 17 EU member countries recorded more than the whole region's average sales through own websites, here mentioning the countries with highest selling through their own websites or own apps: Czech Republic (97.5 %), Estonia (97.4 %), Denmark (96.2 %) and Finland (95.1 %). In this order, the lowest share of sales through own websites or own apps was registered in Lithuania (56.0 %), where enterprises preferred more to sell via online marketplaces (73.4 % /fig. 3).

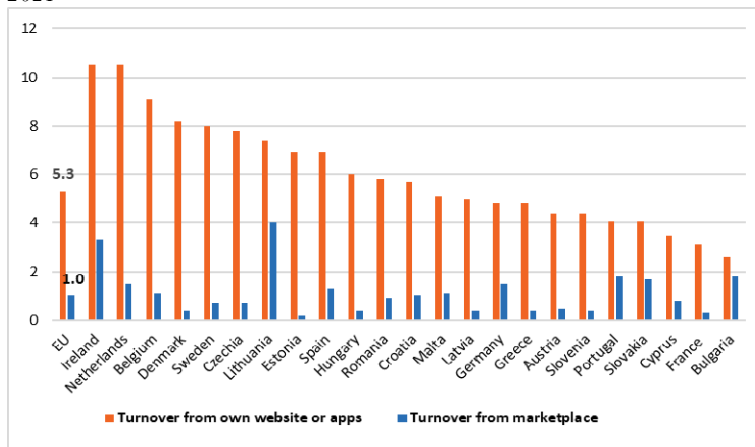
Figure no. 3. Enterprises' web sales by sales type in 2021 (% of enterprises)



Source: Calculations based on Eurostat (2023) data

The average EU enterprises turnover obtained from web-sales through own websites or own apps was 5.3% of total turnover and turnover from on-line marketplace sales just 1% of the same total turnover in 2021 -- i.e. 6.3 % of total turnover done through the on-line procedures. 13 EU member countries recorded more than the EU region average turnover obtained from sales through own websites/apps. We mention here the countries with highest turnover from own websites/apps sales: Ireland (10.5 %), Netherlands (10.5 %), Belgium (9.1 %) and Denmark (8.2 %). The lowest turnover obtained from own website/apps sales was registered in Bulgaria (2.6%), followed by France (3.1%). As for turnover obtained from online sales through marketplaces, 10 countries were above the EU average (1%). The highest such turnover was registered in Lithuania, 4% from its total turnover obtained from marketplace sales and the lowest in Estonia with just 0.2% of turnover obtained from marketplace (fig.4).

Figure no. 4. Turnover from online sales segmented by own websites/apps and marketplace platforms, 2021



Source : Calculations based on Eurostat (2023) data ; (Eurostat data not available for : Poland, Italy, Luxembourg and Finland)

More revenue was generated from e-sales to other businesses (B2B) and public authorities (B2G) than to final consumers (B2C). Business-to-consumer (B2C) transactions refer to sales conducted between a company and individual consumers, constituting one of the most popular and widely known sales models. The concept of B2C was pioneered by Michael Aldrich in 1979, with television serving as the primary channel to engage with consumers (Kenton, 2024). Business-to-business refers to business that is conducted between companies, rather than between a company and individual consumer; and a Business-to-government B2G is a business e-commerce model that markets and sells products to government organizations or public administrations (Kenton, 2024).

Table no. 1 Main e-commerce business types

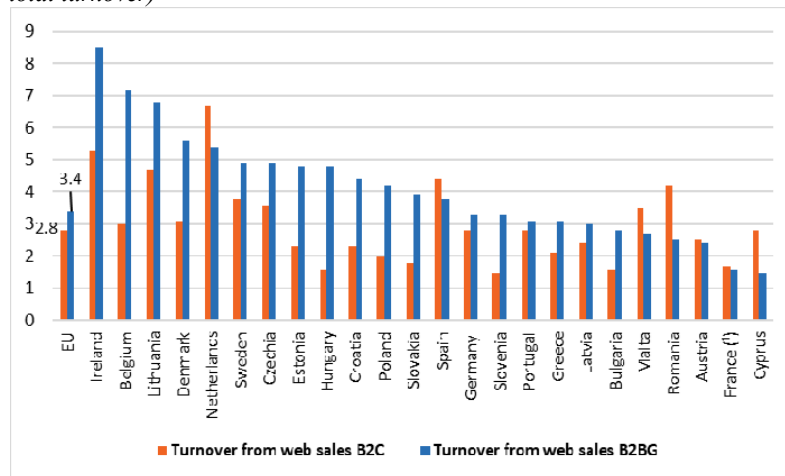
B2C e-commerce model	B2B e-commerce model	Business-to-Government (B2G) e-commerce model
Direct transactions with end-users with no intermediate person.	Selling products or services to other businesses	Sale and marketing of goods and services to state, or local institutions
Short sale cycles	Longer sale cycles and more complex	Long sale cycles. Government entities typically require more time than private companies to approve and initiate projects (Investopedia, 021)
High transaction volume	Higher transaction values	High transaction values
Low average transaction value	More recurring purchases (that repeat automatically on a set schedule)	Strict compliance requirements

Source: Kenton, 2021.

Other e-commerce models include various types of business relationships, such as consumer to consumer (C2C), where transactions occur directly between consumers through online platforms (where individuals can buy and sell goods to each other), consumer to business (C2B), involving individual sellers offering services to larger businesses (such as freelancers providing services to corporations), government to business (G2B), facilitating government sales to private enterprises (like government contracts awarded to private companies) and government to citizen (G2C), enabling government transactions directly with individuals (access to public health services and medical insurance, social assistance, education, legal assistance and access to the justice system, financial assistance programs and access to public infrastructure).

As already mentioned above (fig.4), the average EU enterprises' turnover obtained from web-sales was 6.3 % during 2021 (online sales through own website 5.3% plus online sales through marketplace 1%). This total can be divided according to newest Eurostat data, function or type of customer: 3.4 % of total turnover came from web sales via a website/apps to other businesses and government (B2B, B2G), while 2.8 % of total turnover came from business to consumer web sales (B2C /fig. 5).

Figure no. 5. Turnover from web-sales, broken down by types of customers B2B, B2G and B2C, 2021 (% total turnover)



Source: Calculations based on Eurostat (2023) data

Netherlands, Spain, Romania, Malta, Cyprus, Austria, and France revealed that a significant portion of their web sales turnovers in 2021 originated from transactions with final consumers (B2C). As for B2B and B2G online sales turnover, Ireland was first in 2021 with 8.5% from its online total turnover, followed by Belgium (7.2%) and Lithuania (6.8%). For Hungary, B2B and B2G online sales are 3 times higher than B2C sales. B2B and B2G online sales are 2 times higher than B2C sales in Belgium, Slovenia, Slovakia, Poland and Estonia (Eurostat, 2023). Detailed information could be seen in table 2.

Table no. 2. Total turnover from web sales, divided by places of sale or by types of customers, 2021(%)

Country	Turnover from own website or apps (%)	Turnover from marketplace (%)	Total turnover from web sales (%) *	Turnover from web sales B2C (%)	Turnover from web sales B2B, B2G (%)	Total turnover from web sales by main e-commerce business types (%) *
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7
EU	5.3	1.0	6.3	2.8	3.4	6.2
Ireland	10.5	3.3	13.8	5.3	8.5	13.8
Netherlands	10.5	1.5	12	6.7	5.4	12.1
Belgium	9.1	1.1	10.2	3.0	7.2	10.2

Denmark	8.2	0.4	8.6	3.1	5.6	8.7
Sweden	8.0	0.7	8.7	3.8	4.9	8.7
Czechia	7.8	0.7	8.5	3.6	4.9	8.5
Lithuania	7.4	4.0	11.4	4.7	6.8	11.5
Estonia	6.9	0.2	7.1	2.3	4.8	7.1
Spain	6.9	1.3	8.2	4.4	3.8	8.2
Hungary	6.0	0.4	6.4	1.6	4.8	6.4
Romania	5.8	0.9	6.7	4.2	2.5	6.7
Croatia	5.7	1.0	6.7	2.3	4.4	6.7
Malta	5.1	1.1	6.2	3.5	2.7	6.2
Latvia	5.0	0.4	5.4	2.4	3.0	5.4
Germany	4.8	1.5	6.3	2.8	3.3	6.1
Greece	4.8	0.4	5.2	2.1	3.1	5.2
Austria	4.4	0.5	4.9	2.5	2.4	4.9
Slovenia	4.4	0.4	4.8	1.5	3.3	4.8
Portugal	4.1	1.8	5.9	2.8	3.1	5.9
Slovakia	4.1	1.7	5.8	1.8	3.9	5.7
Cyprus	3.5	0.8	4.3	2.8	1.5	4.3
France	3.1	0.3	3.4	1.7	1.6	3.3
Bulgaria	2.6	1.8	4.4	1.6	2.8	4.4

Source: Eurostat, 2023

\*There are slight differences between totals (col 4 and col 7) caused by mixed channels types used by the same enterprises

### 4.3. New regulations applicable in the field of electronic commerce (Competition Council, 2018).

Directive 2000/31/EC was the EU's initial legal framework for electronic commerce, regulating elements such as transparency requirements in the responsibility of on-line services' suppliers and of commercial type communications, on the one hand, and on the other on the responsibility limits for intermediary services suppliers (Competition Council, 2018).

Then, in 2022 the European Commission (EC) adopted two ruling projects for the digital services, the so-called *Digital Services Act (DSA)* and the *Digital Markets Act (DMA)*. They form the *Digital Services Act* package of new rules applicable across the whole EU to create a safer and more open digital space (EC, 2022). The DSA and DMA have two main goals: a safer digital space able to protect basic users' rights and fair competition conditions for businesses (EC, 2022).

*Digital Services Act (DSA)* under the *Regulation (EU) 2022/2065* actually came to review and update the terms of the previous Directive 2000/31/EC. Being published in the EU Official Journal on 27 October 2022, it came into force on 16 November 2022 and got applicable across the EU since 1 January 2024 – this current year, after just 15 months from enacting. The DSA's provisions regard especially the intermediaries and the on-line platforms – e.g. online markets, social networks, content sharing platforms and on-line travel plus accommodation platforms and application shops (EC, 2022).

*Digital Markets Act (DMA)* was published and came into force on 1 November 2022. It focuses on digital markets and competition/non-competition practices proper to *large online platforms* -- actually on the power of some digital companies against the fair competition and, on the contrary, on opportunities of small and medium size enterprises on the same digital market(s). Finally, DMA offers some behavioural rules to the so-called „gatekeepers” of digital markets.

## 5. Conclusions

The text above focuses on the evolutions and trends of e-commerce in the 2012-2021 interval for individual businesses in the EU area, along with their specific turnover, with a particular emphasis on the current state of this sector.

Between 2012 and 2021 the percentage of EU enterprises selling online just slightly increased by 6.4 percentage points from 16.4% of all companies in the EU area with 10 or more employees in 2012 to 22.8% in 2021(excluding financial sector). The turnover of the same companies achieved from online sales increased by 4.5 percentage points from 13.1% of all companies in the EU with 10 or more employees in 2012 to 17.6% in 2021 (fig.1).

In 2021, the large companies (250 employees or more) contributed by 44.1% of their number to the total number of enterprises doing e-commerce, the middle-size ones by 30% of their number and the small size ones by just 20.8% (of them). About the total turnover of the EU companies with 10 employees or more, in the same year, the large companies contributed with 23% of their turnover, the middle-size companies with 14.7% of their turnover and the small size companies with only 7.9% of their turnover.

For the e-commerce run in the (same) EU region during the above given year it was mostly by (on) web-sites or applications – i.e. 85% of businesses doing it – while 44% of all companies preferred the on-line platforms and marketplaces. The companies’ own web-site or applications concomitantly made 5.3% of the total turnover of companies working within the EU area and the on-line platforms and markets just 1%, as correspondingly, in 2021.

To the e-commerce development, legislative *regulations* prove crucially important and here, besides the ones directly regarding this domain. The business models – e.g. business-to-business, business-to-consumer, business-to-government – and their analysis here prove of equal importance with the one of regulations – i.e. by concluding on the diversity and adaptability of the on-line business environment and by here providing various opportunities to entities and actors of this business area.

Future directions of research and development on the e-commerce within the EU region might try on some econometrics of factors presumed for the e-commerce development in the EU member countries.

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# The Recoil of Globalization and the Rising Aspects of Slowbalization, De-Globalization, Re-Globalization and Sustainability for Business and Companies

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## Abstract

*This paper analyzes and presents the recoil of globalization and the rising aspects of slowbalization, de-globalization and re-globalization for business and companies. The analysis and results demonstrated that as globalization united economies and societies, it has led them as well to various challenges where some of them started to de-globalize by moving their business and companies home to avoid the negative impact of globalization and to secure their business values. The rising challenges in the global economy and society have made globalization recoil and move towards the process of slowbalization or de-globalization. The ups and downs in the global GDP, inequality between nations and economies in business values and benefits, the rise of geopolitical conflicts, the expensive technologies and its dominance by developed countries, the slowdown in foreign direct investments (FDIs) are some of the main factors of the slowdown of the process of globalization. In conclusion, there should be an extension and embrace of trade and international business rather than rejecting it to overcome the most pressing challenges of globalization. The reality of re-globalization or even sustainable globalization might be visible when all the sustainable development goals (SDGs) will be fulfilled.*

**Key words:** globalization, companies, slowbalization, de-globalization, re-globalization, recoil, business internationalization

**J.E.L. classification:** F10, F11, F15, F20, F23, F60, L11

## 1. Introduction

Globalization has gone through decades and phases since its appearance and rise, it has gone through various challenges that it came up with, among those challenges there was the global pandemic that led to losses and disturbed the flow of business globally because it slammed international borders between economies. As globalization united the economies and societies, it has led them as well to various challenges where some of them started to globalize like advanced economies and other ones have been under the negative impact of globalization for years.

De-globalization is the reverse process of globalization, it is a setback in interdependence between economies, and the pandemic has generated a major disruption in the globalized economy. However, globalization did not begin with the pandemic but has begun at three important moments that arose since approximately 2008.

The breakout of geopolitical turmoil and geopolitical conflicts have led companies to DE globalize by moving back their business and subsidiaries back home or to start seeking ways to survive within the internationalization processes of their business and operations. Globalization has witnessed a recoil and by moving towards the process of de-globalization that refers more to the slowdown in global integration that began after the global financial crisis of 2007-2008.

Companies and business holders to pay attention to their waste and use of the environment and the available resources, as they raise (Benabed and Boeru, 2023).

The process of sustainability has been so far a better solution for business perspectives. Selling or buying low cost to protect the profit and the base of the company is not avoidable since companies and business holders have to concern and center on their consequences to the environment. This paper is a continuous research to another prior research by the same author and it aims to analyze the recoil of globalization and the rising aspects of slowbalization, de-globalization, sustainability and re-globalization for business and companies.

## **2. Literature review**

### **2.1. Globalization, Slowbalization, de-globalization, and sustainability for business and companies**

The Oxford reference (2024) globalization is the increasing worldwide integration of economic, cultural, political and social systems (Oxford reference, 2024). Economic globalization is the process by which the whole world becomes a single market (Oxford reference, 2024). The process of globalization has given different organizations the opportunity enter foreign markets from any point of the world following the principles of business and commercial exchange for expansion (Benabed and Moncea, 2024). Kandil (et al., 2020) states that Slowbalization was used for the first time in 2015 (Kandil *et al.*, 2020) and was coined by the Dutch trend-watcher Adjiedj Bakas. (Kandil et al., 2020). The Slowbalization trend means slowing down the conventional Globalization of the flows of goods, services and foreign direct investments (Puaschunder, 2019). Other authors believe that Slowbalization is the slowdown in global integration that began after the global financial crisis of 2007-2008. The slowdown of globalization is one of the most complex aspects that SMEs have to face in order to reap the benefits of globalization and be able to be competitive is the definition of an adequate business model (Benabed *et al.*, 2022).

De-globalization is the process of weakening interdependence among economies (Witt, 2019). De-globalization mostly appears in the slowdown of the two metrics that trade and FDI (Witt, 2019). While in real economy both are different as valid measures of interdependence according to the temporal reference point (Witt, 2022). Rodrik states that if we push globalization further, we have to give up either the nation state or democratic politics. And if we need to maintain and deepen democracy, we have to choose between the nation state and international economic integration (Lester, 2011). Dani Rodrik (2011) states that global governance supports only a limited version of economic globalization even if global governance is well mustered. Hyper-globalization that is the state of the world is incompatible with democracy. The balance between economic integration and national sovereignty is essential to maintain both prosperity and democracy (Rodrik, 2011). Hyper-globalization can only survive if there is no democracy and Hyper-globalization together with democracy need some sort of global governance that would provide all those things of prosperity (Rodrik, 2011).

According to the UN (2020) and European commission (2020) in order to respond to the climate change, nations and economies have individually, regionally, and globally decided to get involved in fulfilling the United Nations (UN) Sustainable Development Goals (SDGs) (UN, 2020) and the circular economy (European Commission, 2020).

## **3. Research methodology**

In the research method there was a focus first on a related literature review by focusing first on the body of knowledge then on identifying the key concepts mentioned in the literature that apply in this area of research and then by identifying the links between those concepts.

Then the research method focus more on a descriptive analysis by illustrating some results in the framework of figure no.1 that mentions the appearance of Globalization among the five industrial revolutions (IRs) and interpreting the illustrated collected data of figure no. 2 that mentions the global gross domestic product (GDP) at current prices from 1985 to 2024 (in billion U.S. dollars), figure no. 3 that illustrates the fluctuation and availability of FDI outflows in 2021 and 2022 by region in billion US dollars, figure no.4 that illustrates the Sustainable business matrix for business values and competitive advantage by suggesting the Hart and Milstein (2003) sustainable framework in

business, figure no.5 that illustrates incorporating sustainability in business and the dimensions of globalization for a sustainable globalization. The collected data were analyzed and interpreted according to their relevance to this full paper and research (Benabed, 2024a), the set research questions helped move well with related literature, the created frameworks of figures no 1, 4 and 5 helped illustrated and analyzed some of the main results of this full paper.

The set research questions are

RQ1: Is globalization living a process of recoil? And what their reasons of the recoil?

RQ2: Is globalization moving to the processes of Slowbalization, De-globalization and Re-globalization? And why?

RQ3: Is there a possibility for re-globalization or sustainable globalization?

The full paper aims to analyze the recoil of globalization and the rising aspects of slowbalization, de-globalization and re-globalization for business and companies.

## **4. Analysis and results**

### **4.1. The evolution of globalization and the change in business, economy and trade**

Globalization is a set of transformations that have made the world of trade and the increase in international investments possible. In economic globalization, national economies are integrated into the framework of the global economy. It is about a world economy with the objective that everyone benefits. Globalization has taken advantage of the development of various sectors, financial markets and the media so that its evolution depends increasingly on international markets and less on government economic policies.

Globalization originates with the end and fall of the Berlin Wall, the end of the Cold War and the collapse of the Soviet Union. Globalization arose with the migratory processes after the era of discovery, conquest and colonization of the new world together with the fourth industrial revolution and communication system at the end of the 19th century. Globalization is characterized by the appearance of the Internet in its process with the possibility of connecting to a world of possibilities. Economic integration can be seen as a group of countries that sign treaties or agreements to carry out joint predominantly economic policies which serve to carry out their commercial businesses more effectively.

All countries that participate in foreign trade have taxes called tariffs and these are charged for the entry of goods from foreign markets, which make products more expensive for buyers. Taxes are measures that restrict the free commercial process of companies and business. To avoid the tariff process, trade agreements or treaties are created such as the Free Trade Agreement (FTA) between two countries or more for benefits, a treaty for two or more countries to send their trade or services without having to pay the foreign trade taxes or tariffs that would normally be charged to other countries that do not have these types of treaties. The European Union is a clear example of economic integration in which its member countries are dedicated to promoting economic and political union among themselves.

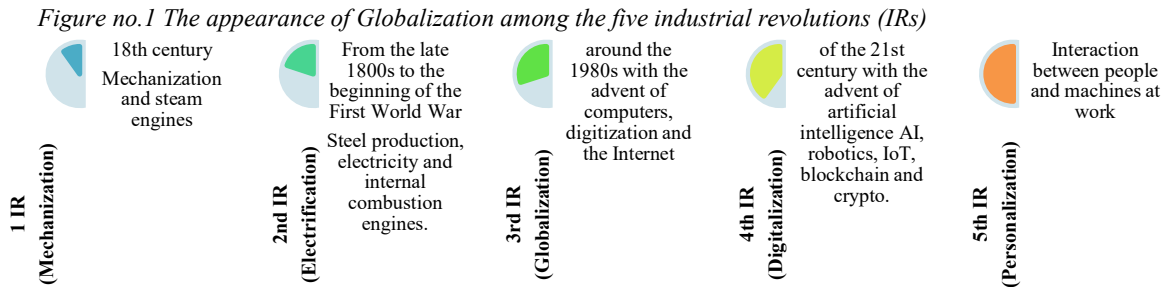
Globalization allows communication between economies as well as their development, but there is economic inequality between developed and underdeveloped countries.

### **4.2. Globalization and the influence of the industrial revolutions (IRs)**

As the world went through different industrial revolutions that introduced different aspects and concepts, it introduced Globalization that appeared in the third industrial revolution (See figure no.1).

The era of mechalisation that came up with steam and engines was the first industrial revolution(1st IR) and it started in 18th century. It was followed by the 2nd industrial revolution (2nd IR) that was called the era of elictrification from the late 1800s to the begining of the first world war and it introduced electricity, steel production and internal combustion engines. (See figure no.1). The third industrial revolution (3rd IR) that started around the 1980 that is the era of globalization whitnessed the appearnce of computers, internet and digitalization, it has introduced globalization to the world until the begining of the 21st century. Globalization got developed during the fourth

industrial revolution (4th IR) that is called the era of digitalization that introduced artificial intelligence (AI), robotics, IoT, blockchain and crypto. Digitalization is considered according to this research one of the main instruments of globalization. The fifth industrial revolution (5th IR) that is called personalization is still introducing more direct interaction between people and artificial intelligence as part of the new phase of globalization. (See figure no.1).

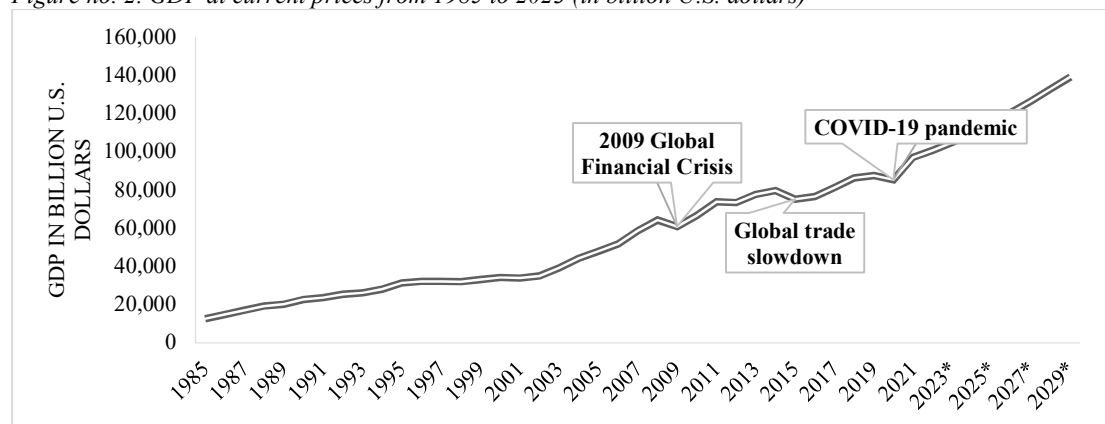


Source: Author’s design and research, 2023

### 4.3. The global GDP and the impact of global crisis

The illustrated data in figure no.3 shows global gross domestic product (GDP) from 1985 to 2022. After the global financial crisis of 2008 and 2009 the Global GDP declined in 2009 and reached 60.811 billion U.S. dollars. In 2020, due to the widespread of Covid19 pandemic, the global GDP reached 85.26 billion U.S. dollars. So, compared to 2019, it was two and a half trillion lower. (See figure no.2). In 2015 due to the global trade slowdown, the global GDP worldwide declined and reached approximately 75.128 billion U.S. dollars according to the available data. GDP is an acronym for gross domestic product, it is an economic indicator that reflects the value of all the goods and services produced in a place during a period of time. GDP is so important because it measures the size of an economy; when GDP grows, more jobs are usually created, workers' salaries increase and businesses prosper. In fact, GDP is considered one of the best indicators to measure the quality of life of individuals. (See figure no.2).

*Figure no. 2. GDP at current prices from 1985 to 2023 (in billion U.S. dollars)*



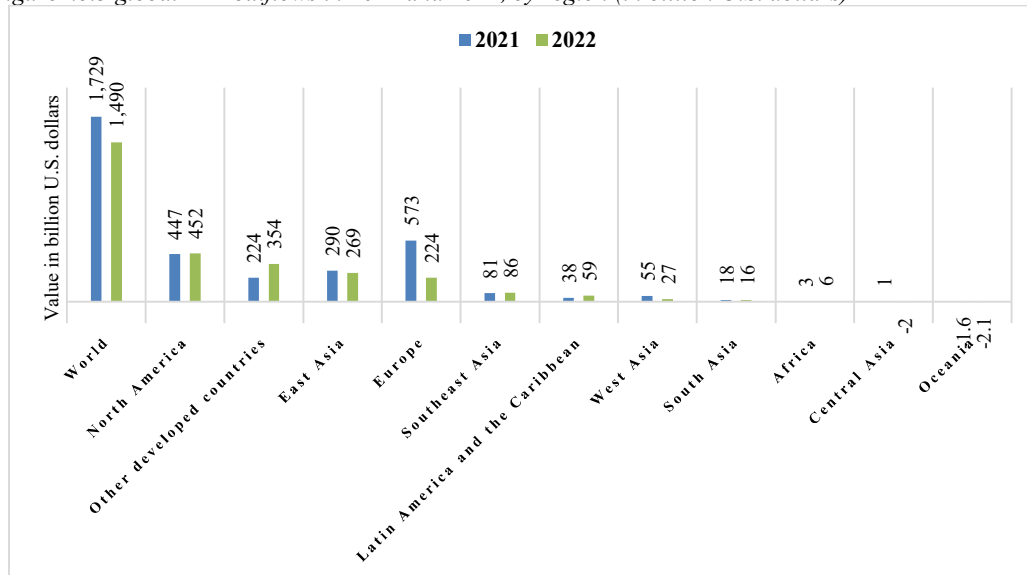
Source: Author’s contribution 2024, IMF data), statista data, 2024 (Q1)

When GDP increases, it means that there is economic growth, but if it decreases, it reflects economic decline. Global GDP must be considered as one of the main indicators of globalization. The declines and decrease in its value in 2009, 2015 and 2020 and 2022 confirms the slowdown of globalization especially after the global 2008 financial crisis, the 2015 global trade slowdown, the 2020 the global Covid-19 pandemic and the breakout of the 2022 Russian-Ukrainian conflict, the process of globalization and its dimensions have witnessed a slowdown that has embodied in the global economy so far. (See figure no.2).

#### 4.4. The fluctuation and availability of FDI outflows in 2021 and 2022 by region in billion US dollars

Figure no.3 illustrates the fluctuation and availability of FDI outflows in 2021 and 2022 by region in billion US dollars, in both years we observe that the whole amount of FDIs outflows worldwide reached 1729 billion US dollars in 2021 but it decreased in 2022 to 1490 billion US dollars after the outbreak of the Russian-Ukrainian conflict that hit the global economy (See figure no.3).

Figure no.3 global FDI outflows in 2021 and 2022, by region (in billion U.S. dollars)



Source: Author’s contribution, UNCTAD data, Statista data, 2022

Europe dominated the majority of FDI outflows in 2021 with higher amounts compared to its competitors North America and east Asia but in 2022 North America took the lead with the amount of 452 billion US dollars compared to Europe that witnessed a decline after the outbreak of the Russian-Ukrainian conflict (See figure no.3) and that means that globalization transmits and affected all regions in case of geopolitical conflict. The FDI outflows have been very low and weak from the period 2021-2022 in all Southeast Asia, Africa, North Africa and Middle East and west Asia due to their weak infrastructures and political systems. (See figure no.3). From figure no.3 and the available data we observe that globalization has come with inequality between developed and developing countries since FDIs outflows that are indicators of globalization are weak in poor countries but strong in rich developed countries. Geopolitical conflicts and distrust appear to be major risks for globalization and FDIs in the period 2021 and 2022. (See figure no.3).

#### 4.5. The impacting rise of De-globalization process on business and economies

De-globalization is about the process towards a less connected world characterized by powerful economies, more border controls and less treaties and free movement. De-globalization is characterized by all the recent events that have been happening so far such as the global Covid-19 pandemic, the Russian Ukrainian conflicts, the global restrictions against the movement of migration, climate change disorder in agreements between nations, Brexit, the rise of BRICS to BRICS+, the China rise and economic decoupling, the decline in foreign direct investments in the recent decades and more. All these events demonstrates the world is entering a period of de-globalization.

Leaving the European Union is still an idea supported and suggested by many political parties in the EU, the world’s organization such as World Health Organization (WHO), the World Trade Organization (WTO), The United Nations (UN), the Organization of Petroleum Exporting Countries (OPEC) and others are considered and are being seen by many nations as weak organization because

they do not treat well the problems of the global economy and the inequality between developing and developing countries.

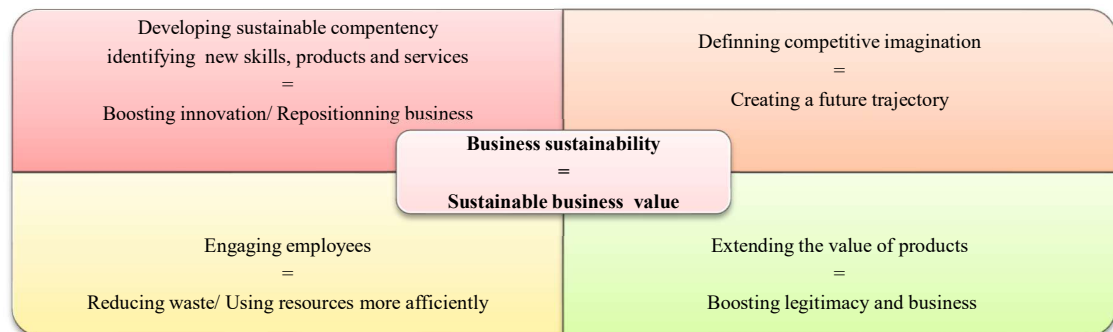
During the global pandemic and the widespread of Covid-19 many nations shut down and closed the borders, the global economy entered a recession and globalization was accused as the main cause of spreading the pandemic between economies, especially between those that have free movement of individuals and business. During the pandemic the World Health Organization (WHO) struggled to drive an effective response to the Covid-19 pandemic where all the dimensions of globalization where disturbed and in the main part due to the disagreement of governments because of the low level of health organization and lack of good health care opportunities between and in many nations.

One of the main evidence of de-globalization is perhaps the global political differences and rise of political conflicts of interests, the return to geopolitical wars and the rise of genocide crimes and aspects in some nations and between nations so the aspect of unity and globalizing cultures, economies and societies has been weak and in a decline for years so far.

#### 4.6. The sustainable business matrix for business values and competitive advantage

By applying the sustainable framework of Hart and Milstein (2003) in business to reach sustainable business we observe the following details in the matrix illustrated in figure no.4. As we see in the upper left quadrant, companies and business holders may define sustainable competency by identifying new skills, products and services to boost innovation and reposition business. (Figure no.4) In the lower left quadrant by engaging employees companies may reduce waste and use resources more in an efficient way. In the upper right quadrant of the matrix the company or business has to define competitive imagination to create a future trajectory in business. In the lower right quadrant by extending the value of products, the business and companies may boost legitimacy and business. (See figure no.4). If the company or business applies all the four quadrants for sustainable business, it may reach sustainable business values ( See figure no 4).

Figure no.4 Sustainable business matrix for business values and competitive advantage



Source: Author’s research and contribution by applying the Hart and Milstein sustainable value framework (2003) on business, 2023

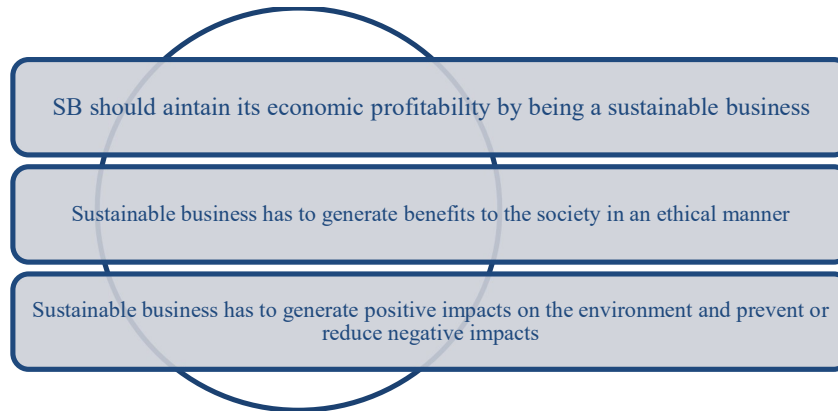
#### 4.7. The main importance of sustainable business for companies and global economy

The classic business is based on the traditional economy but sustainable business mainly has to meet the three characteristics. (See figure no.5)

- a) Generate positive impacts on the environment and prevent or reduce negative impacts, for this, it is necessary to identify in the process the possible adverse effects that the business will have in order to prevent and progressively optimize the objective of being efficient and competitive.
- b) Generate benefits to the society in an ethical manner because by focusing on problem solving and identifying the benefits that should fits the clients’ needs.

- c) Maintain its economic profitability by being a sustainable business, also by investing in knowledge and training aligned with practices that generate a positive impact on the environment. A sustainable business must be stable because it will allow it to be at the forefront of properly managing its financial resources to continue improving its procedure. (See figure no.4).

Figure no.5 The importance of sustainable business (SB) for companies' leadership and the global economy



Source: Auhor's research and design, 2024

#### 4.7. Re-globalization and the possibility of sustainable globalization

Globalization has been a key of innovation and new perspectives for business, energy and economy, the cost of sustainability will need more ways to boost its implementation in the international level, especially for the emerging market, developing countries and low income countries that find difficulties to balance their economies during the transition of Globalization and its impact. Applying a sustainable strategy in businesses lead to sustainable and business values. (See figure no.6).

Figure no.6 Incorporating sustainability in business and the dimensions of globalization for a sustainable globalization



Source: Author's design and research 2023

According to this paper re-globalization is a possible new form of globalization that should be on more resilience, trust and new agreements between nations, applying sustainability in the area of business and companies, applying sustainability in the dimesnions of globalization will lead to a new process that will be called rehabilitation of globalization and the world and that process will be called either the new phase of globaization that is re-globalization or sustainable globalization. (See figure no.6).



## 5. Conclusions

Globalization is living a recoil and slowdown due to various global risks that affected its process and dimensions, the decline in global GDP and FDIs globally makes sure that economies are linked together in globalization but the recoil of globalization and the appearance of both Slowbalization and de-globalization has made sure that nations or economies get affected easily if globalization get affected. De-globalization means less open border, living union agreements, companies de-globalize and try to survive by moving back to the home country. Like what happened during the 2019 pandemic and the outbreak of the 2022 Russian-Ukrainian war, many multinational and global companies closed their subsidiaries in the affected areas and de-globalized to the home country or other countries due to the difficulties in negotiations. Events such as Brexit, the 2008 global financial crisis, the 2015 global trade crisis, the widespread of the global health crisis provoked by Covid-19 in 2020, the outbreak of the 2022 Russian Ukrainian conflict. All these events weakened globalization and transformed it to Slowbalization and de-globalization as its new phases.

To sum up, there should be an extension and embrace of trade rather than rejecting it to overcome the most pressing challenges of our time. In particular, the case for expanding more trade integration to more economies, people and issues, a process we call will “re-globalization.” Or even sustainable globalization when all the sustainable development goals (SDGs) will be fulfilled. The rising challenges in the global economy and society have made globalization recoil and move towards the process of slowbalization or de-globalization but a possible change towards re-globalization is still being introduced and played on the international arena. The classic business is based on the traditional economy but sustainable business mainly has to generate positive impacts on the environment and prevent or reduce negative impacts, for this, it is necessary to identify in the process the possible adverse effects that the business will have in order to prevent and progressively optimize the objective of being efficient and competitive. On the other hand a sustainable business model has to generate benefits to the society in an ethical manner because by focusing on problem solving and identifying the benefits that should fits the clients’ needs. To sum up, sustainable business participate directly in the nw pahe of globalization if it maintain its economic profitability by being a sustainable business, also by investing in knowledge and training aligned with practices that generate a positive impact on the environment. A sustainable business must be stable because it will allow it to be at the forefront of properly managing its financial resources to continue improving its procedure. Finally, the end of globalization seems to be kind of impossible since all the world depends on it, the end of globalization means the end of one of its main instruments that is the internet. So, De-globalization or Slowbalization that is the current state of the world is about to move to the other era or the new phase of globaization that could be re-globalization in the phase of reshaping globalization. The concepts Slowbalization, de-globalization, reglobalization and sustainable globalization are new in the research area and they just forms of globalization. So globalization changes but its name remains gobalization no matter its phases or forms.

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# **Business Internationalization through Foreign Direct Investment (FDI) for a Business Leadership Position: The Case of Multinational Companies (MNCs) in Globalization**

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## **Abstract**

*This paper analyzes, describes and presents business internationalization through foreign direct investment (FDI) for a business leadership position by focusing on the case of multinational companies (MNCs) in globalization. The analysis and results demonstrated that through business internationalization the multinational company may generate from the process of internationalization with FDI an access to new resources and knowledge for promotion, a high visibility and brand recognition, an enhanced possible operational efficiency and a high capacity for innovation and development with the increase in sales and high income. In conclusion, multinational companies, should focus well on their ownership and study well the locations they would like to choose for their business operations abroad by focusing as well on their internalization abilities for a possible foreign direct investment (FDI), possible risks may appear within the internationalization process of MNCs both FDI and both MNCs and FDI may face challenges.*

**Key words:** Business internationalization, foreign direct investment (FDI), multinational companies (MNCs), business leadership position, globalization, trends

**J.E.L. classification:** F20, F21, F23, F60

## **1. Introduction**

Globalization that is the current state of the world has interconnected markets and economies for decades and it has gone through different phases. The process of internationalization came and appeared in globalization as one of its instruments from the business perspectives. During different tough circumstances in the domestic markets, companies try to seek ways to leave the domestic market tight and competition by moving its business and operations abroad. Expanding business abroad has to go various steps that need to rely first on the compatibility between the domestic company that becomes multinational, transnational, global or international by operating abroad and the new foreign locations that could be challenging from time to time. Foreign direct investments (FDIs) are resources that enter a country through investments that foreign companies make in assets in foreign markets or foreign economies. Foreign direct investment can be long-lasting and exercise a management position. This full paper focuses on analyzing and applying the strategy of multinational companies with entry mode of foreign direct investments using the OLI model or as known the Dunning paradigm (1979). This full paper is a continuous research and analysis to previous ones and this time it addresses as well the key steps for business internationalization for through FDIs. Multinational companies have got various characteristics and implications for business values and no matter their size small, medium or large they need to focus on the aspects of sustainability and digital opportunities to reach the clients' satisfaction and be close to them. (Benabed, 2023).

Foreign direct investment (FDI) is widely the most considered and used index of globalization and it is an important dimension of international economic integration (Dreher, 2006). Furthermore, attracting FDI is often an explicit policy goal due to its potential to boost economic growth and

simply enhance productivity through cross-border technology, skills' transfer and business practice (Borensztein et al., 1998).

The aim of this paper is to study, analyzes, describes and presents business internationalization through foreign direct investment (FDI) for a business leadership position by focusing on the case of multinational companies (MNCs) in globalization.

## **2. A brief literature review**

### **2.1. Background of Globalization and foreign direct investment (FDI)**

Globalization is the force that brings economies together around the world by integrating them together. (Velde, 2005). It also enhances the economic development of economies (Iqbal et al., 2012).

Chen states that there are two main types of foreign direct investments (FDIs) and they are called Greenfield and brownfield FDIs. Both type have got a different impact on host economies (Chen et al., 2010). Indeed, Greenfield FDIs are foreign direct investments that come up with and provide new business facilities and activities in host countries (Chen et al., 2010). Whereas, Brownfield FDIs are the multinational company merge with other firms in the host countries. Both types of FDIs are important for boosting the economy of the host countries. Greenfield FDIs help raise and boost the capital stock, job creation, employment and outputs but the brownfield FDIs help enhancing and raising productivity (Chen et al., 2010).

### **2.2. Business Internationalization, Foreign direct investments and multinational companies**

Paul and Wooster (2008) stated that internationalization can be conceptually about a set of foreign investments that may lead to outcomes, such as the discovery of knowledge and new products (Grossman and Helpman, 1989), an increase in turnover or profit (Paul and Wooster) and a rise in the efficiency of lower production costs in the example of Bharath, Dittmar, and Sivadasan (2014).

Napaporn and Chaiporn (2023) argued and stated that internationalization should be positively linked with firm performance. A higher level of business internationalization or a company's internationalization should enhance its performance due to larger turnover bases and economies of scale. Many firms, particularly, those in labor-intensive industries with relatively low level or capacity of product differentiation have move their production facilities to other economies with lower labor costs. Some companies may try to guarantee the fact that their knowledge base is better enough than their competitors; thus, they might take advantage from entering an international market by primarily enhancing their knowledge base. Therefore, a high level or degree of internationalization has to enhance firm performance by boosting and focusing on probability and competitive advantages that are related to better products, services and offers (Napaporn and Chaiporn, 2023). The dregree of firms' internationalization may turn out to be fully better when the engagement of firms outside the field of organized business activities is typically taken over and considered. (Tokman, 1978). Multinational companies may have the possibility to introduce products or services to foreign markets and other countries that do not have them (Benabed, 2023).

### **2.3. Globalization, Foreign direct investment (FDI) and Gross domestic product (GDP)**

Lejko and Bojnec (2011) state that Globalization is commonly thought as an economic globalization that is mainly about a high level of internationalization of the world economy at several levels of areas and economies. (Lejko and Bojnec, 2011).The level of internationalization of economies is most expressed suitably as the level of their economic globalization. (Lejko and Bojnec, 2011). The intensity globalization may be measured by various indicators, such as foreign direct investment (FDI) flows, the economic activity of multinational firms and the internationalization of technology, capital movements and international trade flows (OECD, 2010; Lejko and Bojnec, 2011).

As foreign direct investment (FDI) is considered as a key strategy of national development strategies for developing countries, it is possible to have a positive link with economic growth. Indeed some recent studies show support to the positive contribution of foreign direct FDI inflows on economic growth (Ghosh and Wang, 2009; Lejko and Bojnec, 2011).

Stiglitz et al (2010) stated that economies need indicators that measure progress towards achieving their economic, social, and environmental goals. Gross domestic product (GDP) as a standard economic indicator is useful to measure just one limited aspect of the marketed economic activity, this indicator has been mistakenly used to measure welfare. (Stiglitz et al., 2010).

GDP had never been assigned to measure social or economic welfare. However, nowadays it is the most commonly used indicator of an economy's overall performance (McCulla and Smith, 2007).

## **2.4. Business internationalization and market competition**

The available resources are very important for business internationalization and offers for markets that on efficient ways of the internationalization process (Yuki, 2008). Market competition is important for capitalist economies (Blaug, 2001) since leaders of companies and organization focus on it when they operate (Yuki, 2008) confirms that it is important for organizations to rely on the leadership advantage (Yuki, 2008).

First, leaders have to center on identifying risks and threats for a positive for firm performance (Thomas et al., 1993). Second, leaders may stimulate subordinates to put up organizational and firm performance as it is mentioned in various research about leadership styles and actions such as transformational leadership. (Yuki, 2008).

## **3. Methodology and research questions**

In the research method there was a focus first on a related literature review by focusing first on the body of knowledge then on identifying the key concepts mentioned in the literature that apply in this area of research and then by identifying the links between those concepts. After that the research focused on analyzing as well the Dunning paradigm (1979) or as it is known as the OLI model (See figure no.1) that is a business international strategy for multinational companies, the reached results from the analysis and study were illustrated in some frameworks (See figures no.2 and 3), during the analysis there was a focus as well on analyzing some statistics about the global FDI outflows and inflows (See figures no.4 and 5) by even trying to find if they have a correlation with the Global GDP in the period (2012-2022), within the analysis part there was a focus as well on the amount of greenfield investments in the period globally from 2021 to 2022. (See figure no.6). The collected data were analyzed and interpreted according to their relevance to this full paper and research (Benabed, 2024a), the set research questions helped move well with related literature. (Benabed, 2024a).

*RQ1: Is the multinational strategy an important move towards internationalization by focusing on FDI?*

*RQ2: Are foreign direct investments important for the business internationalization process?*

*RQ3: Is business Internationalization relevant for Companies' leadership position in the context of Globalization?*

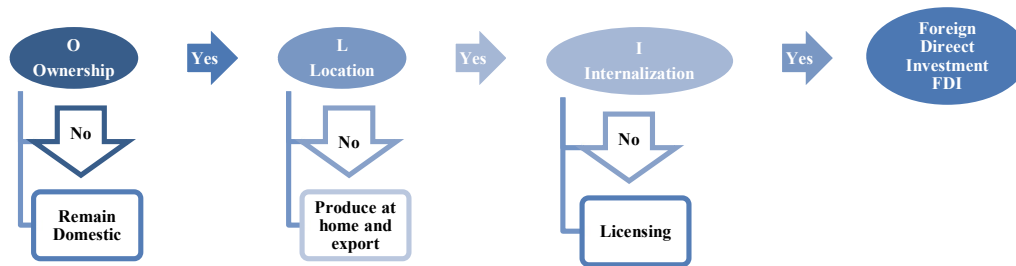
## **4. Analysis and results**

### **4.1. Reaching Business Internationalization through Foreign Direct Investment (FDI)**

Dunning's eclectic paradigm for multinational companies (MNC's) explains the possibility of emergence of multinational companies following the three types of competitive advantage that multinational company needs such as ownership, location and internalization (Dunning, 1988).

By looking at the framework in figure 1 that is a considered a business model, if the company decides to transform from domestic to multinational, it may consider going for foreign direct investments. By considering the three main factors of the OLI paradigm.

Figure no.1. Business Internationalization through Foreign Direct Investment (FDI)



Source: Author’s design and contribution, 2023, Adapted from the Eclectic Paradigm by Dunning (1988)

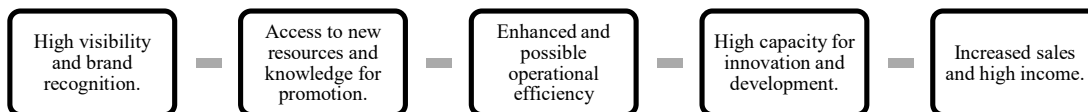
In order for a company to be multinational and to make a foreign direct investment, it must have an ownership advantage, if the company has this ownership advantage, such as an original brand with which it can compete in the foreign market, innovative technology or a strong management capacity, it can choose or look for compatible locations for its operations or services to the foreign market or the country of destination. If the company has both the ownership and location advantages, it can focus on its internalization, that is, the advantage and integration of transactions within the company that bases on 4 decision criteria, which are risk, control, feedback and resources. The company that has these advantages must find it more advantageous to exploit and use them for itself than to sell or rent them to other companies located in other countries and that means it must be more profitable to internationalize these advantages through its value chain or through the execution of new activities. If the company has all these advantages, it can become a multinational company and thus make foreign direct investment. (See figure no.1).

So the company may become multinational and go for a foreign direct investment by opening subsidiaries abroad in other economies or compatible foreign markets if it has got the three key factors of ownership, location and internalization, if the company does not own these advantages, it remains domestic by exporting abroad or by giving license to other companies to that for it, the multinational company may reach values and market leadership through a foreign direct investment (FDI) that could be relevant as a business internationalization process. (See figure no.1).

#### 4.2. Companies and businesses for benefits through business internationalization with FDI

As multinational companies try to seek options to generate more benefits for its leadership and existence it has to focus on the main benefits that may get from going for business internationalization. (Figure no. 2). The main benefits that a multinational company may generate from the process of internationalization with FDIs are an access to new resources and knowledge for promotion, a high visibility and brand recognition, an enhanced possible operational efficiency and a high capacity for innovation and development and increased sales and high income. (Figure no. 2).

Figure no. 2. The main possible benefits for companies through business internationalization



Source: Author’s design and research, 2024

### 4.3. Key steps for companies for business internationalization and market leadership

Multinational companies that would like to internationalize through FDI should determine its expansion objectives first that elaborate a plan with a global vision and local focus on the process of business internationalization, it is necessary for the company to define after that the marketing strategies that may push it ahead towards market leadership (See figure no.3).

Figure no. 3. Key steps towards business internationalization for companies and businesses

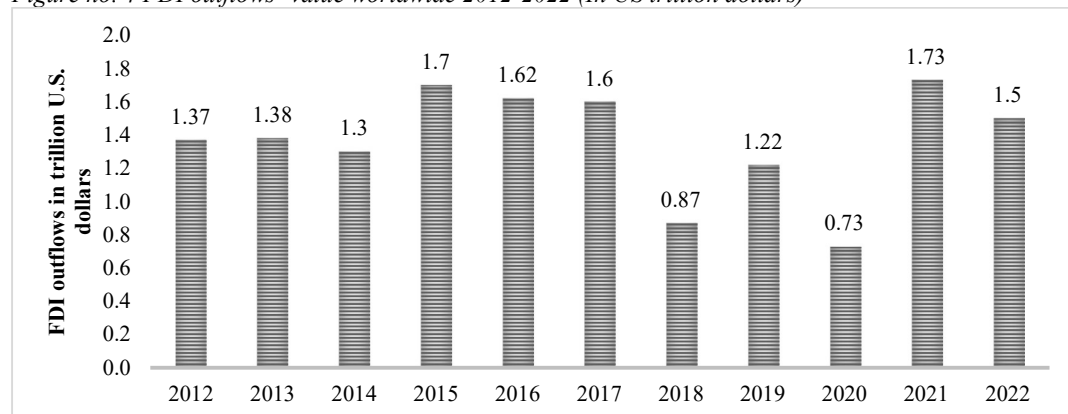


Source: Author’s design and research, 2024

Identifying the suitable opportunities is a one of the key that the process of business internationalization to stabilize especially by trying to find frequently new markets in different suitable locations in order to boost its global position in the frames of globalization and define its leadership strategy. (See figure no.3).

Figure no.4 illustrates the value of foreign direct investments outflows globally from 2012 to 2022 in US trillion dollars that is the value of outward direct investment made by the residents of the reporting economy to the external economies. (See figure no.4).

Figure no. 4 FDI outflows’ value worldwide 2012-2022 (In US trillion dollars)

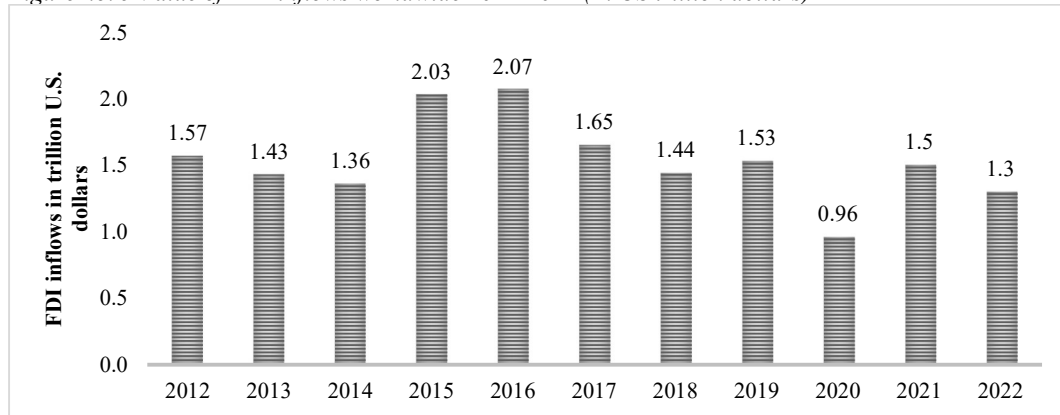


Source: Author’s contribution, Statista data 2022

The illustrated data in figure no.4 show that there was a fluctuation in FDIs from 2012 to 2022 where the lowest value of FDI outflows globally was in 2020 during the pandemic caused by Covid-19 with the value 0.73 US trillion dollars compared to 2019 the global value of FDIs reached 1.22 US trillion dollars, the highest value worldwide was in 2021 with 1.73 trillion US dollars. Here we may recognize that the FDI outflows are exposed to various challenges such as global health crisis, financial crisis, geopolitical conflicts and the aspects of negotiations with stakeholders. (See figure no.4 and table no.1).

Figure no.5 illustrates the values of FDI inflows globally from 2012 to 2022 in US trillion dollars, in the chosen period we observe a fluctuation in values from a year to another, the highest value of FDI inflows was in 2016, in 2020 there was a decrease as well in the value to 0.96 Trillion US dollars due to the sudden pandemic caused by Covid-19 but it increased again in 2021 to 1.5 trillion US dollars. (See figure no.5 and table no.1).

Figure no. 5 Value of FDI inflows worldwide 2012-2022 (In US trillion dollars)

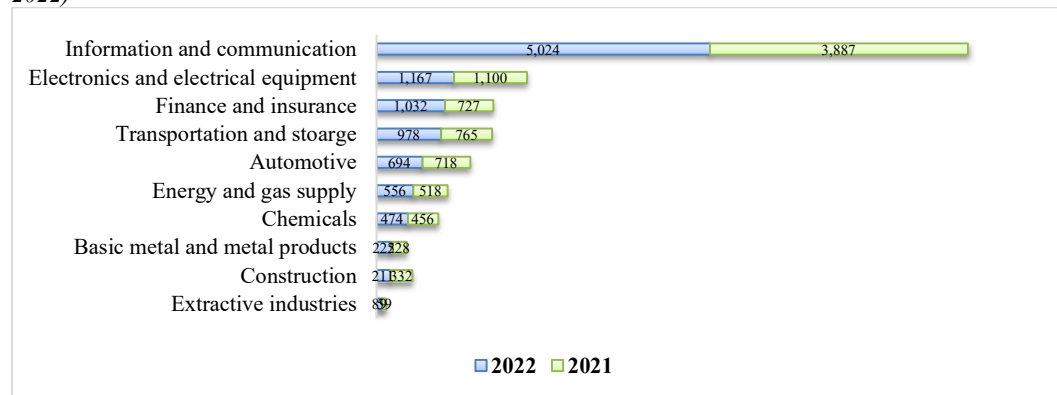


Source: Author’s contribution, Statista data 2022

The fluctuation and the ups and downs in the value of the FDI inflows are due to the fact they are always exposed to various challenges such as global health crisis, financial crisis, geopolitical conflicts and the aspects of negotiations with stakeholders. (See figure no.5 and table no.1).

Figure no.6 illustrates the number of the Greenfield foreign direct investment (FDI) projects globally from 2021 to 2022 by industry, we notice that there was an increase in the number in all the indicated industries in 2022 compared to 2021.

Figure no. 6 Number of Greenfield foreign direct investment (FDI) projects globally, by industry (2021-2022)



Source: Author’s contribution, Statista data 2022

The highest number was registered in the category of information and communication (5024) in 2022 compared to 2021 where it was only 3887. (See figure no.6). The second highest category was the category of Electronics and electrical equipment with 1167 amounted Greenfield FDI projects in 2022 compared to 2021 where it reached only 1100 but the difference between both years for the same category was not big. The third category was Finance and insurance with 978 in 2022 followed by automotive with 964 in 2022 but with a higher number in 2021 with approximately 718. However, the lowest number was registered in the category of construction with 213 greenfield FDIs in 2022 and 28 in extractive industries in 2022. From all the categories we understand that Greenfield FDIs are important for many categories or industries but it was preferred for some categories due to their priority and importance such as information and communication that was in the lead in 2021-2022 according to the available data and statistics. (See figure no.6). As foreign direct investment (FDI) is considered as a key strategy of national development strategies for developing countries, it is possible to have a positive link with economic growth. Indeed some recent studies show support to the positive contribution of foreign direct FDI inflows on economic growth (Lejko and Bojnec, 2011).



Table no. 1 Values of global FDI inflows and outflows in trillion US dollars together with the amount of Global GDP at current prices in billion US dollars from 2012 to 2022

Years	Global FDI outflows in trillion US dollars	Global FDI inflows in Trillion US dollars	GDP at current prices in billion US dollars
2012	1,37	1,57	73305,67
2013	1,38	1,43	77503,5
2014	1,3	1,36	79596,18
2015	1,7	2,03	75128,93
2016	1,62	2,07	76395,06
2017	1,6	1,65	81256
2018	0,87	1,44	86246,43
2019	1,22	1,53	87494,08
2020	0,73	0,96	85257,58
2021	1,73	1,5	96989,56
2022	1,5	1,3	100662,95

Source: Author's contribution, statista data 2022, IMF data 2022

By applying a correlation analysis between the Global FDI outflows in Trillion US dollars and the global GDP at current prices in billion US dollars (2012-2022) we observe that the correlation is negative and there is no correlation between both Global FDI outflows and the global GDP at the prices of 2012-2022 in billion US dollars, the thing that confirms that FDI outflows globally did not contribute well the the globa GDP and GDPs of the economies of their destination in the period (2012-2022) since the correnation reached only -0,0293569. (See table no.2).

Table no.2 the correclation indiator between Global FDI inflows in Trillion US dollarsand the global GDP at current proces in billion US dollars (2012-2022)

	Global FDI outflows	GDP at current prices in billion US dollars
Global FDI outflows	1	
Global GDP at current prices in billion US dollars	-0,0293569	1

Source: Author's calculation 2024 based on statista data 2022 and IMF data 2022

By applying a correlation analysis between the Global FDI inflows in Trillion US dollars and the global GDP at current proces in billion US dollars (2012-2022) we observe that the correlation is negative and there is no correlation between both Global FDI inflows and the global GDP at the current prices in billion US dollars, the thing that confirms that FDI inflows globally did not contribute well the the globa GDP and GDPs of the economies of their destination in the period (2012-2022) since the correnation reached only -0,46969342. (See table no.3).

Table no. 3 the correclation indiator between Global FDI outflows in Trillion US dollarsand the global GDP at current proces in billion US dollars (2012-2022)

	Global FDI inflows	GDP at current prices in billion US dollars
Global FDI outflows	1	
GDP at current prices in billion US dollars	-0,46969342	1

Source: Author's calculation 2024 based on statista data 2022 and IMF data 2022

## 5. Conclusions

As business internationalization has been one of the main possibilities to leave local or domestic market tightness, it has been an important step for companies to reach better profit through foreign direct investments in the countries of destination for competitive advantage and business values.

Furthermore, there is no correlation between the values of global FDI outflows or inflows with the Global GDP in the period 2012-2022 and that means they did not contribute enough to the global GDP in the chosen period.

Multinational companies that would like to internationalize through FDI should determine its expansion objectives first that elaborate a plan with a global vision and local focus on the process of business internationalization, it is necessary for the company to define after that the marketing strategies that may push it ahead towards market leadership (See figure no.3). Identifying the suitable opportunities is a one of the keys that the process of business internationalization to stabilize especially by trying to find frequently new markets in different suitable locations in order to boost its global position in the frames of globalization and define its leadership strategy. Multinational companies that would like to internationalize through FDI should determine its expansion objectives first that elaborate a plan with a global vision and local focus on the process of business internationalization, it is necessary for the company to define after that the marketing strategies that may push it ahead towards market leadership. Identifying the suitable opportunities is a one of the key that the process of business internationalization to stabilize especially by trying to find frequently new markets in different suitable locations in order to boost its global position in the frames of globalization and define its leadership strategy.

A successful business internationalization is based on the multinational companies' ownership with products, services or FDI that cannot be imitated, the location for FDI plays a big role in boosting the company towards more profit and leadership position in foreign markets and the ability of internationalization is a big booster for the process of internationalization through FDI as well. Multinational companies that try to expand their business operations and services to new markets to raise money and drive profitability have to focus and pay attention more and more to increasing productivity by respecting the environment of the host economies and focus on more efficiency by minimizing even costs for better sales and results with the internationalization process of FDI.

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# Connecting Romania with The European Market Through Courier Services

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## Abstract

*In the context of globalization, express courier services become essential for streamlining cross-border trade.*

*Among the main players facilitating these processes is UPS, a giant of the courier industry, whose strategies, and services play an important role in connecting the Romanian business environment with markets in the rest of Europe.*

*The study's findings underscore UPS's strategic importance not only as a logistics service provider, but also as an essential partner for Romania's sustainable economic development through more efficient integration into European supply chains.*

*E-commerce has experienced a significant expansion in Romania, and courier services are essential for the efficient operation of this sector. The speed and reliability of deliveries help meet consumer expectations and build trust in online shopping.*

*The paper makes a valuable contribution to existing literature by focusing on a specific case study, offering new perspectives on the role played by courier companies in regional economic dynamics.*

**Key words:** integration, courier, industry, strategy, economy

**J.E.L. classification:** F1

## 1. Introduction

Against the backdrop of a Romanian economy in continuous expansion and integration into European structures, the need for efficient logistics services adapted to market needs is more demanding than ever. In this context, UPS finds itself not only as a courier service provider, but also as a strategic partner for Romanian businesses aspiring to a consolidated presence on the European single market. Through a well-organized logistics network and the implementation of continuous growth strategies, UPS facilitates the access of Romanian products to new markets, thus contributing to increasing national competitiveness on the European stage.

Analysis of UPS's strategies in the Romanian context highlights how adaptability, innovation and sustainability underpin the company's success in meeting the complex needs of its customers. This paper also presents an analysis of UPS services and highlights the challenges encountered in integrating its services into the Romanian market and how they have been overcome through creative and efficient solutions.

Therefore, this study is not only a representation of the role UPS plays in connecting Romania with the rest of Europe, but also provides a broad insight into the dynamics of the express delivery services market, highlighting current and future trends that will shape this vital sector for the Romanian economy.

## 2. Theoretical background

In essence, the activity of providing postal services is subject to the regulations established by Government Emergency Ordinance no. 13/2013 on postal services, which is regularly updated, and

is detailed in Decision no. 925/2023 issued by the National Authority for Management and Regulation in Communications (ANCOM).

This decision, published in the Official Gazette of Romania, part I, nr. 1175 of 27.12.2023, establishes the framework for a general authorisation regime for entities wishing to provide postal services.

Through ANCOM Decision nr. Regulation (EC) No 925/2023 clarifies the procedure by which applicants can obtain authorisation to provide such services and the conditions under which postal operators can operate under this general regime. The aim is to promote an open competitive market and protect the interests of consumers of postal services.

This legislative and regulatory approach reflects the recognition of international trade as a fundamental pillar of the global economy, representing the oldest and most significant international economic flow.

Many countries proclaim free trade, but a series of protectionist measures are promoted discreetly (Ion,2010, p425).

Discriminatory practices used in developed countries are numerous and often very effective. In this regard, Michael Didier considers that to achieve the protection of industry in these countries, "technical reasons" are used several times, a quality mark is required – which is rarely granted to foreign firms when it comes to competition for public orders (Michael, 1994, p176 and 177).

Over time, the process of economic integration at international level has undergone a significant evolution, manifesting itself through various current forms, including:

- The Customs Union, which aims to eliminate trade barriers, especially customs barriers, between participating countries. It is based on preferential trade agreements between member countries and applies a common customs tariff in relations with third countries. This facilitates a progressive liberalisation of international trade, encouraging competition and competition between companies.
- Free Trade Zones, characterized by the elimination of customs duties in certain regions or territories.
- The Common Market (or Single/Internal Market), which represents a more advanced level of integration, aiming not only at trade liberalization, but also at the free movement of labor and capital between Member States.
- Economic Union, which goes beyond the characteristics of the Common Market by coordinating national economic policies in certain sectors at a supra-state level.
- Economic and Monetary Union, a more advanced form of association that also includes monetary aspects such as the implementation of a common monetary policy, the existence of a single central bank and the adoption of a single currency.
- Political and Territorial Integration, which constitutes a higher level of integration, through the transfer of competences from national bodies to supranational structures.
- Globalization, seen as a manifestation of global integration trends, illustrated by the creation of international bodies such as the World Trade Organization (WTO), which regulate global trade.

These forms reflect varying degrees and ways in which countries work together to facilitate cross-border trade and investment, with global economic growth and prosperity as the goal.

### **3. Research methodology**

Through a case-study-based methodology, analysis of official company documents and interviews with experts in the field, the paper reveals how adaptability, innovation in logistics services and places UPS at the forefront of e-commerce and traditional commerce enablers between Romania and Europe.

The study aims to analyse how UPS contributes to increasing and streamlining trade between Romania and the Member States of the European Union, highlighting the strategies adopted by the company to meet the specific needs of the Romanian market.

United Parcel Service (UPS) is one of the largest and most recognized courier and logistics companies worldwide, offering a wide range of freight forwarding, supply chain management, and

e-commerce services. With a long history dating back to 1907, UPS has built its reputation on the efficiency and reliability of its services. In Romania, UPS offers a variety of services tailored to the diverse needs of its customers, whether they are small, medium, or large corporations.

UPS benefits from an extensive network that allows UPS to provide fast and efficient service throughout the country. Through local hubs and strategic partnerships, UPS connects Romania with the rest of the world, facilitating international trade.

#### 4. Findings

##### 4.1 Characteristics of Romania's international trade during the period 1.I-31. XII 2023

- **Export**

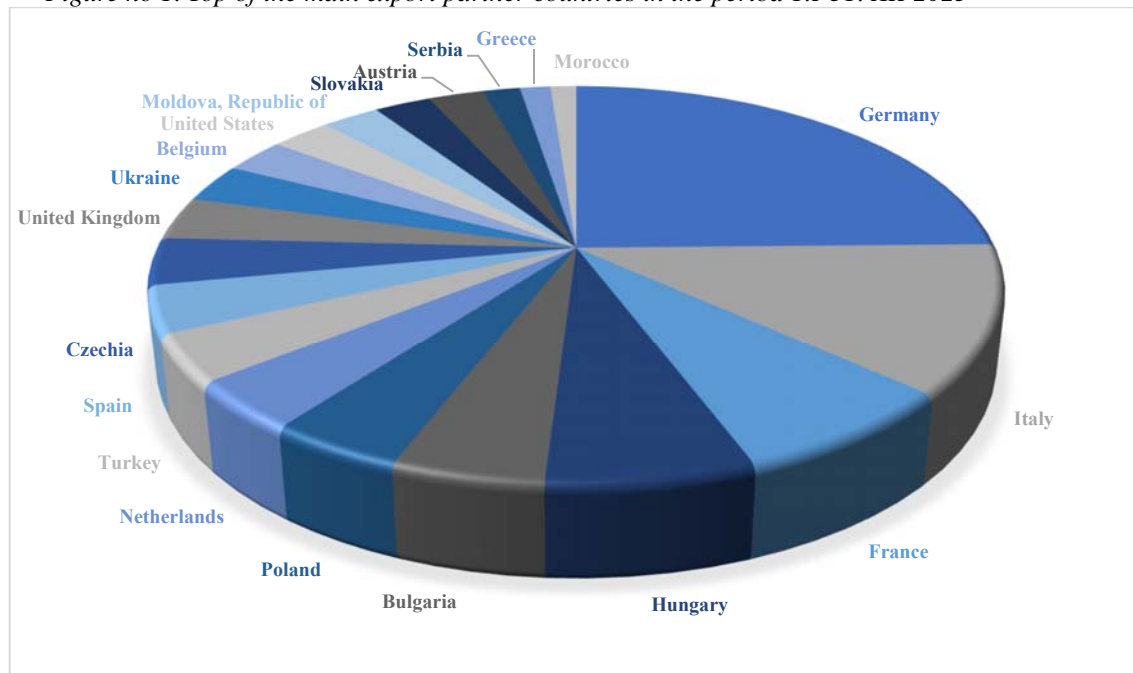
According to National Institute of Statistics of Romania, between 1 January and 31 December 2023, the value of exports calculated at the fob price reached 93,098.1 million euros, registering an increase of 1.3% compared to the same period in the previous year, 2022.

Exports to the other 26 Member States of the European Union (EU27) increased by 1.7% in the same period in 2023 compared to the similar period in 2022, accounting for 72.6% of total exports.

In terms of main export destinations in the mentioned period of 2023, the top ten countries (Germany with 20.8%, Italy with 10.2%, France with 6.3%, Hungary with 5.7%, Bulgaria with 4.2%, Poland with 3.7%, Netherlands with 3.4%, Turkey with 3.3%, Spain and the Czech Republic both with 3.2%) together constituted 64% of the total export volume.

In December 2023, the value of FOB exports was 6,144.2 million euros, marking a decrease of 8.3% compared to December last year.

Figure no 1. Top of the main export partner countries in the period 1.I-31. XII 2023



Source: National Institute of Statistics

- **Import**

According to National Institute of Statistics of Romania, in the time interval between January 1 and December 31, 2023, the total value of imports, calculated on a cost, insurance, and transport (CIF) basis, amounted to EUR 122,045.7 million, marking a decrease of 3.2% compared to the same period in the previous year, 2022.

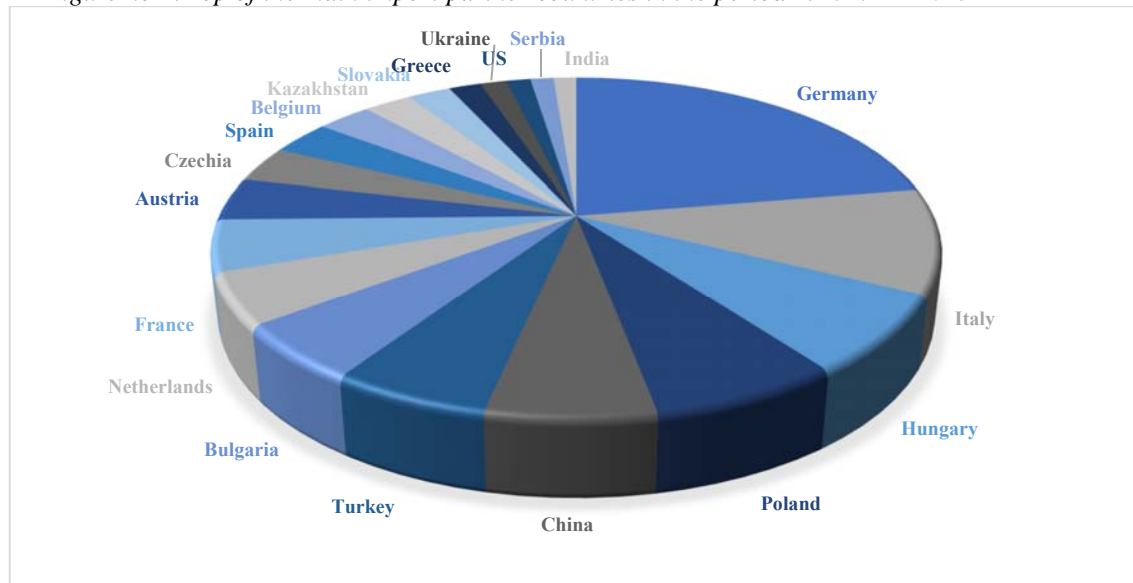
Imports from the other 26 Member States of the European Union (excluding the reporting country to reach the EU27) registered a slight increase of 0.2% in the same period in 2023 compared to the previous year, accounting for 73.3% of total imports.

The top ten countries from which imports were made during this period (together accounting for 68.3% of total imports) were Germany (with a contribution of 19.4% to total imports), Italy (8.7%), Hungary (6.5%), Poland (6.2%), China (5.5%), Turkey (5.2%), Bulgaria (4.7%), Netherlands and France (both 4.3%) and Austria (3.5%).

In December 2023, the value of CIF imports decreased to 9,573 million euros, being 2.3% lower than in December 2022.

Also, the trade deficit calculated based on manufacturing price and shipping cost (FOB-CIF) for the full year 2023 was 28,947.6 million euros, which represents a reduction of 5,141.9 million euros compared to the previous year.

Figure no 2. Top of the main import partner countries in the period 1.I-31. XII 2023



Source: National Institute of Statistics

#### 4.2 Courier services in Romania, pre and post pandemic

Connecting Romania with the European market through courier services is an essential aspect in the country's economic and social dynamics, having a profound impact on the way businesses and consumers interact both domestically and internationally. In the context of European integration and globalisation, courier services play a crucial role in facilitating trade, speeding up deliveries and improving access to various products and services.

Courier services allow Romanian companies to expand their operations into new markets, providing a fast and efficient way to send and receive products. This is vital for business growth and diversification of markets.

Connectivity with the European market through courier services facilitates the exchange of goods between Romania and other Member States of the European Union, thus promoting economic integration and compliance with European standards.

Courier services support local entrepreneurs by offering an efficient logistics solution for the distribution of their products both locally and internationally. This opens doors to new business opportunities and stimulates innovation.

Courier services in Romania have gone through significant changes before and after the pandemic, adapting to new consumer requirements and behaviours. The COVID-19 pandemic has accelerated digitalisation and changed the way people buy and interact with courier services.

Before the pandemic, the courier services market in Romania was already on an upward trajectory, stimulated by the growth of e-commerce and demand for fast deliveries. Consumers had begun to appreciate the convenience of online shopping, but most still preferred traditional methods of shopping. Courier companies were focused on expanding their networks and improving operational efficiency to cope with increased volumes, but the pandemic was not yet a factor significantly influencing the industry.

With the outbreak of the pandemic, a dramatic change was observed. The restrictions imposed to limit the spread of the virus have led to an explosion of online commerce and, implicitly, to a massive increase in demand for courier services. This had several implications such as increasing Volumes, adapting to new norms and diversifying services.

Courier services have registered record volumes of parcels, driven by the growth of online shopping. To protect the health of customers and employees, courier companies have implemented measures such as contactless delivery and wearing protective equipment.

It was necessary to accelerate digitalization to efficiently handle the increased volume of orders and provide customers with user-friendly interfaces for parcel tracking.

New services have been developed, such as same-day deliveries or flexible drop-off/pick-up options to meet customer requirements.

In the post-pandemic period, consumer behaviour influenced by the pandemic seems to persist, E-commerce continues to be an important growth engine for courier services:

In conclusion, courier services in Romania have been deeply influenced by the COVID-19 pandemic, accelerating existing trends towards digitalization and adaptability. The industry continues to evolve rapidly to stay aligned with consumer preferences and new global challenges.

### **4.3 Introducing UPS as a Global Leader in Logistics and Courier Services**

#### **4.3.1 Brief Description of UPS Services for Exporting/Sending & Importing/Receiving Envelopes, Packages and Pallets (Express Courier Division)**

UPS offers small packages and pallets shipping services in Romania, through the express courier division, but also freight transport services, through the SCS (Supply Chain Solutions) division.

Description of common express courier terms:

- Small package: parcel with an actual weight of maximum 70 kg
- pallet (palletized goods): parcel with a real weight of over 70 kg, but maximum 384 kg; However, the goods are mandatory palletized, respectively placed on the wooden pedestal, the so-called pallet, wrapped in foil and attached to the pallet with various strips / straps.
- export services: shipping services originating in Romania, and with destinations in countries outside the European Union (EU) – services that require the fulfilment of export customs formalities.
- sending services: shipping services originating in Romania, and with destinations in countries inside the European Union (EU) – services that do not require the fulfilment of export customs formalities.
- import services: shipping services destined for Romania, and with origins in countries outside the European Union (EU) – services that require the fulfilment of import customs formalities.
- receiving services: shipping services destined for Romania, and with origins in countries inside the European Union (EU) – services that do not require customs import formalities.
- Domestic (domestic) services: forwarding services, originating and destined within a country.
- cross-border services (TB): sending or receiving services, originating, and destined in countries inside the European Union (EU)
- worldwide (WW) services: sending or receiving services, originating in and destined for countries outside the European Union (EU)
- Shipment: The package or pallet, packages, or pallets for which a transport document (Airwaybill – AWB) has been issued for shipment



- Shipments can be:
  - single – contain a single package or pallet.
  - multiple – contain at least 2 packages or pallets.

Below are presented the express courier services available in Romania:

- UPS Express Plus – door-to-door service, air freight, guaranteed transit time of 1 business day for most postal codes in Europe and 1-3 business days for the rest of the destinations. Ideal service for the most urgent shipments, with delivery until 08:00 am / 09:00 am, depending on postal codes; available in about 55 countries (EU and non-EU); Available for export and import.

- UPS Express – door-to-door service, air freight, guaranteed transit time of 1 business day for most postal codes in Europe and 1-3 business days for the rest of the destinations. Ideal service for urgent shipments, with delivery until 10:30 am / 12:00 am / 14.30 pm, depending on postal codes; available in about 150 countries (EU and non-EU); Available for domestic, export and import.

- UPS Express Saver – door-to-door service, air freight, guaranteed transit time of 1 business day for most postal codes in Europe and 1-3 business days for the rest of destinations. Ideal service for urgent shipments, with delivery by the end of the working day; available in approximately 250 countries (EU and non-EU); Available for domestic, export and import

- UPS Standard – door-to-door, road/air, non-express service for shipments in the EU, UK, Norway, Switzerland and Liechtenstein, planned transit time of 2-6 business days, depending on the postal code at destination/origin; available in about 35 countries (EU and some non-EU countries in Europe); shipments to EU & UK countries travel exclusively in road traffic, those to Norway, Switzerland and Liechtenstein run in air traffic to the UPS central hub in Cologne / Germany, and then in road traffic to destination countries; Available for export and import

- UPS Expedited - door-to-door service, non-express air freight, intended for shipments outside Europe, planned transit time of 3-6 business days, depending on the postal code at destination / origin; available in approximately 205 countries (excluding non-EU); Available for export and import

UPS Worldwide Express Freight (WWEF) - door-to-door service, air freight, guaranteed transit time of 1 business day for most postal codes in Europe and 1-3 business days for the rest of destinations. Ideal service for urgent palletized shipments with a real weight of over 70 kg per pallet, but maximum 384 kg, with delivery by the end of the working day. The service is available only when shipping from Romania; available in around 85 countries (EU and non-EU)

#### 4.3.2 Restrictions and limitations (except pallets)

- Weight and size restrictions
  - Maximum actual weight of a package - 70 kg
  - Maximum length of one package - 274 cm
  - the maximum accepted size of a package is 400 cm, considering the length and circumference taken together; the method of calculation is  $L + 2 * l + 2 * h$ , values expressed in cm.
- Value restrictions and more
  - maximum value or declared value is US\$50,000 per PARCEL
  - the maximum value or declared value for each PARCEL of jewellery and watches (not imitation jewellery and watches) is USD 500.
  - imitation jewellery and watches = jewellery and watches for which the retail price is less than USD 150, and do not contain precious metals and/or stones
- the maximum value or declared value for each package that is tendered in a UPS Access Point is US\$1,000
- UPS does NOT deliver to PO Boxes and DOES NOT pick up/pick up packages from PO Boxes
- There is no weight limit on a shipment or a maximum number of packages in a multiple shipment.

Also, in the UPS shipping system, there are certain items that are prohibited from shipping, or that require the fulfilment of preconditions to be shipped (such as dangerous goods or certain special goods).

#### **4.3.3 Payment options for transport taxes and customs duties; applying VAT to invoicing.**

UPS has various payment options available for both shipping fees and customs duties.

- Transport fees can be paid by:
  - sender – so-called PP (pre-paid) shipments – sending rates from the country of origin of the shipment apply.
  - consignee - so-called FC shipments (freight collect) - the reception rates in the destination country of the shipment apply.
  - by a third party, other than the consignor or consignee, and which may be in the country of the sender, in the country of the consignee, or in a third country - so-called TP (third party) shipments.
  - Sending rates from the country of origin of the shipment apply, unless the third party is in the country of destination of the shipment (in this case, the reception rates from the country of destination of the shipment will apply)
- Customs duties (customs duties + VAT) at destination can be paid by:
  - consignor – so-called FD shipments (free domicile – the sender pays both transport taxes and import customs duties in the destination country)
  - recipient – situation encountered both in the case of PP shipments and in the case of FC shipments, as defined above.
  - by a third party, other than the consignor or consignee, and which may be in the country of the sender, in the country of the consignee, or in a third country - situation encountered both in the case of PP shipments and in the case of CF, or TP shipments, as defined above.

There is also another option available to pay customs duties, namely SPLIT DUTY, and VAT (SDV), which involves the separate payment of customs duties and VAT, i.e., transport charges and only customs duties will be paid by the consignor or third party and only VAT will be paid by the recipient or by a third party.

Not all payment options are available for all origins and destinations. To check which payment options, apply when sending or receiving a shipment, in a specific country of origin or destination, you can use the Global Advisor tool, available on [www.ups.com](http://www.ups.com).

Regarding the application of VAT to the invoicing of transport taxes related to sending / export shipments and receipt / import, the only situation in which VAT is NOT applied is when invoicing export shipments from Romania to a destination country outside the EU, made by legal entities, and containing non-documents (goods) (customs clearable shipments – dutiable – in the destination country). For all other types of shipments, VAT is charged when invoicing transport taxes.

#### **4.3.4 Shipping to Individuals - UPS Access Point & My Choice**

UPS Access Point - UPS Access Points (UPS APs) are positioned in accessible locations, such as shopping centres or fuel stations, with extended business hours, where UPS packages can be picked up or packages can be dropped off for shipment through UPS, mostly by individuals.

UPS has an extensive network of Access Points in Central and Western Europe, the United States, and other countries and regions around the world. In Romania, a network of UPS APs has not yet been implemented.

UPS My Choice - An option available on [ups.com](http://ups.com), used to track shipment routes/progress, for delivery alerts or for scheduling deliveries.

The use of this option is free, and access is made through a simple registration on the [ups.com](http://ups.com).

Among the benefits of using this option are:

- Parcel Route Tracking
- receiving delivery alerts, including indicating the delivery date
- the user's ability to authorize UPS to deliver the package to a neighbour or leave the package in a secure space at the destination address.

- the user's ability to authorize UPS to deliver the package to another address or to a UPS Access Point where available.
- the user's ability to request UPS to deliver the package on a date other than scheduled.
- the user's ability to request UPS to confirm a delivery window.

#### **4.3.5 Ways to track shipments (tracking); receiving notifications from transit - Quantum View options; UPS Developer Kit APIs**

The ups.com website – Tracking section, is an extremely easy tool to find out the status of a shipment, as well as the estimated date of delivery, just by entering the AWB number. This tool can also be used by occasional customers, without user & password on the ups.com.

Additionally, from the details window, 2 options are available, respectively:

- Get updates - receiving subsequent notifications / updated details regarding the expedition route, by email or text SMS – the so-called Quantum View Notify option,
- Change my delivery - option available only if the customer is registered with UPS My Choice and implicitly with user & password on the ups.com
- authorization sent to UPS to leave the package with a neighbour.
- Quantum View Notify (QVN) - special email notification service, which requires the customer to send information about the shipment, delivery itself or any events / exceptions that may occur during transit. This service can also be used by occasional customers, without user & password on the ups.com. The service can be requested right from the moment the shipping label is created – Internet Shipping or WorldShip –
- Quantum View Manage (QVM) - ups.com tool that provides complete visibility into sending/exporting, receiving/importing shipments or where the UPS customer is only a third party, responsible only for shipping charges. This tool does not require manual or other entry of AWB numbers – the tool automatically refunds them when accessing the option. With it, the UPS customer views all details associated with each shipment, from pickup to delivery, including exceptions in transit. At the same time, the customer can create specific reports, depending on what information he needs, can configure the transmission of notifications, via email or SMS, regarding the status of shipments, both to him and to his customers. However, QVM registration is done only through the sales agent – it cannot be done directly by the customer. This tool dedicated to customers with at least 1 shipment per day and does not require additional costs from the customer, but if the tool is not used for 45 consecutive days, then access is suspended; but it can be reactivated at the customer's request.
- UPS Developer Kit APIs - The kit contains a suite of APIs (Application Programming Interfaces) designed to access and integrate UPS functionality into ecommerce sites.

By integrating these UPS features, ordering, and shipping processes on UPS customers' ecommerce sites become more efficient and faster, and the end customer shopping experience improves significantly. Among the most common APIs are the following: available for ecommerce sites, shipping from Romania.

- Shipping API – integrating UPS Shipping functionality directly with the ecommerce website, respectively with the Orders section. In this case, the UPS shipping label is generated automatically by retrieving the data from the order form; It is necessary to use a thermal printer.
- Time in Transit API – provides end customers with information on delivery time, directly on the ecommerce site.
- Tracking API – allows end customers to track parcels directly on the ecommerce website, using the order number.

#### **4.3.6 Customs Formalities**

UPS offers common customs clearance brokerage services for both import and export free of charge. For special customs clearance services, however, additional fees are paid, depending on the additional service offered.

When exporting, among the most common additional services are the following:

- obtaining preferential documents – upon request and based on the information provided by the shipper, UPS may assist shippers (exporters) to apply for Certificates of Origin (ATR – EUR1 – GSP) to prove preferential treatment in import/destination countries.
- special customs entry – when a special processing is required for an export shipment, such as Temporary Export or Re-export of products that were previously imported.

At import, the most common additional service is the following: commission for the payment of customs duties at destination (on import into Romania) – the so-called "disbursement fee" – depending on the delivery condition, either the consignee or the sender, or a third party, is responsible for paying customs duties (VAT and / or customs duties), as requested by the Customs Authority. The shipment is free upon delivery to the consignee only after obtaining the customs release, which is granted by the Customs Authority only after full payment of customs duties.

#### 4.4 UPS Financial Evolution, Turnover/Net Profit between 2005 and 2022

Comparing 2022 with 2005, there is a significant increase in both turnover and net profit. This indicates a general expansion of the company's activity during these years. There are annual fluctuations in both values, which can be attributed to factors such as changes in the market, major investments, changes in business strategy or global economic conditions.

The period 2005-2012 includes stable initial growth followed by the negative impact of the 2007-2008 financial crisis. Recovery begins to be visible from 2009. The years 2007 and 2008 show net losses (negative values for net profit), which suggests difficult times for the company, possibly due to the global financial crisis of that period.

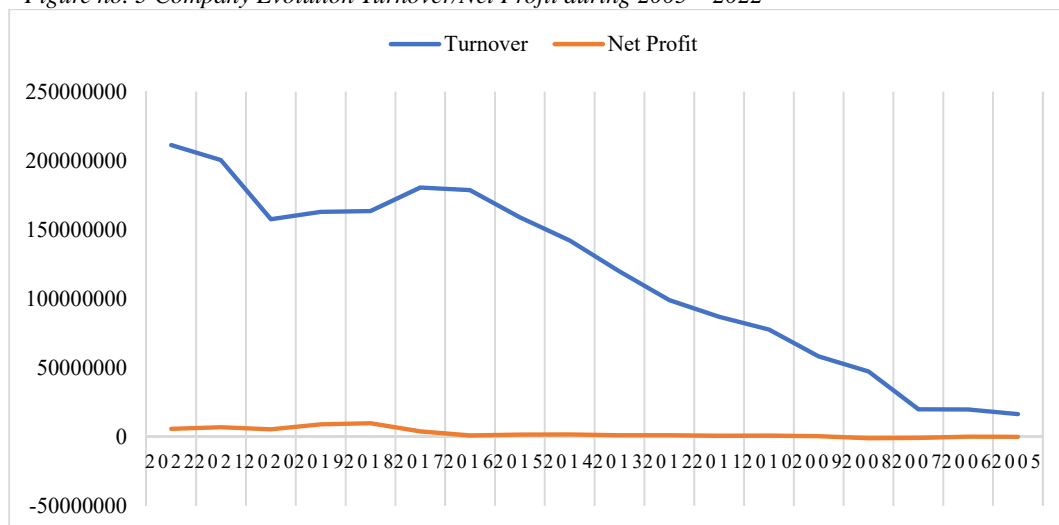
Period 2013-2017 There is a general upward trend in both turnover and net profit, indicating a period of consolidation and sustainable growth.

Period 2018-2022 It shows impressive growth, with a notable jump between the years 2020 and 2021. This may suggest significant expansion of operations or capturing a larger share of the market relevant to the company.

The company is on an overall positive trajectory with robust growth in recent years.

Difficult periods such as the global financial crisis have had a temporary negative impact, but the recovery and subsequent growth demonstrate the resilience and ability of the company to adapt to fluctuating market conditions.

Figure no. 3 Company Evolution Turnover/Net Profit during 2005 – 2022



Source: termene.ro

From the data of the figure above, we can see an evolution of UPS Romania's turnover and net profit over the years. Turnover has steadily increased in recent years, reaching a significant level in 2022. As for net profit, it fluctuated, but generally recorded an upward trend, except for some one-off decreases.

These data show a positive evolution of the company in recent years, with significant increases in turnover and a general upward trend in net profit.

## 5. Conclusions

Courier services play an essential role in today's globalized economy, facilitating the rapid exchange of goods between countries and continents. In the context of relations between Romania and the rest of Europe, these services are vital for several reasons:

Courier services allow Romanian companies to export their products to Europe with efficiency and safety, contributing to the country's economic growth. They also facilitate imports, ensuring Romanian consumers' access to a wide range of European products.

By ensuring efficient logistics, courier services help Romania integrate better into the European single market. This means working more closely with other EU Member States and access to new markets.

Easy access to courier services encourages Romanian entrepreneurs to expand their business on European markets, thus stimulating innovation and economic development.

In an increasingly connected world, courier services increase interconnectivity between Romania and the rest of Europe, facilitating not only trade but also cultural and personal exchanges.

As for UPS Romania, part of the American giant UPS (United Parcel Service), the company plays an important role in this logistics ecosystem due to its reputation for reliability and extensive global reach.

UPS offers a wide range of services including international shipping, logistics and supply chain solutions tailored to the diverse needs of customers in Romania.

UPS is known for its significant investments in logistics technology and infrastructure to improve the efficiency of its global operations – including in Europe and Romania – which has a positive impact on financial results.

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# Environmental Economics in Flood Mitigation for River Basins and Cities

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## Abstract

*Due to the increasing impacts of climate change on flood management, it is vital to implement effective flood mitigation measures. Economic factors significantly influence the feasibility and speed of these implementations. Evaluations must go beyond just the implementation costs. This paper introduces tools and methods for incorporating environmental economics into flood risk management at various scales, from urban areas to entire river basins. Comprehensive analysis should include social, environmental, direct, and indirect factors. Despite the variability in flood mitigation costs across different economies, the methods discussed are highly adaptable. Data limitations for appraisal tools like Multicriteria Analysis (MCA) and Cost-Benefit Analysis (CBA) can be addressed through expert judgment, qualitative assessment, or using GDP-proportional data for cost estimation. This approach utilizes databases from experienced countries, making the methods adaptable to different contexts.*

**Key words:** environmental economics, flood mitigation, cost-benefit analysis, river basins, cities

**J.E.L. classification:** Q54

## 1. Introduction

Flood mitigation is a critical issue for many river basins and cities around the world, where increasing urbanization and climate change are escalating the frequency and severity of floods (Popescu and Bărbulescu, 2022). Environmental economics plays a vital role in developing and implementing effective flood mitigation measures by evaluating the economic implications of various strategies, ensuring efficient use of resources, and balancing ecological sustainability with economic development (De Bruin and Ansink, 2011).

Environmental economics helps policymakers and planners understand the costs and benefits associated with different flood mitigation measures. By applying economic principles, we can prioritize interventions that provide the greatest benefits relative to their costs, ensuring that limited resources are used effectively to protect communities and ecosystems.

Key concepts in environmental economics applied to flood mitigation can be summarized as following (Aven, 2016, MacNeil, 2024, Markandya, 2019, Salonen, 2021, Hudson and Wouter, Botzen, 2011).

a. *Cost-Benefit Analysis*: This technique involves comparing the costs of flood mitigation projects (such as levees, reservoirs, and wetland restoration) with the expected benefits, which include reduced flood damage, avoided economic losses, and improved public safety.

b. *Valuation of Ecosystem Services*: Wetlands, forests, and other natural areas provide valuable services such as water infiltration and flood regulation. Environmental economics assigns monetary values to these services, highlighting the economic benefits of preserving and restoring natural flood buffers.

c. *Externalities*: Flooding often results from external factors such as upstream land use changes, which can increase runoff and downstream flood risks. Environmental economics addresses these externalities by encouraging practices that mitigate upstream impacts, such as sustainable land use and watershed management.

d. *Risk Assessment and Management*: Environmental economists evaluate the probability and potential impacts of flooding events to inform risk management strategies. This includes developing insurance schemes and financial instruments that can distribute the economic risks of flooding more effectively.

To implement effective flood mitigation measures, various economic policy instruments are employed:

- *Investment in Infrastructure*: Funding for flood control infrastructure, such as dams, levees, and drainage systems, is assessed for its economic efficiency in reducing flood risks.

- *Natural Infrastructure Solutions*: Investments in green infrastructure, like wetlands restoration and urban green spaces, are evaluated for their cost-effectiveness and multiple benefits beyond flood control, such as biodiversity conservation and recreation.

- *Market-Based Instruments*: Tools like flood insurance and incentives for flood-resilient construction can motivate individuals and businesses to adopt practices that reduce flood risk.

- *Regulatory Measures*: Zoning laws and building codes can be designed to minimize flood damage by restricting development in high-risk areas and ensuring that new buildings are flood-resistant.

## 2. Theoretical background

Multicriteria Analysis (MCA) is a decision-making tool to evaluate and prioritize multiple options when addressing complex problems involving diverse and often conflicting criteria (Gamper et al., 2006). In flood risk mitigation, MCA helps policymakers and planners assess various mitigation measures by considering various factors beyond just economic costs and benefits. This holistic approach ensures that all relevant aspects of flood risk management are considered, leading to more balanced and effective decision-making.

The key components of the multicriteria analysis are criteria selection, weighting criteria, evaluation of alternatives, aggregation of scores, ranking, and selection.

The first step in MCA involves identifying the essential criteria for evaluating the flood risk mitigation measures. These criteria can be broadly categorized into economic, social, environmental, and technical factors. The economic criteria are represented by the costs of implementation, maintenance costs, and potential economic losses avoided. Social criteria refer to the impact on local communities, public safety, and social equity. The environmental criteria consider the effects on ecosystems, biodiversity, and sustainability of natural resources, while the technical criteria relate to the mitigation measures' feasibility, reliability, and effectiveness.

Once the scores for each criterion are combined, using the assigned weights, an overall score is produced for each mitigation option. This step often involves mathematical modeling and may use techniques such as weighted sum models, analytic hierarchy process (AHP), or other aggregation methods. The outcome of the MCA process is the ranking of the mitigation options based on their overall scores. The highest-ranking options are considered the most favorable for implementation. Decision-makers can then select the best option or a combination of options that meet the desired balance of effectiveness, cost-efficiency, and sustainability.

Afterwards, the scores for each criterion are combined, using the assigned weights, to produce an overall score for each mitigation option. This step often involves mathematical modeling and may use techniques such as weighted sum models, analytic hierarchy process (AHP), or other aggregation methods. Finally, the mitigation options are ranked based on their overall scores. The highest-ranking options are considered the most favorable for implementation (Popescu and

Bărbulescu, 2023, Costache et al. 2021). Decision-makers can then select the best option or a combination of options that meet the desired balance of effectiveness, cost-efficiency, and sustainability.

MCA is often applied in Flood Risk Mitigation, being also steered by national methodologies requirements and compliant with EU flood Directive implementation or other regulatory requirements. MCA is particularly useful in flood risk mitigation because it allows for a comprehensive evaluation of mitigation measures, incorporating diverse perspectives and criteria often overlooked in traditional cost-benefit analyses. MCA facilitates the inclusion of stakeholders in the decision-making process, ensuring that the selected measures align with the values and preferences of the affected communities. The systematic and structured approach of MCA increases the transparency of the decision-making process, making it easier to justify and communicate decisions to the public and stakeholders. At the same time, the MCA can be adapted to various scales and contexts, from local community projects to large-scale regional flood management plans.

An example of criteria in flood risk mitigation MCA can be represented by the economic impact, namely the cost of construction and maintenance, potential savings from avoided flood damage, the effectiveness - reduction in flood risk, extent of area protected, environmental impact - preservation of wetlands, impact on water quality, biodiversity, social impact - displacement of communities, impact on public health and safety, equity in risk distribution and the technical feasibility - ease of implementation, robustness under different flood scenarios, adaptability to future changes.

In practice, evaluating the MCA can be bumped by different potential obstacles related to data availability, subjectivity, and complexity. Accurate and comprehensive data is essential for reliable MCA; any data gap can lead to biased or incomplete evaluations. Also, the weighting of criteria and scoring of options can introduce subjectivity. It is crucial to use transparent and consistent methods to minimize bias. Finally, MCA can become too complex, especially when dealing with many criteria and options. Simplifying the analysis without losing essential information is a key challenge and desired for the success of the evaluation. Other challenges refer to the accuracy of predicting the economic impacts of climate change, valuing intangible benefits such as biodiversity, and integrating diverse stakeholder perspectives. Future directions may involve enhancing economic models to account for dynamic environmental changes, increasing interdisciplinary collaboration, and promoting adaptive management approaches.

Once the MCA is finalized, the next step is to perform a Cost-Benefit Analysis (CBA) for Flood Risk Mitigation. This systematic approach evaluates the economic efficiency of flood risk mitigation measures by comparing their total expected costs against their total expected benefits. The objective is to determine whether the benefits of a proposed flood mitigation project outweigh its costs and to identify the most economically advantageous option. The CBA process involves identifying and quantifying costs and benefits, considering the time horizon and discounting, and conducting a sensitivity analysis to assess the robustness of the results.

The first step in CBA is identifying all the relevant costs and benefits of the flood mitigation project. These can be categorized into direct costs - costs of constructing and maintaining flood defenses (e.g., levees, reservoirs, drainage systems), indirect costs - secondary costs such as disruption to local communities, environmental degradation, and opportunity costs of land use, direct benefits -reduction in flood damages to properties, infrastructure, and agricultural land, and indirect benefits - improved public safety, enhanced property values, ecosystem services, and economic stability. Once identified, the next step is to quantify these costs and benefits in monetary terms. It involves estimating the financial expenditure required for the project and the monetary value of the benefits achieved, such as reduced flood damage and improved quality of life. Flood mitigation projects often have long-term implications, so it is essential to consider the time horizon over which costs and benefits will occur. Future costs and benefits are discounted to present value using a discount rate, reflecting the time value of money. This allows for comparing costs and benefits that occur at different times. The NPV is calculated by subtracting the present value of costs from the present value of benefits. A positive NPV indicates that the project's benefits exceed the costs, making it economically viable. The BCR is another important metric calculated by dividing the total present value of benefits by the total present value of costs. A BCR greater than 1



indicates that the benefits outweigh the costs. Finally, a sensitivity analysis can be performed to test the robustness of the CBA results by varying key assumptions and parameters, such as the discount rate or cost estimates. Sensitivity analysis helps identify which variables have the most significant impact on the outcome and assesses the reliability of the conclusions.

CBA is widely used in flood risk mitigation to assess and prioritize different projects and strategies, ensuring that resources are allocated efficiently. Common applications include:

- comparing structural and non-structural measures: evaluating the economic viability of constructing physical barriers versus implementing early warning systems or land use planning.
- project feasibility studies: determining whether specific flood defense projects, such as levees or reservoirs, provide sufficient economic benefits to justify their costs.
- policy formulation: informing the development of flood management policies by assessing the economic impact of regulatory measures and incentive programs.
- investment decisions: guiding public and private investment in flood risk mitigation infrastructure and initiatives.

For a better explanation let's consider the following example of CBA for flood mitigation: let's consider the following example of CBA for flood mitigation: costs are given by the construction and maintenance of flood defenses, administrative and operational expenses, environmental impacts, such as habitat disruption, and social costs, including displacement of communities. The benefits are represented by reduced flood-related property and infrastructure damage, decreased economic losses in agriculture and industry, enhanced public health and safety, increased property values and community resilience, and preservation of ecosystems and biodiversity.

The CBA's challenges are related to data availability and accuracy, valuation of intangibles (e.g. ecosystem services or social well-being are difficult to quantify in monetary terms, potentially leading to underestimation of true benefits), and distributional effects (CBA typically focuses on aggregate costs and benefits, but it is also important to consider how these are distributed among different stakeholders and communities).

### **3. Research methodology**

Worldwide, the MCA and CBA have different applications for flood risk mitigation at different land scales (Kundzewicz et al., 2018). These follow the general guidelines, which are usually transposed into local legislation, adapted to the national context, but can have different particularities (EEA, 2007). For example, the Netherlands, known for its advanced flood management, employs engineered and nature-based solutions to manage water levels and protect urban areas, using comprehensive cost-benefit analyses to guide investments (Brouwer and van Ek, 2004). The Federal Emergency Management Agency's National Flood Insurance Program utilizes risk assessments and economic incentives to promote flood resilience in the United States (FEMA, 2022). In Bangladesh, in the flood-prone regions, economic analyses support investments in community-based flood management and early warning systems, emphasizing cost-effective and sustainable solutions. Romania has a national methodology for the development of programs of measures, where MCA and CBA applications are described, aligning the approach when it comes to the management of flood risk.

These methods, originally designed for flood risk management at the national level, demonstrate their adaptability by being effectively downscaled to smaller units, such as subbasin or municipality level. They form part of a comprehensive sequence of actions that are undertaken to create a flood risk management plan (Fig. 1).

The cost estimation for the baseline (do-nothing with maintenance) and alternatives involves inputting a stream of costs into the 'costs' worksheets. These include initial investment, replacement, operating and maintenance costs, land purchase costs, revenues, and other expenses. This process is part of the MCA and carried forward to the CBA. Mitigation costs are noted but only required for the CBA. In the MCA, residual impacts (scores less than 100) are included in the weighted score, not as separate costs, but potential mitigation costs should be considered to avoid selecting an alternative with prohibitively high mitigation costs. There are three cases of uncertainty in cost estimates:

Figure no. 1. Example of diagram with the general technical process of developing a River Basin Management Plan



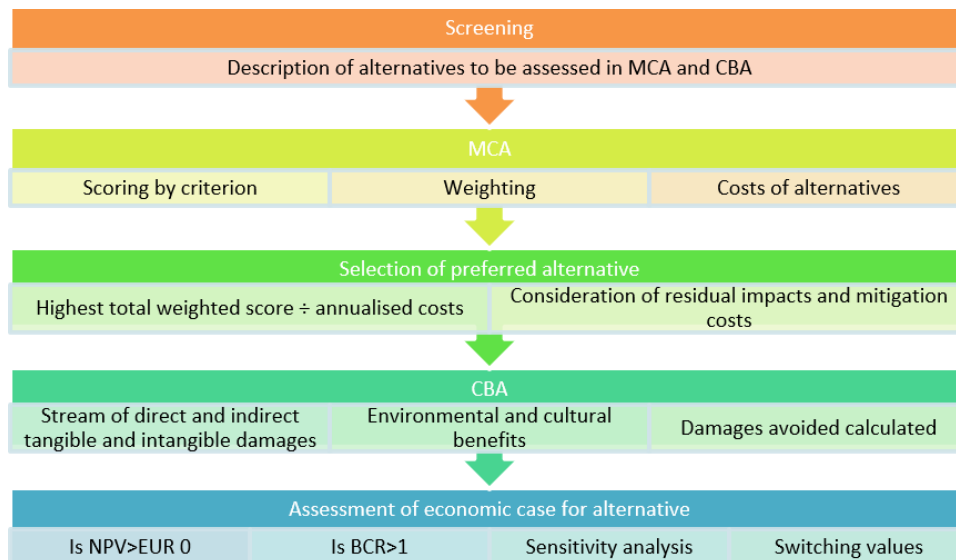
Source: Author’s contribution

- Costs-worst case: Records higher or upper-bound costs, accounting for possible optimism bias.
- Costs-realistic case: Records the best estimate of costs.
- Costs-best case: Records lower costs, assuming everything goes as planned.

#### 4. Findings

In practice, the MCA and CBA evaluation process looks like the one described in Fig.2, which was extracted from the Romanian national methodology for a program of measures.

Figure no. 2. Steps for applying the MCA and CBA (source: Romanian national methodology for development of program of measures)



Source: Author’s contribution

A case study for a preliminary flood risk area in Romania (called Tazlau) will be presented. It will show the actual application and calculation of the MCA and CBA to test the viability of the flood mitigation measures. The case study will not provide details about assessing the preliminary flood risk, hazard mapping, or risk calculation. These activities were part of the study to provide the necessary input for the flood hazard, so identifying potential measures and their assessment is possible.

As a first step, screening of existing infrastructure (baseline) and two alternative packages of flood mitigation measures were inventoried (Fig. 3). For each of these variants, an MCA ranking was performed considering social, economic, environmental, and cultural factors, implementing viability in three scenarios: pessimistic, best estimate, and optimistic. Scores were given for each option, and a ranking in the best estimate scenario indicated the second alternative as the optimum to be further implemented to lower the flood risk (Fig.4).

Figure no. 3. Measures description (source: Romanian national methodology for development of program of measures)

Baseline (B)	Existing infrastructure – local dikes and bank protections
Alternative 1 (A1)	Alternative 1 is centered on retention in lateral accumulations, complemented by longitudinal and transverse dams but also by some measures to redirect the flow away from the risk areas on the opposite bank
Alternative 2 (A2)	Alternative 2 is focused on floodplain protection through a combination of longitudinal and transverse dikes. The works in the second category have the role of limiting the transfer of risk downstream. Lateral accumulations are replaced by dikes to divert the flow in the main bed as an alternative form of retention, but also to redirect the flow away from the risk areas on the opposite bank.

Source: Author’s contribution

Figure no. 4. Measures description (source: Romanian national methodology for development of program of measures)

Weighted score	Best estimate										
	Max score	35	29	24	6	6	100			Ranking of alternatives by MCA Score	
	Social	Economic	Environmental	Cultural	Implementability	All	Pessimistic (all)	Optimistic (all)	Pessimistic	Best	Optimistic
B	8	0	13	5	0	25	59	59	1	3	1
(A1)	27	22	4	4	1	58	59	59	1	2	1
(A2)	27	22	6	5	1	61	59	59	1	1	1

Source: Author’s contribution

Following the MCA, the CBA analysis was further conducted reaching the estimations shown in Table 1. Based on the data provided in the CBA analysis, the best alternative is determined by comparing the Benefit-Cost Ratio (BCR) and the Net Present Value (NPV) for each alternative. Here’s a summary of the key results from the CBA:

Table no. 1 Determining the best alternative (source: Romanian national methodology for development of program of measures)

	Present Value Damages for BCR(€)	Benefits from damages avoided	Realistic costs (€)	Quick CBA: BCR	Quick CBA: NPV	Change in NPV	Quick CBA: ERR
B	118,464,598		-				
A1	27,256,888	91,207,710	9,729,917	9.37	81,477,793	81,477,793	837%
A2	27,334,388	91,130,210	6,350,219	14.35	84,779,991	3,302,198	1335%
Incremental analysis		Change in benefit	Change in costs	Inc BCR	Change in NPV		
2nd lowest cost v 1st lowest cost		- 77,500	-3,379,698	0.02	3,302,198		
3rd lowest versus 'best of 2nd/1st'		- 91,130,210	-6,350,219	14.35			

Source: Author’s contribution

- ✓ Baseline:
  - Present Value Damages: €118,464,598
  - Benefits from Damages Avoided: €0
  - Costs: Not provided for baseline
  - BCR: Not applicable
  - NPV: Not applicable
- ✓ Alternative 1:
  - Present Value Damages: €27,256,888
  - Benefits from Damages Avoided: €91,207,710
  - Realistic Costs: €9,729,917
  - BCR: 9.37
  - NPV: €81,477,793
  - Economic Rate of Return (ERR): 837%
- ✓ Alternative 2:
  - Present Value Damages: €27,334,388
  - Benefits from Damages Avoided: €91,130,210
  - Realistic Costs: €6,350,219
  - BCR: 14.35
  - NPV: €84,779,991
  - ERR: 1335%

Analyzing the results and looking at the Benefit-Cost Ratio (BCR), it results that Alternative 2 has a higher BCR (14.35) compared to Alternative 1 (9.37), indicating that for every euro spent, Alternative 2 yields more benefits. From the Net Present Value (NPV) perspective, Alternative 2 also has a higher NPV (€84,779,991) compared to Alternative 1 (€81,477,793), which means Alternative 2 provides greater net benefits after accounting for costs.

Finally, looking at the Economic Rate of Return (ERR), Alternative 2 has a higher ERR (1335%) than Alternative 1 (837%), indicating a higher return on investment.

In conclusion, after performing the Cost-Benefit Analysis, Alternative 2 is the best option as it offers the highest Benefit-Cost Ratio (BCR), Net Present Value (NPV), and economic rate of Return (ERR). This makes it the most economically advantageous option for flood risk mitigation.

## 5. Conclusions

Integrating environmental economics into flood risk management is crucial in addressing the increasing frequency and severity of flood events driven by climate change and urbanization. This paper has highlighted the importance of considering economic, social, and environmental factors in selecting and implementing flood mitigation measures. By employing tools like Multicriteria Analysis (MCA) and Cost-Benefit Analysis (CBA), policymakers can comprehensively evaluate flood mitigation strategies, balancing effectiveness, cost-efficiency, and sustainability.

The study emphasizes that the economic viability of flood mitigation measures varies significantly across different national contexts due to varying costs and available data. However, leveraging expert judgment and proportional data from countries with established methodologies can bridge these gaps, facilitating more informed decision-making.

Through a detailed case study from Romania, the paper demonstrates the practical application of MCA and CBA in evaluating flood risk mitigation options. The findings underscore the importance of thorough cost assessments and sensitivity analyses to identify the most economically advantageous solutions. In the case study, Alternative 2 emerged as the preferred option through MCA and CBA due to its balanced consideration of social, economic, and environmental impacts indicating the highest economic benefits relative to its costs.

In conclusion, integrating environmental economics into flood risk management enhances the decision-making process and ensures that the most effective and sustainable solutions are implemented.

This approach is essential for protecting communities, preserving ecosystems, and promoting economic stability in the face of growing flood risks. Future research should focus on improving data accuracy, valuing intangible benefits, and incorporating diverse stakeholder perspectives to refine these analytical tools further.

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# Navigating Risks: Exploring the Perception of Risk Awareness on Strategic and Operational Procurement – A Descriptive Approach

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## Abstract

*Strategic and operational procurement are important parts of the procurement landscape within large global enterprises. Strategic procurement is related to long-term strategies such as supplier selection and contract negotiation. Operational procurement is related to day-to-day purchasing operations of the procurement process, such as cost overruns, quality issues or delays. This study analyses the perceived risk awareness of global supply chain risks during a specific crisis context. For this quantitative research study, a comprehensive survey was conducted to explore the perception of strategic and operational procurement professionals over the categorized risks and establish potential gaps. The research concludes that to capture all the perceived risks, the synergetic approach combining strategic and operational procurement practices is beneficial for mitigating risks effectively.*

**Key words:** global enterprises, operational procurement, risk categorization, risk perception, strategic procurement

**J.E.L. classification:** F23, F60, L20, M12, M16, O14

## 1. Introduction

During today's unstable post-pandemic time and amid geopolitical tensions, procurement businesses face a volatile environment (Um and Han, 2020). Global supply chains require enhanced resilience and risk mitigation strategies (Chenini et al, 2020; XXX). This volatile background presents significant challenges for enterprises operating in a post-pandemic world and with geopolitical instabilities (Choudhary et al, 2022). Therefore, procurement businesses had to reconsider risk categorization and monitoring as priorities. In the past two years, the Ukraine war triggered multiple disruptions starting with raw material price increases, market instability and inflation, resulting in recession and unprecedented price levels (Ngoc, N.M. et al., 2022).

Global enterprises must prioritize risk mitigation strategies to address potential disruptions. In the current landscape of procurement, professionals focus on risk management and supply chain resilience (Ozdemir, D. et al., 2022; Um and Han, 2020). The pandemic has revealed the susceptibilities of present-day global supply chains, however, pandemics represent only one kind of risk among numerous others capable of undermining the operations of supply chains (Nikookar, E. and Yanadori, Y., 2022).

Strategic procurement demonstrates increased risk awareness, focusing on long-term threats and opportunities. Meanwhile, operational procurement tends to prioritize short-term impacts and immediate needs, avoiding disruption within its own production facilities. The interconnected nature of global supply chains requires a comprehensive approach to risk management, integrating the strengths of both strategic and operational procurement functions. Strategic procurement's long-term perspective enables organizations to anticipate and prepare for potential risks, contributing to enhanced supply chain resilience (Um and Han, 2020; Wieland and Durach, 2021). On the other hand, operational procurement's focus on short-term impacts allows for timely responses to immediate challenges.

During a specific crisis context, the risk hierarchization depends on several complex factors and tends to be prioritized subject to specific senses of urgency and role objectives (Roscoe, S. et al, 2022). During the pandemic and later the Ukraine war, several research focused on the main risks associated with the global supply chains during a crisis (Ozdemir, D. et al., 2022; Ngoc, N.M. et al., 2022). Despite this, there has been less emphasis on the different risk levels perceived by the different procurement roles within a global enterprise. This study is intended to address this gap and to bring attention to the risk awareness levels perceived by the procurement professionals namely strategic versus operational procurement roles.

## 2. Literature review

To formulate the queries of this research, the author evaluated the existing research and studies to define the perceived risk awareness of the procurement professionals associated with the global supply chain during a crisis. Several studies (Ahmed, W. et al., 2020; Dijmarescu, 2024; Lu, T., Tomlin, B., 2023) highlight the essential role of procurement professionals in mitigating the risks. During the aftermath of the pandemic and amidst political conflicts (Roscoe, S. et al, 2022; Ngoc, N.M. et al., 2022), an increased emphasis on risk awareness has become essential for businesses to identify and address potential threats, consequently, to ensure long-term resilience (Ahmed, W. et al., 2020; Um and Han, 2020). Other authors like (Wilhelm, M and Villena, V.H., 2021), consider that the culture of risk consciousness relates to an organizational strategy where both employees and management actively acknowledge and manage potential risks in their decision-making and daily activities (Choudhary et al, 2022). Goal-driven risk management helps in proactively identifying potential risks (Kjernsmo and Petersen, 2019), developing robust mitigation strategies and ensuring business continuity as presented by (Chenini et al, 2020). In a logical way, the first queries to be formulated bring attention to the roles of procurement in relation with risk awareness.

*Q1 What would be the common objectives of the procurement professionals acting in strategic or operational roles, concerning risk awareness?*

Strategic procurement is responsible for identifying and managing risks at a macro level, such as supply chain disruptions, geopolitical uncertainties or market dynamics (Choudhary et al, 2022; Um and Han, 2020). According to study authors Kjernsmo and Petersen (2019), by collaborating with operational procurement, strategic procurement can ensure that risk management strategies and processes are effectively implemented at the operative level. The risk awareness is one factor from very complex coordination and logically, both roles have common objectives to ensure risk awareness for early actions and appropriate countermeasures.

The procurement strategies are aligned for realizing the company's strategy (Can Saglam et al., 2022), with direct contribution of the strategic and operational procurement (Kjernsmo and Petersen, 2019). Strategic procurement relies on sustainable sourcing, contract and supplier relationship management, as considered by (Rafati and Poels, 2015). Operational procurement runs the purchasing processes and routines for obtaining the best spend from each transaction and ensuring the business continuity. Consequently the logical statement is that procurement roles are having common objectives to ensure risk mitigation based on perceived risk awareness.

In a large global enterprise, the collaboration between strategic procurement and operational procurement is crucial for achieving overall targets and mitigating risks (Wieland and Durach, 2021). The aforementioned procurement functions play distinct and interdependent roles in the procurement process and their mutual collaboration with supply chain is essential for driving value, managing risks and ensuring the smooth functioning (Baah et al., 2021; Can Saglam et al., 2022). To understand the perceived risk and the different levels of risk awareness the next queries is formulated as follows:

Risk awareness is the extent to which a person, role position or organization is aware of potential or actual hazards. A definition of risk awareness according to Wanner (2023) is cited as follows: “Risk awareness is having an understanding of what risks exist, what impact they can have, and how to deal with them, but also constantly keeping an open eye for new risks”.

Risk awareness in procurement is part of risk management for assessing and evaluating (Ahmed, W. et al., 2020; Wieland and Durach, 2021) . Process consists in a collection of internal input information (data analytics, cross-functional reports, KPIs, supplier scorecards, risk dashboard and other procurement platforms) or external input information such as market intelligence, financial international reports, transparency of multi-tier supply chain (Wilhelm, M and Villena, V.H., 2021), supplier relationship and supplier reliable communication, according to (Butt et al, 2020; Can Saglam et al., 2022). Risk awareness can be enhanced actively further, according to some authors (Roscoe, S. et al, 2022), there are different levels of perceived risks and these steps are part of the awareness-increasing process but the reference is the internal communication and mutual trust (Baah et al., 2021). Risk awareness in procurement should constantly adapt to new circumstances mentioned by (Choudhary et al, 2022; Wanner, 2023) and be updated to be able to act in a risk-aware manner and the trust buyer-supplier plays an important role (Butt et al, 2020). In a logical argumentation, the level of the risk perception of the procurement professional acting in strategic or operational roles may differ or capture partially the specific topics. The first query is an important deductive step for further descriptive analysis – the research focus to the following Q2 query.

*Q2 What would be the level of the risk perception of the procurement professionals acting in strategic or operational roles?*

Risk awareness is a somewhat abstract topic, several authors (Rafati and Poels, 2015) highlighted that procurement professionals have an influence on the procurement ecosystems when risks are managed and consequently risk decisions are made. Especially in strategic processes where risk awareness is essential (sourcing, supplier selection and evaluation) by creating new business cases, often complex and working in a high-level environment of technology, stakeholders and laws, so a strong risk awareness sense is very helpful in identifying risks (Gong et al., 2019; Kjernsmo and Petersen, 2019). A healthy risk awareness is also crucial when it comes to identifying emergent risks (Duhamel et al, 2013), such as geopolitical or climate changes (Ngoc, N.M. et al., 2022) or from the supplier side. In this respect were considered the following risks: financial, personnel resources, capacity bottlenecks, product conformance and supplier quality assurance (Rafati and Poels, 2015), raw material shortages or multi-tier lack of supply availability (Wilhelm, M and Villena, V.H., 2021). For further sustainability, some risks are emerging (Can Saglam et al., 2022) and have not been previously known or even noticed and therefore proactive risk detection is necessary. The different levels of perceived risk awareness are positively contributing as long as are internally shared and communicated and all the procurement roles are constructively collaborating. In his article Wanner (2023) expressed that the internal shared risk awareness can help in identifying and managing potential disruptions in the supply chain. By understanding the risks associated with procurement processes, both strategic and operational departments have proactively to communicate and align on specific directions of action. For further research, it was considered a set of defined risks, listed below, and the data collected had been analyzed to understand the gap of the risk perception.

### **3. Research methodology**

To achieve the research objectives and in the attempt to answer the formulated queries, the author considered the quantitative analysis and the descriptive approach. Using a survey built on a questionnaire listing eleven main risks and sent to a total of 115 procurement professionals, the data was collected from 87 respondents, with the following percentages for strategic (46,6%) and operational (53.4%) procurement roles.



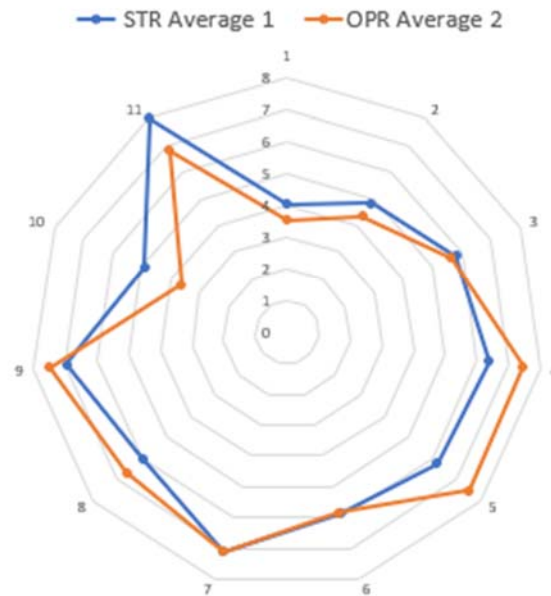
The listed risks had been considered the input variables as follows: R1 = Geopolitical Risks, R2 = Raw Material International Market, R3= Supplier Insolvency, R4= Other (Environmental, Force majeure risks), R5= Supplier specific risks - capacity bottleneck, R6= Supplier specific risks - Quality management system, R7= Product conformance, R8= Supplier - production specific risks, R9= Supplier specific risks - personnel shortage, R10= Logistics - Supplier transportation risks, R11= Global logistics – used by the global enterprise.

The respondents were invited to hierarchize the risks based on their experiences during the past crises (pandemic, Ukraine war) and the answers reflected their perceived level of priority. The descriptive analysis has considered two groups: 1. STR= Strategic procurement roles and 2. OPR = Operational procurement roles. The hit ratio of all respondents (N=87) listed top down has shown higher awareness and concern (lower scores) for R1 (Geopolitical risk) due to high attention on the start of the Ukraine war and less concern (highest scores) for the R11 (Global logistics) organized by the global enterprise transport forwarders, but higher concern for the R10 (Logistics organized by the supplier transportation).

The Risk averages (R1 to R11) had been described graphically by a radar chart as in Figure1:

Figure no. 1. Perception of Risk Awareness on Strategic and Operational Procurement based on survey responses

**RADAR Chart for the AVERAGE of the RISKS PRIORITIZATION**



Source: own author’s research

For further descriptive approach was calculated the averages (Mean) and standard deviations (SD) for each of the eleven risks considered and for both group samples: STR and OPR.

The Mean is calculated by adding up all the scores in the set and dividing the sum by the total count of the numbers:

$$\text{Mean STR} = \frac{\sum(x_i)}{\text{Total STR}} \quad \text{and} \quad \text{Mean OPR} = \frac{\sum(x_i)}{\text{Total OPR}}$$

The Standard deviation (SD) is a measure of the amount of variation of a random variable in relation with its mean:  $\text{SD STR} = \sqrt{\frac{\sum(x_i - \text{Mean STR})^2}{N \text{ STR}}}$  and  $\text{SD OPR} = \sqrt{\frac{\sum(x_i - \text{Mean OPR})^2}{N \text{ OPR}}}$ .

The unpaired T-Test (independent T-Test) is a statistical element to compare the averages/ means of two independent or unrelated groups to determine if there is a significant difference between the two considered group samples STR and OPR. The returned probability value (p-value) is compared with 0,05 as the significance level is set at 5% as presented in Table 1.

Additionally, it was performed the F-test, a statistical test used to compare the variance of two samples – the Mean respectively the SD, for the considered two groups of populations Strategic (STR) and Operational (OPR), under the true null hypothesis and alternative hypothesis, namely:

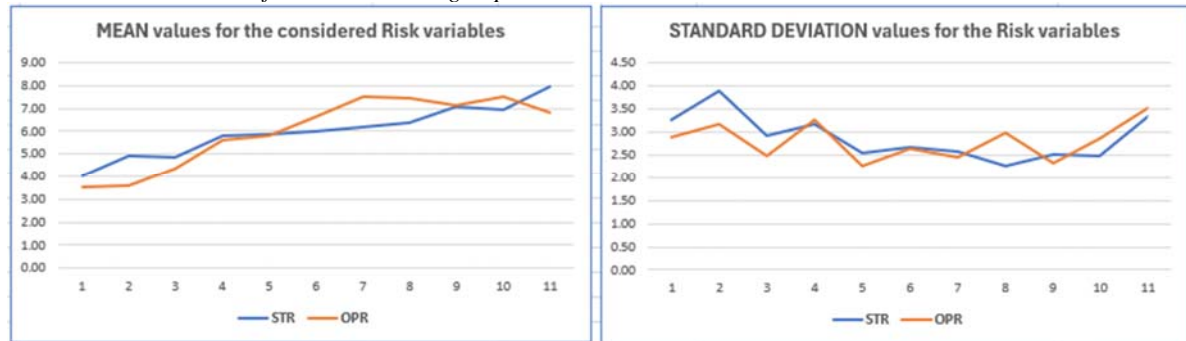
- Null hypothesis: There is no difference in the variance of the calculated mean between two populations (strategic versus operational) if  $P \text{ one-tail/two-tails} > 0,05$
- Alternative hypothesis: The strategic group of respondents has a higher variance of their calculated mean compared with the Operational group if  $P \text{ one-tail/two-tails} < 0,05$

#### 4. Findings and discussions

The research analysis focuses on two groups of procurement roles strategic and operational and risk mitigation is one of the overall company procurement objectives. The expressed risk categorization is part of the perceived risk awareness and as a logical consequence, there are different perceptions and concerns based on the procurement roles. The study has certain limits, the job role profiles are different, the respondent's answers could be subjective and based on specific use cases and risk awareness could differ on several other topics that this study did not consider (age experience in procurement, supplier relationship, digital analytics usage, internal risk platforms if existing and more).

For the considered 11 Risks categorization on the X-axis, the input variables are analyzed and their MEAN and SD are presented graphically in Figure 2:

Figure no. 2. Mean and respectively Standard Deviation for the 11x Risks categorization on the X-axis – Visualization for the considered groups STR and OPR



Source: own author's research

Further to T-Test and p-value are calculated within the Table 1 and F-test and P one-tail/two-tails are calculated for the Mean variance respective the SD variance:

The calculated T-Test showcase that the p-values are higher than 0,05, there is only one value related to R7 for which the p-value is less than 0,05. Explanation consists on the fact that there is a good internal alignment of the risk and the gap of the perceived risks is very limited for a variable only. There is a high level concern and attention where both roles are considering related to R1 (Geopolitical uncertainties) and R2 (Raw material shortage) in the context of the year 2022.

There is obvious that high level attention drawn by a specific risk Rx during a specific crises situation, from a complex range of the risks, could diminish attention and risk awareness for another risk Ry, leading to uncompliant delivery.

Table no. 1. T- Test and F-test for the Mean and SD variances

Roles	Risk Variables	Mean	T-Test P values	F-Test Mean-variance	F-Test SD variance
STR OPR	R1	3.78	0.46		
	R2	4.26	0.10		
	R3	4.60	0.41		
	R4	5.70	0.81		
	R5	5.85	0.94		
	R6	6.31	0.26		
	R7	6.86	0.02		
	R8	6.91	0.12		
	R9	7.12	0.97		
	R10	7.23	0.34		
	R11	7.39	0.12		
P one-tail				0.171	0.287
P two-tails				0.343	0.575

Source: own author’s research

Further interpretations of the F-test as presented in Table 2 show that both sets of variables (Mean and SD) for the two groups considered STR and OPR are presented P one-tail / P two-tail larger than 0.05 – which rejects the Alternative hypothesis:

The strategic group of respondents has no a higher variance of their calculated mean compared with the Operational group- the considered groups are aligned and perceived risk awareness and test does not present large or unusual gaps.

Additionally, as test correctness, it is shown that P Two-tails is double of P one-tail.

It is important to express the limitations of this theoretical approach, this study starts with the assumption that there is a Gaussian normal distribution of the level of perceived risk awareness. There is a limited input information gathering and a limited number of respondents.

## 5. Conclusions

In conclusion, the collaboration between strategic procurement and operational procurement is essential in a global enterprise to achieve overall targets and mitigate risks. Risk awareness is a complex factor (Wanner, 2023), by which depends on several aspects of risk management according to several authors (Ahmed, W. et al., 2020; Dijmarescu, 2024). By aligning procurement activities and managing risks effectively, strategic and operational procurement functions can work together to drive value and ensure resilience (Um and Han, 2020). Implementing strategic initiatives at the operational level and sharing data and insights, the internal collaboration is essential to bridge potential gaps and efficiency of the supply chain.

The study highlights the importance of understanding the differing risk perceptions and approaches between strategic and operational procurement. Kjernsmo and Petersen (2019) emphasize similarly the need for organizations to leverage the strengths of both procurement functions to effectively navigate and mitigate risks in a holistic manner. These findings provide valuable insights for decision-makers and procurement professionals, indicating that a balanced integration of strategic and operational procurement practices can significantly enhance risk management strategies within global enterprises. This research underscores the critical role of both strategic and operational procurement in addressing risk challenges, particularly in times of crisis and advocates for a collaborative and integrated approach across all procurement levels to optimize risk mitigation efforts.

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## Challenges in the Critical Commodities Market

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### Abstract

*To ensure resource security, to have access to resources for a sufficiently long period of time, it is necessary to take action to diversify the sources of raw and secondary materials, to reduce dependence on particular sources and to increase resource efficiency and circularity. It is generally valid for all raw materials, including basic raw materials, but especially for critical raw materials.*

*In this paper we analyse what are the critical raw material resources at global and European level, the legislation in this field and the main challenges countries are facing at the moment.*

**Key words:** critical minerals, raw materials, strategy

**J.E.L. classification:** K32, L61, O13, O25, Q01

### 1. Introduction

The importance of the subject under analysis is given by the global transition to clean energy, that represents the biggest economic transformation since the Industrial Revolution.

Critical minerals are the building blocks of the green and digital economy. Are mineral resources that are essential to the economy and whose supply can be disrupted. The „criticality” of a mineral changes over time as supply and society's needs change.

They are essential to the energy transition: without them, there would be no batteries, no electric cars, no wind turbines and no solar panels. The sun provides raw energy, but it is copper that enables electricity to circulate. Wind turbines need manganese, platinum and rare earth magnets. Nuclear power needs uranium. Electric vehicles need magnets, as do batteries containing lithium, cobalt and nickel. Finally, indium and tellurium are essential to the manufacture of solar panels.

Metal requirements for batteries are growing steadily. For example, a plant producing 30 GWh of batteries consumes around 33,000 tonnes of graphite, 25,000 tonnes of lithium, 19,000 tonnes of nickel and 6,000 tonnes of cobalt, each in the form of „battery-grade active materials”. The active battery materials market was valued at \$7.45 billion in 2017 and could reach \$26 billion by 2025. (Chalmin P. and Y. Jégourel, 2023)

In 2021, the International Energy Agency (IEA) estimated that demand could increase 42-fold for lithium, almost 20-fold for nickel and cobalt, and almost 3-fold for copper by 2040 for the electrification of transport (IEA, 2022). In 2023, the update of the IEA report highlighted the doubling in size of the markets for so-called transition metals (lithium, cobalt) over the past five years, to around \$320 billion. These markets are now as important as the traditional metal segments (zinc, lead, etc.) in terms of turnover. With metal consumption set to rise over the coming decades, policies to secure supplies in the main consumer countries and the strategies of producer countries are likely to have a lasting impact on access to mineral raw materials, international competition and, ultimately, the international geopolitical order.

### 2. Literature review

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

Reports from international organisations seeking to identify critical minerals for the energy transition and the risks in terms of energy security: IEA, OECD, World Bank Documents from the

EU, and the European Commission in particular, on the strategy for securing supplies, from the first list of critical materials in 2011 to the „Raw Material Act” of 2023.

At European level, In March 2024, the Council adopted the „European Act on Critical Raw Materials”, as the demand for rare earths will grow exponentially over the next period, due to the fact that critical raw materials are raw materials of high economic importance for the EU, with a high risk of supply disruption due to the concentration of their sources and the lack of good and affordable substitutes. The final text identifies two lists of materials (34 critical and 17 strategic) that are essential on the digital and ecological transition as well as for the defence and space industries.

A very recent study on critical minerals and their imports and exports is WTO – „High demand for energy-related critical minerals creates supply chain pressures” which was published on 10 February 2024. According to this study, the last five years have seen an acceleration in the value of trade in unprocessed critical minerals.

In Romania, the „National strategy for non-energy mineral resources, horizon 2035” was adopted last year, which sets out the general development directions, objectives, proposed measures, international standards for sustainable mining and how non-energy mineral resource activities can contribute to achieving sustainable development goals.

The Strategy was developed by the Ministry of Economy within the working group attended by representatives of academia and universities, employers and businessmen, research institutes, other specialists in the field of non-energy mineral resources. The strategy was based on the excellent work prepared by the Romanian Academy - Romania's Development Strategy for the next 20 years, integrated in the sectoral project „Natural Resources - Strategic Reserves, what we use and what we leave to future generations”. In the government programme, in order to ensure Romania's balanced and cohesive development, priority objectives include policies for the reindustrialisation of Romania through the creation of industrial ecosystems, networks of industrial hubs, the promotion of digital technologies, modern production techniques, new materials and the development of the circular economy.

### **3. Research methodology**

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

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

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

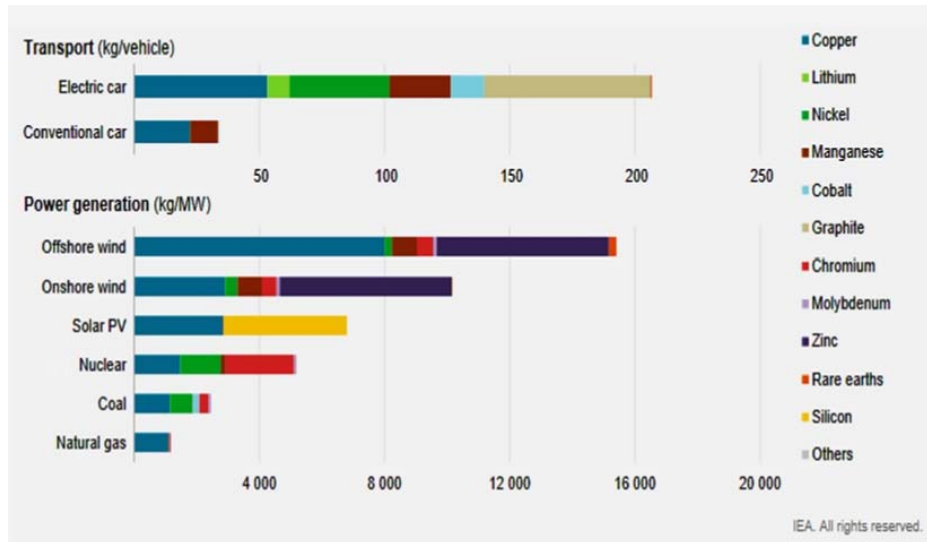
### **4. Findings**

#### **4.1. Mapping the world's deposits and reserves**

Critical raw materials are those raw materials which are particularly important in the economy and which are accompanied by an increased risk regarding their availability and supply. Critical raw materials are essential for many industrial ecosystems to function and not grind to a halt. Thirty-four critical raw materials have been identified at European level, of which 17 have been selected as strategic raw materials, as the demand for them will grow exponentially, with complex production requirements and high supply risk. This list is reviewed periodically.

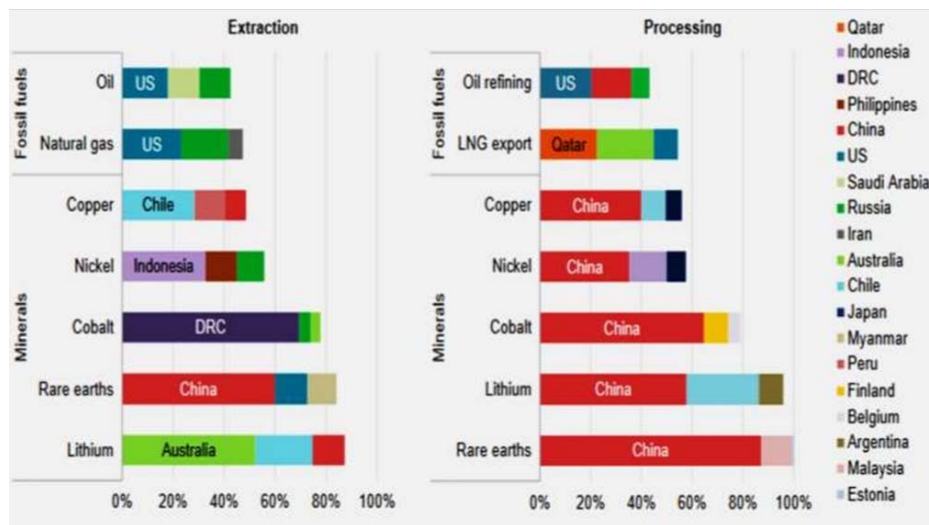
Driven by strong demand, the supply of metals can, in turn, affect the course of the energy transition, as the price of metals is a determining factor in the competitiveness of industrial equipment (see Figure 1).

Figure no. 1 Critical minerals pose new energy security challenges



Source: International Energy Agency (IEA)

Figure no. 2 Main countries on the critical minerals market



Source: International Energy Agency (IEA)

There are several risks to consider. Firstly, the value chains are more complex than those for fossil fuels, and the markets are not very transparent and can be highly volatile. Secondly, the number of producing countries is small. For lithium, cobalt and rare earths, the top three producers control more than three-quarters of world production. Some countries even have a quasi-monopolistic position, notably South Africa in the case of platinum and the DRC in the case of cobalt, while China accounts for 60% of rare earth production.

In addition, there are several geographies to be distinguished: reserves or resources, operating mines and refineries or smelters. The geography of refining is particularly concentrated, mainly because of the role played by China. China's share of nickel refining is 35%. It accounts for between 50% and 70% of lithium and cobalt refining, and 90% of rare earth refining (see Figure 2).

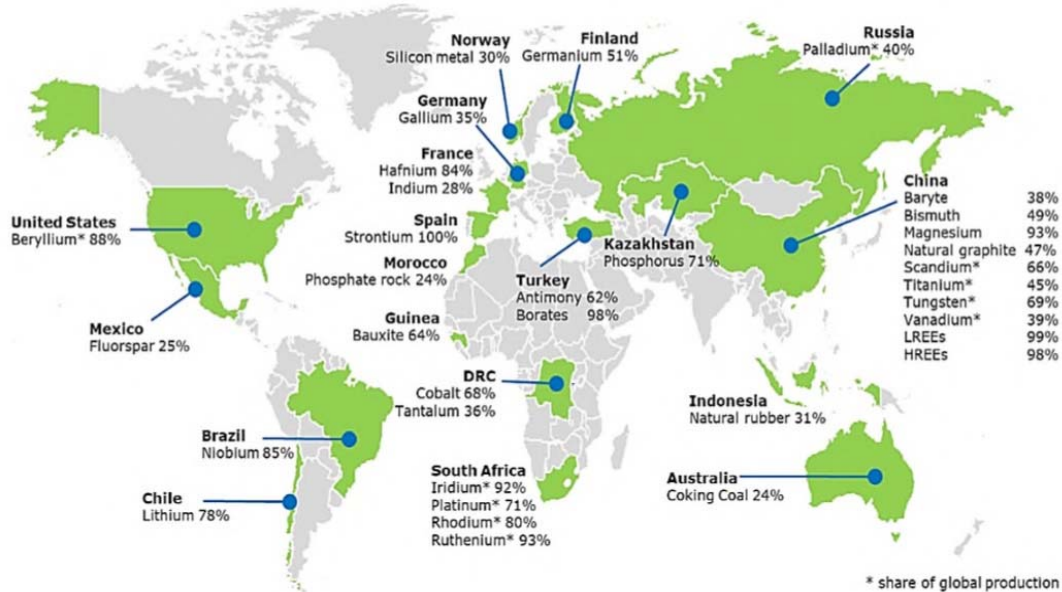
## 4.2. Analysis of critical raw materials and legislation at EU level

The history of rare earths is a European one. It began in Sweden in 1787, when the Swedish amateur mineralogist (and artillery lieutenant) - Carl Axel Arrhenius - discovered a black mineral in the Ytterby quarries north of Stockholm (used to develop porcelain).

At this moment, the EU depends on only one country for certain critical raw materials (Figure 3):

- China supplies 100% of EU purchases of heavy rare earths
- Turkey supplies 98% of the EU's boron purchases
- South Africa provides 71% of EU platinum imports.

Figure no. 3 Countries accounting for the largest share of EU supplies of critical metals



Source: (European Commission, 2020)

In the case of the EU, the regularly updated list of critical metals is used in the negotiation of trade agreements and in defining research and innovation programmes. In particular, the EU urges its partners to refrain from any measures aimed at restricting exports of metals. It was in this context that the EU lodged several complaints with the WTO against China (in 2012, 2014 and 2016), criticising the country for imposing export taxes on certain metals, or for securing long-term supplies from third countries, notably for cobalt, to the benefit of its refining industry. (Lepesant, 2021)

The EU is also pursuing a dialogue with Japan and the United States, while strategic partnerships could emerge with neighbouring countries, particularly in the Western Balkans (Serbia for borates and Albania for platinum).

The Council adopted this year, in March, a regulation establishing a framework with the aim of safeguarding the supply of essential raw materials in the long term at the European level: “Critical Raw Materials Regulation”. The final text identifies two lists of materials (34 critical and 17 strategic) that are essential for the green and digital transitions as well as for the defence and space industries (Figure 4).



Figure no. 4 Critical raw materials



Source: (European Council, 2024)

The regulation on critical raw materials identifies, in terms of annual consumption of raw materials, 3 benchmarks to be met: 10% to be extracted locally; 40% to be processed in the EU and 25% have recycled materials as a source of origin.

To facilitate the development of strategic projects, Member States will create single points of contact at the relevant administrative level and at the appropriate stage of the critical raw materials value chain. Extraction projects will receive permits within 27 months and recycling and processing projects should receive permits within 15 months, with limited exceptions designed to ensure meaningful collaboration with local communities affected by projects and adequate environmental impact assessment in complex cases. Large companies producing strategic technologies (i.e. battery, hydrogen or renewable energy producers) will carry out a risk assessment of their supply chains to identify vulnerabilities.

The European Commission has adopted, also, the “Circular Economy Action Plan” to help modernise the economy by exploiting opportunities at national and European level, with priority for six strategic areas: raw materials, batteries, active pharmaceutical ingredients, hydrogen, semiconductors, cloud and high-tech.

In Europe, are recycled over 50% of metals like iron, zinc and platinum, covering 25% of the EU's consumption, but the recycling rate is low or even derisory for several other metals. In the case of batteries, the recycling rate for cobalt is 32%, but lithium is rarely recovered. The difficulty lies in the design of the batteries and the risks of explosion and fire associated with their treatment at the end of their life. Recycling equipment is also economically difficult because the quantities are small and the metals are integrated with other materials. Faced with the challenges posed in terms of security of supply and the sustainability of the energy transition, the EU has fleshed out its legislation, particularly in the battery sector, in order to increase Europe's autonomy.

There is now a trend at European level for mineral resource deposits to be declared of public, local, regional, national or European importance, with regulations in place to protect research and exploitation. European climate and energy policy requires a large amount of metals and minerals for its strategic technologies and in this respect, capacity must be increased for all stages of the raw materials value chain, i.e. mining, recycling and extraction from ore, refining and transformation, according to the European Parliament resolution of 25 November 2020 on a “New industrial strategy for Europe”.

On the part of the European Union, a proposal for a regulation in favour of a storage solution was published on 16 March 2023 “Establishing a framework to ensure secure and sustainable supplies of critical raw materials” (European Commission 2023). Through this text, the Commission envisages a mapping of stocks and supply flows currently managed by public and private players in the European Union, in order to gain sufficient visibility to put in place a proactive policy of coordination between Member States.

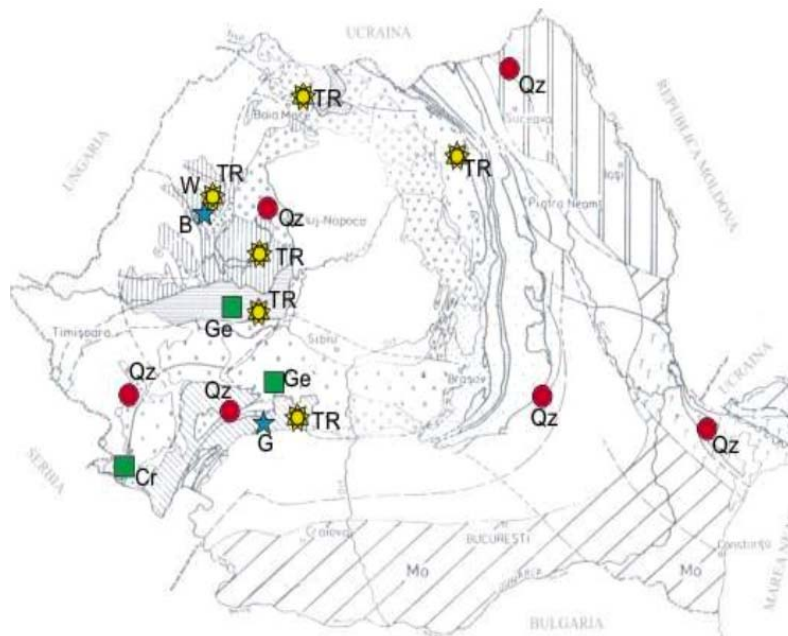
The development of regulation in Europe is also in line with the issues raised by international organisations (OECD, World Bank, IEA) to understand the criticality of minerals. Europe recently participated in the friend-shoring trend through the Critical Raw Mineral Club initiative. This initiative duplicates that of the United States, in which Europe also participates.

The European Union has a range of options here, which are not mutually exclusive: improving traceability, developing extraction activities on its own soil, identifying alternative resources and recycling. However, social acceptance, environmental risks and profitability are all challenges. While mining activity is enjoying a revival in northern European countries that could facilitate the establishment of industrial clusters for battery production, the environmental challenges cannot be overlooked. In this context, recycling appears promising.

#### 4.3. Analysis at the Romanian level

A SWOT analysis in “National strategy for non-energy mineral resources, horizon 2035” shows that there are indications of critical material existence in our country:

Figure no. 5 Critical material resources in Romania



Source: (Ministry of Economy, 2023)

In our country there are opportunities, some with good exploitation potential, but there are also geologically unexplored reserves. Thus, quartz sands and graphite belong to the category of economically important non-metallic resources with known geological reserves and exploitation possibilities. Economically important non-metallic resources with unknown geological reserves include boron and phosphorus minerals. Further, the category of economically very important metal resources with unknown geological reserves and moderate potential includes chromium, magnesium, germanium and tellurium. In the category of economically important metal resources, with unassessed geological reserves and moderate potential: stibium (antimony), wolfram (tungsten) and rare earths (TR). There are relatively low prospects of discovering resources of cobalt, indium,

niobium, gallium, platinum group minerals. An offshore map of National Agency for Mineral Resources (ANMR) showing the presence of manganese and rare earths also in the Black Sea.

The priorities of “National strategy for non-energy mineral resources, horizon 2035” are: geological research, inventory and evaluation of critical raw materials, advanced exploitation and processing of non-energy mineral resources, environmental restoration and socio-economic regeneration, exploitation of secondary resources from tailings ponds and tailing ponds, use of geothermal waters.

The general objectives of this Strategy have been established:

- the institutional and legislative framework on non-energy mineral resources to be harmonized
- for sustainable development, non-energy mineral resources are used responsibly in the interest of the country
- financial support in the field of industrial research, innovation and development of this group of resources.

## 5. Conclusions

Critical minerals are essential to many strategic industries in economy, such as agriculture, manufacturing, artificial intelligence, clean technologies, electric vehicles, energy and much more. They are essential to our daily lives and are vital components of the global energy transition, including the production of wind turbines, batteries for electric vehicles, solar panels and semiconductors.

We have to continue to strengthen the supply of critical minerals and promote innovation and sustainable practices within the minerals value chains. The actions must support economic growth and develop a more inclusive and highly skilled workforce, while advancing and reinforcing our leading environmental, social and governance standards:

Secure access to raw materials as far as possible by reducing dependence on imports and encouraging the development of the circular economy and local alternatives. The aim is to reuse or recycle mine tailings or goods components by giving them a second life.

We have to ensure the availability of components for tomorrow's industries by doubling Romanian production capacity and industrial innovation.

Master new digital technologies to develop sovereign solutions in agriculture, health and industry. Develop skills in the industries of the future by training young people and creating centres of excellence. Support the emergence and industrialisation of start-ups.

The mineral and energy resources of the subsoil represent a national heritage that must be harnessed in a sustainable way, as it is the basis for the socio-economic development of the country.

The exploitation of mineral resources requires the reactivation of the mining and processing industry (processing, concentration, metallurgy). It is imperative that the exploitation of mineral resources is carried out in a sustainable manner, without the use of technological procedures and highly toxic substances (e.g. sodium cyanide), which would endanger the environment, human communities, archaeological and historical remains and the natural landscape in the mining area. If, for the exploitation of certain mineral resources, it will be necessary to resort to foreign companies, the association/cooperation or concession agreements should provide for considerably higher profit shares for the Romanian State than those accepted for the Rosia Montana project (possibly with the application of production sharing agreement principles).

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# The Issue of Father Absence and the Socio-Economic Challenges for Family Well-being in the South African Landscape

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## Abstract

*To address the issue of father absence and its impact on family well-being in South Africa, this study employs a theoretical review and descriptive methods. Additionally, it acknowledges the various consequences of father absence and the declining role of men in society. Father absence poses a significant social problem, particularly exacerbated in the post-colonial era by various factors such as socio-economic challenges, divorce, family breakdown, untold fatherhood, refused fatherhood, and lack of fatherhood accountability. This issue has resulted in poverty-stricken households, directly affecting children. The objective of this study is to enhance family well-being within the context of the nation. The literature review and methodology have yielded valuable insights into examining the phenomenon of father absence.*

**Key words:** father absence, socio-economic challenges, family well-being, South Africa

**J.E.L classification:** D1, D12, D31, D91, E21, P46

## 1. Introduction

Father absence has garnered significant attention since 1968 owing to its profound impact on children's personal adjustment during the socialization process (Thomes 1968, p. 89). Therefore, it comes as no surprise that the South African government has identified father absence as one of its primary socio-economic concerns (Kamau 2018, p. 14). According to Freeks (2022a, p. 1), the concept of 'father absence' was initially proposed in the 1990s by University of Chicago theologian Don Browning (cf. Meyer 2018, p. 7). Furthermore, it should be noted that being a husband and a father are two distinct roles. Fatherhood is characterized by the presence of a child in the family (Salami & Okeke 2018, p. 2).

## 2. Theoretical background

The literature review in this paper entails a meta-theoretical analysis of father absence and its socio-economic impacts on family well-being.

### 2.1. What is father absence in reality?

Reuven-Krispin *et al*, (2021, p. 453) define 'father absence' as a person's need and longing for a father who has not been present in their lives emotionally, physically, or psychologically. Firstly, it denotes physical absence due to various circumstances such as familial discord, divorce, employment obligations, social unrest, and conflicts. Thus, irrespective of physical proximity, the second interpretation addresses the father's emotional detachment from their child's life. Meyer (2018, p. 4) observes that the breakdown of parental relationships can partially be attributed to father absence. While Mabusela classifies these as *factors*, Meyer suggests that they are *reasons* for paternal absence. Father absence can stem from various factors, including fathering children outside of marriage, abandonment, divorce, emotional unavailability despite physical presence, employment demands, social dislocation (where the father resides separately from the family), and death (Mabusela 2014, p. 13).

Father absence also includes circumstances where fathers fail to dedicate sufficient time to their children and have minimal impact on their development (Makofane 2015, pp. 22, 24). Fathers who do not reside with their children, refrain from communication, and fail to provide financial support are categorized as absent fathers (Eddy, Thomson-de Boor & Mphaka 2013, p. 7). While the detrimental effects of father absence is widely acknowledged, it is essential to recognize that even fathers who are physically present in their families can have negative impacts on family well-being (Meyer 2018, p. 2).

The effects of father absence prevent children from feeling and showing love, which contributes to persistent behavioral problems (Freeks 2022b, p. 1). Therefore, it is important to acknowledge that father absence is a societal factor that can exacerbate the challenges faced by many South African families. In the absence of a father figure, relationships are more prone to breakdowns, resulting in heightened dysfunctional family dynamics and diminished affection (Ellis *et al*, 2012).

## **2.2. The problem of father absence**

This paper acknowledges that the effects of father absence have been a longstanding subject of research, extensively explored by numerous scholars and researchers (Freeks 2022a, p. 4). Nevertheless, considering the intricate social, historical, political, and economic landscape of South Africa, all of which have contributed to the widespread occurrence of father absence, addressing this issue remains a crucial area of study (Ramatsitse & Ross 2023, p. 199). Father absence is not confined to South Africa alone, as noted by Freeks (2022a, p. 2); rather, it is a significant societal challenge affecting numerous families and communities globally.

Additionally, the dearth of father figures has emerged as a pressing national concern in South Africa (Tau 2020, p. 4). This palpable and urgent issue is driving rapid socio-economic transformations across Africa, with South Africa experiencing particularly notable effects (Kesebonye & P'Olak 2020, p. 1). It is evident that the nation grapples with an exceptionally high rate of father absence (Khan 2018, p. 18), rendering the absence of fathers within families and society at large a profound social issue (Kamau 2018, p. 5). This troubling trend affects children from diverse communities, representing a significant social issue that impacts families of all racial backgrounds (Freeks 2022a, p. 2).

Furthermore, it is noted that a considerable number of families in South Africa are headed by single mothers, with the primary drivers of socio-economic challenges in single parenting attributed to the adverse social effects of fatherhood and father absence (Freeks 2020, p. 3). Accordingly, Kamau (2018, pp. 8-9) reported an increase in the number of female-headed families in South Africa and the ensuing effect on the emergence and maturation of masculine identities. Additionally, South Africa grapples with a high divorce rate, often resulting in single mothers assuming sole responsibility for raising their children without the involvement of fathers (Tau 2020, p. v). Despite this, women demonstrate resilience in their ability to independently support and provide for their families, even amidst the high divorce rate (Kamau 2018, p. 16).

Moreover, the absence of a parent detrimentally affects a family's capacity to operate cohesively, leading to a deficiency in the parental role (Freeks 2019, p. 685). Consequently, one of the foremost threats to family stability is the absence of a father (Freeks 2022a, p. 2). Navigating families and parenting can be inherently challenging, especially given the profound impact of a father's absence (Freeks 2022a, p. 5). According to Tau (2020, p. 1), the prevalence of families lacking a father figure is increasing, thereby subjecting many families to the hardships associated with paternal absence (Freeks 2020, p. 3). This absence significantly influences the development of one's identity and their relationships with other men as well (Kamau 2018, p. 5).

Yi and Nel (2020, p. 2) list unemployment, divorce, the HIV epidemic, and cultural factors as primary causes of father absence in their article. Among various other factors, poverty stands out as a significant contributor to and consequence of father absence, thereby exacerbating the devastating socio-economic challenges faced by families (Freeks 2022a, p. 1; Kamau 2018, p. 15).

In the context of the topic of this paper, it is evident that men, or fathers, are falling short in their responsibilities to their families and society at large, as father absence emerges as a serious and adverse social issue in the South African landscape.

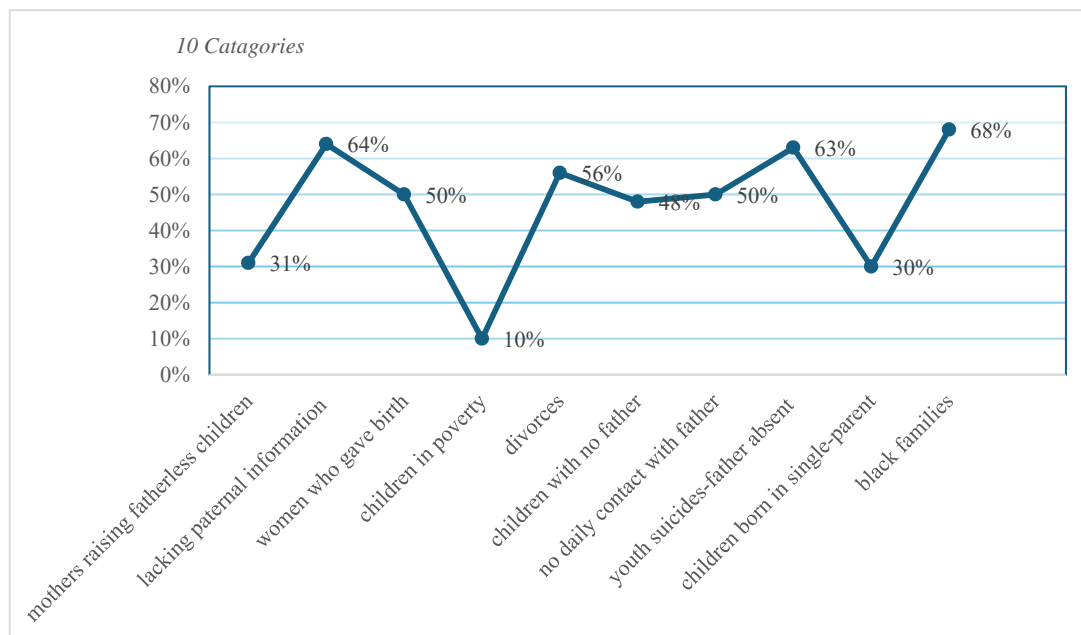
### 2.3. Socio-economic challenges and worrying statistics

The absence of a father is a profound concern and cry for help (Amoateng *et al*, 2004). With statistics indicating that 31% of mothers are single-handedly raising their children, this issue looms significantly and warrants serious attention. Moreover, out of the 1.1 million births registered in 2015, 64% lacked complete information about the biological father. Approximately 886,202 babies were born that year, with 50% of the mothers giving birth unaccompanied by the support of their biological fathers (Hawkins 2015). In South Africa, there are 5.3 million children under the age of five who are fatherless. Surprisingly, 93% of these children's parents are still alive. This group constitutes approximately 10% of the population, with many of them experiencing poverty and residing in unfavorable conditions due to the absence of their fathers (Mkhize 2013, p. 2).

According to data from the South African Institute of Race Relations in 2010, parents who had children experienced a divorce rate of 56%, leaving 48% of these children without fathers. Consequently, the overall number of orphans in South Africa reached 3.95 million, representing yet another troubling trend of growth (Frazier 2015). An even more profound tragedy stemming from divorce is the staggering statistic that 9 million children are left without fathers (Frazier 2015). Shockingly, 50% of fathers in South Africa lack regular contact with their children, a disheartening reality for the majority of these children (Richter, Chikovore & Makusha 2010, p. 361). Furthermore, an unsettling fact is that father-absent homes contribute to 63% of documented teenage suicides in South Africa (Frazier 2015).

One-third of the nation's prison population comprises young fathers aged 18 to 25, who have children living outside the prison walls (incarcerated men). Given that 30% of South African children are born into single-parent households, father absence emerges as a significant contributing factor to the country's prevailing social issues. This figure escalates to 68% within black communities, amplifying the concern even further (Feni 2016). As previously mentioned, current estimates suggest that around 2.13 million children are impacted by father absenteeism in South Africa, based on data from 2013 (5.3 million) and 2015 (9 million) (Dube 2016). These figures highlight the significant challenge of fatherhood facing the nation. Moreover, data released by Statistics South Africa further reveal that a considerable number of these children are raised by single mothers, while many others endure abandonment.

Figure no. 1. Worrying statistics



Source: Hawkins (2015); Mkhize (2013); Richter *et al* (2010); Frazier (2015); Feni (2016)

## 2.4. Children as the vulnerable group in a father-absent home

Though many children have grown up in homes where fathers have neglected their responsibilities, the fundamental quality of children is that they are blessed by God with parents and families (Freeks 2019, p. 686). As a result, teenagers without a father figure may find it difficult to understand the role of a father and may develop an incorrect view of God as the Father. Furthermore, it is harder for children to comprehend the love and tenderness of God the Father when their fathers are emotionally distant from them (Yi & Nel 2020, p. 1). Moreover, the absence of a father in a child's upbringing increases the likelihood of adverse life consequences, such as drug abuse, suicide, low academic achievement, criminal activity, mental health disorders, and a negative self-perception (Freeks 2022a, p. 2).

In the South African context, the issue arises where communities with children stand as the most vulnerable group to the impacts of father absence. Moreover, it has been identified that one of the most harmful social challenges confronting South African children is the absence of a father figure, resulting in the deprivation of a positive male role model (Freeks 2019, p. 686). Roughly 50% of South African children lack regular contact with their fathers, a factor contributing to the nation's disproportionately high rate of father absence (Patel & Mavungu 2016, p. 19). This absence heightens a child's vulnerability to violence, substance abuse, involvement in criminal activities, and participation in risky sexual behaviors (Salami & Okeke 2018, p. 2).

Furthermore, the absence of a father exacerbates the suffering of children who lack a meaningful relationship with their fathers and struggle to express and receive love (Salami & Okeke 2018, p. 2). Research indicates that South Africa is experiencing a rapid decline in fatherhood, leading to a growing trend of fatherlessness (Freeks 2022a, p. 1; Magqamfana & Bazana 2020, p. 169; Freeks 2017, p. 3; Feni 2016, p. 2).

Additionally, the absence of a father significantly increases children's vulnerability, including their heightened risk of self-harm and suicidal ideation (Freeks 2019, p. 685). Father absence has also been associated with children's poor academic performance, involvement in criminal behavior, and elevated high school dropout rates (Tau 2020, p. 1). Moreover, young girls who grow up without fathers often experience low self-esteem, difficulties in dating, mental health problems, poverty, engaging in risky sexual behavior, dropping out of school, early pregnancy, and other adverse outcomes (Brown 2018, p. 1).

Conversely, boys are more susceptible than girls to the negative effects of socio-economic hardship and the absence of a father. When their fathers are absent, boys are more likely to face academic challenges, such as school suspensions, while girls are more likely to experience teenage depression, especially in households with a stepfather (Lundberg 2017, p. 1). In fact, the impact of father absence on truancy and school suspension is significantly stronger for boys in Grades 3 – 8 compared to girls (Lundberg 2017, p. 4).

According to a study by Salami and Okeke (2018, p. 2), girls without father involvement are more likely to have low self-esteem, engage in risky sexual behavior, and struggle to form and maintain romantic relationships, while boys without father involvement are more likely to exhibit 'hypermasculine' traits such as emotional instability and aggression.

In conclusion, growing up in a father-absent home is almost certain to result in socio-economic challenges and trauma for children.

## 3. Research methodology

The methodology employed in this study functioned as a strategic framework or navigational guide to achieve the research goals. Vyhmeister (2008, p. 38) explains that the methodology serves as the mechanism through which the stated objective is achieved. It elucidates the author's plan to gather, analyze, and assess the data in order to address the research question or hypothesis. Therefore, the methodology adopted in this research paper is a descriptive literature review, aimed at exploring the issue of father absence, including its socio-economic impacts on family well-being. To identify specific trends, events, and scenarios, the author consulted various sources such as books, journal articles, academic papers, and literature reviews on the topic. The literature review encompassed academic works from both national and international publishing houses. Several databases were



accessed, including ATLAS, EBSCOhost, NEXUS, SCOPUS, ISI, and ISAP from North-West University (NWU) in South Africa. The research question was formulated as follows: What are the ruining ramifications of father absence and the socio-economic challenges for family well-being?

#### 4. Findings

The findings derived from this literature review paper regarding the issue of father absence and the socio-economic challenges for family well-being are tabulated below:

*Table no. 1*

<b>Finding</b>	<b>Description</b>
Father absence is destructive	Father absence is a destructive social issue in the South African landscape, and families, especially children, are constantly at risk.
Strategy of supportiveness and availability	For the family to have healthy relationships, especially with the children, the father must adopt and put into practice a supportive, available, and physically involved approach or strategy.
Fathers as leaders	Fathers are the leaders of their family, and if they are not emotionally, physically, socially, and spiritually available, there is a void, or vacuum, or gap within the family.
True meaning of man and father	Fathers need to comprehend how important it is to reclaim and rediscover the true meaning of what it means to be a man and a father in a world that is in desperate need of moral and engaged fathers.
Fathers can orchestrate change in the family	Because they establish the foundation for future relationships, fathers possess the capacity and determination to effect change within the family.
Family well-being	In order to demonstrate to society what family well-being really means, fathers in the South African landscape need to be present in the lives of their children.
Responsible and accountable fathers	Family well-being matters when fathers are responsible, accountable, present, and available in matters such as school, meetings, activities, sports, friends, etc.
Stronger and stable families	Stronger and more stable families are needed in our current society characterized by father absence.
The role and function of fathers	The role and function of fathers are fundamental for the well-being and socio-economic matters in the family.

*Source:* Author's own processing

#### 5. Conclusions

The literature review unequivocally highlights father absence as a significant issue within the South African landscape, as well as globally. This paper focused on the detrimental effects of father absence on families and communities, showing how child abuse and other socio-economic challenges

are exacerbated by the absence of fathers. Consequently, children left without paternal care and guidance may be at risk and in need of protection. The absence of fathers can impede children's development on the emotional, spiritual, and physical levels. Growing up without a father figure is not in the best interests of children, particularly as boys often rely on their fathers to set and enforce rules. Fathers also provide both boys and girls with a sense of emotional and physical security. Moreover, a caring father plays a pivotal role in fostering his children's inner strength and overall development. To address the growing social issue of father absence in South African families, efforts should focus on training, equipping, and empowering men.

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## Fostering Financial Inclusion: A Case Study of the Central Bank of Nigeria's Strategic Initiatives

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### Abstract

*This case study examines the strategic initiatives implemented by the Central Bank of Nigeria (CBN) in fostering financial inclusion within the country. Financial inclusion, defined as the access and usage of affordable financial services by individuals and businesses, is crucial for economic development and poverty reduction. The CBN has recognized the significance of financial inclusion and has undertaken various measures to enhance accessibility and promote financial literacy among under-served populations. This study explores the key initiatives undertaken by the CBN, such as the implementation of agent banking, mobile money services, and the establishment of the National Financial Inclusion Strategy. It analyzes the impact of these initiatives on improving financial access, deepening financial literacy, and promoting economic empowerment. The findings of this case study contribute to the understanding of effective strategies for fostering financial inclusion and can inform policymakers and stakeholders in Nigeria and other similar contexts.*

**Key words:** Financial inclusion, Central Bank of Nigeria, strategic initiatives, mobile money services, National Financial Inclusion Strategy

**J.E.L. classification:** G2, G23, G38

### 1. Introduction

Financial inclusion, defined as the access and usage of affordable financial services by individuals and businesses, which is widely recognized as a critical driver of economic growth and poverty reduction. It ensures that all segments of society have access to formal financial services, including banking, savings, credit, and insurance. However, achieving full financial inclusion remains a challenge in many countries, including Nigeria.

The Central Bank of Nigeria (CBN) has taken significant steps to address this challenge and promote financial inclusion within the country. The CBN's strategic initiatives aim to enhance accessibility, affordability, and usage of financial services, particularly among under-served populations such as rural communities, women, and the unbanked. One of the key initiatives implemented by the CBN is the establishment of agent banking, which allows licensed agents to provide basic financial services on behalf of banks. This initiative aims to overcome the physical barriers of traditional banking by bringing financial services closer to individuals in remote areas.

Another significant initiative is the promotion of mobile money services, leveraging the widespread adoption of mobile phones to enable convenient and accessible financial transactions. The CBN has also developed the National Financial Inclusion Strategy, a comprehensive framework that outlines specific targets, strategies, and action plans to drive financial inclusion across the

country. This strategy involves collaboration with various stakeholders, including commercial banks, microfinance institutions, telecommunications companies, and government agencies. This case study aims to examine the effectiveness of the CBN's strategic initiatives in fostering financial inclusion in Nigeria. It will analyze the impact of agent banking, mobile money services, and the National Financial Inclusion Strategy on improving financial access, deepening financial literacy, and promoting economic empowerment. Furthermore, it will identify the challenges faced in achieving full financial inclusion and provide recommendations for enhancing the success of these initiatives. By understanding the experiences and outcomes of the CBN's strategic initiatives, this case study can contribute valuable insights for policymakers, financial institutions, and other stakeholders involved in promoting financial inclusion in Nigeria and similar contexts.

## 2. Literature review

Financial inclusion has gained significant attention in both academic and policy spheres as a means of promoting inclusive economic growth and reducing poverty. This section provides a review of relevant literature on financial inclusion, focusing on the initiatives undertaken by the Central Bank of Nigeria (CBN) to foster financial inclusion within the country.

Several studies have highlighted the importance of financial inclusion in driving economic development. Demurge-Kunt and Klapper (2012) found that countries with higher levels of financial inclusion tend to have higher levels of GDP per capita and lower income inequality. Similarly, Beck et al. (2007) demonstrated that financial inclusion can contribute to poverty reduction and improved social outcomes. In the Nigerian context, the CBN has implemented strategic initiatives to enhance financial inclusion. Ogunlowo et al. (2018) examined the impact of agent banking in Nigeria and found that it has facilitated increased financial access in under-served areas. They noted that agent banking has helped overcome physical barriers and expanded the reach of financial services to previously unbanked individuals. The promotion of mobile money services has also been a key focus of the CBN's initiatives. Adeleke and Ogunlana (2019) conducted a study on the adoption of mobile money services in Nigeria and identified factors influencing its usage. They found that perceived usefulness, ease of use, and trust were significant determinants of mobile money adoption, suggesting the potential of mobile money in improving financial inclusion. Moreover, the National Financial Inclusion Strategy developed by the CBN has garnered attention. Adegbaaju et al. (2017) evaluated the impact of the strategy on financial inclusion in Nigeria and found a positive correlation between the strategy's implementation and increased financial access. They emphasized the importance of collaborative efforts among stakeholders to achieve the goals of the National Financial Inclusion Strategy. However, challenges persist in achieving full financial inclusion. A study by Akinlo and Egbetunde (2019) identified barriers to financial inclusion in Nigeria, including inadequate infrastructure, low financial literacy, and limited awareness of available services. They stressed the need for targeted interventions to address these challenges and ensure the inclusivity of financial services. The existing literature indicates that the Central Bank of Nigeria's strategic endeavors, including the implementation of agent banking, mobile money services, and the National Financial Inclusion Strategy, have significantly advanced the cause of financial inclusion in the country. These initiatives have successfully broadened access to financial services, elevated financial literacy levels, and propelled economic empowerment. Despite these commendable achievements, challenges persist, underscoring the need for ongoing endeavors to tackle infrastructure constraints, bolster financial literacy, and raise awareness about the available services.

### 2.1 Agent banking and mobile money services

**Agent banking.** Agent banking has emerged as a crucial strategy in promoting financial inclusion, particularly in developing economies. The literature highlights the role of agents as intermediaries who extend banking services to under-served areas where traditional brick-and-mortar branches may be lacking (Mas & Radcliffe, 2010). Studies explore the effectiveness of agent banking in reaching unbanked populations, providing convenient access to basic financial services such as deposits, withdrawals, and fund transfers (Suri & Jack, 2016). Additionally, research delves into the challenges

and opportunities associated with agent banking, addressing issues related to agent training, supervision, and the regulatory framework (Claessens & Van Horen, 2014).

**Mobile Money Services.** Mobile money services have revolutionized financial inclusion by leveraging telecommunications infrastructure to facilitate financial transactions. The literature underscores the transformative impact of mobile money in enhancing access to financial services for individuals without traditional bank accounts (Jack & Suri, 2014). Studies delve into the adoption and usage patterns of mobile money, examining factors that influence its uptake among diverse socioeconomic groups (Demirguc-Kunt et al., 2018). Additionally, research explores the role of regulatory policies in shaping the mobile money landscape, balancing innovation with consumer protection (GSMA, 2016).

**Comparative analysis.** Various literature provides comparative analyses between agent banking and mobile money services, exploring their respective strengths and limitations. Comparative studies shed light on the complementarity of these approaches and how their integration can optimize financial inclusion strategies (GSMA, 2017). Understanding the synergies and trade-offs between agent banking and mobile money contributes to a more nuanced comprehension of the diverse pathways toward fostering financial inclusion in specific contexts. We can say that the literature on agent banking and mobile money services underscores their pivotal roles in expanding financial access, providing valuable insights into the dynamics, challenges, and successes of these initiatives. By synthesizing this knowledge, the research aims to contribute to a comprehensive understanding of the Central Bank of Nigeria's strategic initiatives in utilizing agent banking and mobile money services to foster financial inclusion.

## 2.2 Theoretical concepts underlying financial inclusion

Financial inclusion is grounded, in several theoretical concepts that provide a framework for understanding its importance and impact on economic development and poverty reduction. This section explores key theoretical concepts that underlie financial inclusion, supported by relevant references.

**Capability approach.** The Capability Approach, developed by Amartya Sen and Martha Nussbaum, emphasizes the importance of expanding individuals' capabilities and freedoms. In the context of financial inclusion, this approach emphasizes that access to financial services enables individuals to exercise their choices and enhances their overall well-being (Sen, 1999). Financial inclusion provides individuals with the capability to save, borrow, invest, and manage risks, thereby empowering them to make informed decisions and pursue economic opportunities.

**Social capital.** Social capital theory highlights the significance of social networks, relationships, and trust in facilitating economic transactions and development. Financial inclusion enhances social capital by providing individuals with access to formal financial services, enabling them to participate more effectively in economic activities and build networks of support (Putnam, 1995). Increased social capital fosters cooperation, reduces transaction costs, and promotes economic growth.

**Institutional theory.** Financial inclusion is influenced by institutional factors, such as legal frameworks, regulations, and governance structures. Institutional theory emphasizes the role of institutions in shaping individuals' behavior and influencing their access to financial services (North, 1990). Effective institutions and supportive policies are essential for creating an enabling environment that promotes financial inclusion and ensures the stability and integrity of financial systems.

**Poverty trap theory.** The poverty trap theory suggests that individuals trapped in poverty face significant barriers to accessing financial services, perpetuating their exclusion from economic opportunities. Financial inclusion breaks this cycle by providing individuals with the means to accumulate assets, build resilience, and escape poverty (Banerjee et al., 2015). Access to affordable financial services helps individuals' smooth consumption, invest in education, and engage in productive activities, contributing to poverty reduction.

**Behavioral economics.** Behavioral economics highlights the influence of cognitive biases and psychological factors on individual decision-making. In the context of financial inclusion, understanding behavioral biases can inform the design of financial products and services to better meet the needs of individuals, particularly those with limited financial literacy (Thaler and

Mullainathan, 2008). Behavioral insights can help overcome behavioral barriers to financial access and promote inclusive financial decision-making. It is important to emphasize here that these theoretical concepts provide a foundation for understanding the multifaceted nature of financial inclusion and its implications for economic development and poverty reduction. They highlight the importance of empowering individuals, fostering social capital, addressing institutional barriers, breaking the poverty trap, and considering behavioral factors in promoting financial inclusion.

### **2.3 Empirical concept of financial inclusion**

The empirical concept of financial inclusion refers to the extent or evidence to which individuals and businesses have access to affordable and appropriate financial products and services, provided through formal financial institutions. It aims to promote economic development, empower individuals, and reduce poverty by providing financial services such as savings, credit, insurance, and payment services to those who are under-served or excluded from the formal financial system.

The concept of financial inclusion has gained increasing recognition by policymakers and researchers worldwide due to its potential to improve the well-being of individuals and contribute to economic growth and development. It has become an important policy objective for many governments and international organizations. Several studies have empirically examined the concept of financial inclusion, its determinants, and its impact on various aspects of individuals' lives and the economy. For instance, Demirgüç-Kunt et al. (2015) analyzed data from over 140 countries and found that access to formal financial services is positively associated with higher income levels, better health outcomes, and lower income inequality. Furthermore, a meta-analysis conducted by Allen et al. (2013) examined the impact of financial inclusion on poverty reduction and found that expanding access to financial services can lead to a reduction in poverty rates, particularly for vulnerable groups such as women and rural populations. This empirical evidence supports the notion that financial inclusion can promote inclusive growth and reduce income disparities. In addition to its positive impact on individuals, studies have also explored the relationship between financial inclusion and economic development at the macroeconomic level. For instance, Beck et al. (2007) conducted a cross-country analysis and found that financial development, including indicators of financial inclusion, is positively associated with economic growth. Moreover, there is growing empirical evidence that financial inclusion can contribute to increased productivity and entrepreneurship, as financial services provide individuals and businesses with the necessary tools to invest, save, and manage risks effectively (Honohan, 2008; Cull et al., 2014). Overall, the empirical literature on financial inclusion provides a robust foundation for understanding its importance and potential benefits. By promoting financial inclusion, policymakers and stakeholders can enhance access to financial services, improve economic well-being, and support sustainable development.

### **3. Research methodology**

The methodology for the research on "Fostering Financial Inclusion: A Case Study of the Central Bank of Nigeria's Strategic Initiatives" involves a multi-faceted approach to comprehensively analyze the strategies and effectiveness of the Central Bank's initiatives. This encompasses a thorough review of relevant literature on financial inclusion, central banking, and related topics. They provide a theoretical foundation and identify gaps in the current understanding of the subject. The study also delves into official reports, policy documents, and publications from the Central Bank of Nigeria. Analyze strategic plans, policy frameworks, and annual reports to understand the evolution of initiatives aimed at fostering financial inclusion.

During the study quantitative methods were being utilized to assess the impact of the Central Bank's initiatives. This involves analyzing statistical data on the penetration of financial services, trends in banking accessibility, and demographic factors affecting financial inclusion. Conducting interviews with key stakeholders, including officials from the Central Bank, policymakers, representatives from financial institutions, and members of the target population. Qualitative data provides insights into the perceptions, challenges, and successes of the initiatives.

The case study approach also enables the study to delve deeply into specific initiatives implemented by the Central Bank. This allows for a detailed examination of the context, implementation process, and outcomes of select programs, beside the administration of questionnaires to gather perspectives from individuals within the target population. It provides valuable feedback on the accessibility and effectiveness of financial services from the end users' perspective. It also compares the financial inclusion landscape in Nigeria before and after the implementation of the Central Bank's initiatives. This comparative analysis helps assess the impact and effectiveness of strategic interventions. By integrating these methodological components, the research aims to present a comprehensive and elaborated understanding of the Central Bank of Nigeria's role in fostering financial inclusion through its strategic initiatives.

#### 4. Case study

Since my last knowledge update in January 2022, I do not have access to real-time information or specific, up-to-date documented experiences related to the Central Bank of Nigeria's (CBN) initiatives in financial inclusion. However, I can provide general information based on patterns and trends up to that point. It is recommended to check the latest reports, publications, or official releases from the Central Bank of Nigeria or other reliable sources for the most recent and detailed information. As a case study, the CBN has implemented various measures to promote financial inclusion, including initiatives related to agent banking, mobile money services, financial literacy, and economic empowerment.

**Agent banking.** The CBN has encouraged the establishment of agent banking networks to extend financial services to underserved areas. Through guidelines and partnerships with financial institutions, CBN has sought to leverage agent banking to increase access to basic financial services.

**Mobile money services.** CBN has been actively involved in fostering the growth of mobile money services. Licensing and regulatory frameworks have been put in place to enable the operation of mobile money operators, contributing to the expansion of financial services through mobile platforms.

**Financial literacy.** The CBN, in collaboration with other stakeholders, has undertaken financial literacy campaigns to enhance public understanding of financial concepts. These efforts include educational programs, workshops, and the distribution of educational materials to improve financial knowledge among diverse segments of the population.

**Economic empowerment.** Economic empowerment initiatives by the CBN have focused on creating an enabling environment for entrepreneurship and economic activities. Access to finance, particularly through innovative financial instruments, has been a key aspect of these efforts.

#### 5. Findings

##### 5.1. Assessment of the Central Bank of Nigeria's strategic initiatives

**Evaluation of the effectiveness of existing initiatives.** The research findings reveal a positive evaluation of the Central Bank of Nigeria's strategic initiatives aimed at fostering financial inclusion. Notably, initiatives such as agent banking and mobile money services have demonstrated effectiveness in extending financial services to previously under-served populations. The research indicates that these initiatives have successfully created alternative channels, thereafter, overcoming traditional banking constraints and reaching areas where physical branches are scarce. The assessment includes feedback from both financial institutions and end-users, highlighting positive outcomes in terms of transactional efficiency and improved access to basic financial services.

**Analysis of the impact on increasing access to financial services.** The impact analysis demonstrates a substantial increase in access to financial services due to the strategic initiatives implemented by the Central Bank. The proliferation of agent banking has facilitated easy access to banking services in rural and remote areas, bridging the geographical gap in financial service provision. Moreover, the integration of mobile money services has proven instrumental in providing convenient and accessible financial transactions, especially in areas lacking traditional banking infrastructure. The research findings underscore a notable positive shift in financial inclusion



indicators, with a sizable portion of previously unbanked or underbanked individuals gaining access to formal financial services.

## 5.2. Examination of the initiatives' reach among different demographic groups

The research delves into the inclusivity of the Central Bank's initiatives across various demographic groups. Findings indicate a broad reach, with efforts made to address disparities based on factors such as gender, income levels, and geographic location. However, challenges persist in achieving uniform inclusivity. While there is progress in reaching rural communities, there remains a need for targeted strategies to address the unique financial inclusion barriers faced by women, low-income individuals, and other marginalized groups. The research highlights the importance of understanding the specific needs of diverse demographics to tailor initiatives effectively, ensuring that the benefits of financial inclusion are equitably distributed.

The findings suggest that the Central Bank of Nigeria's strategic initiatives have been effective in enhancing financial inclusion. The impact is evident in increased accessibility and improved financial services delivery, but there is a recognition of the ongoing need for fine-tuning strategies to ensure comprehensive inclusivity across diverse demographic groups. These insights contribute to a more nuanced understanding of the strengths and areas for improvement in the Central Bank's efforts to foster financial inclusion in Nigeria.

## 5.3. Identification of key challenges and limitations

**Barriers to financial inclusion in Nigeria.** The research uncovers a range of barriers that continue to impede financial inclusion in Nigeria. These include both systemic and individual-level challenges. Systemic challenges involve issues such as limited banking infrastructure in remote areas, insufficient financial literacy, and cultural factors affecting trust in formal financial institutions. Individual-level challenges encompass factors like low income, lack of documentation, and limited access to technology. Understanding these barriers is crucial for crafting targeted interventions that address the specific needs of different segments of the population.

**Constraints faced by the Central Bank of Nigeria in implementing initiatives.** The findings highlight various constraints faced by the Central Bank in executing its financial inclusion initiatives. Operational challenges, including the need for extensive training and monitoring of agents in remote areas, to becoming identified. Additionally, the research underscores the importance of overcoming bureaucratic hurdles and aligning initiatives with broader economic policies. Funding constraints and the need for sustained financial support identified as impediments to scaling up successful programs. The study recognizes the necessity for adaptive strategies to navigate these challenges effectively.

**Evaluation of the regulatory framework and its impact on financial inclusion.** An in-depth evaluation of the regulatory framework reveals its dual role as an enabler and a potential constraint on financial inclusion. While the regulatory environment has facilitated the introduction of innovative financial services and technologies, the research identifies areas where regulatory requirements might inadvertently hinder progress. Striking a balance between consumer protection and fostering innovation emerges as a critical consideration. The findings emphasize the need for a regulatory framework that is dynamic, responsive to technological advancements, and supportive of financial inclusion goals. The research illuminates key challenges and limitations that influence the trajectory of financial inclusion in Nigeria. Addressing these challenges requires a multifaceted approach that combines targeted interventions, adaptive strategies by the Central Bank, and a regulatory environment that encourages innovation while safeguarding the interests of all stakeholders. Understanding these challenges contributes to a more comprehensive view of the financial inclusion landscape, guiding policymakers in refining strategies for sustained and inclusive economic development.

## 6. Recommendations

### 6.1. Policy and regulatory recommendations

**Review and update regulatory frameworks to support financial inclusion efforts.** The research recommends a comprehensive review and update of existing regulatory frameworks to better support and encourage financial inclusion initiatives. This involves identifying and eliminating regulatory barriers that may impede the expansion of services, particularly in the context of agent banking and mobile money. The regulatory environment should be flexible, responsive to technological advancements, and designed to foster innovation while maintaining consumer protection standards. Collaborative efforts between regulatory bodies, financial institutions, and relevant stakeholders are vital to ensure that policies align with the evolving landscape of financial services.

**Streamline and simplify Know Your Customer (KYC) requirements.** The study suggests streamlining and simplifying Know Your Customer (KYC) requirements to facilitate broader financial inclusion. Cumbersome and stringent KYC procedures can be a significant deterrent, particularly for individuals without traditional forms of identification. Recommendations include exploring digital and alternative forms of identification, such as biometrics, to simplify the onboarding process. This approach ensures that individuals without formal documentation can still access financial services while maintaining the necessary safeguards against fraud and illicit activities. Collaborative efforts with relevant government agencies may be necessary to implement these changes effectively.

**Encourage innovation and collaboration among financial institutions.** To foster a culture of innovation and collaboration, the research recommends creating an environment that incentivizes financial institutions to explore and implement innovative solutions.

Encouraging collaboration between traditional financial institutions and fintech companies can lead to the development of inclusive and user-friendly financial products and services. The Central Bank, in collaboration with relevant stakeholders, can establish platforms that facilitate knowledge-sharing, partnerships, and joint initiatives. Incentive structures, such as regulatory support for pilot projects and innovation labs, can stimulate a more dynamic and collaborative financial ecosystem.

These policy and regulatory recommendations aim to create an environment that not only supports the current financial inclusion initiatives but also ensures adaptability to future changes in the financial landscape. By addressing regulatory challenges and promoting innovation, these recommendations contribute to the ongoing efforts to enhance financial inclusion in Nigeria, fostering a more inclusive and resilient financial ecosystem.

### 6.2. Technology and infrastructure recommendations

**Promote digital financial services and leverage technology for inclusion.** The research underscores the critical role of digital financial services in advancing financial inclusion and recommends strategies to promote their widespread adoption. This involves targeted awareness campaigns to educate the population on the benefits and functionalities of digital services, emphasizing the convenience and accessibility they offer. Additionally, fostering partnerships between financial institutions, technology companies, and mobile network operators can lead to the development of innovative solutions, such as mobile wallets and digital payment platforms. The Central Bank should actively support and incentivize the integration of technology into financial services to enhance inclusivity and efficiency.

**Improve access to affordable and reliable internet connectivity.** Recognizing the pivotal role of internet connectivity in enabling digital financial services, the research recommends measures to improve access to affordable and reliable internet services. Collaborative efforts between the government, private sector, and telecommunication companies are essential to expand the internet infrastructure, especially in rural and under-served areas. Initiatives such as subsidizing internet costs, investing in network infrastructure, and promoting community access points can contribute to bridging the digital divide. Enhancing connectivity ensures that individuals across diverse

geographic locations have the necessary infrastructure to engage with digital financial services seamlessly.

**Strengthen cybersecurity measures to build trust in digital financial services.** Given the increasing reliance on digital financial services, the research emphasizes the importance of building and maintaining trust through robust cybersecurity measures. Recommendations include the development and enforcement of stringent cybersecurity standards for financial institutions and service providers. The Central Bank should collaborate with relevant authorities to establish a framework that ensures the security and integrity of digital transactions. Public awareness campaigns on cybersecurity best practices can also play a crucial role in building confidence among users.

Strengthening cybersecurity measures is vital to protect users' financial data, prevent fraud, and foster a secure environment for the growth of digital financial services.

These technological and infrastructure recommendations recognize the transformative power of digital financial services in enhancing financial inclusion. By promoting technology adoption, improving internet connectivity, and prioritizing cybersecurity, these measures aim to create an ecosystem that not only facilitates access to financial services but also builds trust among users. The implementation of these recommendations contributes to a more resilient and inclusive financial landscape in Nigeria.

### **6.3. Financial literacy and consumer protection recommendations**

**Develop and implement comprehensive financial education programs.** The research strongly advocates for the development and implementation of comprehensive financial education programs to enhance the financial literacy of the population. These programs should cover a spectrum of topics, including budgeting, savings, investment, and understanding financial products. The Central Bank, in collaboration with relevant stakeholders, should design these programs to be accessible, culturally relevant, and tailored to different demographics. Utilizing various channels such as workshops, digital platforms, and community outreach can maximize the reach of financial education initiatives. Continuous assessment and feedback mechanisms should be integrated to ensure the effectiveness and relevance of these programs over time.

**Enhance consumer protection regulations and mechanisms.** To safeguard the interests of consumers, the research recommends the enhancement of consumer protection regulations and mechanisms. This involves a thorough review of existing regulations to identify gaps and potential areas for improvement. The Central Bank should actively engage with financial institutions to ensure compliance with consumer protection standards. Implementing transparent and standardized disclosure practices, along with clear dispute resolution mechanisms, enhances consumer confidence in financial services. Regular assessments and audits can help identify and address emerging challenges in consumer protection, contributing to a more secure and trustworthy financial environment.

**Foster partnerships with non-governmental organizations and educational institutions for financial literacy initiatives.** In recognizing the multifaceted nature of financial literacy, the research suggests fostering partnerships with non-governmental organizations (NGO's) and educational institutions. Collaborative initiatives can leverage the expertise and community reach of NGO's to implement localized and targeted financial education programs. Educational institutions can play a pivotal role in integrating financial literacy into formal education curricula, ensuring that the younger generation develops essential financial skills early on. By forming partnerships, the Central Bank can tap into existing networks and resources, expanding the impact of financial literacy initiatives across diverse segments of the population.

In summary, these financial literacy and consumer protection recommendations aim to empower individuals with the knowledge and skills needed to make informed financial decisions while ensuring a protective regulatory framework. The integration of comprehensive financial education, robust consumer protection regulations, and strategic partnerships contributes to building a financially literate and protected society in Nigeria.

## 7. Conclusions

**Summary of findings and recommendations.** From the research findings and recommendations, it is evident that the Central Bank of Nigeria's strategic initiatives have made significant strides in fostering financial inclusion. The positive impact of agent banking, mobile money services, and financial literacy programs reflected in increased access to financial services, improved economic empowerment, and enhanced financial knowledge among the population. The research recommends policy, regulatory, technological, and educational interventions to further strengthen these initiatives. Specifically, recommendations include the review and update of regulatory frameworks, promotion of digital financial services, improvement of internet connectivity, and the development of comprehensive financial education programs. Strengthening consumer protection mechanisms, fostering collaboration with non-governmental organizations, and continuous monitoring of initiatives are also crucial elements to sustain and enhance the effectiveness of financial inclusion efforts.

**Importance of continuous evaluation and monitoring of initiatives.** The research underscores the importance of continuous evaluation and monitoring of financial inclusion initiatives. Given the dynamic nature of the financial landscape and evolving technological trends, ongoing assessment ensures the relevance and adaptability of strategies. Regular evaluations provide insights into the effectiveness of implemented measures, identify areas for improvement, and offer the flexibility needed to address emerging challenges. Continuous monitoring also helps in gauging the impact of initiatives on various demographic groups, ensuring that the benefits are distributed equitably and addressing any unintended consequences promptly.

**Potential long-term benefits of fostering financial inclusion in Nigeria.** Fostering financial inclusion in Nigeria holds the potential for substantial long-term benefits. As financial services become more accessible and inclusive, the research anticipates a positive impact on economic development. Increased financial inclusion can contribute to poverty reduction, job creation, and overall economic growth. The empowerment of individuals through enhanced financial literacy and economic opportunities can lead to more resilient communities and contribute to the achievement of broader developmental goals. Furthermore, a financially inclusive society is likely to experience increased stability, reduced income inequality, and improved overall well-being. The research's findings and recommendations underscore the need for a comprehensive approach to foster financial inclusion in Nigeria. A road map for achieving this goal involves the integration of regulatory reforms, technological innovations, educational initiatives, and continuous monitoring. This comprehensive strategy is essential for developing a resilient and inclusive financial ecosystem that benefits all segments of the population.

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# **Towards Sustainable Futures: An Analysis of Green Entrepreneurship Environmental, Social, and Economic Contributions**

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## **Abstract**

*This study explores the growing field of green entrepreneurship and its contributions to sustainable development. As global environmental concerns rise, green entrepreneurship's role in promoting environmental, social, and economic sustainability is increasingly recognized. This research examines the environmental practices, social impacts, and economic outcomes of green entrepreneurial ventures. Environmentally, green entrepreneurship involves initiatives like resource conservation, pollution reduction, and renewable energy adoption, which support ecosystem resilience and biodiversity. Socially, it fosters inclusive growth, empowers marginalized communities, and promotes social equity, addressing issues such as poverty, clean water access, and health. Economically, green entrepreneurship drives innovation, creates jobs, and stimulates growth while reducing negative impacts, supporting a circular economy through resource efficiency and waste reduction. Overall, this study highlights the critical role of green entrepreneurship in integrating environmental stewardship, social inclusion, and economic prosperity, offering insights for policymakers, businesses, and stakeholders aiming to promote sustainability amidst global challenges.*

**Key words:** green entrepreneurship, sustainable development, environmental contributions, social impact, economic growth

**J.E.L. classification:** Q01, Q56, L26, M1, O44

## **1. Introduction**

The need for sustainable and innovative solutions has become paramount in an era defined by mounting environmental degradation and social inequities. The rise of green entrepreneurship has emerged as a pivotal force in addressing these global challenges, aiming to develop business solutions that integrate environmental, social, and economic considerations. This doctoral thesis seeks to delve into the realm of green entrepreneurship and critically analyze its contributions to environmental conservation, social responsibility, and economic sustainability. Green entrepreneurship refers to the pursuit of ventures that prioritize environmental sustainability and social impact, while also generating economic value (Schaper, 2016). Such ventures have the potential to drive positive change by balancing profit with the protection of natural resources, the betterment of local communities, and the enhancement of overall societal well-being (Cohen & Winn, 2007). As the global community grapples with the adverse effects of climate change, resource depletion, and social disparities, the role of green entrepreneurship in fostering sustainable development cannot be overstated.

This thesis will examine the multifaceted contributions of green entrepreneurship across environmental, social, and economic dimensions. It aims to scrutinize the efficacy of green entrepreneurial initiatives in promoting environmental stewardship, fostering social inclusivity, and stimulating economic growth.

By synthesizing empirical evidence and theoretical insights, this research endeavors to provide a comprehensive understanding of the potential of green entrepreneurship to drive sustainable futures.

## **2. Literature review**

### **2.1 Overview**

Green entrepreneurship, also known as eco-preneurship, refers to entrepreneurial activities that prioritize environmental sustainability while also creating economic and social value (Schaper, 2002). Green entrepreneurs seek to address environmental challenges and promote sustainable development through innovative products, services, or business models (Acs & Audretsch, 2010). This form of entrepreneurship is essential for addressing the growing concern over environmental degradation and the need for sustainable development (Patzelt & Shepherd, 2011). Green entrepreneurship is guided by principles of environmental responsibility, resource efficiency, and social impact (Schaper, 2002). By adopting novel technologies, processes, and business strategies, green entrepreneurs minimize ecological footprints, conserve natural resources, and reduce pollution (Welter, 2011).

The emergence of green entrepreneurship has been driven by increasing awareness of environmental issues among consumers, investors, and policymakers (Bansal, 2005). This has created new market opportunities for eco-friendly products and services, enabling green entrepreneurs to capitalize on the growing demand for sustainable alternatives (Hockerts, 2017). Governmental and non-governmental initiatives have provided support through funding, incubation, and regulatory incentives (Acs & Szerb, 2007).

### **2.2 Conceptual framework**

Entrepreneurship theories play a crucial role in understanding the dynamics of green entrepreneurship and its contributions to sustainable futures. Schumpeter's theory of creative destruction emphasizes the role of entrepreneurs in driving innovation and economic development through the introduction of new products, processes, and business models (Schumpeter, 1934). This theory underscores the importance of environmental innovation and the disruptive nature of green entrepreneurship in challenging traditional industries and fostering sustainable development. Effectuation theory by Sarasvathy (2001) provides insights into how green entrepreneurs leverage resources and networks to create sustainable ventures, focusing on affordable loss, leveraging contingencies, and forming partnerships (Sarasvathy, 2001).

Institutional theory explains the impact of environmental regulations, policies, and socio-cultural norms on green entrepreneurship. Institutional entrepreneurship, as proposed by DiMaggio and Powell (1983), elucidates how green entrepreneurs challenge and reshape existing institutional arrangements to promote environmentally responsible practices and values (DiMaggio & Powell, 1983). Social entrepreneurship theories, such as the empathy-altruism hypothesis and the resource-based view, emphasize the importance of empathy, altruism, and leveraging social capital for addressing environmental and social challenges (Baron, 2007; Zahra et al., 2009).

### **2.3 Environmental contributions of green entrepreneurship**

Green entrepreneurship significantly addresses environmental challenges and promotes sustainability. Studies show that green entrepreneurs actively adopt renewable energy technologies and sustainable production methods, reducing greenhouse gas emissions and resource consumption (Schaper & Volery, 2004). They engage in eco-innovation, creating new products and services with reduced environmental impact, contributing to resource efficiency and waste reduction (Dangelico & Pujari, 2010). Green ventures significantly reduce environmental pollution through sustainable practices and the use of renewable energy sources (Jeng et al., 2019).

## **2.4 Social contributions of green entrepreneurship**

Green entrepreneurship also has numerous social contributions that enhance societal well-being. It has the potential to alleviate poverty and create employment opportunities, particularly in developing countries (Lechner & Gudmundsson, 2014). Green entrepreneurship empowers marginalized communities by providing self-employment opportunities and enhancing economic prospects (Lechner & Gudmundsson, 2014; Herrera et al., 2018). Green ventures prioritize fair trade, social inclusion, and community development, engaging with local communities, adopting ethical sourcing practices, and promoting social responsibility (Moccerro et al., 2019).

## **2.5 Economic contributions of green entrepreneurship**

Green entrepreneurship drives economic sustainability by creating new economic opportunities and fostering economic growth. Sustainable businesses and green industries exhibit higher employment growth rates compared to traditional industries (Krausmann et al., 2019). Green entrepreneurs generate jobs in renewable energy, waste management, and eco-tourism sectors, contributing to local economies and long-term employment (Eizenberg & Yarimoglu, 2019; Herrera et al., 2018). Green ventures stimulate innovation and technological advancements, leading to economic competitiveness (Cohen & Winn, 2007). Analyzing the economic implications of green entrepreneurship requires an understanding of financial viability and market dynamics. Studies by Schaper and Volery (2007) shed light on the economic challenges faced by green entrepreneurs and strategies for overcoming them. The economic impact is also closely tied to consumer behavior, as evidenced by research exploring the role of consumer preferences in driving sustainable business practices (Antonetti & Maklan, 2016).

Green entrepreneurship, marked by the fusion of environmental consciousness with entrepreneurial pursuits, has become a crucial driver for sustainable development. By integrating environmental stewardship, social equity, and economic prosperity, green entrepreneurship addresses global challenges such as climate change, resource depletion, and social disparities. This comprehensive analysis underscores the potential of green entrepreneurship to foster sustainable futures, providing valuable insights for policymakers, businesses, and stakeholders. Continued support for green entrepreneurship is essential for achieving sustainable development goals and ensuring long-term environmental, social, and economic well-being.

## **2.6 Interplay of factors**

Several scholars have emphasized the interconnectedness of these environmental, social, and economic dimensions. The triple bottom line framework (Elkington, 1997) provides a comprehensive lens for evaluating the overall sustainability impact of green entrepreneurship. This approach encourages a holistic analysis, recognizing that success in one dimension does not necessarily equate to sustainability without considering the others.

## **2.7 Policy implications**

Government policies play a crucial role in shaping the landscape for green entrepreneurship. Research by Bansal and Song (2017) delves into the influence of policy frameworks on the success and scalability of sustainable business models. Understanding these policy dynamics is essential for creating an enabling environment for green entrepreneurs.

Green entrepreneurs actively adopt environmentally friendly practices, develop eco-innovative products, and drive reductions in resource consumption and greenhouse gas emissions. Furthermore, green entrepreneurship creates employment opportunities, supports community development, and contributes to education and awareness building. Economically, green entrepreneurship stimulates innovation, creates new markets, reduces resource dependency, and fosters economic growth. These findings emphasize the importance of promoting and supporting green entrepreneurship as a key driver toward sustainable futures. The integration of environmental, social, and economic considerations in green entrepreneurship is essential for creating a more sustainable and resilient future. Policymakers, investors, and society as a whole should recognize



the potential of green entrepreneurs and provide the necessary support, resources, and incentives to foster their growth. By harnessing the creative and innovative potential of green entrepreneurs, we can actively work towards a more sustainable and inclusive future for generations to come.

In conclusion, the literature suggests that green entrepreneurship holds significant promise for contributing to sustainable futures. By examining the intricate relationships between environmental, social, and economic factors, this analysis aims to build upon and extend the current body of knowledge in this critical and evolving field.

### **3. Research methodology**

The research methodology adopted for the study "Towards Sustainable Futures: An Analysis of Green Entrepreneurship Environmental, Social, and Economic Contributions" is primarily exploratory and descriptive. This approach involves a comprehensive review of existing referenced works, including relevant research articles, books, case studies, academic papers, and industry reports related to green entrepreneurship. The aim is to synthesize existing knowledge, identify patterns, and provide a detailed analysis of the contributions of green entrepreneurship to sustainability.

### **4. Case Studies on green entrepreneurship**

#### **4.1 Case Study 1: Patagonia - Environmental STEWARDSHIP AND SUSTAINABLE BUSINESS pRACTICES**

**Company Overview:** Patagonia, founded in 1973, is an American outdoor clothing and gear company known for its commitment to environmental sustainability. The company integrates environmental considerations into its business model, aiming to minimize its ecological footprint while promoting sustainable practices within the industry.

**Environmental Contributions:** Patagonia has made significant strides in reducing its environmental impact through various initiatives. For example, the company uses recycled materials for its products, including polyester and nylon. In 2019, Patagonia reported that 69% of its materials were recycled or renewable, with a goal to reach 100% by 2025 (Patagonia, 2019). Additionally, Patagonia has implemented the "Worn Wear" program, encouraging customers to repair, reuse, and recycle their gear, thereby reducing waste and promoting a circular economy.

**Social Contributions:** Patagonia's social contributions are evident in its advocacy for environmental causes and community engagement. The company donates 1% of its sales to environmental organizations through its "1% for the Planet" program. Since its inception, Patagonia has contributed over \$89 million to grassroots environmental groups (Patagonia, 2020). Furthermore, the company actively participates in campaigns to protect public lands and supports initiatives aimed at environmental education and awareness.

**Economic Contributions:** Economically, Patagonia demonstrates that sustainable business practices can be profitable. The company's emphasis on quality and durability has garnered a loyal customer base, contributing to steady financial growth. In 2017, Patagonia's estimated revenue was \$800 million, reflecting its success in aligning profitability with environmental stewardship (Forbes, 2017).

#### **4.2 Case Study 2: Tesla - Revolutionizing the automotive industry with clean energy**

**Company Overview:** Tesla, Inc., founded in 2003 by Elon Musk, is a pioneer in electric vehicles (EVs) and clean energy solutions. The company aims to accelerate the world's transition to sustainable energy through innovative products such as electric cars, solar energy solutions, and energy storage systems.

**Environmental Contributions:** Tesla's primary environmental contribution is the reduction of greenhouse gas emissions through the widespread adoption of electric vehicles. In 2020, Tesla's fleet of EVs helped prevent approximately 5 million metric tons of CO<sub>2</sub> emissions (Tesla, 2020).

Additionally, Tesla's solar energy products, including Solar Roof and Powerwall, promote renewable energy usage and reduce reliance on fossil fuels.

**Social Contributions:** Tesla contributes to society by creating high-quality jobs and fostering innovation in the clean energy sector. As of 2021, Tesla employed over 70,000 people globally, providing jobs in manufacturing, engineering, and sales (Tesla, 2021). The company also invests in education and training programs to develop the next generation of engineers and technicians in the EV and renewable energy industries.

**Economic Contributions:** Tesla's economic impact is significant, with the company achieving substantial financial growth and market influence. In 2020, Tesla reported annual revenue of \$31.5 billion, a 28% increase from the previous year (Tesla, 2020). Tesla's success has also spurred growth in the broader EV market, encouraging investment and innovation across the automotive industry.

### 4.3 Case Study 3: Interface - Pioneering sustainable manufacturing in the carpet industry

**Company Overview:** Interface, Inc., founded in 1973, is a global manufacturer of modular carpet and flooring products. The company is renowned for its commitment to sustainability and its mission to eliminate any negative impact it may have on the environment by 2020, a goal known as "Mission Zero."

**Environmental Contributions:** Interface has made remarkable progress in reducing its environmental footprint. By 2019, Interface achieved a 96% reduction in greenhouse gas emissions and an 89% reduction in water usage per unit of production compared to its 1996 baseline (Interface, 2019). The company also launched the "ReEntry" recycling program, which recycles old carpet tiles into new products, significantly reducing waste sent to landfills.

**Social Contributions:** Interface's social contributions include its efforts to engage employees and communities in sustainability initiatives. The company fosters a culture of environmental stewardship among its employees, encouraging them to participate in sustainability projects and innovation. Interface also collaborates with communities to promote sustainable practices, such as partnering with fishing communities to collect discarded fishing nets for recycling into carpet tiles.

**Economic Contributions:** Economically, Interface has demonstrated that sustainable practices can drive business success. The company reported net sales of \$1.3 billion in 2019, reflecting the market demand for environmentally responsible products (Interface, 2019). Interface's innovative approach to sustainable manufacturing has positioned it as a leader in the industry, influencing competitors and setting new standards for corporate responsibility. These case studies highlight the significant environmental, social, and economic contributions of green entrepreneurship. Companies like Patagonia, Tesla, and Interface demonstrate that integrating sustainability into business practices can lead to substantial positive impacts and drive long-term success.

### 4.4 The need for an international green entrepreneurship policy

Green entrepreneurship, characterized by businesses that prioritize environmental sustainability alongside economic growth and social responsibility, is crucial in addressing global challenges such as climate change, resource depletion, and social inequality. However, the development and success of green enterprises are often hindered by inconsistent policies, regulatory barriers, and a lack of supportive infrastructure across different countries. Therefore, there is an urgent need for a coherent international green entrepreneurship policy to foster a conducive environment for green businesses to thrive globally.

**Harmonizing regulatory frameworks.** One of the primary needs for an international green entrepreneurship policy is to harmonize regulatory frameworks across countries. Currently, green entrepreneurs face a patchwork of regulations that vary significantly from one country to another, creating barriers to entry and growth. An international policy would standardize definitions, certifications, and compliance requirements for green businesses, making it easier for entrepreneurs to operate across borders and access international markets.

**Facilitating access to finance.** Access to finance is a critical challenge for green entrepreneurs. Traditional financing mechanisms often do not cater to the unique needs of green businesses, which might involve longer gestation periods and higher initial risks. An international policy could establish global green financing frameworks, incentivizing banks, investors, and financial institutions to provide tailored financial products and services to green entrepreneurs.

**Promoting technology transfer and innovation.** Green entrepreneurship thrives on innovation, which often requires access to advanced technologies and expertise. An international policy could facilitate technology transfer and collaboration between countries, ensuring that green entrepreneurs in developing and emerging economies have access to cutting-edge technologies and best practices from around the world.

**Building capacity and skills.** The development of green enterprises requires specialized skills and knowledge. An international policy could support capacity-building initiatives, such as training programs, educational curricula, and exchange programs, to equip entrepreneurs with the necessary skills to succeed in the green economy.

**Encouraging market access and fair trade.** Green entrepreneurs often struggle to compete with traditional businesses due to higher production costs and market barriers. An international policy could promote market access and fair trade for green products and services, ensuring that green businesses can compete on a level playing field and reach global consumers.

**Strengthening global partnerships.** Addressing global environmental challenges requires coordinated efforts and partnerships. An international green entrepreneurship policy would foster collaboration between governments, international organizations, NGOs, and the private sector to create a supportive ecosystem for green entrepreneurs.

Ultimately, the establishment of an international green entrepreneurship policy is essential to overcome the barriers that hinder the growth and impact of green businesses. By harmonizing regulations, facilitating access to finance, promoting technology transfer, building capacity, encouraging market access, and strengthening global partnerships, such a policy would create a more supportive and enabling environment for green entrepreneurs worldwide. This, in turn, would accelerate the transition to a sustainable global economy, addressing pressing environmental challenges and promoting social and economic well-being for all.

## 5. Conclusions

Green entrepreneurship plays a pivotal role in steering the global economy towards a more sustainable future. By integrating environmental, social, and economic goals, green entrepreneurs are not only addressing pressing ecological issues but also fostering community development and economic resilience. This study underscores the multifaceted contributions of green entrepreneurship and highlights its potential as a catalyst for widespread, systemic change.

**Environmental contributions.** Green entrepreneurship significantly mitigates environmental degradation by promoting renewable energy, reducing waste, and enhancing resource efficiency. Companies like Patagonia, Tesla, and Interface exemplify how business models centered on sustainability can lead to substantial reductions in carbon emissions, waste, and resource consumption. These environmental benefits extend beyond the businesses themselves, setting new standards for industries and encouraging broader adoption of eco-friendly practices.

**Social contributions:** The social impact of green entrepreneurship is equally profound. Green businesses often prioritize social equity, community engagement, and employee well-being. By creating inclusive workplaces, supporting local communities, and advocating for environmental justice, green entrepreneurs contribute to social cohesion and improve the quality of life. Initiatives such as Patagonia’s support for grassroots environmental organizations and Interface’s community-based recycling programs demonstrate the potential of green businesses to drive positive social change.

**Economic contributions:** Economically, green entrepreneurship showcases that sustainability and profitability can go hand in hand. Green businesses have proven capable of achieving robust financial performance while adhering to sustainable practices. This dual success not only attracts investors but also encourages other businesses to adopt sustainable models. The economic contributions of green entrepreneurs include job creation, innovation, and market development, as

evidenced by Tesla's expansion in the electric vehicle market and the growth of renewable energy sectors.

**The need for supportive policies.** The full potential of green entrepreneurship can be realized only through supportive international policies. Harmonized regulatory frameworks, access to green financing, technology transfer, capacity building, and market access are critical enablers for green businesses. An international green entrepreneurship policy would ensure a level playing field, facilitate cross-border collaborations, and promote sustainable practices globally. Such a policy would address existing barriers, providing green entrepreneurs with the necessary tools and resources to scale their impact.

**Future directions.** To further harness the power of green entrepreneurship, ongoing research and policy development are essential. Future studies should explore the long-term impacts of green entrepreneurship on global sustainability goals and identify best practices that can be replicated across different contexts. Policymakers, educators, and industry leaders must work collaboratively to create an ecosystem that nurtures and supports green entrepreneurs, ensuring their contributions are recognized and amplified.

**Final thoughts.** Green entrepreneurship embodies the intersection of innovation, sustainability, and social responsibility. As the world grapples with environmental challenges and seeks equitable economic growth, the role of green entrepreneurs becomes increasingly vital. This analysis affirms that green businesses are not only viable but also essential for a sustainable future. By fostering green entrepreneurship, we can pave the way for an economy that values people and the planet, ensuring prosperity for current and future generations.

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## **Analysis of the Institutionalization Level of Ethics within the Central Public Administration in Romania**

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### **Abstract**

*In this paper we tried to analyze the aspects found in the specialized literature and the main objective was to identify the level of institutionalization of ethics within the central public administration in Romania.*

*Using the questionnaire, I was able to analyze structured data resulting from the information obtained from the people employed in the central public administration.*

*The result that emerges from the analysis is the following: at the level of the central public organization, the institutionalization of ethics is in an open process of transition that targets both the individual and the organizational level.*

**Key words:** management, research, ethics, ethics management, institutionalization of ethics

**J.E.L. classification:** G32, H11, M12

### **1. Introduction**

Ethics is a system of moral principles and concepts in any field of thought or activity. It is related to morality and studies what is good for both individuals and society.

Ethics is concerned with the standards by which human actions can be morally evaluated. In the organizations of the central public administration, the institutionalization of ethics represents the foundation of sustainable development.

Considering the current economic context, the purpose of our research is to identify the level of institutionalization of ethics within the central public administration in Romania.

### **2. Theoretical background**

Ethics is a set of norms of moral conduct, being in many situations, synonymous with the concept of morality (Constantinescu, M. & Mureșan, Valentin, 2009, p. 32).

From an etymological point of view, the term "ethics" comes from the Greek language - ethos (habits, customs, way of acting), being synonymous with the term "morals" which comes from the Latin language - mores (behaviour, morals).

Ancient Greek philosophers, including Socrates, Plato and Aristotle, significantly contributed to the development of ethical principles and theories during that period.

The terms "morality" and "ethics" are competitors, although they are often poorly differentiated. A rigorous analysis of these terms is carried out by (Morar Vasile, 2006, p.13) who concludes that while moral actions are done out of duty and obedience, ethical ones are done in accordance with duty, relying on intelligence and experience.

The French philosopher André Comte-Sponville sheds light on the terms, concluding: "morality commands, ethics recommends" (Morar Vasile, 2006, p. 14).

The terms ethics and morality entered the language as synonyms, but we draw attention to the fact that the transition from morals to ethics in the business world is equivalent to that from a universal principle to particular rules.

Referring to the term ethics, the first philosopher who believed that man should be responsible for his actions was Aristotle (384-322 BC). He defined ethics as the science which deals with morality (human behavior) and which depends on the development and exercise of virtues which may be acquired by birth or may be partly assimilated by education, exercise and habit. These virtues are based on human character and aim at the attainment of happiness (Morar, Vasile, Craciun, Dan, Macoviciuc, Vasile, 2017, p. 16-23).

Ethics is, according to the German philosopher Immanuel Kant (1724-1804), the unconditional ability of all rational beings to act according to moral laws. The ethical theories of Aristotle and Kant are two of the most influential and studied theories in the history of philosophy.

Based on these theories, (Carroll, A. B. & Buchholtz, A. K., 2008, p. 242), define ethics as "the discipline that deals with what is good and bad, with debts and moral obligations".

In a world dominated by serious ethical violations, the concept of ethics should exist in any field in which we operate and involves encouraging moral behavior, preventing corruption, both in public and private sector organizations.

The institutionalization of ethics in various fields of activity has been present in specialized works since the 1960s in the United States of America.

In the course of the 30 years since the scientific appearance of applied ethics, the adoption of internal programs, of the own ethics codes, led in 1990 to the institutionalization of ethics in international business.

In the period after 1990, ethics has been an important topic in many countries. For example, in the USA, to combat government corruption, the Ethics in Government Act was passed, and to institutionalize the obligation to address risk both legally and ethically, they passed the Sarbanes-Oxley Act in 2002 (Vărzaru, A. Antoaneta, Bocean, G.Claudiu, Nicolescu, M.Marian, 2021, p.15-19).

#### **Ethics in Romania after 1989 was influenced by several factors, such as:**

- change of political regime (transition from communism to democracy). In this stage, the moral values violated by the communist regime were reevaluated,
- the transition from the socialist economy to the market economy. Practically, during this period, the foundations of the private sector were laid,
- the development of civil society through the emergence of independent organizations with a greater openness to the adoption of ethical behavior,
- Corruption that affected both the public and private sectors. Laws and codes of conduct were adopted to prevent and combat corruption, but specialized institutions were also established,
- integration into the EU, started in 1993 by submitting the application for membership and completed in 2007, when Romania became a full member. Integration into the EU presupposed the adoption of common standards in areas such as human rights, justice, the rule of law, internal and external policy, the environment etc.

These factors significantly influenced human behavior, challenging Romanian society to changes that led to the institutionalization of ethics within large organizations.

### **3. The importance of the institutionalization of ethics in Romania**

In the last 30 years, reforms have been initiated in Romania, laws have been written based on models from advanced capitalist economies.

Valentin Mureșan, the promoter of applied ethics in Romania, stated that "the world still lives with the illusion that ethics can be reduced to spontaneous compliance with laws and regulations or the fear of God", and "in Romania the situation seems even worse", because widespread corruption at all levels (Mureșan, Valentin, 2009, p. 10).

In developed countries, the institutionalization of ethics is present in many organizational levels. In Romania, the institutionalization of ethics is only in a transition stage, but steps are being taken towards a new stage in the country's development.

The opening of organizations for the institutionalization of ethics in Romania is hampered by the lack of experience of ethics managers and ethics committees.

Most ministries have implemented codes of ethics, procedures for monitoring and reporting ethics violations, and ethics training programs, but these remain rather formal, not convincing either staff or beneficiaries. The mere existence of codes does not guarantee moral behavior or the eradication of unethical behavior and a lack of trust and enforcement leads to a mimicry of ethics. Taking as a hypothesis, the premise that the institutionalization of ethics is absolutely necessary for the successful development of any business, in this paper we proposed to provide a starting point in the field of education.

Research, on a scientific basis, requires a serious accumulation of information from a research-supported activity.

#### **4. Research methodology**

In this study, we aimed to offer a starting point in the field of analysis of the level of institutionalization of ethics within the central public administration in Romania. The study regarding the measurement of the institutionalization of ethics in the field of central public administration was carried out with the help of a direct research - the questionnaire. This was created after analyzing the specialized literature in the field and establishing a number of objectives and hypotheses.

This questionnaire was structured in three sections dealing with issues related to the following problems:

- measurement of the level of institutionalization of ethics;
- future (programmed) ethical behavior;
- socio-professional characteristics of the interviewed persons.

Analysis of the level of institutionalization of ethics in the implementation of ethical behavior.

The main objective of the survey-based study was to measure the level of institutionalization of ethics within the central public administration. This main objective was, correlated with the socio-demographic and economic characteristics of the people interviewed, to form a clearer picture of the motivational factors involved.

The research tool used was the questionnaire, specially developed to clearly capture both the measurement of the degree of institutionalization of ethics and the perceptions of the interviewed persons on the knowledge of the institutionalization of ethics within the central public administration. The questionnaire consisted of 9 content questions and 3 identification questions.

For the statistical analysis of the research, 110 people participated, resulting in the selection of 100 valid answers.

The application period of the questionnaire was of short duration and took place at the beginning of February, for 2 weeks.

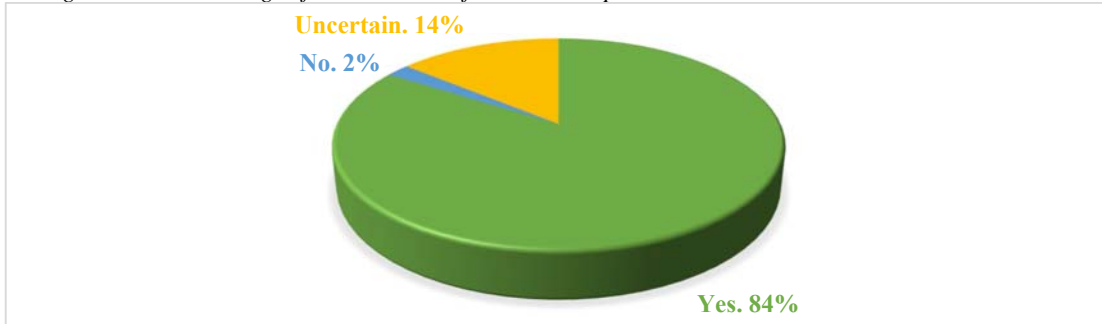
#### **5. Findings**

The information collected based on the questionnaire was centralized, and the interpretation of the obtained data will be presented below by highlighting the percentages and graphics of the most important aspects and trends of the behavior of the interviewed people.

Asked if they know that a public official has been appointed as an 84% of respondents knew that there was an ethics responsible, and on the other hand, only 16% did not know or were uncertain. (Fig. 1)



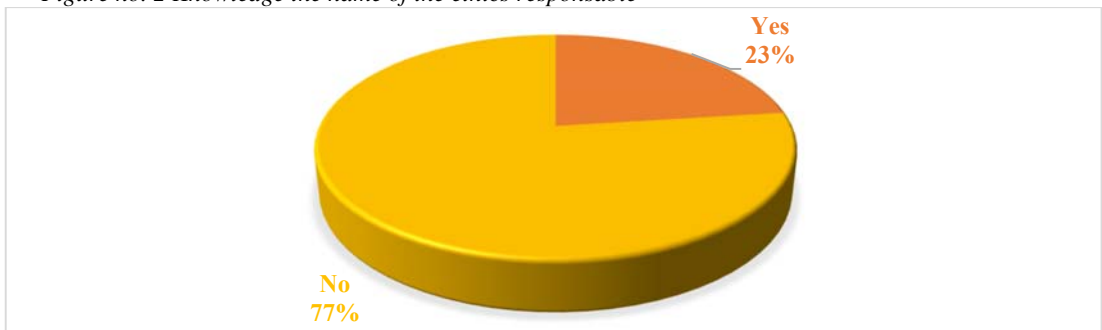
Figure no. 1 Knowledge of the existence of an ethics responsible



Source: questionnaires

Regarding the name of the ethics responsible, 23% of respondents knew the name and 77% did not know his name. (Fig. 2)

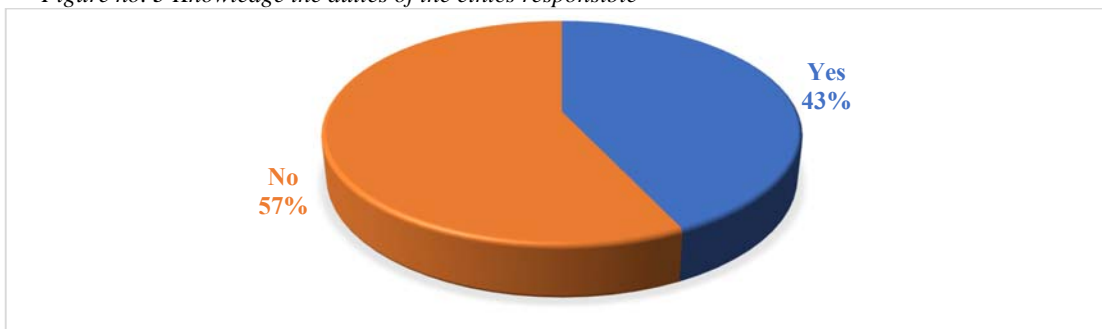
Figure no. 2 Knowledge the name of the ethics responsible



Source: questionnaires

Regarding the duties of the ethics responsible, 43% of the respondents knew the duties of the ethics adviser, and at the opposite pole, 57% did not know what their main duties are. (Fig. 3).

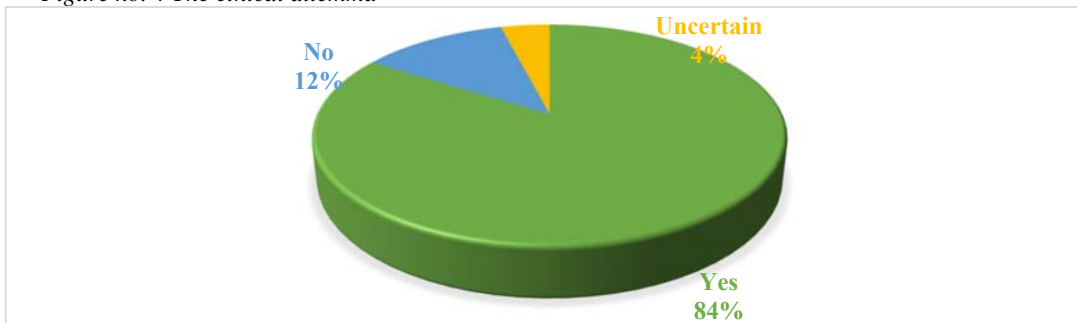
Figure no. 3 Knowledge the duties of the ethics responsible



Source: questionnaires

To the question: "If you have an ethical dilemma, would you contact the ethics advisor?", 84% of the respondents answered affirmatively, followed by 12% who answered negatively, and 4% were uncertain. (Fig. 4). Ethical change is at the centre of communication strategy. (Parsons, P. J., 2016, p. 67).

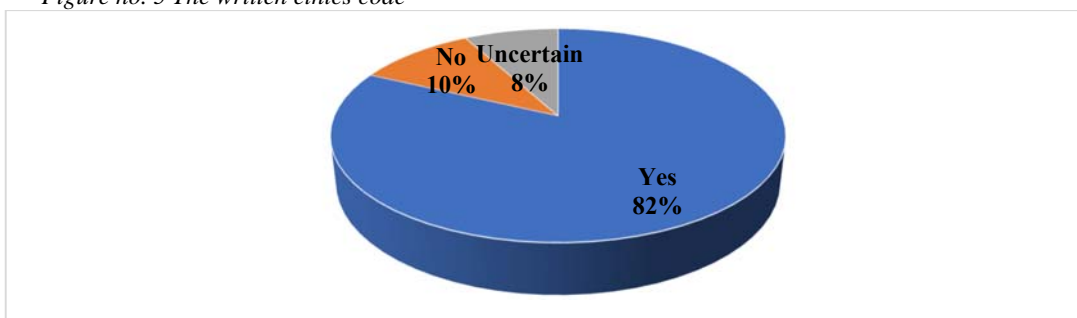
Figure no. 4 The ethical dilemma



Source: questionnaires

To the question: " Does your organization have a written ethics code? ", 82% of the respondents answered affirmatively, followed by 10% who answered negatively, and 8% were uncertain. (Fig. 5)

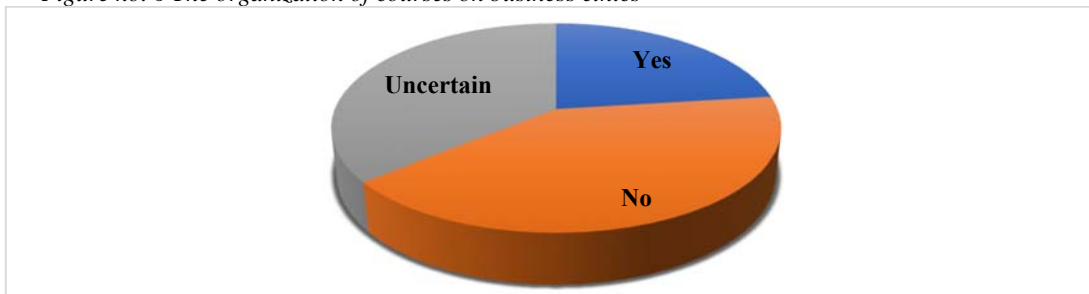
Figure no. 5 The written ethics code



Source: questionnaires

To the question regarding the organization of courses on business ethics, 23% of the respondents answered affirmatively, followed by 41% who answered negatively and 36% were uncertain. (Fig. 6).

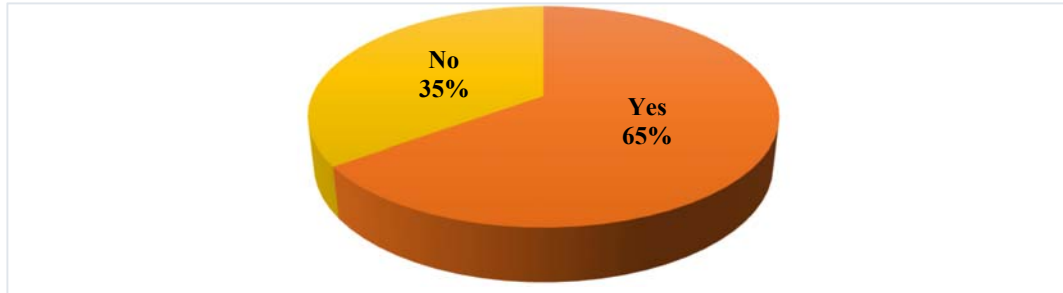
Figure no. 6 The organization of courses on business ethics



Source: questionnaires

To the question of freedom of opinion, 65% of the respondents answered affirmatively, followed by 35% who answered negatively. (Fig. 7).

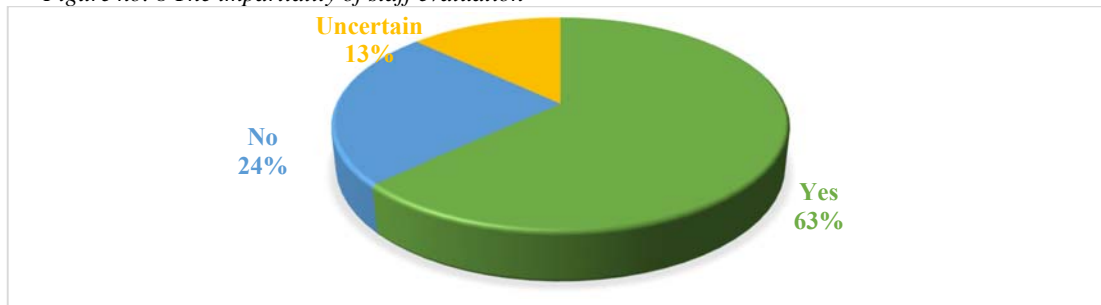
Figure no. 7 The freedom of opinion



Source: questionnaires

To the question about personnel evaluations, 63% of the respondents answered affirmatively, followed by 24% who answered negatively and 13% were uncertain. (Fig. 8).

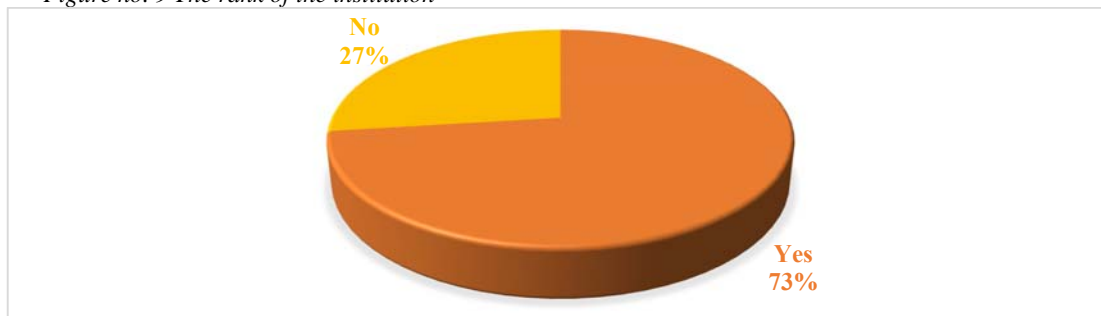
Figure no. 8 The impartiality of staff evaluation



Source: questionnaires

When asked about the ethical behavior of leaders, 73% of the respondents answered affirmatively, followed by 27% who answered negatively (Fig. 9).

Figure no. 9 The rank of the institution

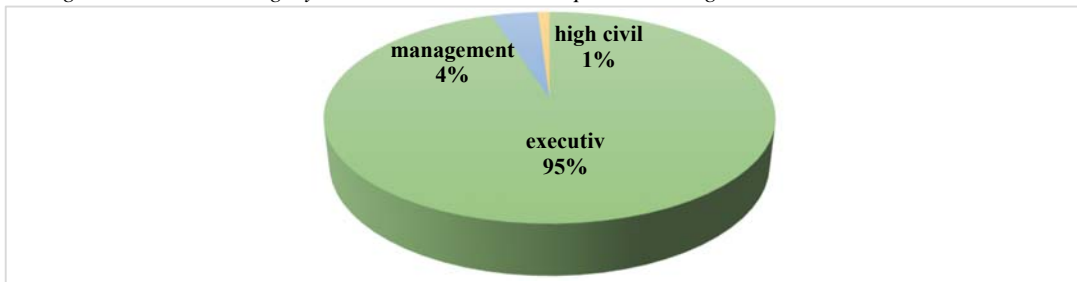


Source: questionnaires

In any situation, the staff of the organizations must adopt a behavior based on respect, impartiality, honesty, equal opportunities and non-discrimination, openness and diligence towards the citizen and without interferences that affect the public interest, legitimate interests and rights of citizens or institutional prestige. In the book Guide to business ethics (Duncan, Sarah, 2021, p.162), she states that you don't have to be perfect to behave ethically. In order to become better, the honesty of employees is compared with the honesty of organizations.

Regarding the category to which the interviewed person belongs, 95 are executive civil servants, 4 are management civil servants and 1 person is a senior civil servant. (Fig.10).

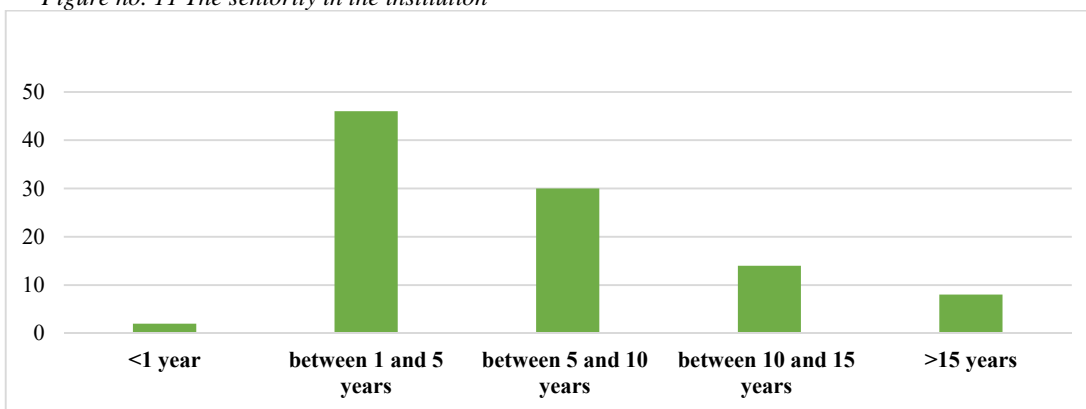
Figure no. 10 The category to which the interviewed person belongs



Source: questionnaires

Regarding the seniority of the respondents in the institution, 2% <1 year, 46% between 1 and 5 years, 30% between 5 and 10 years, 14% between 10 and 15 years and 8% >15 years. (Fig.11).

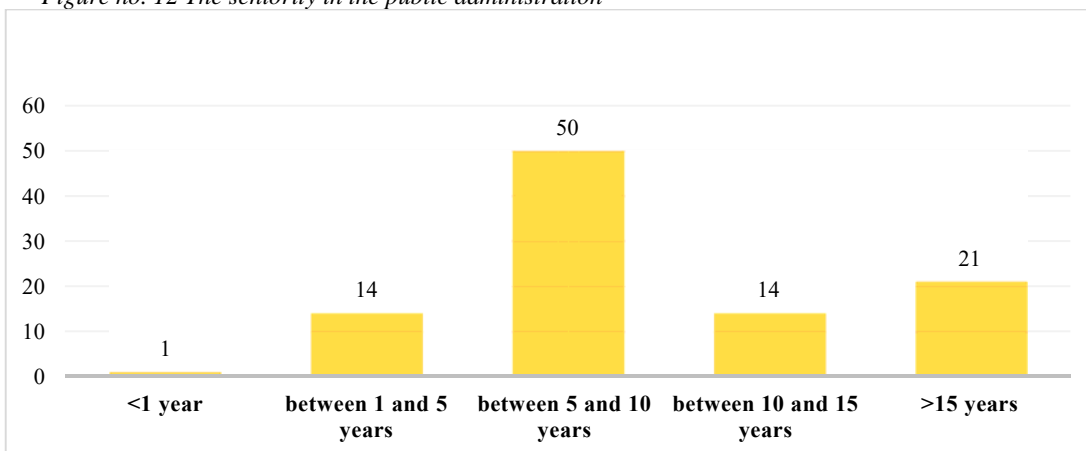
Figure no. 11 The seniority in the institution



Source: questionnaires

Regarding the seniority of the respondents in the public administration, 1% <1 year, 14% between 1 and 5 years, 50% between 5 and 10 years, 14% between 10 and 15 years and 21% >15 years. (Fig.12).

Figure no. 12 The seniority in the public administration



Source: questionnaires

## 6. Conclusions

In conclusion, the rank of the institution centralizes a lot of information regarding the institutionalization of ethics and the ethical behavior of employees.

The success of implementing ethical behavior is influenced by the differences between stated and practiced values. The greater the gap between the declared and practiced values, the lower the chances of success. The existence of codes does not guarantee moral behavior or the eradication of unethical behavior

Compared to developed countries, Romania does not excel in this chapter, but it is open to the institutionalization of ethics.

The benefits of business ethics include motivating employees and improving communication at all levels.

HR professionals play a vital role in promoting and enforcing business ethics and compliance within organizations. They ensure that employees are trained on ethics and compliance issues, monitor compliance with policies and investigate any violations.

The EU challenges us in the fight against corruption and the path to a new transitional stage in the process of institutionalizing ethics in public administration.

The institutionalization of ethics is important in the modernization of Romania.

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# Analysis of the Energy System Market of the Republic of Moldova in the Context Global Energy Crises

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## Abstract

*In this paper, I set out to present the results of the analysis of the energy sector of the Republic of Moldova, and particularly the field of electricity, natural gas and petroleum products. Although I do not claim exclusivity in terms of the aspects researched through this paper, I consider that these aspects have been insufficiently analyzed over time, which is why I express my hope that the conclusions of the undersigned presented in this paper will bring a certain level of usefulness both theoretically and, as well as practice.*

*In this sense, the scientific novelty and originality of the obtained results is embodied in the making of a clear opinion regarding the development of future strategies regarding the sustainability of the energy sector.*

**Key words:** electricity sector, natural gas market, energy services, energy sustainability

**J.E.L classification:** F16, F40, F62

## 1. Introduction

Energy can be considered the cornerstone of the modern economy, providing an essential ingredient for almost all human activities: it provides services for cooking and space/water heating, lighting, health, food production and storage, education, mineral extraction, industrial production and transportation. Modern energy services are a powerful driver of economic and social development, and no country has been able to develop much beyond a subsistence economy without ensuring at least minimal access to energy services for a wide range of its population. All over the world, the energy resources available to them and their ability to pay largely determine how people live their lives.

The energy market is a complex concept and refers to the economic and institutional system in which energy transactions take place. This can include the production, distribution and trading of energy, whether it is electricity, natural gas, oil, coal or other energy sources. The energy market is essential to the functioning of modern economies, as it provides the energy needed to support various activities, from industrial production to household consumption.

This market is influenced by several factors such as energy supply and demand, energy resource price trends, available technologies for energy production and distribution, energy policy and legislation, geopolitical factors and many others.

## 2. Theoretical background

There are two main types of energy market:

**Wholesale market (or spot market):** This is where energy producers, suppliers and traders meet to transact energy in bulk. Energy prices on this market can vary depending on demand and supply, being also influenced by weather conditions, resource availability, political events or international markets.

**Consumer market (or retail market):** This refers to the relationship between energy suppliers and consumers, whether they are households, businesses or other institutions. In this market, rates and contractual terms are negotiated between suppliers and customers.

In many countries, the energy market is regulated by governments to ensure proper functioning, to promote fair competition and to protect the interests of consumers. I have also adopted policies and measures to promote the use of renewable energy sources, in the context of increasing concerns regarding climate change and energy security.

The energy market can be influenced by major changes in technology, demand and supply, as well as global geopolitical and economic developments. It is therefore a dynamic and complex field that remains central to the development of modern society.

### 3. Research methodology

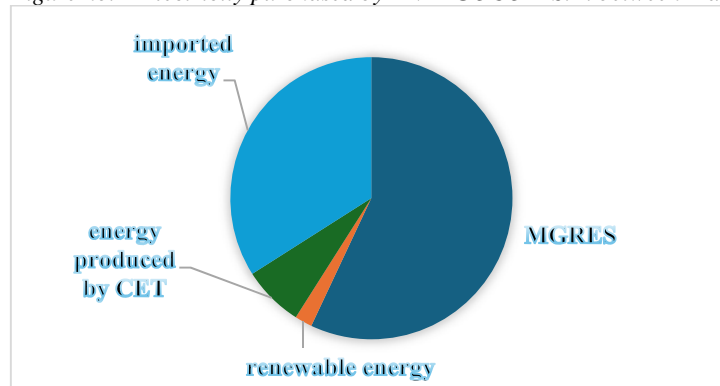
The set research questions are "can the energy market be influenced by major technological changes, worldwide?" and "what possible trends and values would Moldovan companies and businesses achieve in times of sustainability and globalization?". The research method is focused on an initial literature review, literature relevant to the research topic and research that has a qualitative and quantitative descriptive approach based on statistics and data, followed by data interpretation and analysis.

### 4. Findings

The electricity sector of the Republic of Moldova is based on the limited sources of production located on the territory of the Republic of Moldova and controlled by its constitutional authorities (combined thermal and electric power plants and a hydropower plant, covering approximately 21% of Moldova's consumption (excluding the Transnistria region) in 2021). About 79% of Moldova's consumption was covered in 2021 by the supply from "Cuciurgani - Moldavskaya GREȘ" (a gas-fired power plant located in the Transnistria region and owned by the Russian company "Inter-RAO") and/or by Ukrainian companies.

In 2022, the electricity market of the Republic of Moldova was strongly influenced by the invasion of the Russian Federation in Ukraine. As a result, the Republic of Moldova was left without a reliable supply of electricity. Since then, electricity supply agreements have been concluded on a monthly basis. Until September 2022, "Cuciurgani - Moldavskaya GREȘ" covered about 67% of the electricity supplied to Moldova, while 28% was covered by Ukrainian suppliers and only 4-5% was covered by local suppliers. The crisis deepened in October 2022, when Ukrainian authorities banned the export of electricity to other countries. This escalated even further in November 2022, when no agreement was concluded with "Cuciurgani-Moldavskaya GREȘ" due to disagreements regarding the supply of natural gas. In December 2022, approximately 47% of electricity was supplied to Moldova by "Cuciurgani-Moldavskaya GREȘ", approximately 31% from local sources (including 3.5% from renewable sources), while the remaining amount was provided by suppliers Romanians.

Figure no. 1 Electricity purchased by ENERGO.COM S.A. between May and December 2022



Source: [www.energocom.md](http://www.energocom.md)

In general, between May and December 2022, the supplier Energocom S.A. purchased electricity as follows: about 57% of the electricity was supplied to Moldova by "Cuciurgani-Moldavskaya GREȘ", about 9% from local sources (including 2% from renewable sources), while the remaining amount (34 %) was provided by foreign suppliers.

As a contracting party to the Treaty on the Energy Community starting from May 1, 2010, the Republic of Moldova has a continuous obligation to implement the energy acquis in force. In this context, the primary legislation in the field of electricity is constituted by Law no. 107 of May 27, 2016 "on electricity", partially transposing the Third Electricity Directive, the Electricity Regulation and Directive 2005/89/EC of the European Parliament and of the Council of January 18, 2006. In addition, on September 21, 2017, the Parliament of the Republic of Moldova adopted Law no. 174 of September 21, 2017 "on energy".

The Electricity Law and the Energy Law establish a general legal framework for the organization and regulation of the energy sectors in the Republic of Moldova (and, in particular, the electricity sector). The provisions are intended to ensure the efficient operation and monitoring of the energy sector in the Republic of Moldova and to create conditions for the liberalization of the electricity market and the promotion of competition on this market. Moreover, since the entry into force of Law no. 107 of May 27, 2016 "on electricity", the electricity market in Moldova was declared open, whereby each customer had the right to choose and change his supplier.

According to Law no. 107 of May 27, 2016 "on electricity", the following activities are regulated:

- operation of the electricity market.
- electricity transport.
- centralized management of the electrical system.
- electricity distribution; and
- electricity supply.

Such activities are carried out based on licenses issued by the National Agency for Energy Regulation ("ANRE"). ANRE, as the national regulatory authority of the electricity sector of the Republic of Moldova, also monitors and controls the compliance of the licensed entities with the license conditions.

As examples, the following five entities hold licenses to produce electricity: Termoelectrica S.A., CET-Nord S.A., Picador-Grup S.R.L., Nodul Hidroenergetic Costesti Î.S. and Moldavskaya GREȘ (located in the region of Transnistria, not controlled by the constitutional authorities of the Republic of Moldova). Moldelectrica U.S. is the only entity that holds a license for electricity transmission. In addition, two entities hold licenses for the distribution of electricity (RED Nord S.A. and Î.C.S. RED Union Fenosa S.A.) and 62 entities hold licenses for the supply of electricity (According to the Licensing Register published by ANRE)

The Republic of Moldova has borders with Romania (to the west) and Ukraine (to the north, east and south). The parallel operation of the electrical systems between the Republic of Moldova and Ukraine is carried out through seven overhead lines of 330 kV and eleven overhead lines of 110 kV, while the insular mode of operation of the electrical systems in Romania and Moldova is carried out through an overhead line of 400 kV (Vulcănești - Isaccea) and four 110 kV overhead lines. Below is the list of existing interconnections of the Republic of Moldova:

Moldova - Romania:

- ✓ Overhead line 400kV Vulcanesti - Isaccea;
- ✓ Air line 110kV Costesti - Stanca;
- ✓ Air line 110kV Cioara - Huși;
- ✓ Air line 110kV Ungheni - Tutora; and
- ✓ Air line 110kV Gotesti - Fălciu.

Moldova - Ukraine:

- ✓ Overhead line 330kV CERS Moldoveneasca - Novoodeskaia;
- ✓ Overhead line 330kV CERS Moldoveneasca - Usatovo;
- ✓ Overhead line 330kV CERS Moldoveneasca - Podolskaia;
- ✓ Overhead line 330kV CERS Moldoveneasca - Artiz;
- ✓ Overhead line 330kV Podolskaia - Ribnița 1;
- ✓ Overhead line 330kV Podolskaia - Ribnița 2;
- ✓ Air line 110kV CERS Moldoveneasca - Beleaevka;



- ✓ Air line 1 lOkV CERS Moldoveneasca - Razdelinaia;
- ✓ Air line 1 lOkV CERS Moldoveneasca - Starokazace;
- ✓ Air line 1 lOkV Vasilievka - Kr. windows;
- ✓ Air line 1 lOkV Vul cănești - Bol grade 1;
- ✓ Air line 1 lOkV Vul cănești - Bol grade 2;
- ✓ 35kV overhead line Etulia - Nagomaia;
- ✓ Overhead line 330kV Balti - CHE Dnestrovsk;
- ✓ Air line 1 lOkV UZ Briceni - CHE Dnestrovsk;
- ✓ Air line 1 lOkV Ocnita - Sahti;
- ✓ Air line 1 lOkV Otaci - Nemia;
- ✓ Air line 11 OkV Larga - Nelipovti;
- ✓ Air line 1 lOkV Poroghi - Soroca; and
- ✓ Air line lOkV Mamliga - Criva.

**Projects:**

- ✓ 400kV overhead line Balti - Suceava; and
- ✓ 400kV overhead line Iasi - Ungheni – Strășeni

If we are to discuss the natural gas market in the Republic of Moldova, I mention that in 2021 the entire volume of natural gas for the market of the Republic of Moldova (1205.7 million cubic meters) was imported. The main player on the natural gas market in the Republic of Moldova is Moldovagaz S.A., a natural gas supplier, whose shareholders are PAO Gazprom (50%), the Republic of Moldova (35.33%), the Transnistria Property Management Committee (13.44%) and certain minority shareholders (1.23%).

As a supplier of natural gas, among others, Moldovagaz S.A.:

- ✓ signed an agreement with PAO Gazprom regarding the supply of natural gas to the Republic of Moldova;
- ✓ is the founder (sole partner) of the 12 operators of the natural gas distribution system. The total length of the natural gas network of these operators is 21,750.50 km; and
- ✓ is the founder (sole partner) of Moldovatransgaz S.R.L., the main operator of the natural gas transportation system in the Republic of Moldova. Moldovatransgaz S.R.L. transports natural gas using its transmission network (including main pipelines with a total length of 656.24 km and branch pipelines with a total length of 903.42 km).

In 2022, similarly to the electricity market, the natural gas market in the Republic of Moldova was strongly affected by the invasion of the Russian Federation in Ukraine and by the deterioration of business relations between PAO Gazprom and its customers from the European Union and the Republic of Moldova. starting from October 2022, the amount of natural gas supplied by PAO Gazprom to the Republic of Moldova was significantly lower than the demand of consumers in the Republic of Moldova (both on the right and left sides of the Dniester River) and lower than the quantities initially indicated in the agreement signed between Moldovagaz S.A. and PAO Gazprom. Although the agreement concluded between Moldovagaz S.A. and PAO Gazprom appeared to indicate a quantity of 406 million cubic meters to be supplied to the Republic of Moldova in December 2022 (including 217 million cubic meters for the Transnistria region), only 177 million cubic meters of natural gas were supplied.

We must also mention that in 2014 a new transport system operator was established: Î.S. Vestmoldtransgaz, later became Vestmoldtransgaz S.R.L. Associates Vestmoldtransgaz S.R.L. are Eurotransgaz S R L. (holding 75% of the share capital and wholly owned by Transgaz S.A. (Romania)) and the European Bank for Reconstruction and Development (25% of the share capital). Vestmoldtransgaz S.R.L. operates the gas interconnector Iasi (Romania) - Ungheni (Republic of Moldova) (with a total length of 43.2 km) and the natural gas pipeline Ungheni - Chisinau. The gas interconnector Iasi (Romania) - Ungheni (Republic of Moldova) and the natural gas pipeline Ungheni - Chisinau are active, and on December 3, 2022, one million cubic meters of natural gas were transported with their help.

Further, according to Art. 10 of Law no. 108 of May 27, 2016 "regarding natural gas", the following activities are subject to licenses issued by ANRE:

- ✓ natural gas production.

- ✓ natural gas transportation.
- ✓ natural gas distribution.
- ✓ natural gas storage.
- ✓ natural gas training.
- ✓ supply of natural gas.
- ✓ sale of compressed natural gas for vehicles at gas stations; and
- ✓ ownership of the natural gas transmission networks in case of the appointment of an independent system operator.

According to the data published by ANRE on its official website, ANRE issued two licenses for the transport of natural gas (to Moldovatrangaz S.R.L. and Vestmoldtrangaz S.R.L.), 25 licenses for the supply of natural gas at regulated rates, 21 licenses for the distribution of natural gas and 5 licenses for the supply of natural gas at unregulated rates (with the help of filling stations).

Now, the Republic of Moldova has the following natural gas interconnection points with Ukraine and Romania

Republic of Moldova - Ukraine:

- Ananiev-Tiraspol-Ismail (Grebeniki);
- Razdelinaia - Ismail (Grebeniki);
- Sebelinca - Dnepropetrovsk - Krivoi Rog - Ismail (Grebeniki);
- Ananiev - Chernivtsi - Bohorodchany (Alexeevca - Ananiev); and
- Odessa - Chisinau.

Republic of Moldova - Romania:

- Iasi - Ungheni

According to the Report on the activity of ANRE in 2021, the consumption of petroleum products in the Republic of Moldova is mainly ensured by imported petroleum products. In 2021, the volume of imported petroleum products was 883,287 tons (648,867 tons of diesel; 173,325 tons of gasoline; and 61,094 tons of liquefied petroleum gas).

The main supplier of petroleum products for the Republic of Moldova in 2020 was Romania (with a share of 56.20% for diesel and 99.35% for gasoline). Other notable suppliers of petroleum products are the Russian Federation, Turkey, Bulgaria, Turkmenistan, Belarus and Kazakhstan. In addition, according to the Energy Balance of the Republic of Moldova for 2021, a volume of 5,000 tons of petroleum products was covered by the means of primary production.

The main regulatory act that regulates the oil products sector in Moldova is Law no. 461 of July 30, 2001 "regarding the oil products market". The purpose of this law is to create an organizational, legal and economic framework to ensure the economic security of the Republic of Moldova and to regulate the import, transport, storage and sale of petroleum products, as strategic products. In this context, a licensing regime is provided for the following activities:

- ✓ import and wholesale of diesel and gasoline.
- ✓ import and wholesale sale of liquefied petroleum gas.
- ✓ retail sale of diesel and gasoline; and
- ✓ retail sale of liquefied petroleum gas.

Licenses are issued by ANRE for a period of 5 years. According to the data published by ANRE on its official website, 27 licenses were issued for the import and wholesale of diesel and gasoline, 14 licenses for the import and wholesale of liquefied petroleum gas, 82 licenses for the retail sale of diesel and gasoline using filling stations and 74 licenses for the retail sale of liquefied petroleum gas using filling stations".

According to the information published by the Agency for Energy Efficiency of the Republic of Moldova, the share of energy produced with the use of renewable sources in the final consumption of gross energy in 2020 was 25.06% (consisting mostly of biomass used for heating in rural areas). This share should increase in the next few years due to the current energy crisis. The increase in the amount of electricity generated from renewable sources in 2021 can be considered a sign of such potential development (116552000kWh) compared to 2020 (81353000kWh).

The concept of the Energy Strategy of the Republic of Moldova 2050 mentions that, since the Republic of Moldova does not have primary energy sources, the authorities must focus on renewable energy sources. In this context, the Moldovan authorities will support the construction of new renewable energy installations with a total installed capacity of 410MW.

## 5. Conclusions

The energy system of the Republic of Moldova was characterized by certain aspects:

**Dependence on imports:** The Republic of Moldova imports a large part of its energy, especially from Ukraine and Romania. This made the country vulnerable to regional energy price fluctuations.

**Energy sources:** in the Republic of Moldova, the main energy sources were electricity produced from thermal power plants based on fossil fuels, hydropower plants and electricity purchased from imports. The energy sector has been characterized by a gradual shift towards renewable energy sources such as solar and wind, but this transition has been gradual.

**Infrastructure:** The energy infrastructure of the Republic of Moldova was constantly developing, but additional investments and modernization were needed to ensure a stable and efficient supply of electricity.

**Market liberalization:** Moldova has expressed its desire to continue liberalizing its energy market, promoting competition between energy suppliers and encouraging foreign investment in the energy sector.

**Energy efficiency:** Like many other countries, the Republic of Moldova has been interested in improving its energy efficiency, reducing energy consumption and implementing energy conservation measures, conservation of energy.

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# The Perception of Tourism Entrepreneurs in Bukovina Region on Green Economy and Sustainability

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## Abstract

*Today, environmental protection has become a global concern, with every country obliged to implement laws and actions to protect the environment and promote sustainable development. One of the solutions to this problem is the implementation of environmental protection measures in small and medium-sized enterprises (SMEs). Following the analysis of the level of knowledge, we observed that the transition to the green economy through the adoption of sustainable tourism requires an innovative process, which may be the result of the introduction of new actions, strategies, and technologies. In order to implement sustainable practices in organizations, it is essential to have entrepreneurs who are dedicated to finding the best options and ways to implement ideas that comply with the three principles of sustainable development. In January-March 2024, a survey was conducted among tourism entrepreneurs (accommodation and catering establishments, associations) in Bukovina region on the implementation of green economy principles for creating sustainable businesses.*

**Key words:** green economy, entrepreneurship, sustainability, Bukovina

**J.E.L. classification:** Q32, Q56

## 1. Introduction

The importance of tourism in the growth process of a country and its social, economic and regional implications highlight the importance of providing modern knowledge in entrepreneurship, entrepreneurial management and innovation.

Entrepreneurship is often linked to economic growth and progress, increasing the quality of life and creating new employment opportunities, technological progress being the key factor of success in a community. Entrepreneurship is seen as the main driver of economic development because it produces expansion and acts as a means of transformation and creativity.

Being aware of the impact that entrepreneurship and tourism can have on the economy and its importance in the tourism industry, we believe it is timely to explore this topic in order to increase knowledge in this area.

Entrepreneurship in green tourism is a neglected area both in the literature and in the economic press, however, encouraging entrepreneurship in green tourism is crucial as it can stimulate sustainable social and economic progress by exploiting more efficiently the tourism potential of Romania.

Although there is great ecotourism potential in our country, green tourism faces many challenges, such as: lack of cooperation at local level, insufficient promotion at national and international level, underdeveloped ecotourism infrastructure, labour migration, low number of people well trained in this field and a legal framework that does not meet the requirements of local services.

SMEs are leaders in the green transition process, connecting the visitor to place by creating experiences with a critical role to play.

Before the Covid-19 pandemic, tourism development in many countries and destinations was economically, socially and environmentally uneven, often due to rapid and unplanned growth in tourist numbers. The tourism industry now has an opportunity to create stronger political momentum to lead the transition to green tourism business models and to promote the greening of the entire tourism value chain, involving a wide range of processes and actors.

## 2. Literature review

When starting out as an entrepreneur, the tourism entrepreneur faces a number of challenges. All organisations face such problems because of their partial dependence on the environment.

The tourism industry is of particular importance in many economies of the world, both in terms of revenue generated and as a provider of jobs, foreign exchange earnings, and a source of entrepreneurial dynamism and a means of stimulating regional development (Țigu, 2012).

In recent years, the issue of sustainable entrepreneurship has coagulated multiple research interests due to the fact that it integrates three main pillars, i.e. human resources (people) management, concerns for the protection of the planet and economic efficiency supported by profit (Hapenciuc et al., 2015).

Butnaru and Ștefănică (2018) have shown that the relationship between tourism and the environment is of particular importance, with the protection and conservation of the environment representing the primary condition for the development of tourism.

This complicated link develops in two ways: the natural environment, with its resources, is essential for tourism, and tourism can affect both positively and negatively the environment, changing its elements.

The focus on a green economy, where the value of products and resources is maintained for as long as possible, and waste production is reduced, has become a priority for authorities, business, research institutions and non-governmental organisations.

Thus, there are over 100 definitions of the green economy in the literature, centred around key concepts such as sustainable development, the 4R framework (Reduce, Reuse, Recycle, Recover), the systems approach (micro, meso, macro), the waste hierarchy (Kirchherr et al., 2017).

The Nusa Dua Global Environment Forum recognized UNEP's leadership role in promoting the concept of a green economy (Allen, Clouth 2012;) that leads to improved human well-being and social justice while significantly reducing environmental risks and deficiencies, at the same time. time is low-carbon, resource efficient and socially inclusive (UNEP, 2010).

The principles of the green economy represent a new and sustainable approach to economic growth, which prioritises environmental protection and sustainable development.

Based on the principles of a green economy, special attention is paid to issues such as: the implementation of renewable and alternative energy sources, industrial waste management, environmental protection and the use of "green" technology (Gribincea, 2019). All these elements are closely related to environmental management, which is aimed at reducing the negative impact on the environment, improving the environmental performance of the enterprise, and, increasing economic efficiency and reducing waste generation and recycling (Gribincea, 2019).

Therefore, green growth corresponding to the concept of green economy inevitably leads to sustainable development (Kasztelan 2017, Ohotina 2016). However, it is necessary to continue to carry out certain tasks for the development of global models and scenarios to assess strategies for national 'green economy' and 'green' growth (Kasztelan 2017).

The environmental policy followed by a hotel must be continuously monitored together with the achievement of revenue or occupancy indicators. Results can only be seen if operating standards are maintained, with a reduction in unjustified consumption of: water, energy or fuel; with the disposal of household waste to the sewer. Results can also be observed through measurement: by comparing consumption with other periods in the past and also by measuring the reaction of customers to an environmentally friendly attitude (Nistoreanu, 2003).

Major changes are needed for businesses of all sizes in all parts of the tourism ecosystem, such as the transition to a green economy, which aims to generate a sustainable economic system by fundamentally reducing resource consumption and waste and decoupling natural resource extraction from increased economic activity and well-being (OECD, 2021, UNEP and World Bank, 2021).

Figure no. 1. Definitions of the green economy



Source: [https://pdf.usaid.gov/pdf\\_docs/PA00N3C5.pdf](https://pdf.usaid.gov/pdf_docs/PA00N3C5.pdf)

Over the last twenty years, awareness of sustainability in business has grown. Traditionally, companies focus on offering products and services that meet customer requirements and can be sold at competitive prices to make a profit.

In a society with limited resources, damaged ecosystems, human-induced climate change and exclusive economic growth, the traditional role of business can no longer ensure sustainable development.

The successful transition to more sustainable tourism through the application of green economy principles will depend on active public-private collaboration and partnerships, intergovernmental cooperation, effective policies and policy and financing instruments.

### 3. Research methodology

The objective of this paper is to investigate the awareness of “green economy” concept in Bukovina region and to assess the importance of green economy for the tourism sector and the lives of people. To address the objective of the research of determining the opinions of tourism entrepreneurs on the green economy and the actions they are implementing in terms of sustainable tourism development to facilitate the transition to a green economy, this research employed a combined methods approach, which included a literature review and the development of an online questionnaire.

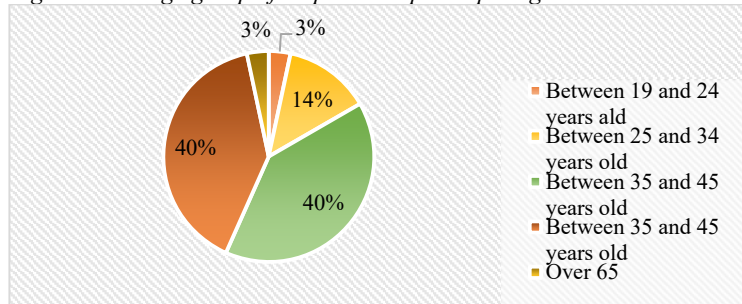
This research was conducted through a questionnaire that was distributed among entrepreneurs in Bukovina region of Romania. The survey was conducted during January-March 2024. The questionnaire was completed by 30 tourism entrepreneurs. The questionnaire included items about gender, age, position in the organisation, and the county where the organisation operates.

### 4. Findings

In this section, we present the most relevant results of the questionnaire conducted among tourism companies. The interpretation of the results of the questionnaires conducted in an area with a particularly valuable tourism potential, Bukovina, has led to significant findings.

As mentioned in the previous section, the questionnaire was conducted among tourism entrepreneurs (accommodation establishments, food establishments, and associations) in the Bukovina region, during January-March 2024. The purpose of the investigation was to examine the state of development and the implementation of green economy practices within tourism companies.

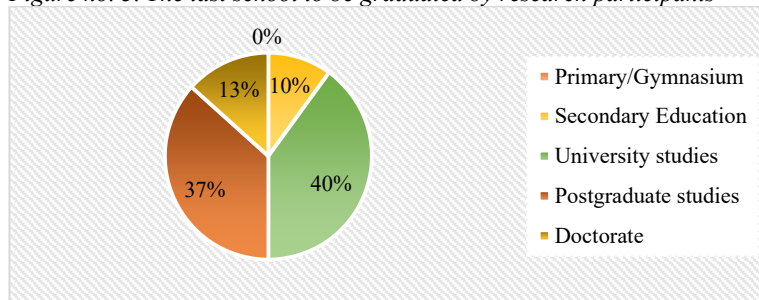
Figure no. 2. Age group of respondents participating in the research



Source: own processing

Out of the total of 30 respondents, most respondents were aged between 35 and 45 (40%, i.e. 12 respondents) and between 46 and 65 (40%, i.e. 12 respondents). There were 4 respondents aged between 25 and 35 and one representative each for the age categories between 19 and 24 and over 65.

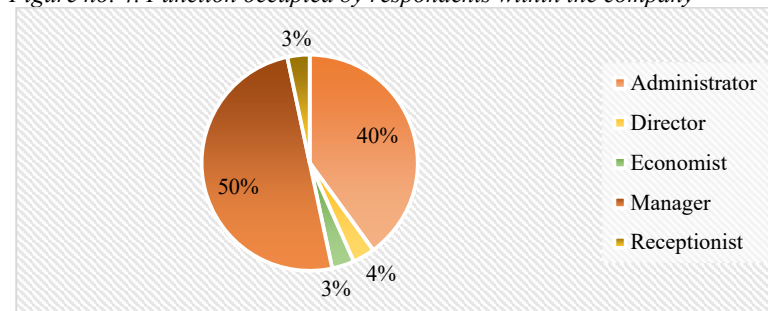
Figure no. 3. The last school to be graduated by research participants



Source: own processing

Figure no. 3 highlights that the majority of respondents (77%) have university education (12 respondents) and postgraduate studies (11 respondents), followed by those with doctoral studies (13%). Only 3 of the respondents have secondary education, which suggests that the majority of tourism entrepreneurs in Bukovina region have a high level of education.

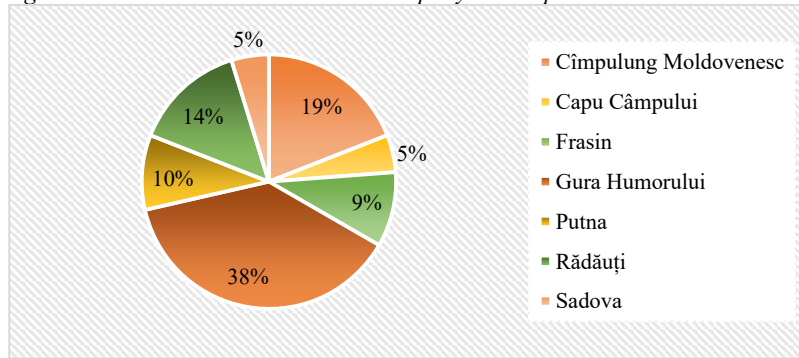
Figure no. 4. Function occupied by respondents within the company



Source: own processing

Furthermore, Figure no. 4 underlines that half of the respondents are managers – 15 respondents, 40% are administrators – 12 respondents and the other 3 respondents have the function of director, economist and receptionist.

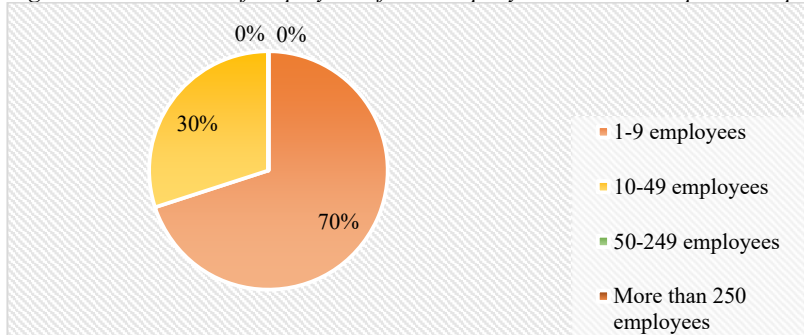
Figure no. 5. The location where the company's headquarters are located



Source: own processing

The structure of the sample according to the territorial distribution includes companies operating within Suceava County. The highest representation is observed in Gura Humorului (38%), Campulung Moldovenesc (19%), and Radauti (14%). On the other side, we highlight a low representativeness in Sadova and Capu Campului villages (5%).

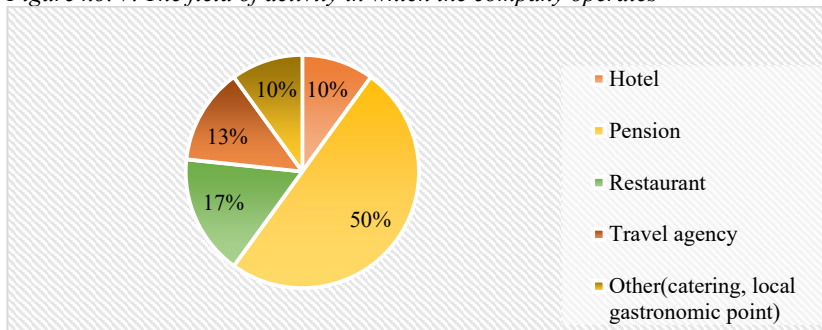
Figure no. 6. Number of employees of the company in which the respondent operates



Source: own processing

In terms of the number of employees, Figure 1 shows that most of the tourism companies included in the study are micro-enterprises and have up to 9 employees (70%). The remaining 30% of tourism companies have between 10 and 49 employees.

Figure no. 7. The field of activity in which the company operates

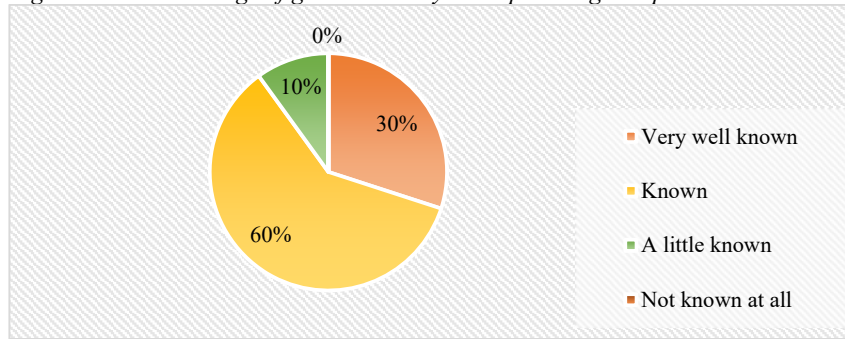


Source: own processing

Regarding the field of activity, 50% of the tourism companies operate as pensions and 17% as restaurants. Furthermore, another important proportion of the responses indicates that 13% of the tourism companies are travel agencies and 20% have catering activities or are a local gastronomic point.



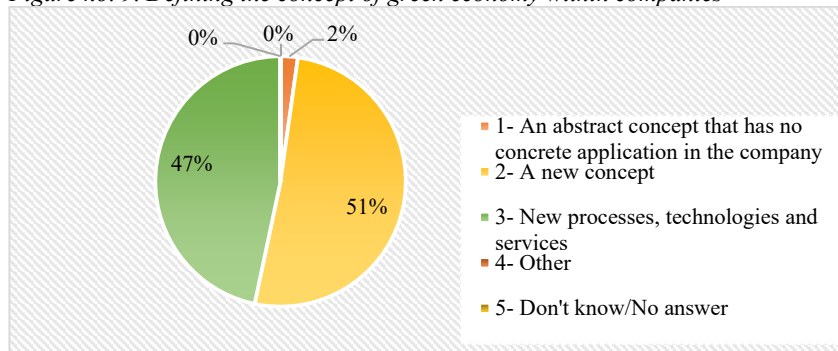
Figure no. 8. Knowledge of green economy concepts and green products/services



Source: own processing

In order to identify the degree of perception of the principles on green economy, one question of the survey sought to identify whether entrepreneurs are aware of the notion of green economy and green products/services. The results highlight that out of 30 respondents, 27 (90%) are well and very well aware of these notions, and the other 3 (10%) respondents have only heard about these concepts.

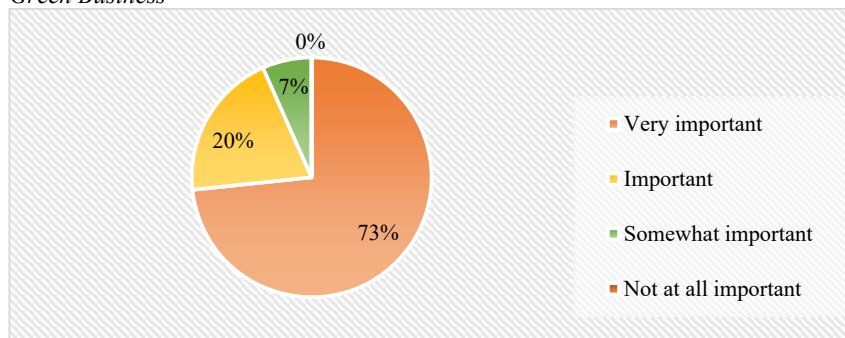
Figure no. 9. Defining the concept of green economy within companies



Source: own processing

The largest share of respondents (51%) consider that green economy concept is a new concept based on reducing the negative impact of economic activity on the environment (Figure no. 9). Another 47% of the respondents consider that green economy includes new processes, new technologies or new types of services.

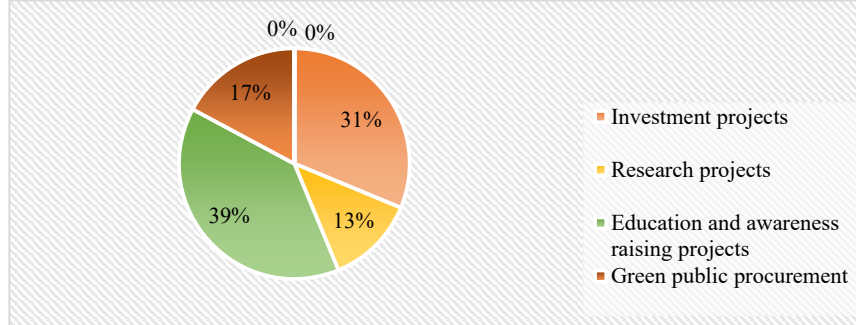
Figure no. 10. The importance of the professional training of a tourism manager for the development of a Green Business



Source: own processing

The respondents have stated that the professional training of tourism managers is very important (73%) and important (20%) for the development of a green business. Only 7% of the respondents consider that a professional training is not a basis for developing a green business. We can conclude that the majority of those surveyed consider that professional training would be useful for managers and are open to such an opportunity for their businesses.

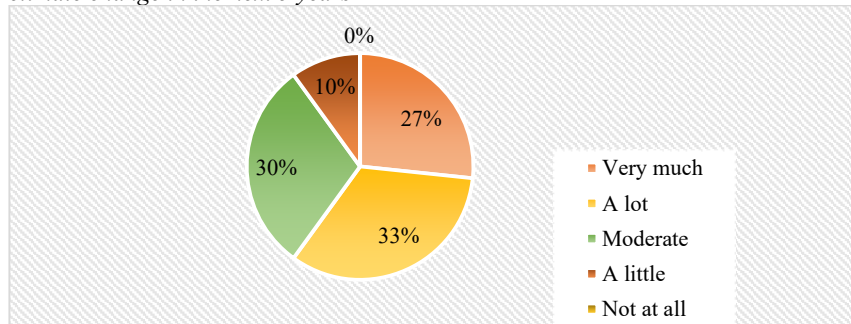
Figure no. 11. Tools that can facilitate the implementation of the green economy in Romania



Source: own processing

Furthermore, we examined a set of tools that can facilitate the implementation of the green economy in Romania. The results underline that 39% of the respondents consider that education and the awareness of educational projects could facilitate green economy development and implementation. Likewise, 31% of the respondents are of the opinion that investments in different projects are also important, followed by green public procurement (17%).

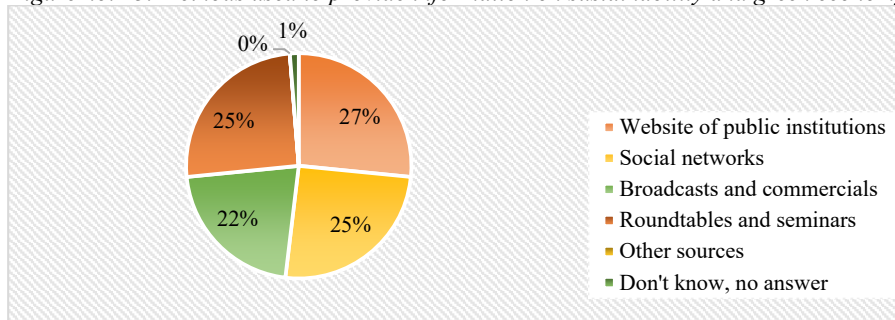
Figure no. 12. The degree of company involvement following the transition to a green economy and climate change in the next 5 years



Source: own processing

Around 60% of the respondents have agreed that the transition to a green economy and climate change will influence their business strategies and processes in the next five years, while 40% of the respondents consider that these changes will not impact them.

Figure no. 13. Methods used to provide information on sustainability and green economy



Source: own processing

Figure no. 13 shows the most effective ways to inform entrepreneurs in Bukovina about sustainability and the green economy. The websites of the institutions (27%), the social networks (25%) and round tables (25%), and the broadcasts and commercials (22%) are the most effective methods for providing information on sustainability and green economy.

## 5. Conclusions

The green economy transition introduces a new approach to economic growth that focuses on sustainability and on minimizing the negative effects of economic activities on the environment and society.

The results indicate that the tourism entrepreneurs that responded to the questionnaire operate in Gura Humorului (38%), Campulung Moldovenesc (19%), Radauti (14%), Putna (10%), Frasin (9%), Capu Campului (5%) and Sadova (5%).

Furthermore, the most significant results of the questionnaire employed in Bukovina region lead to the following conclusions:

- The perception of green economy principles by tourism business representatives has shown a positive development;
- Tourism companies want to receive more information on the environmental impact of green economy activities. Although respondents are aware of the concept of green economy, they argue that they do not have enough knowledge regarding green economy principles and how to implement them in their business processes;
- The vast majority of respondents consider that they need more knowledge and information on green economy and sustainability, focusing mainly on education and awareness raising projects, green investment projects and green public procurement as well as on the standards to be met and the methods to implement green economy principles;
- The most effective methods of informing entrepreneurs about the green economy according to the respondents would be institutional websites, social media, seminars or round tables.

Sustainability issues linked to eco-economic issues are a challenge for some entrepreneurs, who are aware of the need to address smart sustainable development.

“Greening the economy” is a new source of growth, a creator of decent jobs and a crucial strategy for eliminating poverty. The green economy offers opportunities for all countries, regardless of their level of development and economic structure.

Promotional campaigns should focus on describing the principles and values of the green economy, presenting new green economy models. The concept of the green economy in traditional media is not sufficiently promoted. Stronger promotional measures need to be taken, including at government level, so that the concept is known to the widest possible segment of the population.

These measures would provide a basis for facilitating the achievement of green economy objectives, such as waste reduction, resource efficiency and green economy projects.

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# The Impact of Policies and Measures on Climate Changes at Global and National Level

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## Abstract

*The climate crisis we are confronted with has worsened substantially compared to 15, 20, or 30 years ago, when the first assessments related to climate change were presented to the world's governments. This crisis, with its severe repercussions on the frequency and intensity of extreme weather phenomena, natural ecosystems, and imbalances in every country's economies and people's lives, demands immediate attention. To halt the continuous degradation of the environment, we must identify the effects and serious phenomena that are affecting the planet due to the emissions of gases in the atmosphere, where this decline started, and how fast it has been expanding. Climate models are an appropriate tool to study the influence exerted by the effects of increasing GHG levels and disturbance factors. This paper not only examines current environmental policies but also proposes alternative strategies for the future, instilling hope and empowerment in the face of these urgent priorities for humanity.*

**Key words:** environmental policy, global warming, natural ecosystem, climatic neutrality

**J.E.L. classification:** Q54, Q56, Q57

## 1. Introduction

Humanity, through its actions, has significantly and continues to harm the Earth's climate system, leading to irreversible changes that demand a tangible, realistic assessment of this planet's future. This realization should serve as a powerful motivator for us to take immediate and effective action, as we are the primary cause of these changes. Our actions have consequences, and it's time we acknowledge and take responsibility for the damage we've caused.

Over 97% of the research conducted between 1991 and 2013 has unequivocally pointed to human activities as the primary cause of environmental deterioration. The expert opinions in the field further solidify these research findings, highlighting the need for immediate policy changes (Andrews, 2018).

## 2. Theoretical background

According to Ms. Valérie Masson-Delmotte, a leading figure in the IPCC, the climate began to shift decades before our current century, largely due to human activities. However, new reports are optimistic, suggesting that it is high time for significant changes to be implemented to curb the destructive effect on the environment (Ceppi, 2017), (Gregory, 2017).

António Guterres (UN Secretary-General) made an appeal as clear as possible: He advocates changing the behavior of both governments and people because an ambitious and solidary joint effort would be of great help in protecting and saving humanity.

Surely the opinions of specialists Lynas, Houlton & Perry (Lynas et al, 2021), supported in the year 2021, regarding the disastrous situation humanity is facing are also related to the reality that humans are responsible for climate change. They conclude that it is necessary to urgently find viable solutions to remedy the urgent problems related to greenhouse emissions that have caused

changes in the natural environment and that their devastating effects will affect the economy of countries, businesses, and the economy as a whole.

Scientists' claims must determine authorities make urgent decisions and realize that all these human-induced changes have had a catastrophic impact on the climate, causing heat waves like the one recorded in Canada, where temperatures have reached about 50 °C (Collins, M, et al, 2013).

In the last century, the planet's rapid warming has been affected by both the growth of GHGs and natural factors such as the intensification of volcanic activity and solar radiation.

After studying the conclusions offered by scientists and highlighted in specialized literature, regarding greenhouse gas (GHG) emissions, I can state that the main cause of modern climate change remains man, although there is no conclusive scientific debate issued by experts to certify whether man causes climate change. Some scientific works reject the hypotheses issued by the IPC AR5," it is very likely that human influence was the dominant cause of the warming observed in the middle of the 20<sup>th</sup> century" (Comyn-Platt E et al., 2018).

The conclusions offered by the IPC AR6," it is unequivocal that human influence has warmed the atmosphere, the ocean and the earth (Gasser T, et al. 2018)."

Each of us has a role in raising awareness of the seriousness of our situation and informing humanity that to mitigate the devastating effect of global warming, collective efforts must be made to reduce the burning of fossil fuels and other sources of anthropogenic emissions of greenhouse gases (Lowe and Bernie, 2018).

### **3. Research methodology**

This research aims to evaluate the feasibility and challenges of limiting global temperature rise to 1.5°C, with a focus on Romania's strategies within the IPCC guidelines and the 2030 United Nations Agenda for Sustainable Development. A mixed-methods approach will be used, incorporating both qualitative and quantitative data to comprehensively understand the subject.

Data collection will involve a thorough literature review of relevant documents, analysis of key policy documents, and scrutiny of official statistics. Semi-structured interviews with policymakers, experts, and stakeholders, along with detailed case studies of specific sectors, will provide deeper insights into the implementation challenges and socio-economic impacts of the proposed strategies.

Quantitative data will be statistically analyzed to evaluate trends in GHG emissions and energy consumption, while qualitative data will be thematically analyzed to identify common themes and best practices. Comparative analysis will benchmark Romania's progress against other EU countries.

To ensure the reliability of findings, triangulation, expert review, and sensitivity analysis will be employed. Ethical considerations will be strictly adhered to, ensuring confidentiality and informed consent.

This comprehensive methodology aims to provide a detailed assessment of Romania's climate change mitigation efforts. It will contribute valuable insights into sustainable development and climate resilience and help achieve the global temperature target of 1.5°C.

### **4. Findings**

The IPCC's decision (IPCC, 2013, 2018, 2021) to prepare the report on the impact of the increase in the global average temperature by 1.5°C took into account the fact that the assessment must be carried out by considering the implementation strategies to be able to understand the favorable conditions and the challenges necessary for such transformation, those being qualified in the context of sustainable development, in particular, in the 2030 United Nations Agenda for Sustainable Development (UN, 2015b). The feasibility of staying within the range of 1.5°C, and identifying the technology and political levers needed to accelerate the pace of transformation, depends on a series of favorable conditions, geophysical elements, environmental elements, ecological, technological, economic, socio-cultural and institutional dimensions, focusing on three main directions: sustainable development, resilience and transformation.

Reducing global warming consists of accelerating the disconnecting of economic growth from GHG emissions, since climate change constraints possible development paths, there are synergies and trade-offs between climate responses and socio-economic contexts, and opportunities for favorable climate responses overlap with opportunities for sustainable development, many of the existing societal models of consumption being unsustainable.

As a result of the Kyoto Protocol, an important step has been taken against global warming because it contains mandatory and quantified objectives for limiting and reducing GHG emissions, specifically holding the commitments of industrialized countries to reduce these gas emissions that are responsible for global warming. The GHGs on which there are numerous discussions and controversies - carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrogen oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulfur hexafluoride (SF<sub>6</sub>) - are determined by the irradiative force of the gas, its concentration in the atmosphere and its stagnation time in the atmosphere, the index is called Global Warming Potential (GWP), i.e. the combined effect of the time in which they remain in the atmosphere and the efficiency in absorbing infrared radiation emitted by the Earth.

However, there is a wide range of other GHGs that are released into the atmosphere, such as halocarbons, the best-known being chlorofluorocarbons (CFCs) and other substances in whose molecules there are chlorine and fluorine atoms, their emissions being regulated by the Montreal Protocol. Halogen gases are emitted in much smaller quantities than CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, having very low concentrations in the atmosphere, but a very long lifespan and a strong irradiative forcing effect, from 3,000 to 13,000 times greater than CO<sub>2</sub>.

Governments have begun to negotiate the achievement of an international agreement that would emphasize those solutions aimed at each country's atmospheric emissions depending on the economic status and production of each one. In the case of a less developed country, it will be allowed to emit more GHGs to enable it to grow economically, and developed countries, which have a high GDP, will be asked to reduce their gas emissions because they have a greater responsibility than other countries in terms of greenhouse gas emissions.

One step towards solving the problems is acknowledging their dimensions, in this sense, each country, depending on its economy, will have to reduce gas emissions compared to the levels reached in 1990, which was considered to be the "reference year" for tabulation of GHG emissions. European Union established "Romania's Long-Term Strategy" (STL), which includes three important scenarios that must be taken into account: the reference scenario, the average scenario, and the Neutral Romania scenario, which aims to achieve climate neutrality by 2050 by reducing emissions net value with a percentage of 99% until that date, which would ensure that the production of food is not endangered and sustainable economic development can be continued without problems.

Starting from 1990, as the reference year, Romania succeeded in the decarbonization process to reduce GHG emissions by 62% compared to the reference year. The efforts undertaken by Romania also envisage a reduction of net gas emissions by 78% by 2030 so that the climate neutrality threshold is reached in 2050, reducing GHGs by 99% compared to the reference year.

Romania's Long-Term Strategy (Cătuți, Miu, and Postoiu, 2022) requires paying more attention to national targets and, to the same extent, to sectoral targets that are based on the energy and climate model, which must take into account the contribution of all economic fields whose effects are reflected in the energy sector, while influencing the environment at the same time. Achievement of the targets proposed in the STL must not ignore any of the activity sectors - the energy sector, the industry sector, the agriculture sector, the transport sector, and the waste sector, for each of them, specific measures must be approved, but all should be aimed at the same goal, namely the reduction of GHG emissions.

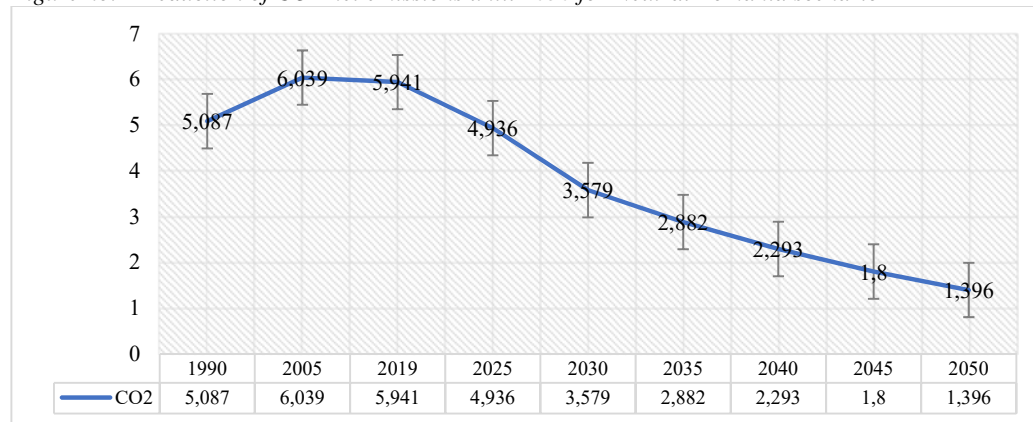
Figure 1 shows the efforts made and those expected "to reduce net emissions until 2050, in the waste sector through measures aimed at:

- reducing the amount of household waste by 10% by 2025;
- reducing the amount of residual waste by 10% by 2035;
- recycling food and garden waste by 50% in 2030 and 60% in 2050;
- recycling wood waste by 25% in 2025, 30% in 2030 and 50% in 2050;
- paper and textile recycling by 80% in 2050;

- approximately 60% of methane emissions produced by non-recyclable waste will be eliminated by 2050;
- bans on the storage of recyclable materials (plastics, metals, glass, paper, cardboard);
- bans on the storage of biodegradable waste until 2025, and the total elimination of waste storage will be attempted until 2030;
- an increase in the waste recycling rate for packaging will be attempted - 60% by 2020, 70% by 2025, and up to 80% by 2030" (Romania's Long-Term Strategy for the Reduction of Greenhouse Gas Emissions)

Although the proposed target for the waste sector was to reduce GHG by 73% by 2050 compared to the reference year, an unwanted increase in emissions by 19% was observed between 1990 and 2005. Still, from 2019, the situation began to return to normal, with a decrease in them, which must be stimulated for our country to fall within the reach of the sectoral target set for the year 2050.

Figure no. 1 Reduction of CO2 net emissions until 2050 for Neutral Romania scenario



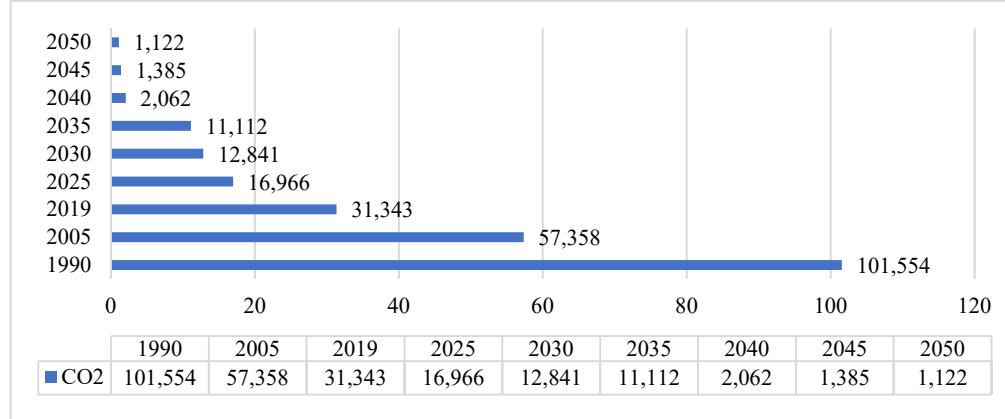
Source: Own processing using data (Eurostat)

Taking a look at the energy sector and its decarbonization, we can say that the main objective of reducing GHG can be achieved by 2050 because a percentage of 69% has already been reached in 2019, and it is expected to reach a percentage of 98% of the proposed objective by 2035 through measures aimed at:

- decommissioning the sources of energy production used for heating/cooling based on biomass, coal, lignite, and oil, with heat pumps by 25% by the year 2050;
- elimination of fossil fuels (natural gas and coal) by using other renewable energy sources such as electricity, waste with high calorific value, and hydrogen;
- finding appropriate solutions for carbon capture, storage, and use (CCUS) in the non-metallic minerals industry to reach the proposed target of 50% captured emissions by 2050;
- high energy efficiency as a result of the use of technologies at the most advanced standards found in the Primes model.



Figure no. 2 Decarbonization of the energy sector by 2050 according to the Neutral Romania scenario



Source: Own processing using data (Eurostat)

The decarbonization objective imposed by the EU on Romania will be achieved through the use of the EU-ETS Scheme (EU GHG Emissions Trading Scheme), which helps to achieve the annual emissions tasks for the non-ETS sectors as a result of the 44% decrease in GHG emissions until 2030.

Romania is confronted with challenges regarding the decarbonization process as the country still relies significantly on fossil fuels. The percentage of use of fossil fuels, i.e., oil, coal, and gas, showed an increase in the year 2021 compared to 2020, reaching an important share of 72% in 2021, while the energy obtained from the use of renewable sources recorded a smaller percentage, only 20%. The studies carried out show us that Romania ranks second in the EU in terms of gas production which is used, in particular, on the domestic market. In Romania, the efforts should be channeled on the more efficient use of energy, and here we recall the fact that there has been an increase in the gross final consumption of energy from renewable sources in the field of electricity, transport as well as in the heating and cooling sector. An increase in electricity production through the use of wind and solar power plants as well as hydrogen power plants will cause an increase in the volume of RSE (renewable sources of energy) in the energy production sector by approximately 107.5% as a result of the fact that a part of the energy produced from RSE will not be used directly but it will be directed to hydrogen production, which means that the share of production from RSE will be higher than the gross consumption of energy from renewable sources. Under these conditions, Romania could benefit from substantial support to achieve the objectives proposed and requested by the EU for the year 2030 and, in perspective, for the year 2050, to successfully implement the European Ecological Plan 2050.

## 5. Conclusions

Romania has important energy resources: oil, natural gas, coal, hydropower potential, and uranium reserves. It can invest in and support the reorientation towards other energy sources, such as wind energy, solar energy, and energy produced in micro-hydropower plants.

According to the PNNR commitment, by 2023, all energy production that currently uses resources such as coal and lignite must be replaced with energy from renewable sources. However, because of existing blockages in the network, energy from renewable sources cannot be used.

We have to admit that the energy sector is crucial for Romania's economic development since it can transform our country into an energy supplier. We have the necessary resources to achieve this goal, and the transition from solid fuels to natural gas and renewable sources can be achieved with little effort on everyone's part.

The involvement of the Ministry of Economy, Energy, and Business Environment using a balanced approach in the national energy sector could be able to expedite the fulfillment of the major objectives of the RES 2020-2030 that it proposed regarding:

- the energy governance system that requires a change, respectively, a modernization for optimal use of green, clean energy,

- the increase in the benefits brought by the energy system both in regional and European markets,
- Romania's participation in the energy market as a regional provider of energy security,
- the urgent measures to protect vulnerable consumers,
- the access of all citizens to electricity and thermal energy,
- the elimination as much as possible of the energy poverty currently faced by a good part of the population, and
- the human resource (let's not forget the most important part) who must be stimulated by continuous training within a qualitative education system.

We believe that investments in the production of energy with low GHG emissions, replacing coal with natural gas and other options from renewable sources such as the potential of hydrogen and new gases, wind and photovoltaic energy, energy produced in offshore wind farms, increasing nuclear energy capacities, the introduction of digitization and smart grid networks, are in a position to make an energetic transition as realistic and sustainable as possible in the field of climate change by eliminating carbon emissions, proving in this way that the desired global climate neutrality is feasible and desirable.

This desire and necessity to reach climate neutrality will bring unexpected opportunities and far-reaching social and economic transformations only if they are supported by a government determined to overcome the challenges that have arisen at the national and global levels.

Our future is possible as long as we realize that climate change has a strong impact on our daily lives and that this climate change and its consequences are the biggest challenge for the century we are in, because many of the changes already observed in the climate system, including increased frequency and intensity of temperature extremes - heat waves, heavy precipitation, drought, loss of Arctic Sea ice, snow, and permafrost, will become more intense as global warming increases.

Global warming will continue to intensify the global water cycle, including its variability and the severity of wet and dry phenomena. Each half degree of global warming causes a perceptible increase in the frequency and duration of extreme temperatures (heat waves), the intensity of heavy precipitation, and drought in certain regions of the planet.

Ulterior climate warming is expected to further amplify permafrost thaw and loss of seasonal snowpack, land ice, and Arctic sea ice, with Antarctica potentially ice-free in September (at least the annual minimum), at least once before 2050 in all emission scenarios, with more frequent events for higher levels of warming.

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# The Transposition of the OECD-Proposed Tax Reform at the European Union level

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## Abstract

*In the context of increasing economic interdependence, tax reform has become critical on the international agenda due to widespread tax avoidance by multinational companies and digital giants. The OECD has proposed tax reforms to address these challenges, aiming for a fairer distribution of tax revenues among countries.*

*This paper examines the necessity and impact of implementing the OECD's tax reforms within the EU, considering the diverse tax systems of member states.*

*The analysis reveals an upward trend in profits transferred to tax havens globally. EU tax havens like the Netherlands, Ireland, and Luxembourg are significant recipients of these profits. The OECD reforms, by reallocating profits and establishing a minimum tax, are expected to reduce the attractiveness of these havens. The impact will vary: less developed EU countries may lose foreign investment opportunities, while more developed countries could benefit from increased tax revenues and fairer profit distribution.*

**Key words:** tax reform, multinational companies, tax havens, European Union

**J.E.L. classification:** H25, H26, H32, F23

## 1. Introduction

In the context of globalization and increasing economic interdependence between states, tax reform has become a topic of paramount importance on the international political and economic agenda, given the phenomenon of tax avoidance encountered among multinational companies and digital giants. Consequently, the Organization for Economic Co-operation and Development (OECD) has proposed a series of tax reforms aimed at addressing the fiscal challenges of the digital economy and ensuring a fairer distribution of tax revenues among countries.

Within the European Union (EU), the implementation of the OECD's proposed tax reforms can generate a series of specific challenges and opportunities, considering the diversity of the member states' tax systems and the need to harmonize national legislations with community directives and regulations. The transposition of the OECD tax reform at the EU level involves adapting tax rules and coordinating economic policies to ensure a uniform and effective application across the Union.

Given these aspects, this paper aims to analyze the two pillars of the tax reform plan proposed by the OECD, the necessity of implementing these pillars at the level of the European Union member states, as well as the process of transposing the tax reform and the potential positive or negative consequences.

In this study, we will address the legal and technical aspects of the implementation, as well as the economic implications of this reform, using a quantitative approach based on simple statistical methods. The goal we aim to achieve through this analysis is to highlight the challenges and opportunities generated by the transposition of the OECD tax reform in the member states of the European Union, taking into account the difference in the levels of development between the member states.

## 2. Literature review

The problem of tax avoidance is quite old, being well known in the specialized literature. In the context of this issue, what brings novelty is the intensified attention that political decision-makers have given to it in recent years (Nebus, 2019).

With the phenomenon of globalization, increased capital mobility, economic liberalization, and the advancement of the information revolution have led to heightened fiscal competition among states. Fiscal competition involves reducing the tax burden to attract foreign direct investment. While foreign direct investment generates benefits, the consequences of this practice are controversial, especially in the context of rising budget deficits and public debts in European Union countries. The issue arises when all countries decide to lower tax rates, with some researchers arguing that this could lead to tax rates falling below the optimal level for funding and providing basic public goods and services to the population. (Guziejewska et al, 2014).

To address multinational companies' tax avoidance issues and hence the fiscal competition between states, a global reform plan was discussed within the Organisation for Economic Co-operation and Development (OECD) and G20. Following debates in July 2021 among countries involved in negotiations at the OECD, an agreement on the outline of new tax rules was reached in October, endorsed by 137 jurisdictions at that time.

The OECD/G20 fiscal plan aims primarily to ensure a more equitable distribution of profits and taxes among countries, taking into account the global activities of multinational companies. This plan is structured around two main pillars. The first pillar requires multinational companies with annual revenues exceeding 20 billion euros to redistribute 25% of their profits to countries where they conduct economic activities, provided that the profit margin exceeds 10%. Extractive industries and regulated financial services are excluded from this pillar. The second pillar encourages multinational companies to avoid tax havens and introduces an additional tax for companies with total revenues exceeding 750 million euros that pay an effective tax rate below 15%. Moreover, the parent jurisdiction of multinational companies has priority in collecting the missing taxes (Khudyakova and Sidorova, 2022).

Regarding the European Union, since its establishment, tax harmonization among member states has been a priority objective. However, harmonization of corporate income tax has not succeeded in being fully achieved. Significant differences between the tax rates of member states have been extensively addressed in the literature. Nonetheless, tax harmonization remains a goal for member states, with the hope of preventing the relocation of companies to regions with lower tax rates. Thus, the aim is to avoid capital outflow (Contell et al, 2018).

## 3. Research methodology

The purpose of this paper is to highlight the challenges and opportunities generated by the transposition of the OECD/G20 tax reform in the member states of the European Union, taking into account the difference between the levels of development between the member states.

In this sense, we propose a quantitative approach based on simple statistical methods to highlight the situation of the profits transferred at the European level, compared to the global level, as well as the profits transferred to tax havens, especially those in the European Union.

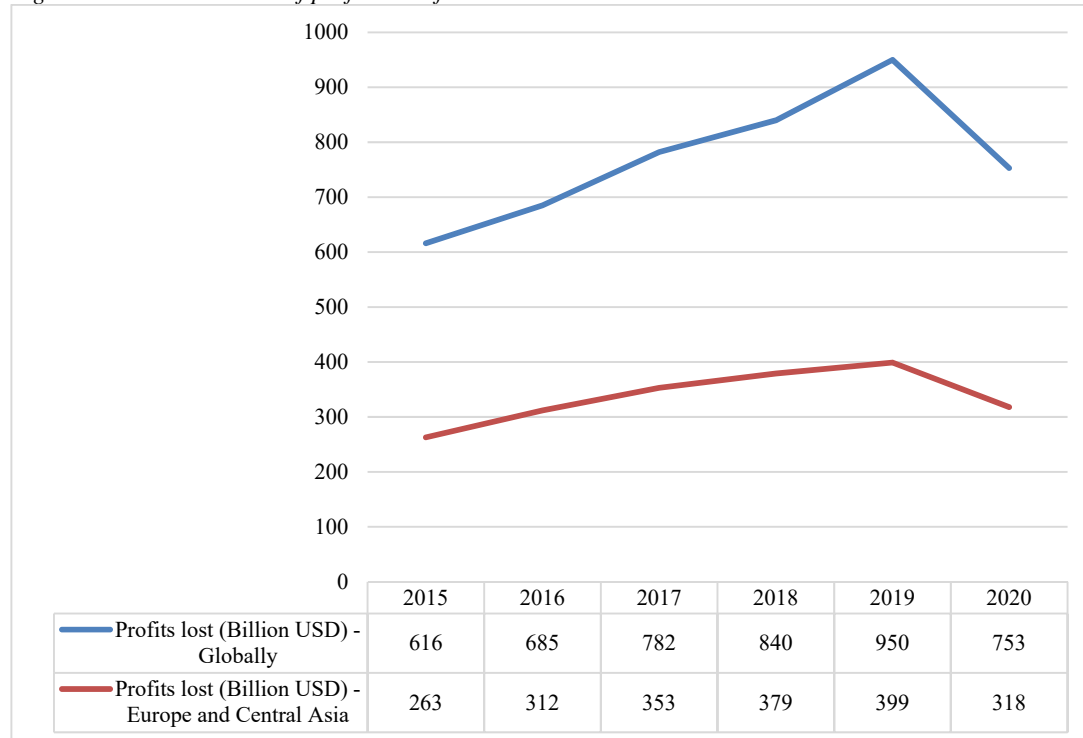
These approaches help us determine, at a descriptive level, the extent of tax avoidance, the necessity of implementing the reform plan, as well as its main opportunities or challenges.

## 4. Results

In this part, we propose an analysis of the evolution of the profit transferred to tax havens in the period 2015-2020, with the help of EU Tax Observatory data.

The data is based on two segments, one of them presents the situation at the global level, showing the approximate profit transferred to tax havens from all over the world, and the second segment considers the situation in Europe and Central Asia.

Figure no. 1 The evolution of profits transferred to tax havens



Source: (EU Tax Observatory, 2024)

According to the chart based on data provided by the EU Tax Observatory - Atlas of the Offshore World, the profit transferred to tax havens globally showed an upward trend from 2015 to 2019, increasing from 616 billion USD in 2015 to 950 billion USD in 2019, a relative increase of 54.22%. It then significantly decreased in 2020, reaching 753 billion USD, a relative change of -20.74% for the period 2019-2020.

In the countries of Europe and Central Asia, during the period 2015-2019, the profit transferred increased from 263 billion USD in 2015 to 399 billion USD in 2019, a relative increase of 51.71%. It then decreased in 2020, reaching 318 billion USD, a relative change of -20.3% for the period 2019-2020.

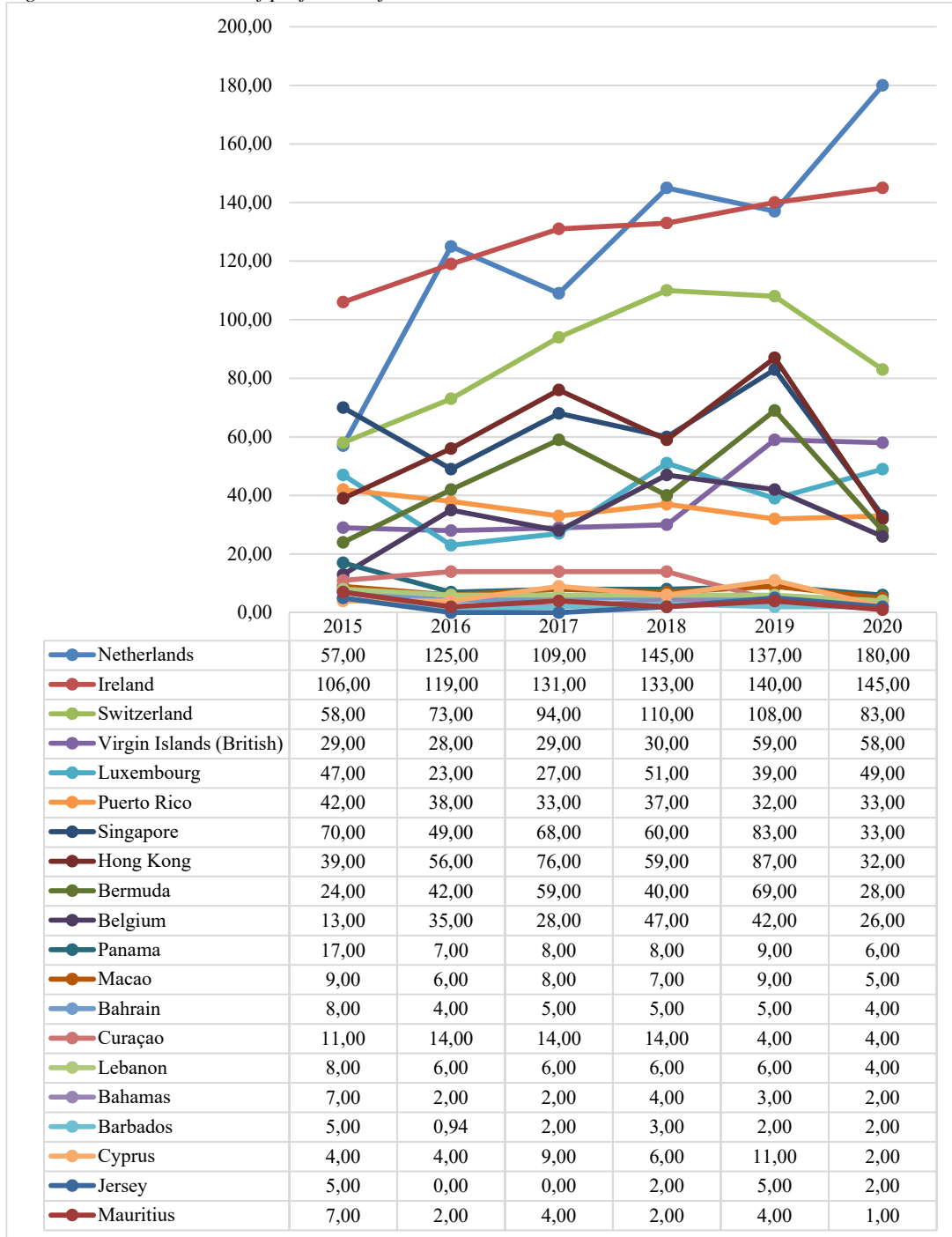
According to these data, of the total profits lost globally, only Europe and Central Asia lose approximately 42.23%, a significant percentage, considering that the rest of the world loses approximately 57.77%.

Until now, the tax reform plan proposed within the OECD/G20 framework should reduce the general percentage of profits lost at the European level, due to the reallocation of a part of the profit transferred to where it was made and the minimum taxation with 15%, as the reform plan mentions. However, the impact on the economy of the European Union must also be evaluated from the perspective of tax havens in the Union that attract Foreign Direct Investments (FDI) from multinational companies that transfer profits there and of course, from the perspective of the level of development of each member state's economy.

Regarding tax havens, we propose an analysis of the evolution of the profits transferred to the most appreciated tax havens by multinational companies, in order to determine the impact on those in the European Union. The degree of appreciation being established depending on the extent of the profits transferred.

Therefore, the following graph includes the distribution of profits in tax havens, showing an evolution of transferred profits and a ranking of the most attractive EU and non-EU tax havens, being the first twenty.

Figure no. 2 The evolution of profits transferred to the most attractive tax havens



Source: (EU Tax Observatory, 2024)

Within the graph, the top 20 tax havens that received transferred profits are organized in descending order of profits from the year 2020. Thus, Malta, which received a profit of 12 billion in 2015 USD, received only 0.30 USD billion in 2020 and is no longer included in the ranking from the graph.

According to the graph, the Netherlands stands out with a significant increase in transferred profits, from 57 billion USD in 2015 to 180 billion USD in 2020. This consistent increase suggests that the Netherlands has become an increasingly attractive place for companies seeking tax optimization. Favorable tax policies and a well-developed financial infrastructure contribute to this trend.

Ireland, which was in first place in 2015, also recorded an increased flow of transferred profits, from 106 billion USD in 2015 to 145 billion USD in 2020. Ireland is known for its very advantageous tax regime, including a low corporate tax rate and various tax benefits offered to multinational companies. This makes Ireland one of the main destinations for profit transfers.

In Switzerland, transferred profits initially increased from 58 billion USD in 2015 to a peak of 110 billion USD in 2018, followed by a significant decline to 33 billion USD in 2020. This fluctuation can be attributed to changes in international tax regulations and global pressures for tax transparency, which have affected Switzerland's attractiveness as a tax haven.

The British Virgin Islands registered relative stability in transferred profits, with values fluctuating between 28 and 59 billion USD over the analyzed period. They remain a popular destination due to flexible tax regulations and the anonymity offered to investors.

In Luxembourg, the volume of transferred profits varied considerably, with a minimum of 23 billion USD in 2016 and a maximum of 51 billion USD in 2018, stabilizing at 49 billion USD in 2020. Luxembourg continues to be an important financial hub due to its advantageous tax policies and stable legal framework.

It is noteworthy that all European Union tax havens are included in this ranking, except for Malta, which was also part of the top 11 appreciated tax havens in 2015. Additionally, the top two places that received significant values of transferred profits are tax havens in the European Union.

Therefore, the implementation of the two-pillar tax reform proposed by the OECD/G20 would have a significant impact on the tax havens within the European Union. The Netherlands, Ireland, and Luxembourg would see a reduction in the profits transferred to them, as the tax advantages offered by these jurisdictions would be diminished. The redistribution of taxing rights and the establishment of a global minimum tax would contribute to more equitable taxation and discourage aggressive tax avoidance strategies.

Also, considering these sums of money that arrive in countries with tax facilities, following the application of the tax reform based on the two pillars proposed by the OECD/G20, the implications seem to be different for the less developed countries compared to the developed ones in the European Union. The less developed countries would be at a disadvantage because they could lose opportunities to attract foreign direct investment by offering attractive fiscal incentives, thereby reducing their competitiveness relative to more advanced economies. In contrast, developed countries could benefit from the reform by increasing equity in the global tax system, which would lead to a fairer redistribution of multinational profits. Therefore, the developed countries of the European Union would gain additional tax revenues.

## **5. Conclusions and recommendations**

The implementation of the OECD/G20 tax reform should reduce the overall percentage of profits lost in Europe by reallocating a portion of the profits to the jurisdictions where they were generated and instituting a minimum 15% tax. This reform would impact the economies of EU member states differently based on their levels of development and their roles as tax havens.

An analysis of the most attractive tax havens shows that the Netherlands, Ireland, and Luxembourg receive significant amounts of transferred profits. The reform would likely reduce these profits due to diminished tax advantages. For less developed EU countries, the reform may result in lost opportunities to attract foreign direct investment through fiscal incentives, reducing their competitiveness. In contrast, more developed EU countries could benefit from increased tax equity and additional tax revenues, leading to a fairer redistribution of multinational profits.



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# The Impact of Tax Avoidance in Romania: Corporate Profit Shifting to Tax Havens

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## Abstract

*This study investigates the impact of tax avoidance on Romania's economy, specifically its relationship with GDP, comparing Romania's situation to other EU member states. The research utilizes a quantitative methodology, analyzing data from 2015 to 2020 through statistical methods, including regression analysis.*

*The findings indicate a substantial increase in profits transferred from Romania to tax havens, rising from 4 billion USD in 2015 to 7 billion USD in 2020, with a peak of 8 billion USD in 2019. The share of profits lost as a percentage of GDP ranged from 2.25% to 3.19%, with an average of 2.63%. Transfers to non-EU tax havens increased significantly, while those to EU tax havens remained constant. Regression analysis shows a positive and significant relationship between GDP growth and profits lost, with an increase of 0.039904 units of profits lost for each additional unit of GDP. These results highlight the economic impact of tax avoidance and underline the need for effective policy measures to address this issue.*

**Key words:** tax avoidance, profit shifting, tax havens, Romania

**J.E.L. classification:** H26, H32, F23

## 1. Introduction

In recent years, the issue of tax avoidance has become a topic of intense debate in academic, economic, and political circles, both nationally and internationally. With the rise of globalization, a strong competition has emerged among countries to provide a favorable climate for multinational companies, aiming to attract foreign direct investments.

In this context, globally, there are countries that practice high tax rates and countries that practice low rates to be more attractive to companies. The problem of tax avoidance that has been created stems from the fact that these companies apply various methods to access promising markets with high rates, subsequently avoiding the tax burden by transferring profits to countries with low rates.

The consequences of this practice can be multiple. In general, states with higher tax rates lose some of their tax revenue, which can reduce the funds available to finance public services such as health, education and infrastructure, also contributing to increased economic and social inequality.

Tax avoidance practices also distort market competition by giving multinational companies an unfair advantage over local businesses, which do not have the same opportunities to shift their profits to low-tax jurisdictions. This situation can lead to an inefficient allocation of economic resources and the erosion of the national tax base.

As part of the European bloc, Romania is a state that has participated in the phenomenon of globalization, attracting a significant number of multinational companies in recent years. This has brought a number of advantages, including through foreign direct investment and employment. However, in Romania the corporate tax rate is 16% and in the European Union there are tax havens that practice levels of corporate tax rates much lower, which subjects Romania to the risk of tax avoidance by allocating profits to tax havens.

Therefore, the purpose of this paper is to find out what was the impact of tax avoidance in Romania in recent years in relation to the GDP, compared to the other member states of the European Union.

The present paper is composed as a part of a more comprehensive research through which we aim to determine the impact that the implementation of the new tax reform plan proposed within the OECD/G20 framework will have on the member states of the European Union.

## 2. Literature review

One of the most significant changes in global tax policy since the 1980s has been the reduction in corporate tax rates. From 1985 to 2018, the global average corporate tax rate decreased from 49% to 24%. This decline can be attributed in part to international tax competition (Tørsløv, Wier and Zucman, 2023).

Tax havens exacerbate tax competition problems by forcing states to reduce taxes below optimal levels to attract investment (Slemrod and Wilson, 2009).

As traditional understandings suggest, a tax haven is identified by the application of extremely low or zero taxes. In addition, these jurisdictions are also distinguished by the high degree of confidentiality and by the existence of a robust financial infrastructure that allows the adoption of advanced strategies to meet the financial objectives of so-called offshore companies (Mara, 2015).

There are several methods of tax avoidance practiced by multinational companies with the help of tax havens, the best known being used through affiliated entities, for example the practice of transfer pricing, royalty payments or intracorporate loans. Given these practices, Global Taxation is an important topic in the context of global decisions, as most Foreign Direct Investments (FDI) and international operations are deeply influenced by tax considerations. This issue is of overwhelming importance, as approximately \$10 trillion of global trade is transacted between affiliated companies (Contractor, 2016).

In Romania, currently, the corporate tax rate is 16%, representing an average level, compared to other jurisdictions from the European Union that practice low rates such as Hungary that practices 9% and Bulgaria that practices 10% and compared to jurisdictions that practice higher rates, such as Spain (23%) and France (25%). Also, there are jurisdictions in the European Union, such as the Netherlands, which practice high tax rates, namely 25.8%, but offer very favorable tax optimization conditions for foreign companies, thus being categorized as tax havens.

The level of the tax rate in Romania is substantial to become a target of tax avoidance strategies. Also, in the current literature, there are studies that have analyzed this issue in Romania and the main aspects identified in the case of companies that avoid taxation are the lack of consistency in filing financial statements and the ability to influence political power in their favor, meaning they negotiate the tax burden or influence tax legislation. It has also been determined that the larger a company is, the more inclined it is to tax avoidance (Mocanu, Constantin and Răileanu, 2021).

Certainly, while these practices reduce tax revenues, they have a negative impact both on the state budget and, at a competitive level, on the smaller companies that support the national economy.

## 3. Research methodology

The study aims to analyze the impact of tax avoidance in Romania, specifically examining the relationship between profits lost due to profit shifting and the country's GDP.

The methodology involves a quantitative approach where statistical methods are used, including the calculation of percentages (Profits Lost/GDP), absolute and relative changes in profits lost and GDP, and regression analysis.

The regression model assumes a single-factor linear regression model to quantify the relationship between GDP and lost profits, where the equation of the linear regression model is:

$$Y = a + bx + u \quad (1)$$

Y represents the real values of the dependent variable (Profits lost); x represents the real values of the independent variable (GDP); a and b are the model parameters; and u represents the residual variable that signifies the influence of other factors on Y.

#### 4. Results

In this part, we will examine the profit transferred to tax havens in Romania, using the latest available data, covering the period 2015-2020.

The table below shows the evolution of the profits transferred to tax havens in Romania, as well as the evolution of the gross domestic product in the same period.

Table no.1. The evolution of profits transferred to tax havens in Romania, relative to GDP

Year	Profits lost (billion USD)	GDP (billion USD)	(Profits Lost/GDP)*100 (%)
2015	4	177.9	2.25
2016	5	185.3	2.70
2017	5	210.1	2.38
2018	6	243.3	2.47
2019	8	251.0	3.19
2020	7	251.4	2.78

Source: (EU Tax Observatory, 2024); (World Bank Group, 2024)

According to these data, profits lost have evolved from 4 billion USD in 2015 to 7 billion USD in 2020, representing an absolute increase of 3 billion USD, respectively a relative increase of 75%. The highest value of profits lost was 8 billion USD in 2019.

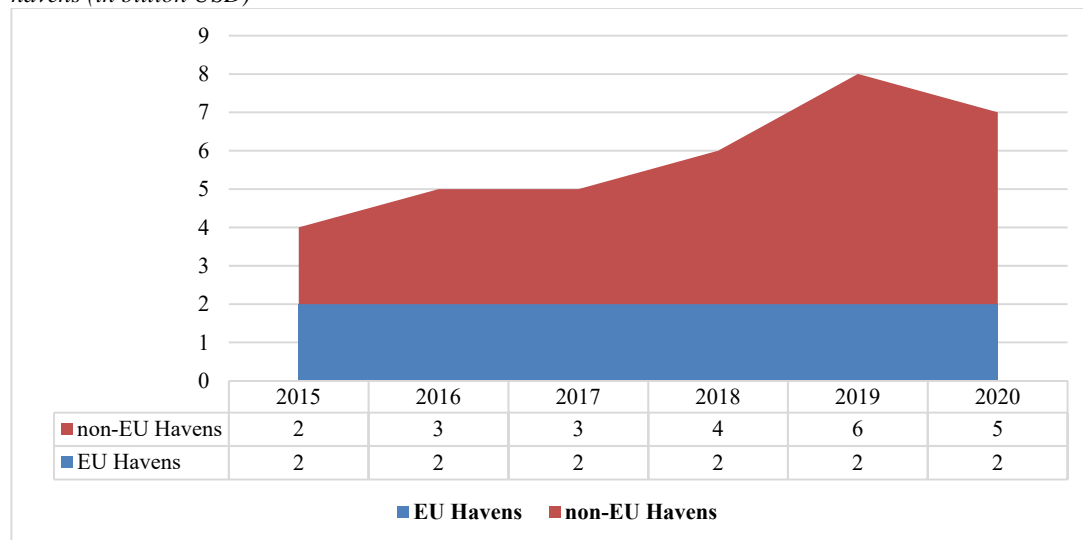
As regards the Gross Domestic Product (GDP), it evolved from 177.9 billion USD in 2015 to 251.4 billion USD in 2020, representing an absolute increase of 73.5 billion USD, respectively a relative increase of 41.32%.

It is noted that the profits lost increased more significantly compared to the increase in GDP. During the period, profits lost increased by 75%, while GDP increased by 41.32%. Certainly, the extent of the modified values must also be taken into account.

The share of profits lost in GDP is in the range of 2.25% – 3.19%, in the analysed period. The average being 2.63% and the median 2.59%.

In the following graphic, we will follow the evolution of the profits lost depending on the destination of the tax havens where they have arrived, respectively depending on their membership in the European community block.

Figure no.1. The amount of profits lost in Romania due to the transfer of profits to EU and non-EU tax havens (in billion USD)

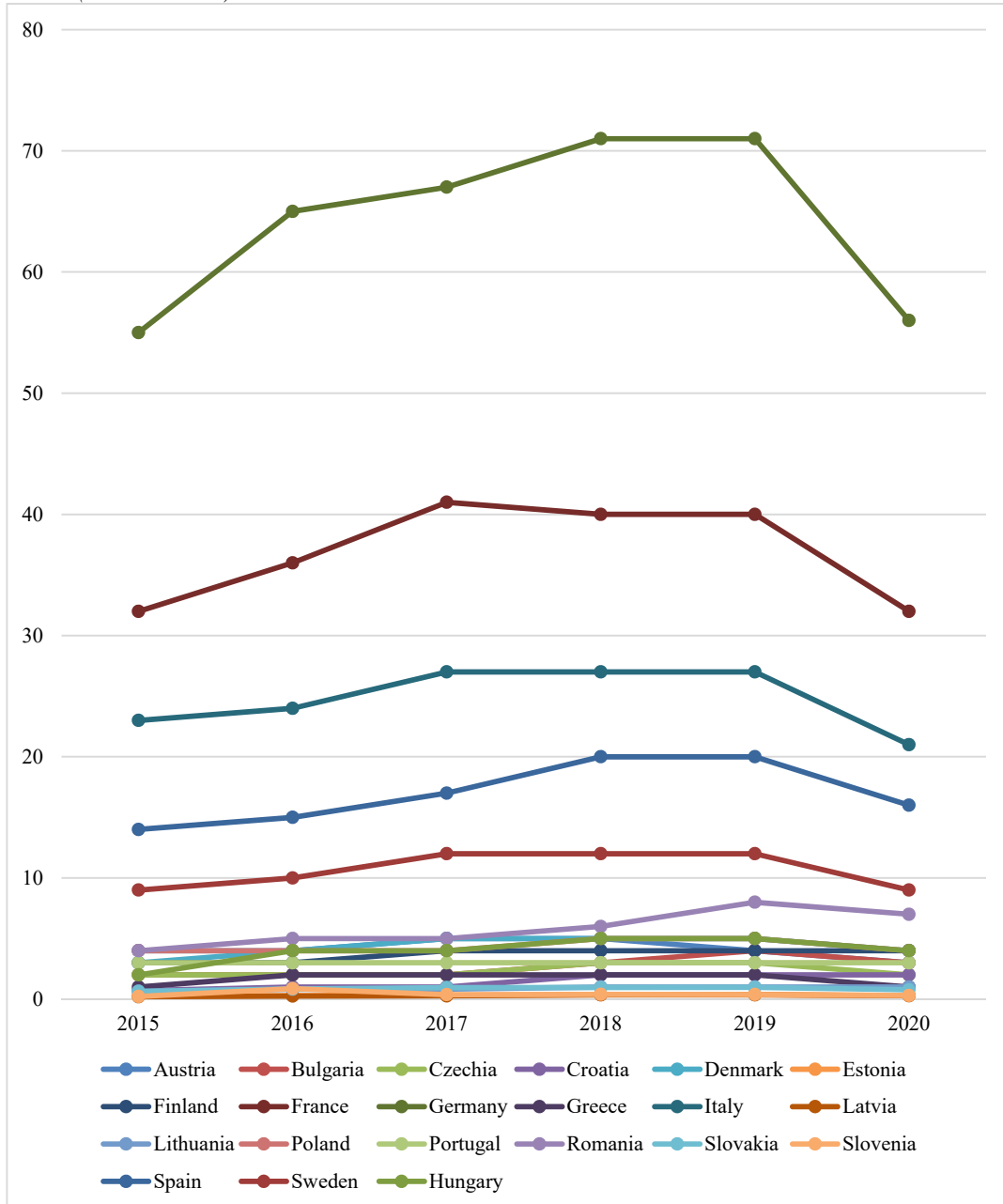


Source: (EU Tax Observatory, 2024)

According to the graph, during the analyzed period, the interest of companies to transfer profits to tax havens outside the European Union increased, so that the amount transferred to EU tax havens remained constant at 2 billion USD, while in the case of non-EU tax havens, this increased from 2 billion USD in 2015 to 5 billion USD in 2020, identifying an absolute increase of 3 billion USD, respectively a relative change of 150%, the average of the profits transferred in non-EU heavens being 3.83 billion USD and the median 3.5 billion USD.

In the following graph, we will track the evolution of profits transferred to tax havens from all European Union countries to identify Romania's situation compared to member states in terms of the value of transferred profits.

Figure no.2. Evolution of profits transferred to tax havens from European Union states, excluding tax havens (in billion USD)



Source: (EU Tax Observatory, 2024)

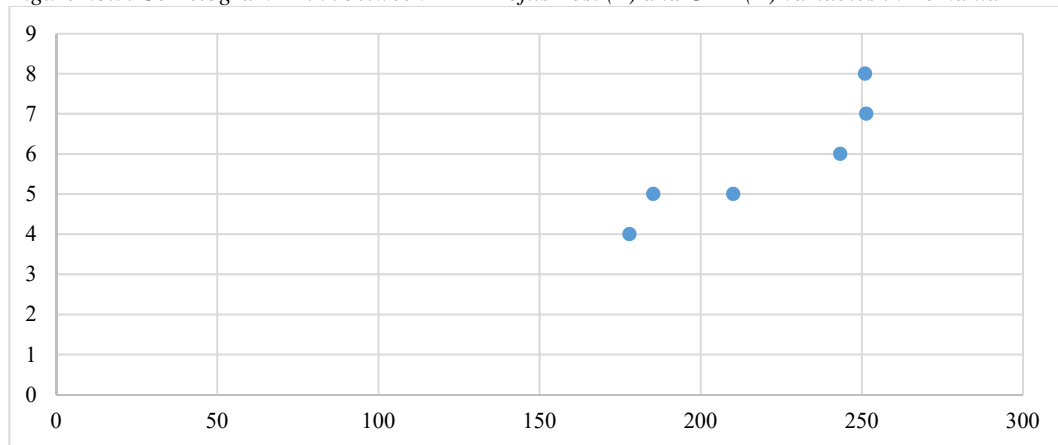
According to the graph, Romania is in 6th place in the European Union in terms of the value of profits transferred to tax havens in 2020. The following tax havens were excluded from the analysis of the 27 European Union states: Belgium, Cyprus, Ireland, Luxembourg, Malta, Netherlands.

The most affected countries in the European Union before Romania are Germany, France, Italy and Spain and the least affected are Latvia, Estonia and Slovenia.

We will continue to use the one-factor linear regression model to attempt to determine the parameter  $b$ , which indicates by how much the profits lost increase when the gross domestic product (GDP) increases by one unit, under the condition that the value is statistically significant. It should be noted from the outset that the analysis is limited due to the small number of 6 observations.

In the following graph, I have constructed a correlogram between the dependent variable (Y), representing profits lost, and the independent variable (x), representing gross domestic product, in order to analyze whether the regression is linear based on the provided data, examining the distribution of data points on the graph.

Figure no.3. Correlogram - Link between PL - Profits Lost (Y) and GDP (X) variables in Romania



Source: Authors' own data processing in Excel, based on the data from Table 1

According to the correlogram, the data points appear to follow an approximately linear pattern, in that as X (GDP) increases, Y (PL) also increases. The points seem to align in a manner suggesting a positive relationship between GDP and PL. There are no apparent deviations suggesting a strong nonlinear relationship, such as a significant curve or wide dispersion of data points.

Figure no.4. Estimation of the impact of GDP (X) on Profits lost (Y) in Romania

Dependent Variable: PL  
Method: Least Squares  
Date: 07/13/24 Time: 16:33  
Sample: 2015 2020  
Included observations: 6

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.938887	2.089725	-1.406351	0.2323
GDP	0.039904	0.009416	4.237872	0.0133
R-squared	0.817847	Mean dependent var		5.833333
Adjusted R-squared	0.772309	S.D. dependent var		1.471960
S.E. of regression	0.702375	Akaike info criterion		2.392504
Sum squared resid	1.973325	Schwarz criterion		2.323091
Log likelihood	-5.177512	Hannan-Quinn criter.		2.114636
F-statistic	17.95956	Durbin-Watson stat		2.776537
Prob(F-statistic)	0.013286			

Source: Authors' own data processing in EViews, based on the data from Table 1

These results reflect the analysis of the relationship between the profits lost (PL) and the gross domestic product (GDP) of Romania, with PL as the dependent variable and GDP as the independent variable.

The intercept is the estimated value of profits lost when GDP is zero. The intercept value (-2.938887) is not statistically significant (p-value of 0.2323 is greater than 0.05), suggesting that the intercept is not significantly different from zero, when GDP is zero.

The GDP coefficient (parameter b) suggests that for each additional unit of GDP, the profits lost increases by 0.039904 units. This relationship is statistically significant (p-value of 0.0133 is less than 0.05), indicating a positive and significant relationship between GDP and lost profit.

The R-squared value of 0.817847 suggests that 81.78% of the variation in profits lost can be explained by the variation in GDP, which indicates a good fit of the model.

The F test assesses the overall significance of the model. The large value and associated probability (0.013286) below 0.05 indicates that the model is significant.

Also, the Durbin-Watson Test is used for autocorrelation of residuals. Values close to 2 suggest no significant autocorrelation. A value of 2.776537 indicates a slight negative autocorrelation trend, but it is not very significant.

## 5. Conclusions

The analysis highlighted a substantial increase in profits transferred from Romania to tax havens, rising from 4 billion USD in 2015 to 7 billion USD in 2020, with a peak of 8 billion USD in 2019. During the same period, Romania's GDP grew from 177.9 billion USD to 251.4 billion USD. The percentage of profits lost as a share of GDP ranged from 2.25% to 3.19%, with an average of 2.63%.

Transfers to non-EU tax havens increased significantly, while those to EU tax havens remained constant. In 2020, Romania ranked sixth in the EU for transfers to tax havens, following Germany, France, Italy, and Spain.

In the regression analysis, the GDP coefficient indicates a positive and significant relationship between GDP growth and profits lost, suggesting that for each additional unit of GDP, profits lost increase by 0.039904 units.

The limitations of the research are given by the reference period, namely 2015-2020, since the data available for the profits lost included only this period, which is why the regression analysis is also limited to 6 observations.

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## Entrepreneurship Education and Graduate Employment in Nasarawa State

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### Abstract

*The study aimed to analyze the relationship between entrepreneurship education and graduate employment in Nasarawa State, addressing rising unemployment among graduates despite entrepreneurship education being part of their curriculum. A sample size of 120 was used, and data analysis was conducted using multiple regression techniques. The study found that the entrepreneurship curriculum and educator's competency significantly influence graduate business start-ups. The content of the curriculum and educators' competence are essential for driving graduate business start-ups. The study also highlighted the importance of entrepreneurship education proxies in enhancing the growth and development of skills and experiences of educators in universities. However, some educators lack the necessary skills for efficient entrepreneurship course delivery. The study recommends that curriculum content should be more practical and educators should be adequately trained.*

**Key words:** entrepreneurship, education, graduate employment, curriculum content, educators competence

**J.E.L. classification:** M00, M10

### 1. Introduction

Despite the natural and human resource endowment in the country, the unemployment rate in Nigeria has been on the persistent increase. This situation is a prolonged global phenomenon as it is not just peculiar to Nigeria alone. It has been therefore observed that several nations where many graduates remain unemployed after years of graduation (Twumasi, 2013). To confront this menace of growing unemployed graduate, stakeholders and policy makers in advanced countries such as Germany, England, USA, advocated that there is need for refocus towards skills and vocational training to ensure a good transition in jobs particularly for university graduates. This specifically is because education has been observed to be indispensable as it relates to societal development. This is because of poverty reduction. Wealth orientation of value can be achieved via a system of education that is efficient in providing contemporary skills, capacities, values and knowledge in people (Agi & Yellow, 2013).

It has been observed that university education is a mechanism which is used to impact knowledge on the people and develop the human capital around the globe, therefore examining the important role held by the university to the development of human resources. It is the aim of entrepreneurship education in higher institutions to impact entrepreneurial attitudes and skills in the students to inspire their entrepreneurial intention or consideration of career wise focus of the subject matter (Middleton,



2010). University graduates who are seeking office jobs have continuously increased despite entrepreneurial education introduction into the school system.

However, a positive effect has been observed from studies conducted (by Adeboye & Kolawale, 2013) on entrepreneurial intentions of students in the university. This therefore implies that Nigerian university student development of entrepreneurial intention is certainly doubted. It is suggested, therefore, that Nigerian educational students have not been able to find a way to translate their entrepreneurial intention into entrepreneurial aspirations and goal achievements after graduation. At this point, it needs to be stated that learning orientation is the foundation of skills and knowledge initiatives. Putting the students in the country under consideration it will be observed that they have always found it difficult to transform their entrepreneurial intentions into a realizable business venture. This therefore means that the introduction of entrepreneurship education may not sufficiently motivate the student's orientation of learning.

Entrepreneurship education, particularly, is regarded as a concerted effort made in order to stimulate the critical thinking capacity of the students so as to generate creative and innovative ideas (Sadeghi, Mohammaqdi, Nosrati & Malekan, 2013). It is observed that prominent researchers such as (Adebayo & Kolawale, 2014) have Suggested a revision of the curriculum of entrepreneurship in the universities in Nigeria so as to bridge the gap between the theoretical part and the practical part of entrepreneurship. However, there is need to determine if the curriculum content stimulates the critical thoughts of the students and generates business ideas in the universities. More so, the fundamental objective of entrepreneurship education is to 'trigger' the interest of the individual and inspire entrepreneurial action; the methods of teaching in entrepreneurship Education should try-outs through business start-ups within the university in an organized environment (Ahmad, Baharu & Rahma, 2004). Research study carried out by Arasti, Falavajani & Imanpour (2012) have observed that the method of teaching in entrepreneurship and the appropriateness level for the need of entrepreneurial graduates. Nevertheless, there is a paucity of research which is connected to the method of education in entrepreneurship, also its effect on the student's interest in the Nigerian context.

The rate of competence of the entrepreneurship education instructor is of great importance with regards to the development of the needed skills in entrepreneurship (Hyti, 2004). Therefore, this means that the instructor's competence cannot be over emphasized.

i) This is specifically because the experiences and the skills are needed to impact meaningfully on the students. The main objective of this study is to analyses the relationship between entrepreneurship education and graduate employment in Nasarawa State.

ii) To ascertain the relationship between entrepreneurship curriculum contents and graduate business start-up.

To determine the relationship between educator's competence and graduate business start-up.

The following Hypotheses were stated in null form in this study.

**H0<sub>1</sub>:** *Entrepreneurship curriculum contents have no significant influence-on graduate business start-up.*

**H0<sub>2</sub>:** *Educator's competence has no significant influence on graduate business start-up*

## 2. Literature review

**Entrepreneurship education entrepreneurship.** This concept was defined by Fayolle & Gaily (2004) as the pedagogical program which is concerned with impacting entrepreneurial qualities on the students. Entrepreneurship was defined by Ooi & Meyer (2011) as the lectures, program and curriculum that is built to impact students with needed skills, competence, and knowledge, geared towards entrepreneurial career pursuit Ejere and Tende (2012) supported this view as they were of the opinion that the possession of needed skills, expertise and knowledge as it relates to the entrepreneurial process is important for a business start-up to be successful. Entrepreneurs are believed to possess certain traits which arise as a genetic inheritance, this however has been disputed based on the belief that everybody possess the ability to become an entrepreneur through the right educational process (Gelard & Saleh, 2011).

Entrepreneurship education has been mostly defined to accept the idea that the main goal in entrepreneurship education is inculcating needed skills in the student which are expected to manifest in their behavior and actions (Blenker, Dresisler, Faergemann & Kjedsen, 2008). Competence, information and skill are the key words that have been observed to be closely related to education conceptually. Therefore, to comprehensively define entrepreneurship education, information and skill are most needed as outcome of the process Albert et al (2004), define entrepreneurship educational as the formal structured communication of entrepreneurial competencies, and it includes mental awareness and skills that are adopted by individuals in the act of expressing their entrepreneurial behavior and actions. Solomon (2007) suggested that the main components of entrepreneurship education include educators' competence and the curriculum content. Briefly these components are examined with regards to entrepreneurship education in this study.

**Entrepreneurship curriculum.** Entrepreneurship curriculum is an experience which is dynamic and carefully planned, including being connected to the building of entrepreneurial learners (Gafar, and Martin, 2013). Ornsetein and Hunkins (2004) opined that new curriculum success largely depends on perception of the student's need by the people who are directly involved in the curriculum development. Entrepreneurship education is mostly connected to everything which is related to learners in school, which is also related to entrepreneurial capacities and skills development (Abiodun, 2005). They equally describe an entrepreneurship curriculum as a structured mechanism that is adopted for entrepreneurial culture reproduction with emphasis on guided independent thinking and entrepreneurship development. Information is contained in the curriculum of entrepreneurship which is related to the way the students can identify and shape an opportunity. Develop plans of operation, assess the concept of the business fund the ventures and launch the ventures and grow new ventures (Solomon, 2007).

**Entrepreneurship educator's.** Ahmad et al (2004) described an entrepreneurship educator as one with a novel role and task to lead and provide guidance for their students. (Shulman & Shulman, 2004) argued that entrepreneurship educators must have an unbiased disposition and orientation especially with respect to the ways in which students and other stakeholders ought to be engaged in entrepreneurship education. According to (Aratasi et al. 2012), to be an entrepreneurial teacher means that you are expected to be flexible and with respect, to push the limits, to define an entrepreneurship educator as one who can be accommodating and open to new ideas, who has vision, thinks critically and laterally about every issues.

**Graduate employment in Nigeria.** At different dispensations and at various levels. The government of Nigeria has tried to curb the growing rate of unemployment via the introduction of several programs of intervention. Which are mostly targeted at entrepreneurship development in Nigeria. Some of these intervention programs are the National Directorates of Employment (NDE) which was established in 1986 and was focused on the acquisition of skills. Another was established in 2001, it was known as the National Poverty Eradication Programs (NAPEP). This was the adoption of the simple random sampling technique. The findings of the research shows that the university plays a role in the promotion of Entrepreneurship curriculum content. Entrepreneurship curriculum content has a significant impact on the student's inclination towards entrepreneurship. The researcher tried to justify his findings, but the findings are not carried out in Nigeria because the data is collected in Malaysia and so 181 total population was used due to there size of population, and we have a larger population in Nigeria than Malaysia, established to tackle issues of poverty through vocational training programs and employment creation in automobile industry (Odeh & Okoye, 2014).

There are other recent intervention programs which are initiated by the government, these include the Subsidy Reinvestment and Empowerment Programs (SUREP), and this was created in 2012, another is the Graduate Internship Scheme (GIS), and this was charged with the responsibility of creating opportunities for graduates in Nigeria to be attached to organizations for their mentorship and training for one year period (Asaju et al 2014). These and several other intervention programs were created by the government to provide employment opportunities to the university graduates to acquire the required skills needed for entrepreneurial ventures (Agbim & Owocho, 2013).

**Entrepreneurship curriculum and business start-ups.** The students 'critical thinking' should be stimulated by the content of the entrepreneurship curriculum, it also generates motivation of feasible and viable ideas. This was supported by the study of Olokundun (2017), by examining the effects of entrepreneurship educator's and the competence on university student's commitment to

business plan writing in Nigeria, a sequential exploratory mixed method was employed, a descriptive cross sectional survey design as a data collection method of a total of 600 students from four selected universities was used. The result of the findings shows the experience and skill of an entrepreneurship educator's impacts on learning, particularly in writing feasibility and viable business plans, students' commitment curriculum significantly impacts students critical thinking and generation of business ideas. The researcher has done good work, except that the researcher used a sample size of 600 which is too small for the study carried out in four selected universities in Nigeria due to the large number of universities we have in Nigeria. Mahajar and Yunus (2012), carried out a study on the inclination towards entrepreneurship among students in university of Malaysia. The study adopted a total population of 181 and respondents were collected through Educator Competence and Business Start-ups. The commitment of students can be motivated by a competent entrepreneurship educator through entrepreneurial related learning with regards to the writing of a business plan, this study was supported by Olodunkun (et al., 2017) who carried out a study on Perceptions of students on entrepreneurship curriculum contents and Open-mindedness; Implications for Business Ideas Generation of Nigerian University Students.

A descriptive survey design, with a sample size of 600 was used, the findings of this study show the educators competence has significant impact on students' commitment to learning and business plan writing. The study was well written except that the researcher used four selected universities which is too small to be used due to the large number of universities we have in Nigeria, and just 10 out of the 600 population were entrepreneurship educator's, at least with a larger sample of entrepreneurship educators there will be more positive relationship between the educator's and commitment to learning and business plan writing.

**Human capital entrepreneurship theory:** Becker (1975) postulated the theory of human capital and its premises was driven basically around two factors, these are experience and education. According to the theory knowledge obtained through experience and education is a resource that is shared among individuals, which provides the basis for the understanding of the differences between opportunity identification and exploitation (Shane & Vankataraman, 2000). It was affirmed that the factor of human capital has a positive effect on the development of nascent entrepreneurs. This therefore implies that a foundation is created by the human capital theory of entrepreneurship which is regarding entrepreneurial development, and it is observed to be highly relevant to entrepreneurial education (Chandler & Hanks. 1998). With regards to the study content, Shane & Vankataramnan (2013) argued that the factors of human capital are observed to be salient to the idea generation. This also includes the recognition of opportunities and the planning of business.

**Constructivism learning theory.** Jean Piaget (1980) founded Constructivism learning theory bases its principles on aiding learning rather than controlling Learning This is especially relevant where the learning outcome is not predictable, which is potentially the case with entrepreneurship education, in the teachings of entrepreneurship, students develop a level of insight and confidence from practicing methods for navigating unknown territories and from experiencing success and failure as in the real world, Entrepreneurship education allows for constructivists methodologies, given the innovative and active nature of entrepreneurship, where students engage as active agents in the learning process, requiring them to do and reflect upon meaningful learning activities.

Nwuba & Yayock (2013) hypothesized that learning occurs when an individual has insight that shows a relationship between two distinct components of a larger system or problem. Thus, as Pounder (2016) suggests the constructivist approach needs a special learning environment that must be created by the teacher, who doesn't govern of the student's learning process, but more so supports and facilitates learning from a student's centered point of view. From an entrepreneurial perspective this encourages a speculative approach to new venture development as high risks are involved at this stage, but the entrepreneur must be trained to spot and handle these opportunities as they arise.

### 3. Research methodology

This study adopted the descriptive research method to collect opinion of educators and students on the extent to which participation in entrepreneurship education influences graduate employment in Nasarawa State. This research design was appropriate because it described the current practices as it relates to the subject matter. The population of the study consists of all HND graduated students

of Federal Polytechnic Nasarawa State, that had both practical and classroom taught entrepreneurship courses from 2017-2018. The choice of this year is because the author wanted to limit the study to students who still have fresh knowledge of the course and would soon be leaving the academic system. Therefore, the study population size is given as one thousand two hundred (1.200) students and educators as obtained from the field study of this research based on the information provided by the student affairs department of the polytechnic. To determine the sample size, the study relied on (Neville formula 2000) who concludes that the sample size for a study should not be less than 10% of the population size for a large sample, as it is sufficient to give a true picture of the study. Therefore 10% of the population was calculated thus:

$$N = 10 \times \frac{1200}{100} = 120$$

Therefore, a sample size of 120 students was used to represent the study population as computed above. This study employed purposive sampling techniques; Primary source of data was adopted for this work. Method of collection was through a questionnaire survey. The instrument was a 5-scale item designed using a five-point Likert scale for measuring the constructs. A subjective approach was used that allowed for self-designed questionnaire to determine the suitability of this instrument for this study, the researcher adopted a content validity to measure validity. This is because content validity allows for evaluating subjectively measure of how appropriate the items seem to various reviewers with some knowledge of the subject matter. Further, the study carried out a reliability analysis which was confirmed reliable given the Cronbach values above the 0.70 threshold suggested by (Creswell 2003) as indicated below:

Table no. 1

Variable	Cronbach alpha	No of items
Curriculum Content	0.78	5
Educators' Competency	0.74	5
Business start-up	0.82	5

Source: SPSS

Taking inferences from literatures, the model specifications here are formulated to test the two hypotheses and they are as follows:

$$Y = \beta_1 ECC + \beta_2 EEC + Er$$

Where: Y = Graduate business start-up

BECC = entrepreneurship Curriculum content

EEC = entrepreneurship Educators' competence

Er = Error term

#### 4. Results and discussion

One hundred and twenty questionnaires were shared. A total of (100) 84% of the respondents filled in and returned the questionnaire while 3 (6%) of the respondents did not return and 12 (10%) were not properly filled. Given that 84% of the respondents are a high percentage, all analysis was now carried out with the instruments of the 100 respondents.

The hypothesis stated earlier was restated in both the alternate and null form. Multiple regression technique using SPSS was used for analysis of the data. The P value from the analysis formed a basis for acceptance or rejection of the hypothesis. Therefore, if (P>0.05) accept null hypothesis else reject. Below is the result of the analysis and the restated hypothesis. The study checked for the major assumptions of multiple regression. The result showed that the assumptions were fulfilled, therefore. Multiple regression analysis can be conducted. The durbin Watson shows no autocorrelation, homoiconicity and multicollinearity were fulfilled with the tolerance and variance inflation factor.

Table no. 2 Coefficients Entrepreneurship Education and Graduate business start-up

Model	Unstandardized Coefficients B	Standardized Coefficients Std	Error	Beta	T	Sig
(Constant)	6.659				1.510	.000
Curriculum Content		.354	.100	.397 3	.548	.001
Educators Competence	.336	.112		.337	3.014	.003

- a. Dependent Variable: Business start-up
- b. The above tables result for multiple regressions on entrepreneurship education influence on business start.

The above showed that there is a high and positive relationship ( $R=.688$ ) between the independent variable (entrepreneurship education) and the dependent variable (business start-up). Further, the R-squared value of 0.473 indicates that entrepreneurship education explains 47.3% of the total variance in graduate employment in Nasarawa State. The analysis of variance result indicates that the model is fit given the t-test (43.513,  $p=.000$ ) indicating a statistically level of significance as  $p<0.05$ . This implies that entrepreneurship education has significant influence on graduate business start-up in Nasarawa State. The regression line  $GBS = 6.659 + 0.354ECC + 0.336EEC$  indicates that the business start-up in Nasarawa State improves by 6.659% for every 1% increase or decrease in the independent variables (curriculum content and educators' competence). The standardized beta coefficient provides that curriculum content and contributes 39.7% to graduate business start-up in Nasarawa State. This has the most influence on graduate business start-up.

**H0<sub>1</sub>:** *Entrepreneurship curriculum contents have no significant influence on graduate business start-ups.* The result showed that curriculum content has significant influence on graduate business startups as the p-value is less than 0.05 and the t-value is (3.548) above 1.96. The result shows that the null hypothesis is rejected, and the alternate is accepted. This finding agrees with the views of (Olokundun et al, 2017) shows that entrepreneurship learning modules significantly impact student's deep knowledge on how to create business ideals and generation, similarly the result is consistent with the finding of Mahajar &Yunus (2012) revealed that entrepreneurship curriculum content has significant impact on the student's inclination towards business enterprise

**H0<sub>2</sub>:** *Educator's competency has no significant influence on graduate business start-ups.* The result showed that educator's competency has significant influence on graduate business start-up. The result showed the p-value is 0.05 and the t-value (3.014) above 1.96. This implies that the alternate hypothesis is accepted which means that educator's competency has significant influence on business start-up. The result confirms the study of Olodunkun (2017) opined that educator's competence has significant impact on students' commitment to learning and business plan writing

## 5. Conclusions and recommendations

This study concludes that the contents of the curriculum and educator's competence is essential to drive graduate business start-up. The study revealed that proxies of entrepreneurship education adopted in the study are vital towards enhancing the growth and development of skills and experiences of educator in the Universities who are expected to inspire the students to write and build business plans, some of the educator's, however, do not possess the needed skills on contemporary approaches for efficient entrepreneurship courses delivery. The study recommends the following:

1. Brainstorming and Critical thinking extensive coverage is needed in the curriculum of entrepreneurship in the Universities in Nigeria to motivate the business generating ideas.
2. Skills and experience utilization should be ensured by the educator to properly motivate the students to show more commitment in entrepreneurial learning, creating new ideas and developing the ideas into business.

There is need for further study and research using a larger sample size and mixed methodology to have a more representative response

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## **Section III**

### **Economic and Social Studies**



## Being at the Forefront of Change- on the Necessity of Integrating AI Tools in Business English Courses

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### Abstract

*The present research is a needs-analysis approach given a possible large-scale introduction of AI-learning systems and AI-based teaching, adapted to Business English courses. Creating an adaptive learning medium to provide students with personalized learning content matched to their anticipated learning advantages is essential for present academic education. Our contribution to the existing literary perspective is based on a survey that presents students' opinions regarding how AI-powered technologies can be efficiently used for language learning and teaching. For this purpose, we designed a survey and collected information concerning students' experience and perception of AI tools, the aspects of these systems that students favor, students' engagement and motivation to use AI tools, their personal preferences and adaptability, and the foreseen long-term impact of these systems on their professional lives and education.*

**Key words:** integrating AI tools, AI language teaching and learning, Business English, needs-analysis, AI in BE courses

**J.E.L. classification** Z13

### 1. Introduction

The large-scale use of AI, cloud technology, the analysis and storage of considerable amounts of data, and the invention of the Internet of Things, inevitably bring on our horizon mental and technological revolution. In addition to skills related to their future professional field of activity, students need to acquire knowledge and skills related to incorporating and using data analysis in their future profession, as well as to manage to transfer their skills across the content of various disciplines. This entire adaptation and the refocusing process requires a considerable amount of personal involvement, on the one hand, and considerable logistic support from the educational system and the teaching staff, on the other.

The departure from traditional forms of teaching was perfected years ago, through the adoption of blended learning systems, which introduced various learning platforms such as Moodle, Teams, Webex, Google Meet, dedicated to synchronous or asynchronous forms of teaching. The advantages, as analyzed by researchers are numerous ranging from accessibility, affordability, flexibility resources-management, and self-empowerment (A. Popescu, 2020, p. 458).

AI language learning is a multi-faceted and complex type of experience that can come in different forms: with learning platforms (Duolingo, Rosetta Stone, Babel)- offering personalized flexible learning structures and instant feedback to learners; chatbots (ChatGPT, Claude 3, Gemini) can create conversational practices based on real-life scenarios; language assessment tools (Grammarly or Language Tool) with grammar, spelling, and writing suggestions; virtual classroom platforms with AI-integrated features very useful in collaborative projects, with embedded speech recognition, natural language processing, or sentiment analysis capacities; language translation tools in context (Google Translate or DeepL), useful with complex documents; pronunciation training and personalized learning paths, recommending specific resources to correspond to individual learning purposes; data analytics tools that can measure both the effectiveness of the strategies being used and the learners' progress over time, enabling both instructors and students to optimize their resources and overcome their difficulties.

The Artificial Intelligence teaching system which can be used in Business English courses integrates a computer-aided English teaching tool that provides an adaptive learning medium meant to offer students personalized learning content tailored to their pre-identified learning benefits. For teachers, it reduces the burden of teaching, on the one hand, and gives a more targeted approach to students' needs.

The rationale for incorporating AI tools in teaching Business English is based on the expectations that these tools can greatly enhance the learning experience for students because AI can create personalized learning ways based on individual features. It can enhance strengths and help identify and overcome weaknesses in a record period by providing real-time feedback on tasks. This personalized approach allows students to progress at their own pace in a shorter time. Moreover, providing real-time feedback on given tasks is a significant advantage. Students' responses can be analyzed from a more comprehensive point of view in terms of grammar, vocabulary usage, pronunciation, style, etc.

The immediate feedback given helps identify and correct errors leading to a faster improvement of language achievements. For both instructors and students AI can generate detailed reports on students' performance over time. Intellectual growth can be easily monitored and decisions on future goals can be better grounded and justified.

In terms of BE teaching necessities, AI can generate various interactive simulations, immersing students in meaningful language practice on given case studies, chatbots can simulate real-life conversations for students or with students, helping build confidence and develop necessary communication skills in a safe and supportive environment. For instructors, AI-powered analytics tools can generate valuable insights into students' performance and learning patterns over time and make useful comparisons and analogies allowing instructors to spot easier areas of improvement and adjustment of teaching methods. Courses can thus become more effective while students become more motivated to participate and more aware of their progress and learning goals.

## **2. Literature review**

Various industries, including education, have been in continuous change under the impulse of technological development. Student information systems and learning management systems are in perpetual expansion and improvement, becoming more complex and elaborate to serve tasks such as assignment distribution, scheduling administration, communication, and student progress tracking (Watson & Watson, 2007, p. 32)

Following technological changes and the evolving needs of students in professional occupations, research on the use of AI in education has enjoyed great interest and a favorable ground for the integration of AI tools in BE courses. Intelligent-learning systems and computer-assisted tutoring orientate traditional systems toward a more personalized learning experience and training sessions based on the individual features of each student. (Owoc et al, 2021, p. 9). AI tools incorporated in BE courses add more flexibility, and versatility to the learning materials. They allow to be reused, easily shared and can be opened to collaborative development between the members of the learning community. Teachers have access to valuable resources that they can use in their professional practice and be aligned with the latest educational practices.

The future is here, and it is here to stay for good! In 2017 it was announced that AI systems were able to learn any spoken language and the predictions were that the number of virtual assistants and chatbots would increase as people start relying heavily on AI, the process becoming so widespread and subtle that AI will become natural (Kite-Powell, 2017). The usage in 2020 imposed more extensive and refined ways of utilizing AI in language teaching and learning such as assisting researchers in recognizing natural language processes, and combining AI with flipped learning in blended courses to improve language learning results while students are reported to feel more positive about learning English. AI can assist practitioners in teaching-related issues, and speech assessment is made feasible with the use of AI (Ali, 2020, p. 5). Starting with 2022, virtual language environments have been developed, using AI, to actively engage students and assist in language learning (Nguyen et al, 2023, p. 12145). Equipped with an unprecedented ability to process impressive amounts of data, elaborate complex patterns, and personalized insights, Chat GPT, an AI-power model, attracted the attention of educators in opening new paths for education and research

(Hong, 2023, p.38), (Fitria, 2023, p. 46). In 2024, this has become an everyday interaction and AI is commonly used to speed up language acquisition.

A further step in this new era of flexible and adaptive learning is marked by the integration of AI tools, which come with a range of technologies such as natural language processing, machine learning, and data analytics. Instructors are offered for the first time the possibility to access vast amounts of data, combine, and analyze to tailor their recommendations to students. In this context, we notice advantages such as personalized learning, interactive language practice, real-time feedback, context curation, and performance analytics.

Blended forms of learning bring a plus to the educational process in terms of time, learning form flexibility, place flexibility, and rhythm of learning; however, drawbacks can be listed such as students' lack of time management skills, (Popescu A., 2020, p. 460), to which lack of technical expertise in using AI technology can be added.

The promise of a more efficient system of education advanced by AI comes with several challenges and concerns- ethical concerns about privacy, security, and data ownership, which require an effort to develop transparent policies and solid safeguards to protect users and secure the appropriate use of AI technologies. Despite the apparent ease of accessibility and inclusiveness of such systems, there are still disparities in access to digital technologies, internet connectivity issues, and a lack of knowledge concerning their usage (Ayuns et al, 2024, p. 17), (Werfhorst et al, 2022, p. 4), (Heeks, R., 2022, p. 700). Interdisciplinary teams and pedagogical integration between educators, technologists, and curriculum specialists are needed to ensure the effective integration of AI technologies backed by professional development programs. At the same time, AI is unable to replace the human touch of teaching, therefore, the right balance between the two needs to be defined. Human educators motivate and provide emotional support and adequate mentorship in their interpersonal with students.

### **3. Research methodology**

Starting from the idea that academic study involves a double-edged relationship between student and professor, we investigated the opinions of our students concerning the increase in the amount of AI technologies in our BE courses. A quantitative method of data collection was used, we designed a survey using a custom-constructed Microsoft Forms Questionnaire, and 105 students (aged 19 to 23), enrolled at the Faculty of Economic Sciences, Ovidius University of Constanta participated. The survey included both open and closed-response questions, and students were free to skip any items they did not feel comfortable with. The questions investigated students' experience and perception of AI tools, the aspects of these systems that students favor, students' engagement and motivation to use AI tools, their personal preferences and adaptability, and the foreseen long-term impact of these systems on their professional lives and education. All responses were anonymous.

### **4. Findings**

Considering the difficult task of universities to do their best today to prepare professionals for tomorrow, we asked our students how they see the benefits of the interaction of AI tools in BE courses for their future careers or academic pursuits. The answers, apart from being an almost unanimous acknowledgment of the usefulness of AI technologies, included suggestions concerning the acquisition of necessary skills in future careers, learning vocabulary, even learning to communicate with AI, shortening time for various tasks, better connecting with technology, and understanding better the way it works, improved access to large amounts of data in a short time, AI provides templates which can be easily modified, according to the needs, AI is seen as a bridge between students and professors, it is important to evolve with technology, as it offers a better understanding of the systems and prepares for future career mobility.

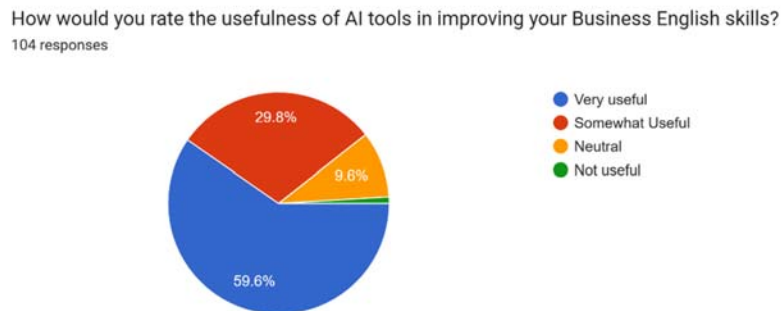
We also asked students if they consider that technology will play a significant role in language learning and education in the future. The 78 answers were unanimously positive and enthusiastic about the development of new technologies (better adapted to suit various needs, easier and better connectivity, availability of better access to information), it is worth mentioning that some of the positive answers were conditioned by the existence of human professors in the educational process,

who will be helped by AI technologies to perform better. The three negative answers to this question were concerned with the replacement of the human element and traditional teaching methods in this educational process which was introduced as a personal preference.

Students share valuable knowledge with us, and considering this, we asked them to suggest ways of improving the integration of AI tools in BE courses. Out of the answers we obtained several expressed the idea of using mainly AI tools for assignments, other suggestions concerned the optimization of the course content in terms of its accessibility, more AI-issued drills, AI to be used to increase the level of difficulty rapidly to avoid boredom, to initiate collaborative professor-student AI-based projects, AI tools to be used for remedial courses, and textbooks to be partly replaced by interactive apps. Since other studies indicated that in certain cases students’ inclusion and access to the latest technology can still be an impediment, we asked students whether they can access the necessary technology (computers, internet connection, necessary devices) to effectively use AI in their studies, 93,3% of them opted for “yes”. When asked about their experience with AI-driven language learning platforms, 80% of the respondents indicated that they are familiar with them, Duolingo being the most common option.

The second part of our survey was dedicated to students’ perception of AI tools, they were asked to rate the usefulness of these in improving their BE skills. Out of 105 respondents, 59.6% consider it “very useful”, 29.8% opted for “somewhat useful”, 9.6% for “neutral”, and 1% for “not useful”. As you can see in *Figure no. 1*, the results indicate the interest of students in such forms of learning and their enthusiasm for the adoption of these systems.

*Figure no. 1* Indicating the usefulness of AI tools in improving BE skills



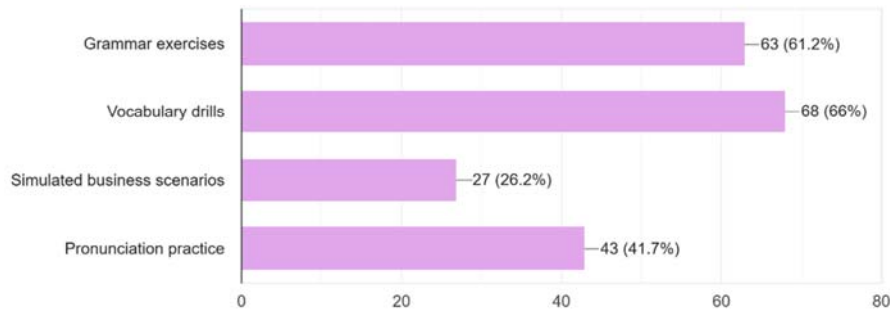
*Source:* data processed by the author

For a clearer image of those aspects, they particularly found relevant to their improvement, we asked our respondents to opt for the aspects of AI tools they consider most helpful in learning BE, (see *Figure no. 2*). Multiple choices could be ticked- the answers indicated that vocabulary drills, with 66%, and grammar drills with 61.2% are the leaders of this section, pronunciation practice 41.7% was next, while simulated business scenarios got 26%. The latest position occupied by business scenarios could be explained by the fact that most students who have more experience with chatbots, language learning platforms, and language translation or assessment tools have not experienced VR business scenarios (a hypothesis to be investigated).

Figure no. 2 Most helpful AI tools in learning BE

Which aspects of AI tools do you find most helpful in learning Business English? (Select all that apply)

103 responses



Source: data processed by the author

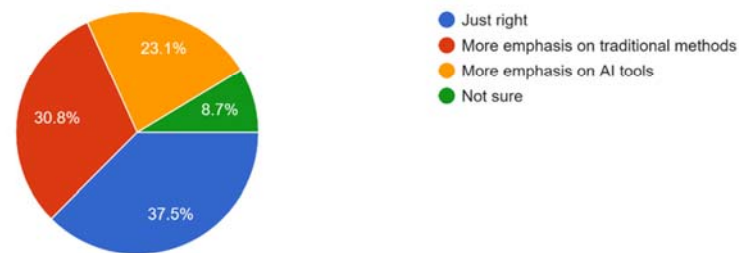
We further asked students to indicate whether they think that the integration of AI tools can enhance their engagement in BE courses. The answers received vary from “strongly agree”- 43.3%, to “strongly disagree”-2.9%.

When asked to indicate the right balance between traditional teaching methods and the integration of AI systems in BE courses (see Figure no. 3), 37.5% considered it to be “just right” the way it is, 30.8% requested more emphasis on traditional methods, 23% more emphasis on AI teaching, while almost 9% were biased.

Figure no. 3 Balance between traditional teaching methods and the integration of AI tools in BE courses

How do you feel about the balance between traditional teaching methods and the integration of AI tools in Business English classes?

104 responses



Source: data processed by the author

## 5. Conclusions

Since technological development has altered the traditional pattern of accumulating, processing, and transmitting knowledge between individuals both horizontally and vertically, accelerating and putting enormous pressure on individuals, it is obvious that to adapt to these new societal challenges, people must actively learn to accommodate them dynamically. AI is a promising tool in this respect, offering revolutionary methods to support and enhance student learning. Students' well-being and mental state security should not be neglected, and the tiredness levels have to be continuously monitored, part of this process falling into AI's task.

Future directions of development of AI in BE education show an impressive potential in several key components: better natural language understanding which will create more interactive learning experiences, adaptive learning ecosystems with entirely AI-driven platforms incorporating learning resources, assessments, and feedback reports; augmented reality and virtual reality which will come with entirely immersive learning experiences of real-world business case studies (in which students conduct virtual meetings, negotiate with business partners, engage in cross-cultural communication in realistic settings); collaborative learning spaces in virtual classrooms populated with AI chatbots and intelligent tutoring systems from which learners can connect to mentors, peers, professionals interested in learning and knowledge sharing. Overall, while promoting collaboration and growth among teachers, for students such systems bring a more dynamic and effective learning environment.

An aspect not to be neglected in this high-tech system we are striving to develop is that in the complicated fabric of education, student well-being serves as the golden thread that connects the circumstances for successful learning. Just as a plant grows in good soil, a student's well-being serves as the foundation for effective learning. Furthermore, well-being goes beyond the classroom, influencing people's entire development and future achievement. Educators inspire students to cope with life's problems with resilience, empathy, and a sense of purpose. A healthy learning environment is achieved when students' well-being improves, and learning thrives, allowing them to attain their full potential and become lifelong learners, ready to embrace the world with open minds and hearts.

Despite the unanimous approval of using AI in educational settings, barriers can be foreseen in a certain amount of resistance to change, limited teacher training programs, and limited resources for technological infrastructure.

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## Intercultural Communication Activities and Techniques in Business English Teaching

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### Abstract

*This paper aims at showing the paramount importance of sensing cultural similarities and differences for understanding and communicating with people belonging to different cultures, especially in a business environment. Teachers have become increasingly aware of the role played by interculturality, intercultural education, cross-cultural communication, the attitude towards prejudice, stereotypes and conflicts. In this respect, certain EU documents have been discussed, anthropologists' opinions have been provided, and a case study has been presented. This case study is based on the idea that the English business teaching process and the students' language skills could also be improved by incorporating intercultural communication elements. Several activities and techniques that could support the insertion of intercultural communication in business English teaching (such as the use of authentic materials, role plays and simulations, project-based learning, and the use of various online tools) are briefly presented for this purpose.*

**Key words:** intercultural education, communication, teaching, business, ESP

**J.E.L. classification:** I25, Z13

### 1. Introduction

Intercultural education should represent a key element in the design of business English teaching, as it enhances the student's professional and intercultural abilities. For instance, it promotes diversity, critical thinking, inclusion and open-mindedness; develops intercultural skills; boosts international communication; prepares students for the global labor market; develops learning experiences.

The specialized literature focused on cultural and intercultural education has underlined that certain EU objectives are shaped by the requirements of the current globalized context; in addition, they are outlined in several landmark documents, such as the “Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: Building a Stronger Europe: The Role of Youth, Education and Culture Policies” (May 22, 2018). This document places in the limelight the important pillars, i.e., education, training and culture, and pinpoints their vital role in the dissemination and promotion of joint values and in the establishment of a climate that harnesses mutual understanding. Furthermore, the aforementioned Communication reinforces the position held by education and culture in the development of the knowledge, understanding and acknowledgement of “Europe's rich shared cultural heritage, history, experiences, convictions and values”, as these elements “unite people across borders, help promote equality between women and men and give us a sense of belonging together. Education, training and culture can help us discover and experience what it means to be European” (for more details, see <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018DC0268>).

A similar provision is encompassed in point 3 of the Rome Declaration (March 25, 2017), which stresses the idea that the European Union should play an important part in providing young people with “the best education and training” and offer them the opportunity to “study and find jobs across the continent”. Furthermore, the aforementioned document highlights the objective of



the European Union to "preserve cultural heritage and promote cultural diversity" (see [https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT\\_17\\_767](https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_17_767)).

The programs and strategies of several EU countries have been tackled by scholars, pinpointing the focus on the cooperation among schools and cultural organizations or institutions; these partnerships with museums, NGOs, local public authorities, parents as educational partners, etc. – that are characterized by transdisciplinary approaches, innovation, creativity, involvement and performance in learning and teaching processes, the capitalization of social, intergenerational and intercultural dialogue, the focus on traditions in education, economic and political discourses – represent the main leverages of cultural education (Ciocan et al., 2016). These scholars further explain that the implementation of partnerships requires curricular and extracurricular activities, as well as teacher training, the improvement of teaching methods, the enhancement of the connection between language learning and cultures.

## 2. Theoretical background

Anna Virkama (2010, p.41) explains that the social science literature (see Hall, 1959/1981; Hofstede, 1997; Gudykunst and Mody, 2002) identifies two major approaches to culture, i.e., the essentialist and non-essentialist ones. According to this scholar,

"The essentialist view sees cultures – national or smaller units – as containers of culture, each one separate from the other. Within this view, each culture is a set of characteristics that can be studied and used in order to communicate with the people 'belonging' to this culture. Cultures are seen as independently existing patterns". "The non-essentialist view seems to be more accurate in post-migration, hybrid societies" (Virkama, 2010, p. 43).

In addition, the same author explains that migration has increased "the possible references for many people, thereby problematising the adoption of the nation state as a unit of reference for cultural identity" (Virkama, 2010, p. 43).

Moreover, anthropologists explain that culture is one of the powerful forces that shape us; thus, our perceptions and understanding of the world, as well as the ways we express ourselves bear our cultural imprints (Rollwagen, 1986; Henrich, 2001; Kuznar and Sanderson, 2007). Different communication styles, distinct attitudes toward the management of conflicts, various approaches to achieving tasks, different perspectives upon the decision-making process, divergent stances regarding the idea of disclosure, and contrastive outlooks and attitudes to knowing – all are instances of inherent patterns of cultural dissimilarities that should be scrutinized when it comes to the integration of intercultural elements in business English teaching (DuPraw and Axner, 1997).

Since communication contributes to the development of "formally structured relationships between people" (Nadrag, 2023, p. 444) and its styles vary to a great extent in terms of culture, attention should be paid to language usage, more specifically to those words and phrases that are employed in different ways and with various meanings (see Godwin-Jones, 2000; Krumrey-Fulks, 2019). Furthermore, these authors underline the extent of the importance paid to non-verbal communication elements (i.e., facial expressions, gestures, seating arrangements, personal distance, sense of time, etc.), which is also essential, as well as the various rules that apply to the adequate degree of assertiveness during the communication process (see Nadrag, 2021).

The attitude toward conflicts may also vary, as in some cultures conflicts may have a positive connotation, while others see it in a negative way. For instance, DuPraw and Axner (1997) explain that in most cultures, conflicts are perceived as undesirable; according to these scholars, in the American culture, the direct approach of conflicts is usually encouraged (such as face-to-face meeting); on the other hand, open conflicts embarrass many eastern Europeans, who would rather approach them privately.

Different cultures also tackle tasks in distinct manners, as they do not have the same access to resources, their understandings of time and their viewpoints on task completion benefits are divergent, and they often perceive relationship-building processes and task-oriented endeavors in contrastive ways (see Bartosik-Purgat and Rakowska, 2023). Furthermore, as regards productive cooperation and task achievement, people from different cultures may view relationships in distinct manners. In this regard, DuPraw and Axner (1997) explain that Asian and Spanish people tend to establish relationships at the beginning of the collaboration process and focus on task completion

toward the end, while the Europeans and the Americans are more prone to develop relationships as they work on the task and direct their focus on the task itself.

As far as the decision-making style is concerned, the individuals' parts differ in terms of culture (Yates and de Oliveira, 2016). For instance, in some cultures, decisions are delegated, responsibility being assigned to a subordinate (e.g., American culture), while in other cultures it happens the other way around, leaders holding decision-making responsibilities (e.g. Southern European and Latin American countries). Some cultures apply the majority rule (e.g., American culture), while others implement the consensus (e.g., Japanese culture). People's attitude towards disclosure also differs from one culture to another, as far as emotions, personal information or conflict and misunderstanding reasons are concerned (DuPraw and Axner, 1997).

According to Brion (2021), cultures also influence the ways of knowing and learning. In this regard, DuPraw and Axner (1997) profess that in some cultures, such as the European ones, it is considered that knowledge acquired via cognitive means (i.e., counting and measuring) is more valid, while the African ones favor the affective ways of knowing. The aforementioned authors explained that there are also groups that prefer library research in order to understand a certain issue, while others focus more on visiting places and people that experienced the same issues.

Human nature is prone to classify the unknown or the elements that are different or that cannot be understood as abnormal, bizarre or incorrect, entailing prejudice (Avruch and Black, 1993). Anthropologists underline the dangers of prejudice when it permeates organizational structures and the institutions that influence lives and communities (Griffith et al, 2007). Therefore, these scholars underline the utmost importance assigned to the respect of these differences among cultures and to collaboration in order to enhance mutual understanding. Increasing the awareness of cultural differences, identifying their influence on intercultural interactions, and exploring similarities contribute to an efficient intercultural communication process, enhances our understanding and fosters mutual respect. When it comes to business English, the general social approach of an organization has to be taken into consideration, as well as the fact that in such contexts, "communication is focused on sending and receiving messages related to tasks for providing and seeking information and options, organizing ideas and activities, clarifying ideas and plans, making plans and proposals, making and executing decisions" (Nadrag, 2019, p. 480).

It is also noteworthy that special attention should be paid to various communication styles as they mirror deeper cultural philosophies and perspectives, contributing to the delineation of a wider picture of the respective culture (Smith, 2011; Galanti, 2008; Purnell, 2009). Furthermore, this creates learning opportunities, as it questions preconceptions, prejudices and stereotypes, encourages us to take into consideration distinct approaches, and challenges us to envisage new learning possibilities. Therefore, open-mindedness and the openness to new learning opportunities can connect people, establishing new partnerships and bridging the gap between different cultural groups, improving thus the intercultural communication process (see Saaida, 2023).

### **3. Case study. Activities and techniques for the enhancement of intercultural communication in business English teaching**

The courses or seminars focused on the enhancement of intercultural communication competences and skills in business English language teaching and learning should first familiarize students with a field of research whose major objective is to create equal educational opportunities for people belonging to different racial, ethnic, social and cultural groups (see Banks, 2015). The topics addressed by these courses and seminars, and the working techniques should facilitate the understanding and acquisition of knowledge, attitudes and skills necessary for effective functioning in a multicultural and globalized society, characterized by the interaction with people from different groups and backgrounds, for the purpose of establishing and implementing various business partnerships.

For this purpose, the courses and seminars should also support students to improve their knowledge, understanding and adequate use of specific notions of interculturality and intercultural competence; to be able to use concepts in analyses or case studies in an appropriate and informed manner; to explain and interpret some ideas, projects, processes related to their field of study; to explain some phenomena, events with an educational and communicational character by means of

the proposed analysis and interpretation models; to develop cultural analysis skills; to interpret different points of view; to materialize theoretical knowledge in projects or case studies; to make connections between the knowledge, skills and abilities acquired through the study of intercultural education and their application in solving and evaluating problem situations; to promote some cognitive values and attitudes, such as: critical and divergent thinking, self-critical and convergent thinking, availability for dialogue and debate, curiosity and interest in the ethical issues of the intercultural environment, coherence and rigor of thinking; to acquire intercultural teamwork skills.

In order to develop intercultural skills in business English teaching and learning, each teacher should employ a variety of roles when interacting with students during classroom activities. From an intercultural point of view, the teacher focuses more on the students' understanding and interpretations of the language elements s/he teaches and less on accuracy (Mangnejo and Shah, 2021). In other words, the teacher should focus on the students' development of their own opinions and reasoning through questions, rather than giving them answers.

Teachers should also help them connect instances and events to more coherent information through tasks and practices that reinforce the learning process. Thus, Zheng and Gao (2019) explain that in order to increase the degree of learning, the central role of the teacher is to present activities and create opportunities so that students could develop their understanding skills and intercultural competences, through productive interactions with the teacher and their peers.

During intercultural teaching and learning activities in the classroom or elsewhere, the teacher assumes a number of roles, depending on the discourse s/he is addressing (Savu, 2014), such as managing feelings, praising and encouraging, capitalizing on students' ideas, formulating questions, providing information and directions, correcting or ignoring mistakes.

The management of feelings also involves the ability of the teaching staff to understand and manage the students' feelings and experiences that are similar to the discussion topics tackled in courses and seminars (Frenzel and Buric, 2021). An adequate management of this process establishes a uniform interaction between the teacher and his/ her students. Furthermore, Lamping (2021) explains that praise and encouragement take into account the fact that the activities designed by the teacher are focused not only on meeting the seminar/course objectives, but also on motivating students to develop their language skills and intercultural competences. According to the aforementioned scholar, teachers can do this by supporting and encouraging their students with praise, complimenting them on their work and constantly telling them that their ideas and achievements are extremely valuable. Moreover, he stresses that the teaching staff should always pay attention to the contribution of their students, as a sign of appreciation of their work (Lamping, 2021). Therefore, teachers should use, interpret, summarize or even reformulate the students' ideas, expressed during the interactions, acknowledging their contribution to the development of the task or activity.

An important practice in the interaction is represented by the formulation of questions, as a way to stimulate students to honestly express their opinions about a certain subject (DuPrav and Axner, 1997). The questions should be tailored to the course/ seminar topic and to the students' proficiency level and interests (in order to increase motivation) and for the most part they should trigger the flow of ideas and suggest the language elements to be used. Specialists in the field recommend that teachers should comment upon/correct the students' answers in a manner that does not discourage them from providing additional answers or engaging in future interactions. Moreover, the teaching staff can choose not to pay attention to their mistakes, ignoring them, because their needs, from the intercultural perspective, focus on the understanding and interpretations of the target language and not on accuracy.

After having considered all these factors, we are suggesting the following case study which can be based on the experiment and observation method. The hypothesis is as follows: the integration of intercultural communication in the English business courses and seminars will enhance the students' language proficiency skills, with a special focus on their speaking skills, as well as their soft skills, such as teamwork skills, critical thinking and adaptability.

For this purpose, two homogeneous groups of students majoring in International Business are required. The teaching process with the first group (i.e., the control one) will be based on traditional, teacher-centred approaches; the second group (i.e., the experimental/focus one) will be exposed to intercultural communication elements in their English courses and seminars. Both

groups will sit for initial (before a four-week teaching stage) and final tests (after the teaching stage). At the end of the experiment, the test results will be compared, in order to check the validity of the hypothesis.

The integration of intercultural communication in English business courses and seminars can be carried out by means of several strategies and techniques, such as the study of authentic materials, simulation activities, role plays and case studies from international business contexts, projects and presentations related to international business, the integration of cultural comparisons, use of technology, by addressing diversity in the classroom, etc. The respect for cultural diversity and the increase in cultural awareness will contribute to a balanced, open-minded and inclusive atmosphere.

Authentic materials connected to the business world (magazine and newspaper articles, movies, documentaries, etc.) enhance language skills, furnish refreshing perspectives upon different cultural values and mentalities and provide contact with genuine content and language (Peacock, 1997, pp. 144-145). Authentic case studies focused on the business environment can also support the learning process, as they delineate a real background for the use of business vocabulary items and for a better comprehension of cultural differences. In this regard, the literature in the field pinpoints the advantages brought by the integration of authentic materials in a wide variety of teaching contexts (Berardo, 2006, p. 62; Kilickaya, 2004).

Students can also be divided into small groups and required to assume various roles in the simulation of cross-cultural interactions, according to certain scenarios (e.g., business lunch/dinner, receptions, negotiations, management of cross-cultural disputes, business meetings involving businesspersons from different cultures, etc.), which will boost their ESP and intercultural communication skills as well as their interpersonal relationships (Razali and Ismail, 2017, p. 73; Tompkins, 1998).

Teachers can also encourage students to work on projects (see project-based learning, Chmelárová and Pasiar, 2017, p. 34; Čapek, 2019; Markula & Aksela, 2022); they can tackle various cultural elements in connection to communication in the business world (for instance, market strategies adapted to the local culture, dealing with cultural diversity in international teams, the influence of cultural features on business practice, customization of products and services in connection with certain types of markets) or even compare two or more cultures, in terms of business communication. Moreover, teachers can also organize debates or invite native speakers or experts in the students' field of study in order to share their experience and provide them useful pieces of advice and authentic insight.

The wide array of available online platforms, applications and resources can also be capitalized in order to encourage the students' cultural exchanges and entertaining cultural experiences that will develop the students' language skills. By encouraging students to access such tools, the cultural and professional exchange will also trigger incommensurable benefits as far as the improvement of their creativity and language skills are concerned (Boholano et al., 2021, p. 10).

#### **4. Findings**

It is expected that the comparison of the two test results (initial and final ones) will validate the research hypothesis, highlighting the advantages of integrating intercultural communication into business English courses and seminars.

The integration of intercultural communication elements in the course and seminar syllabus (by focusing, for instance, on cross-cultural communication, the importance of cultural contexts, the differences in organizational structures in various cultures, etc.) will entail the improvement of the students' intercultural abilities. In addition, enhancing the learning process, fostering positive and qualitative business interactions, shaping efficient global businesspeople, contributing to a better comprehension of the world can be among the many benefits of the exposure to intercultural communication elements.

## 5. Conclusions

It is noteworthy that the integration of intercultural communication in business English courses and seminars is paramount to the students' future careers in their field of study, as it prepares them – among many others – for successful international business partnerships. These courses and seminars should focus on the promotion of diversity and multicultural education, intercultural abilities, the development of communication skills, in order to shape competent and adaptable businesspeople that perform in an increasingly globalized and multicultural environment.

Active listening, mutual respect and empathy should also be implemented in intercultural interactions in order to better understand the partners' perspectives and ideas and to reach common ground. Although cultural norms shape our identity to great extent, they do not always pertain all behavior patterns, as there are also other elements that influence our personalities, such as education, social environment, family, personal traits, previous life experience, ethnicity, age, etc.

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## **Bibliometric Analysis on the Environmental Ethics Performance. Future Trends**

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### **Abstract**

*Environmental ethics highlights the values and principles involved in combating environmental problems such as pollution, species and habitat loss, and climate change. The main objective of this study is to provide an overview of environmental ethics-related academic studies to highlight the main aspects and future research trends. This study is based on various studies from the national and international specialized literature. The methodology used consists of a quantitative research through a bibliometric analysis as well as the analysis of several indicators relevant to the study. The sample analyzed consists of 981 academic articles published between 1975-2023. The results indicate a clear direction toward the expansion of the research field, especially among researchers from the economic and ecological fields.*

**Key words:** Environmental ethics, bibliometric analysis, environmental changes, business environment, future trends

**JEL classification:** Q56, R11

### **1. Introduction**

In a world economic system where the annual death rate significantly increased due to epidemics, war, extreme poverty, and malnutrition, or where hundreds of species of animals and plants disappear annually because of habitat destruction, the following question is addressed: *Do we need environmental ethics?* The importance of this aspect derives from the need to protect biological diversity and develop the quality of life through rigorous legislation, fines and environmental monitoring, which would lead to changing the fundamental values of today's deeply material and depersonalized society. To see what the future trends are, our main goal was to carry out a bibliometric analysis of environmental ethics performance, trying to highlight future research directions and the main aspects that characterize the environment. Through our approach, a contribution is made to the identification of the general directions of study and impact on environmental ethics worldwide and a high degree of knowledge regarding the measures that are required related to environmental ethics.

The content of the article is structured following the proposed objective, making a brief presentation of the specialized literature in section 2, a presentation of the research methodology and data source in section 3, and the empirical results are presented in section 4. Finally, a discussion of the obtained results is presented in section 5, and conclusions, limitations of the study, and future research directions are presented in section 6.



## 2. Literature review

Analyzing the literature on environmental ethics, it can be found that bibliometric studies have been widely used to analyze changes in different research fields such as global environmental ethics trends, achieving environmentally and socially sustainable growth through sustainable ecosystems, such as smart cities, long-term adaptation, and adaptability practices of enterprises to environmental changes etc. Specialized literature includes scientific articles, journals, books, as well as other documents that address the topic of environmental ethics. This topic is proving to be of global importance, in a context where the focus is increasingly on the circular economy. Interest in the field was not always so intense, but over time it experienced growth, a certain evolution, especially in the third millennium.

### 2.1. Bibliometric analysis

Bibliometric analysis refers to the application of quantitative techniques (statistical analysis, citation, and co-citation analyses etc.) to bibliometric data. Although bibliometric methodologies are not new, the proliferation of this analysis is relatively recent due to the progress and availability of academic indexing databases such as Web of Science, Scopus and Dimensions, as well as bibliometric software such as VOSviewer, Gephi and Leximancer.

Bibliometrics provides a set of important methods and indicators for studying the structure and process of scientific communication. Bibliometric studies are based on scientific results being public to generate progress in scientific research. At the same time, bibliometric data can represent points of reference for concerns in the field of science and technology, since longitudinal studies of scientific interests contribute to the determination of both the research areas that are gaining momentum and those that are regressing. Even so, there is little literature that uses bibliometric analysis to understand the emerging topics of global environmental issues, as well as future trends in environmental ethics.

### 2.2. Environmental ethics

The concept called "environmental ethics" is an academic field established in the last decades and which has attracted the attention of both the philosophical community as well as the civil society. In order to increase economic activity and the standard of living, people consume resources. The human tendency to conserve or destroy the environment for personal or group needs depends on man's perspective on it, called environmental ethics. Environmental ethics emerged as a new discipline that attaches ethical values to the natural world, such as environmental protection, maintaining biological diversity, social responsibility, efficient use of natural resources and sustainable environmental development (Van de Veer and Pierce, 1994; Armstrong and Botzler, 1998).

Environmental ethics studies the ethical relationships between human beings and the natural environment, including all non-human life forms. Environmental ethics is the one that determines what people think about how nature works, what their role in the world should be, and how nature should be valued. Thus, two contrasting types of environmental ethics are identified: (1) *anthropocentrism*, regarding non-human life forms and natural ecosystems as long as they are valuable for human well-being, preferences, and interests, in other words only human beings and their interests are ethically considerable; (2) *ecocentrism*, that is, those perspectives that recognize the intrinsic value in all life forms and surrounding ecosystems, including their abiotic components, and that therefore nature cannot be reduced to that which promotes human well-being.

Environmental ethics is today considered a relevant and interesting field of academic research and this fact has led to the publication of numerous works, books, empirical research, and bibliometric studies that analyze the dynamics and trends in the generation and production of knowledge in the field of environmental ethics (González and Puente, 2010; Arboleda Medina and Páramo, 2014a; Abraham *et al.*, 2015a; Lopera-Perez *et al.*, 2021). In addition, bibliometric studies allow detailed knowledge of research models, by identifying the main countries that publish in this field, authors, institutions, collaboration networks, research clusters, keywords, etc. (Maz-Machado

*et. al.*, 2015; González-Alcaide *et al.*, 2018) and allow the review of specialized literature in the field of environmental ethics. In recent years, various bibliometric studies on environmental ethics have been carried out around the world (Abraham *et al.*, 2015b; Hallinger and Chatpinyakoo, 2019; Prosser Bravo and Romo-Medina, 2019). In conducting bibliometric analyses, some authors suggested increasing the range of journals from different fields of knowledge in searches, due to the transdisciplinary character of the environment (Arboleda Medina and Páramo, 2014b). To be able to identify the scientific interest in the field of environmental ethics and to be able to determine its evolution, the authors developed a bibliometric analysis of the works published in this field.

### 3. Research methodology

The main objective of this review is to investigate current research and emerging trends in business ethics and to identify future research directions. The stages were followed according to the Prisma 2020 protocol. The Web of Science (WoS) database was chosen. The keyword “environmental ethics” was used for the search and WoS generated 2,776 results in the first stage according to the Prisma protocol. In the second stage, an attempt was made to refine the results obtained by selecting and eliminating certain components using exclusion criteria. Following the selection, only articles (939), books (96), book chapters (136) and peer-reviewed articles and those from conferences (104) in English related to the following fields were included: environmental sciences (327), environmental studies (866), ethics (806) (Table no. 1). In this stage, after refinement, 1,275 articles resulted. In the third stage, 294 search results unrelated to environmental ethics were excluded for eligibility reasons. In the end, only 981 search results were included in the sample. To perform the bibliometric analysis, the obtained results were exported in txt and excel format files.

*Table no. 1. Description of the procedure and use of exclusion criteria*

Category	Criterion	No. of articles
Search for	Topic: "environmental ethics"	2,776
Period	1975-2023	-
Access	Open access	-
Subject domain	Environmental sciences (327), environmental studies (866), ethics (806)	1,501
Document Type	Article (939), proceeding paper (104), book chapters (136), book (96)	1,275
Manual refinement	Book reviews (114), editorial material (104), early acces (63), discussion (13)	294
Results after manual refinement		<b>981</b>

*Source:* Created by the authors

The study undertaken aims to answer several research questions, namely: (1) What is the trend of world research related to environmental ethics? (2) Who are the most prolific authors? (3) What are the most productive publications? (4) Which funding bodies are the most supportive and which fields are associated with this type of multidisciplinary research? (5) Which articles are the most influential, based on authors and number of citations?

### 4. Findings

#### 4.1. Environmental ethics performance analysis

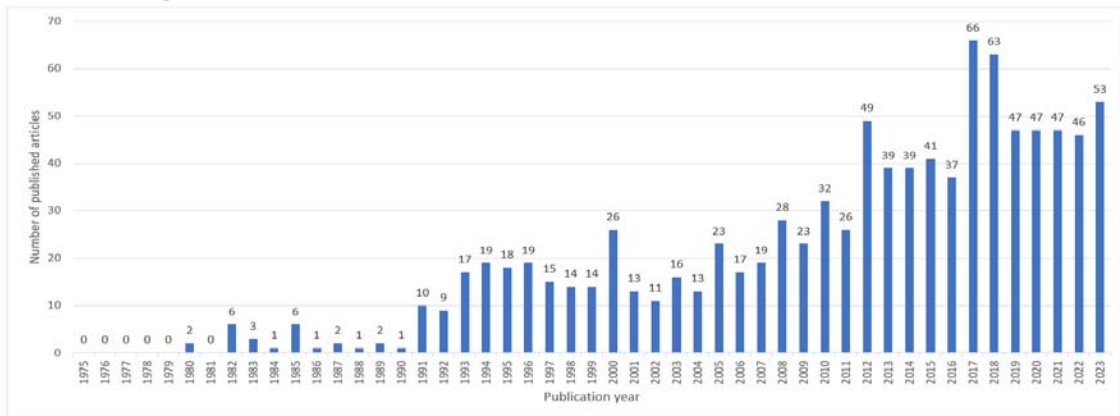
The environmental ethics performance analysis provides an overview of the development and distribution of environmental ethics by presenting the following bibliometric indicators from a statistical perspective:

#### 4.1.1. The evolution of the number of publications related to environmental ethics performance

The data set consists of 981 publications from 1975 to 2023, and the evolution of the number of publications over time is presented in Figure no. 1.

The academic interest in this field of research is an ascending one and this can be easily seen on the graph. This finding strongly supports the idea that this area of research related to the performance of environmental ethics is of constant importance to researchers, especially in the context of the various challenges faced by many countries to ensure the harmonization of economic and legal, environmental, and social aspects established as objectives in the conduct of business activities within companies and organizations.

Figure no. 1. The evolution of the number of publications related to the performance of environmental ethics in the period 1975-2023

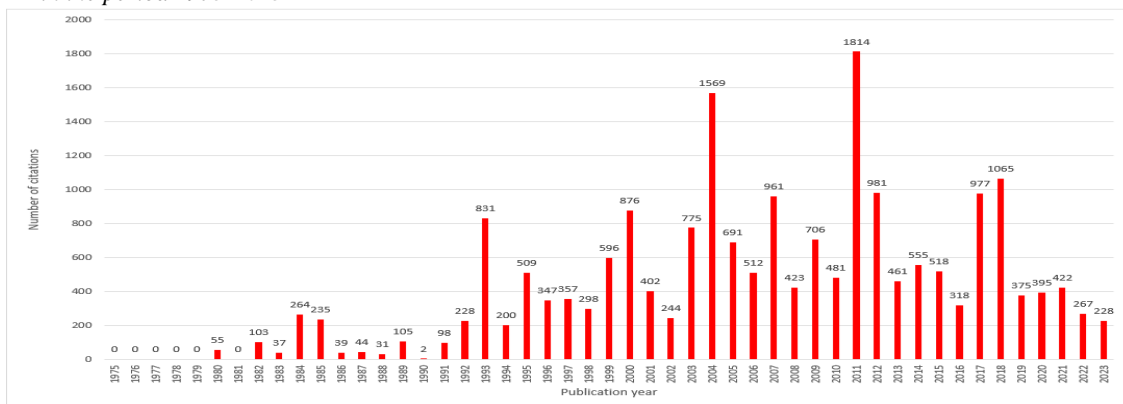


Source: Created by the authors

#### 4.1.2. The evolution of citation related to environmental ethics performance

The same constant trend is also observed in the evolution of the number of citations, presented in Figure no. 2. In addition, it can be noted that the highest number of citations per publication so far was recorded in 2011 (1814 citations). The highest number of citations per author (455) was recorded for the study by Kopnina (2012) who explored the implications of the shift from environmental education (EE) to education for sustainable development (ESD) in the context of environmental ethics. A significant number of citations were chronologically recorded as follows: Nelson (2009) (283 citations), Callicott (1985) (267 citations), McShane (2007) (234 citations) and Minter & Manning (2005) (198 citations).

Figure no. 2. The evolution of the number of citations related to the performance of environmental ethics in the period 1975-2023



Source: Created by the authors

#### 4.1.3. Contribution of institutions to the publication of articles related to environmental ethics performance

Table no. 2 presents the top 10 most active institutions that have contributed to this area of research related to the performance of environmental ethics. To get a comprehensive picture of these institutions and their relevance in this field, Table no. 2 presents significant information regarding the number of published articles, provenance (country of origin), total number of citations, and the average number of citations per article.

*Table no. 2. Contribution of institutions to the publication of articles related to environmental ethics performance and their location*

No.	Affiliation/Institution	Country	No. of articles	Total no. of citation	Medium no. of citations
1	Michigan State University	USA	13	242	18.61
2	University of Texas	USA	12	311	25.92
3	Radboud University Nijmegen	Netherlands	10	210	21.00
4	Oregon State University	USA	9	513	57.00
5	University of Tennessee	USA	9	249	27.67
6	Arizona State University	USA	9	228	25.34
7	Colorado State University	USA	9	159	17.67
8	University of Johannesburg	South Africa	9	113	12.56
9	Georgia Institute of Technology	USA	9	78	8.67
10	University of Wisconsin	USA	7	83	11.85

*Source:* Created by the authors

The surprises of this ranking are Radboud University Nijmegen in the Netherlands in 3rd place (10 articles and 210 citations) and the University of Johannesburg in South Africa in 8th place (9 articles and 113 citations). In our ranking, the American universities that research the field of environmental ethics are predominant in the number of 8. Other interesting and totally surprising aspects are also registered in the case of universities that have the same number of published articles (9), the citations vary significantly, the best cited being Oregon State University with 513 citations and an average of 57.00 citations/document.

#### 4.1.4. The most active source titles for publications related to environmental ethics performance

Table no. 3 lists 10 of the most productive sources in this field of research ranked by the number of articles. To provide a full picture of these journals and their relevance in this field, Table no. 3 presents information on the total number of citations, the average citations per article, and the impact factor recorded for each journal.

*Table no. 3. Contribution of the journals to the publication of articles related to the environmental ethics performance and their publisher*

No.	Journals	Publisher	No. of articles	Total no. of citations	Medium no. of citations
1	Environmental Ethics	Environmental Philosophy Inc.	198	2586	13.06
2	Environmental Values	White Horse Press	123	2362	19.20
3	Journal of Agricultural & Environmental Ethics	Springer	71	1268	17.86
4	Ethics Policy & Environment	Taylor & Francis Ltd.	32	216	6.75
5	Journal of Business Ethics	Springer	20	1379	68.95
6	Sustainability	MDPI Basel	19	206	10.84
7	Environmental Education Research	Taylor & Francis Ltd.	16	514	32.13

No.	Journals	Publisher	No. of articles	Total no. of citations	Medium no. of citations
8	Science & Engineering Ethics	Springer	15	170	11.34
9	African Environmental Ethics: A critical reader	Springer	15	40	2.67
10	Ecological Economics	Elsevier Science BV	14	682	48.71

*Source:* Created by the authors

We mention once again that the sorting of the data was done according to the number of articles (scientific production) and not according to the number of citations. Although the journals from Springer (4) are predominant, the first two positions of the list are occupied by the most cited journal (Environmental Ethics) with 2,586 citations in 198 articles and the second most cited journal (Environmental Values) which has 2,362 of citations from 123 articles.

#### 4.1.5. Countries that have contributed to the publications related to environmental ethics performance

Table no. 4 lists the top 10 most productive countries in this field of research ranked by the number of articles. To provide a comprehensive picture of the role and relevance of these countries in this field, Table no. 4 presents information on the total number of citations and the average number of citations per publication, and the percentage of contribution to scientific production. The most influential countries that have contributed to the development and global dissemination of publications in the field of environmental ethics performance are the USA (319 articles cited 5,572 times), whose percentage contributing to scientific production is 32.52% of the total number of articles published in this field, followed by UK (72 articles cited 1,670 times) and Canada (68 articles cited 1,663 times).

*Table no. 4. Contribution of countries to the publication of articles related to the performance of environmental ethics*

No.	Countries	No. of articles	Percentage (%)	Total no. of citations	Medium no. of citations
1	USA	319	32.52	5.572	17.47
2	UK	72	7.34	1.670	23.19
3	Canada	68	6.93	1.663	24.46
4	Australia	46	4.69	1.071	23.28
5	Netherlands	44	4.49	942	21.41
6	Germany	37	3.77	649	17.54
7	China	31	3.16	433	13.97
8	South Africa	23	2.34	335	41.56
9	France	19	1.94	272	14.32
10	Spain	17	1.73	324	19.06

*Source:* Created by the authors

#### 4.1.6. The most cited publications in the field of environmental ethics

According to Table no. 5, the 10 most cited articles in the field of environmental ethics belong to Berkes (2004) with 1,037 citations, Hashim *et al.* (2011) with 636 citations and Chang (2011) with 588 citations.

Table no. 5. Contribution to the publication of articles related to the performance of environmental ethics

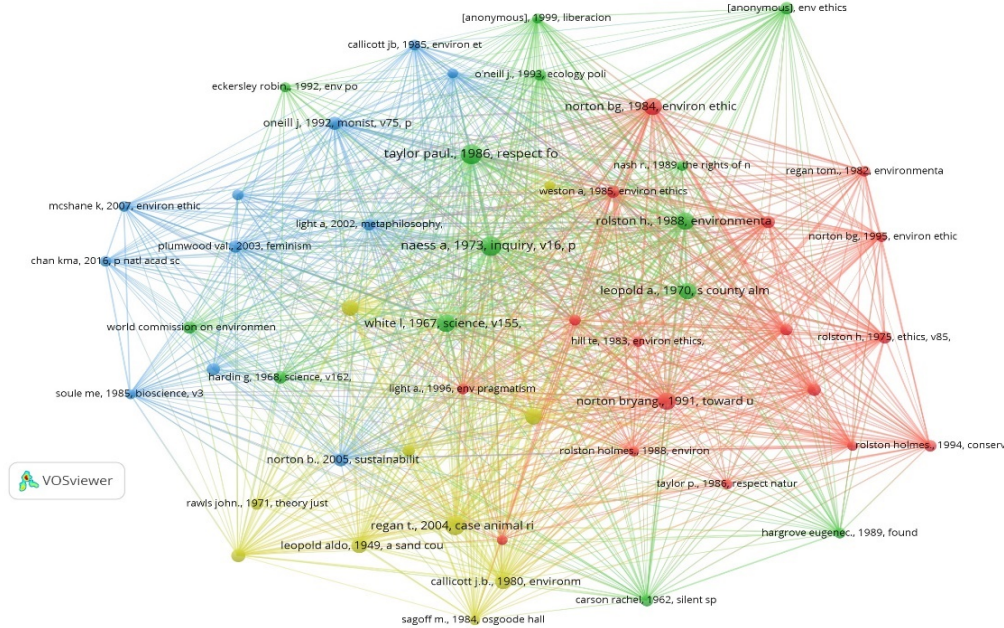
No.	Title of the article/publication/journal/volume/no./pages	Authors/year	Total no. of citations
1	<i>Rethinking Community-Based Conservation</i> , Conservation Biology, 18(3): 621-630.	Berkes (2004)	1037
2	<i>Remediation technologies for heavy metal contaminated groundwater</i> , Journal of Environmental Management, 92(10): 2355-2388.	Hashim <i>et al.</i> (2011)	636
3	<i>The Influence of Corporate Environmental Ethics on Competitive Advantage: The Mediation Role of Green Innovation</i> . J Bus Ethics 104, 361–370.	Chang (2011)	588
4	<i>Nonhuman Charisma</i> , Environment and Planning D-Society & Space, 25(5): 911-932.	Lorimer (2007)	436
5	<i>Natural fire regimes as spatial models for managing boreal forests</i> , Biological Conservation, 65(2): 115-120.	Hunter Jr. (1993)	346
6	<i>Relational values: the key to pluralistic valuation of ecosystem services</i> , Current Opinion in Environmental Sustainability, Volume 35, 1-7.	Himes and Muraca (2018)	228
7	<i>Education for sustainable development (ESD): the turn away from 'environment' in environmental education?</i> , Environmental Education Research, 18(5):699-717.	Kopnina (2012)	222
8	<i>Environmental Ethics and Weak Anthropocentrism</i> , Environmental Ethics, 6(2):131-148.	Norton (1984)	220
9	<i>Preferences, Information and Biodiversity Preservation</i> , Ecological Economics, 12(3):191-208.	Spash and Hanley (1995)	212
10	<i>Equity, environmental justice and sustainability: incomplete approaches in climate change politics</i> , Global Environmental Change-Human and Policy Dimensions, 13(3):195-206.	Ikeme (2003)	194

Source: Created by the authors

#### 4.1.7. Co-citation analysis

Co-citation analysis includes the evaluation of the references cited by the scientific publications included in the selected data set and the analysis of the relationships among the cited publications to better understand the development of the foundation of themes in a particular research field. In other words, as pointed out by Ferreira (2018), co-citation analysis allows the identification of publications that are co-cited by several other articles, which means that these cited publications are somewhat significant related to environmental ethics.

Figure no. 3. Co-citation network diagram of cited references



Source: Created by the authors using VOSviewer

For our sample of 981 articles, 39,022 cited references were identified and a minimum threshold of 20 citations of a cited reference was considered, which contained 52 cited references that met the threshold. To stimulate the understanding of the co-citation analysis of the articles, Figure no. 3 illustrates the network diagram, allowing visualization of the co-citation network of researchers in the field of environmental ethics performance. Table no. 6 shows the top ten references cited in our 981 articles with the highest link strength, citations, and link count in the field of environmental ethics.

According to Figure no. 3, there are four major clusters of cited references, where the largest cluster (green) has 17 cited references, the second cluster (blue) has 14 cited references, the third cluster (red) has 11 cited references, and the last cluster (yellow) has 10 cited references. It is interesting to note that among the first 10 cited references presented in Table no. 6, almost all references (except Regan T. (2004). *The Case for Animal Rights*, University of California Press and Goodpaster K.E. (1978). *On being morally considerable*, Journal of Philosophy 75 (6):308-325) are focused on environmental ethics (Figure no. 3).

Table no. 6. Top 10 cited references from the selected sample

No.	Publisher	No. of citations	Total link strength
1.	Taylor, P.W. (1986). <i>Respect for nature: A theory of environmental Ethics</i> , Princeton, New Jersey, Princeton University Press.	77	372
2.	Regan, T. (2004). <i>The Case for Animal Rights</i> , University of California Press.	76	362
3.	Norton, B.G. (1991). <i>Toward Unity among Environmentalists</i> , Oxford University Press.	60	353
4.	Callicott, J.B. (1989). <i>In Defense of the Land Ethic: Essays in Environmental Philosophy</i> , Suny Press.	53	351
5.	Rolston, H. III (1988). <i>Values in and Duties to the Natural World. Environmental Ethics</i> . Temple University Press.	59	348
6.	Norton, B.G. (1984). <i>Environmental ethics and weak anthropocentrism</i> , Environmental Ethics 6 (2):131-148.	63	343
7.	Naess, A. (1980). <i>Environmental ethics and spinoza's ethics. Comments on genevieve lloyd's article</i> , Inquiry - An Interdisciplinary Journal of Philosophy, 23(3), 313-325.	80	341
8.	Goodpaster, K.E. (1978). <i>On being morally considerable</i> , Journal of Philosophy 75 (6):308-325.	48	301

9.	White, L. Jr. (1967). <i>The Historical Roots of Our Ecologic Crisis</i> , Science, New Series, 155 (3767), 1203-1207.	64	260
10.	Callicott, J. B. (1985). <i>Intrinsic value, quantum theory, and environmental ethics</i> , Environmental Ethics, 7(3): 257-275.	46	238

Source: Created by the authors

## 5. Findings

Following the analysis carried out with the help of bibliometrics, we identified some of the future research topics of the specialists, these being the following:

- *Environmental values*: (1) the distinction between the intrinsic and extrinsic value of environmental ethics through the approaches of moral psychology and ethical theory (Callicott, 1985); (2) environmental philosophy by justifying dominant commitments to non-anthropocentrism, moral dualism, and wilderness/ wildlife conservation (McShane, 2007; Minter and Manning, 2008).

- *Environmental ethics*: (1) education in the field of environmental ethics (González and Puente, 2010; Koprina, 2012; Prosser Bravo and Romo-Medina (2019) and implications for environmental policy (Van de Veer and Pierce, 1994); (2) building an adequate theory of intrinsic value for non-human natural entities and for nature as a whole (Callicott, 1985).

## 6. Conclusions

By its approach, this study makes a significant contribution to the identification of general directions of study and impact on environmental ethics worldwide and a high degree of knowledge regarding environmental ethics measures. Thus, with the help of this study, the most important articles in the field of environmental ethics, the most cited and valuable authors, the most prestigious magazines, institutions, and countries that were involved in expanding the area of study and interest in environmental ethics were highlighted. In the group of authors, environmental ethics authors have proven to be very active in various fields, with many of their studies focusing on new technologies. Businesses face shocks from more and more directions, so the academic environment has transitioned the discourse into adaptation and resilience, a term increasingly used today, emphasizing collaborative learning and team cohesion, through contacts on social networks.

Of course, like any other study, this one also has certain limitations related to three aspects in particular: (1) the study period (1975-2023); (2) using only the Web of Science database to conduct the study, and (3) the small number of scientometric indicators used for measuring the data used through WoS. In this regard, we consider as future research directions: the extension of the measurement period, the use of other databases such as Scopus or Dimensions, and the use of a wider palette of indicators oriented to other unexplored levels of environmental ethics.

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## European Perspectives on Datafication

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### Abstract

*Datafication is changing from the value of concept to the value of layer for the present world. It describes every aspect of our lives with data.*

*In this paper, the researchers put the datafication in the context of the Fourth Industrial Revolution. Also, the authors examine some aspects changed by datafication. The researchers look at several aspects (put in context with the industrial evolution) and also to the effect of datafication on several areas of human activity. By using a qualitative approach, the research examines the datafication and its various dimensions.*

*The results suggest the need for robust, transparent systems to manage the complexity of data and advocate for ethical and privacy considerations. These insights are crucial for policymakers, businesses, and academics, providing a comprehensive understanding of the legal environment, societal impacts, and innovation potential in the European Union.*

**Key words:** datafication, European Union, education

**J.E.L. classification:** C55, C8

### 1. Introduction

Datafication is defined as the process of translating things and events into data that can be added to massive databases which grow daily (Gulson, 2022, p.3). Today everybody has a mobile device and everything we do is converted into data, whether it is related to education (Breiter et al., 2016), healthcare (Ruckenstein and Dow Schüll, 2017, Kuntsman et al., 2019), border control (Bellanova and Glouftsiou, 2022) professional life, personal life or any other thing surrounding us.

Datafication refers to the transformation of various aspects of life into data, enabling detailed analysis and the creation of new value from data. The concept has been introduced by Kenneth Cukier and Viktor Mayer-Schönberger in 2013 (Biltgen et al., 2016).

In the global context, datafication has revolutionized industries, enhancing decision-making processes, and fostering innovation

The paper examines qualitatively the paradigm changes resulting from Datafication and the measurement or data gathered and saved for almost all the aspects of our lives, extensively.

The authors have looked to several aspects of the present, studying how our perspectives have been changed by data.

Almost every aspect of our life is expressed by data, and this is on an increasing trend. Nobody can be out of this system.

Although at the global level there is a substantial interest in researching the datafication topic, there is still an opportunity for additional studies that explore the European context, especially regarding the recent legal and administrative changes and their associated impact.

The implementation of the General Data Protection Regulation (GDPR) had an impact on the way the data are used and protected in European Union. This may represent a significant research topic.

The main objective of this paper is to explore the most important elements of datafication in Europe. We aim to assess how European values, policies and practices influence the datafication.

Understanding the European specifics on datafication can be important for policymakers, businesses, and academics because it offers information about the legal environment in European Union (EU), about the social impact and the potential for further innovations.

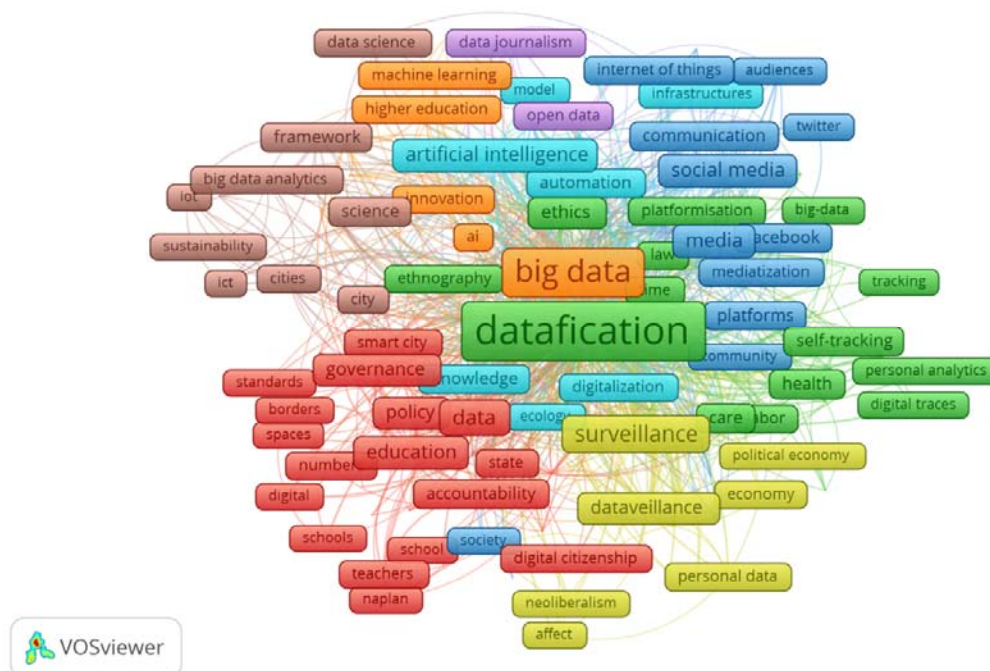
This research is motivated by the necessity of understanding the challenges and the opportunities related to datafication in EU, specifically in the context of other legal context regarding data utilization and data sharing.

## 2. Literature review

A search in Web of Science Core Collection database (WoS) on the "datafication" topic has returned 1,018 results that included 941 articles, 53 proceeding papers and 24 review articles written in English language. Among them, 616 publications have been provided in Open Access status, which account for 60% of the total publications. There is a constant increase in the number of publications related to datafication from 2015 to 2023, which may suggest a growing interest from the research community. Furthermore, most contributions on datafication comes from England (20%) , United States ( 15%) and Australia (12%) , Germany (10%), Netherlands (8.6%) and Denmark(7%). If an additional filter has been added such as topic = “euro\*”, the search returns only 41 records (articles, review papers and conference proceedings). This may suggest a need for more of studies that explore the European context of datafication.

In the current section of this paper, we have examined the most cited papers returned by the query on datafication topic in WoS database. As a next step, VosViewer tool, version 1.6.19, (Van Eck and Waltman, 2010) has been used in order to generate a co-occurrence map from the associated keywords in order to identify notable key terms linked to the datafication topic. In the Figure 1 below, we have illustrated the co-word analysis.

Figure no. 1 The keyword co-occurrence map generated by VosViewer



Source: Created by authors

As it can be seen in the figure above, eight clusters have been identified which may suggest a very diverse space of research topics related to datafication.

Micheli et al. (2020) propose a conceptualization of data governance and argues that stakeholders such as activists, social entrepreneurs, public sector representative are searching alternatives to the data governance model of corporate platforms. Based on this, the authors have proposed four models

of data governance: data sharing pools (DSPs), personal data sovereignty (PDS), data cooperatives (DCs) and public data trusts (PDTs).

Bellanova and Glouftisios (2022) have analyzed the Schengen Information System (SIS II), highlighting the system's fragility and the continuous maintenance required to sustain its functionality.

Calzada (2023) introduces a classification of digital citizenship regimes such as andemic citizenship, algorithmic citizenship, liquid citizenship, metropolitan citizenship, and stateless citizenship from various European locations. The author questions the current understanding of how these regimes reshaping the practices of European locations.

Kuntsman et al. (2019) investigates the ethical and privacy aspects associated with digital health technologies such as commodification of user data and privacy issues. Considering the context of European General Data Protection Regulation (GDPR), the authors show that there is a mismatch / discrepancy between what users are told and what the apps are actually doing with the user data. Also, the authors propose a tool used to evaluate apps with a focus on the opting out feature.

In empirical research, Bibri and Krogstie (2020) has proposed a new model for sustainable cities based on data-driven technologies. The authors have integrated back casting and four case studies related to top European cities and argued that proposed model may bring the sustainable cities closer to the goals of sustainability.

Rychnovska (2021) explores how biobanking anticipates and manages threats and risks associated with the biomedical data in Europe. The author addresses the challenges of integrating big data in health and the ethical implications of datafication in biobanking.

Valdivia et al. (2022) propose a transdisciplinary methodology to study datafication at EU borders. The paper explores biometric technologies and the transparency of data practices, highlighting the power asymmetries in data governance.

The reviewed literature seems to indicate the importance of exploring alternative models of data governance, addressing ethical and privacy concerns, and leveraging data-driven technologies for sustainable development in the European Union(EU).Also, the research shows the necessity for robust systems and transparent practices in managing complexity and challenges related to datafication.

A revolution is associated with radical changes, and the fact that datafication generates an abrupt change regarding the world surrounding us, by measuring a lot of things, we can conclude it is at least a part of a revolution, if not a revolution in itself.

In a classification regarding the important economic changes in human history (Schwab, 2017, p.6), there was an “Agrarian” revolution, followed by four industrial revolutions, as shown in the table below:

*Table no. 1 Industrial Revolutions (upon data from Schwab, 2017)*

#	Revolution	Period	Description
1	Agrarian Revolution	10.000 years before	Apparition of the domestic animals; Efforts for production, transportation, communication
2	First Industrial Revolution	1760-1840	Creation of the first railroads; Invention of the steam engine, resulting in mechanical production
3	Second Industrial Revolution	Late 19 <sup>th</sup> century – beg. 20 <sup>th</sup> century	Mass production
4	Third Industrial Revolution	1960s	Start of the digital era – computers
5	Fourth Industrial Revolution	2000s	Mobile internet Stronger, little, cheaper sensors Biotech innovation

*Source:* (Schwab, 2017, p.6); adapted by the authors

The Fourth Industrial Revolution has three arguments:

- Speed;
- Dimension (volume, depth);
- Systemic impact.

Schwab (2017) considers machine learning and AI to be part of the Fourth Industrial Revolution; however, the authors consider that AI and related techniques are a next level revolution. If the Fourth Industrial Revolution is related to the digital era and data, the AI (with Machine Learning and Deep Learning) is different and refers to data usage and therefore it constituted to the next, Fifth Industrial Revolution.

Considering all the facts, the AI era is contemporary with an Environmental Revolution, mankind paying more attention to factors influencing the environment and climate change. One aspect is the energy: we try to produce more energy but renewable, clean, without greenhouse gas generation. Especially the developed countries on one hand invest in solar, wind, nuclear energy, on the other hand are shifting from classic thermal vehicles to electric vehicles, reducing the carbon emissions.

Datafication is present in every aspect of our lives. In the next part we will explore the more relevant domains, with the implication and changes brought by the Data Economy.

### 3. Research methodology

The objective for this research is to explore the role of datafication and data economy in the context of today’s realities and in the context of the Industrial Revolutions (Schwab, 2017). In this regard, we explore several aspects of today economy, highlighting the most important aspects, with more focus on the EU area.

For this research, the authors have performed a literature review and document analysis. The design framework of the current study has been presented in Table 2 below.

Table no. 2 The design framework

Data Type(s)	Unit(s)	Variables	Longitudinal study (yes / no)	Themes
Qualitative: Literature review based on the query in Web of Science (WoS) database	Research papers from WoS database: Articles, Proceeding Papers, Review Articles	Main findings and themes related to datafication	No	Utilizations of datafication; impact of datafication in various domains
Qualitative: document analysis related to GDPR		GDPR directives	No	Document analysis insights; specifics of datafication in Europe

Source: Created by authors

#### Explanation

- **Data Type(s):** The study relies on qualitative data gathered from a literature review of academic articles (articles, proceeding papers, review articles) from the Web of Science (WoS) database. Additionally, it includes a detailed content analysis of relevant documents pertaining to datafication in Europe.
- **Unit(s):** The units of analysis consist of academic documents that discuss datafication in the European Union.
- **Variables:** Themes in datafication focus on identifying relevant ideas and research gaps from academic literature.
- **Longitudinal Study:** This study does not track changes over time but instead provides a snapshot analysis based on the current literature and e-learning platforms content.
- **Themes:** Utilizations of datafication; impact of datafication in education; document analysis insights; specifics of datafication in Europe.

The literature review has been conducted in Web of Science Core Collection (WoS) database based on the following criteria: 1) Articles published in English ; 2) Publications of type: articles, review articles, conference proceedings ; 3) topic “datafication” . The searches have been further refined in order to filter only the papers that refer to European context. This has been done by including a separate criteria topic “euro\*”.

Furthermore, we have used VosViewer, version 1.6.19 in order to generate a co-occurrence map of the keywords.

The document analysis has included the following:

- General Data Protection Regulation (GDPR);
- Directive on Security of Network and Information Systems (NIS Directive);
- Regulation on Privacy and Electronic Communications (ePrivacy Regulation);
- Data Governance Act;
- Data Act.

#### 4. Findings

GDPR has impacted datafication through the strict guidelines on personal data collection, processing and storage. GDPR is based on consent, transparency and accountability for personal data usage, leading to more responsible data practices.

A particular side is represented by the ePrivacy Regulation, regarding personal data and the protection of privacy in the electronic communications sector.

The NIS directive (Network and Information Systems Directive) has strengthened the security across the EU, requiring the operators and providers to have in place robust cybersecurity measures and control the incidents, to cooperate with the national authorities.

The Data Governance Act (DGA) came into effect on June 23, 2022, and after a 15-month transition period, it has been applicable since September 2023. (European Commission, 2022). This is intended to provide significant advantages to European Union (EU) citizens and businesses by having more data available and sharing across EU countries and industries.

The Data Act came into effect on January 11, 2024 (European Commission, 2024a). This complement the DGA and is intended to provide more legal clarifications regarding the data access and use (European Commission (2024b).

Datafication has many consequences, from opening new horizons of data usage, opening the gate for new powerful tools, as well as some negative things, as discrimination in more ways, given by lack of access to data-driven systems (Kennedy, 2020).

The Fourth Industrial Revolution brought with itself lots of data, bringing into existence the concept of big data. The quantity and complexity of the data increased the need of special tools to deal with it. Because of quantity and complexity, this task cannot be done without machines.

In this data driven environment, it is a need learn for both humans and machines. This leads to the concept of ‘learnification’ (Knox, 2019), which has two significant ways:

1. The training of machines
2. The nudging of human decision through digital choice architectures.

The high quantities of data generate the need to be governed effectively. There are proposed models on how to organize this governance. An example is a social science-informed conceptualization of data governance (Micheli, 2020), based on four models emerging from the actors taking part in data governance: data sharing pools, data cooperatives, public data trusts and personal data sovereignty.

Datafication is enabled in a lot of ways: any online activity (which leaves traces, kept by service providers and other organizations), commercial activity, business processes, sensors and lots of other data generators.

An interesting subject, when discussing about datafication, which should be considered also the epistemic equality. Hayes theorizes the philosophical basis of a changed ‘datafication’ process for teaching excellence (Hayes, 2020); the discourse of teaching should be allocated according to member’s relevant expertise on the subject.

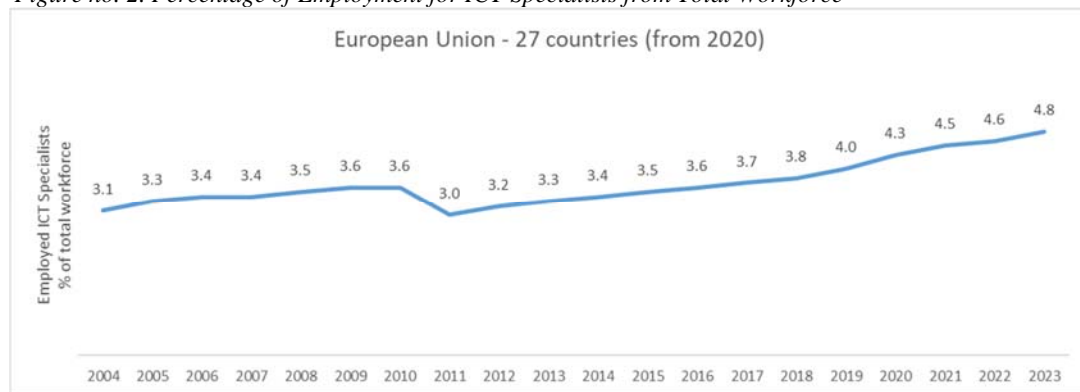
A related concept refers to the datafication of personal information. This led to the regulation of personal data (GDPR – General Data Protection Regulation), defending the personal rights and ownership for some specific data.

The increase of data volume generated the need of digital skills, which are also developing. The question is if the workforce with skills needed to operate with the data grows enough to match the data volume expansion.

The COVID-19 Pandemic specifics have created the circumstances to catalyze and therefore to accelerate some datafication processes (Nguyen, 2020), for any activity which could be moved from real life to the digital world. As a consequence, teaching/learning, back-office activities, clerk activities and many others were digitalized. It was a great time for people aiming to improve their skills.

From the next chart we can see that the COVID-19 pandemic has slightly accelerated the percentage of ICT specialists’ employment, from 4.0% to 4.3%, which can be explained by the fact that people had time to improve their digital skills during the pandemic.

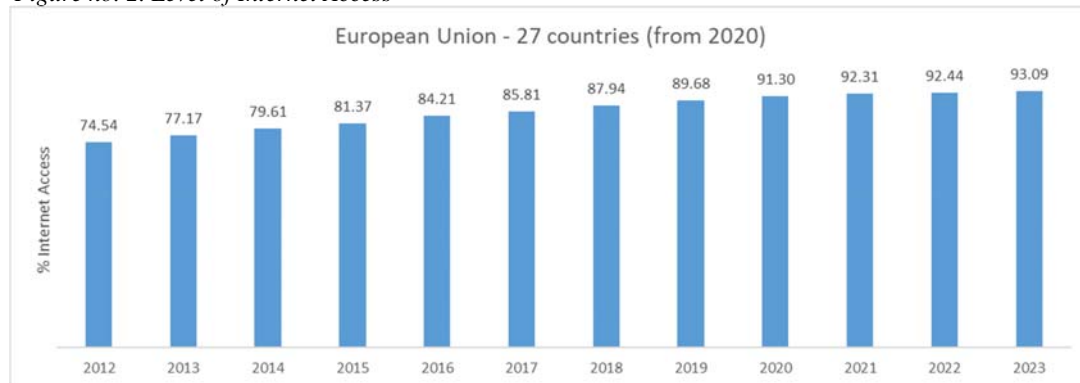
Figure no. 2. Percentage of Employment for ICT Specialists from Total Workforce



Source: (European Union – Eurostat)

Datafication is increasing due to digital enhancement and usage, which is also increasing with the internet access, with more than 93% in 2023, as shown in the next figure.

Figure no. 2. Level of Internet Access



Source: (European Union – Eurostat)

Online learning is a specific item of Datafication, it generates data related to the courses, students and lots of related items. It can be identified an important increase starting 2020 (as a consequence of the COVID-19 pandemic protection rules), with a peak in 2021.



An important conclusion of the paper is that actually we have advanced with 2 steps: the first regards generating and saving data and corresponds to the Fourth Industrial Revolution, as described by Schwab (2017), the second one is linked to usage of the available data and can be part of a new industrial revolution, related to how data are used and processed. The automation and enhancement of data processing gets to a totally different level through big data and AI.

Datafication creates challenges also related to data governance, especially regarding privacy. Actually, it creates the need to shift from thinking about definitions of privacy (characteristics of privacy) to models of privacy (how privacy works), as a change of paradigm (Mai, 2016).

*Another conclusion is that ‘Disconnection is futile’ (Karppi, 2020). The world paradigm has changed, our life ways have changed, nobody and nothing can disconnect totally, whatever men do, they have for sure a digital mark, through data.*

Datafication is a phenomenon in development, and it is the foundation of the world as we know it. This is because the need to govern data, but also datafication constitutes the nouns of the grammars used by humans and machines.

## 5. Conclusions

The study of datafication in the EU context shows multiple important perspectives:

1. Transforming through Datafication: an essential part of the Fourth Industrial Revolution, datafication revolutionizes the ways we generate, save and use data. This transformation has progressed in two stages: first stage concentrated on data generation and saving, and the current phase focused on data usage and processing through advanced technologies, like big data and artificial intelligence.
2. Regulations impact: The EU regulation framework, through instruments like GDPR and the NIS Directive (Network Information Systems Directive) has put order into the datafication process. The EU regulations draw and ensure strict rules regarding data management, with a focus on consent, transparency, accountability and cybersecurity.
3. Confidentiality and Data Governance: As datafication phenomenon is in continuous evolution, we need to change the paradigm regarding the confidentiality. Instead of defining only confidentiality, it is necessary to model the way confidentiality works in a data-based world. This change is essential for developing data effective frameworks able to govern the data usage complexity and to protect individual rights;
4. Inevitable Digital Footprint: the nature of datafication means that total disconnection from full digital footprint is practically impossible. As data enters into each life aspects, inevitably each person leaves digital marks, showing the inevitable place of data in the modern society.
5. Competency and educational development: The COVID-19 Pandemic accelerated the datafication processes, especially in education and personal development. The transition to online learning and digital platforms generated lots of data, showing the necessity to improve the digital competencies.
6. Future directions: as datafication continues its evolution, the implications for a lot of areas, like education, business, personal data administration will become more and more prominent. Future researches and public policies development should address the challenges and opportunities generated by datafication, ensuring that data administration practices are in line with ethical standards and with the society needs.

Generally, datafication represents a fundamental change in the way data come together with the day to day life and with the economic activities. Continuous developments regarding data governance, confidentiality and the technological advances will continue to shape of datafication in Europe and everywhere.

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## Economics and Politics in Mihai Eminescu’s Works

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### Abstract

*Mihai Eminescu (January 8, 1850 – June 14, 1889) was a poet, a prose writer and a publicist who was active around the year 1848. He was equally interested and approached the economic, social and political themes that defined the Romanian society of his times. This paper wishes to point out the guiding lines of Eminescu’s economic thinking and the fundamental reference points of his economic and political ideology.*

**Key words:** nationalism, liberalism, superimposed layer, theory of forms without substance

**J.E.L. Classification:** B31

### 1. Introduction

Mihai Eminescu was not an economist, neither by training, nor by profession. We cannot say that there is a certain writing of his that presents his general economic beliefs, but he practically approached all major economic issues of the Romanian society of his times. (Nechita, 1989, p. 91). Rightfully considered to have been *un uomo universale*, Eminescu had remarkable contributions in at least four fields of research: philosophy, history, linguistics, and economics (Noica, 1992, p. 188).

He was well acquainted with the writings and views of the great economists of those times – Adam Smith, David Ricardo, Thomas Robert Malthus, Friedrich List, Henry Carey, Jean-Baptiste Say, John Stuart Mill, Francois Quesnay, Gustav von Schmoller, and he laid the foundations of his economic knowledge in Wien (1869-1872) and in Berlin (1872-1874), where he was taught, among others, by the economist and sociologist Lorenz von Stein and by the philosopher and socialist economist Eugen Dühring.

Eminescu died at the age of 39, after having fully participated in the literary and cultural life of those times and after having closely analyzed the economic, social and political life of the country. Throughout his rich activity as a journalist, he was against the Romanian liberalism of those times. He criticized the excessive red tape, the tendency to acquire positions within government-controlled institutions, and he supported the development of productive labor, that could increase the country’s income.

### 2. Theoretical background

Eminescu’s economic writings were not collected and presented by the author in a theoretical corpus. They have been analyzed from a multi-disciplinary perspective (history, political science, sociology, demography, statistics).

As far as Eminescu’s life and activity are concerned, we consider the following writings to be referential: G. Călinescu, *Viața lui Mihai Eminescu* [Mihai Eminescu’s Life] (1932), as well as the studies written to foreword various editions of his works, signed by I. Crețu, D. Murărașu, Perpessicius (Dumitru S. Panaitescu), Al. Oprea, D. Vatamaniuc.

Vasile C. Nechita analyzed the specific and original features of Eminescu’s economic writings in a coherent and consistent manner in his work *Meditații economice eminesciene* [Eminescu’s Economic Contemplations] (1989), in his introductory study to the anthology *Economia națională* [National Economy] (1983), but also in the chapter titled *Mihai Eminescu – geniu și în economie* [Mihai Eminescu – A genius in Economics as well] in the book *Economiști români cu vocație universală* [Romanian Economists with Universal Calling] (2015).

Radu Mihai Crișan published some important books titled *Economistul Mihai Eminescu* [Mihai Eminescu the Economist] (2003), *Actualitatea economiei eminesciene* [The Contemporaneousness of Eminescu’s Economics] (2003) and *Spre Eminescu. Răspuns românesc la amenințările prezentului și la provocările viitorului* [Towards Eminescu. Romanian Response to the Threats of the Present and the Challenges of the Future] (2004).

Ilie Bădescu considered Mihai Eminescu’s sociological doctrine as the pivotal point of his scientific thinking and critically presented it in his writings *Sincronism european și cultură critică românească* [European Synchronism and Romanian Critical Culture] (1984) and *Sociologie eminesciană* [Eminescu’s Sociology] (1994).

The controversial issue of antisemitism in Mihai Eminescu’s works was tackled by Gică Manole in his book *Mihai Eminescu și evreii* [Mihai Eminescu and the Jews] (2017) and by D. Vatamaniuc in the foreword *Eminescu și chestiunea evreiască* [Eminescu and the Jewish Issue] to the anthology titled *Chestiunea evreiască* [The Jewish Issue] (2019).

The ideological underlayer of the nationalist streak that comes to the surface in most of Mihai Eminescu’s articles and studies was analytically and structurally presented by D. Murărașu in his writing *Naționalismul lui Eminescu* [Eminescu’s Nationalism] (1932): enthusiastic nationalism, with love for the people and for the country; criticist nationalism, with antisemitic and xenophobe shades; cultural nationalism, in favor of the purity of the national language and literature.

In his monography “*Suntem români și punctum!. Mihai Eminescu publicist* [“We are Romanians and punctum!”. Mihai Eminescu the Publicist] (1997), George Marinescu analyzed Eminescu’s economic doctrine as it appears in certain parts of academic lectures and courses on the history of the Romanian economic thought. One good example would be the course *Doctrină și curente în gândirea economică modernă și contemporană* [Doctrines and Currents in the Modern and Contemporary Economic Thought] published by Sultana Sută-Selejean in 1992.

### 3. Research methodology

The starting point for our paper was the large number of bibliographical resources that exist and deal with Romania’s national poet. Many Romanian writers have been keen on collecting, presenting and interpreting various aspects and topics that Eminescu touched in his works, beyond his literary corpus. Our interest was focused on the poet’s economic and political views, on how they are relevant to the realities of those times and on how they are similar to or different from the economic theory of the moment. Our primary tool was the method of descriptive research that helped us gain valuable insight into Eminescu’s contribution to the history of the Romanian economic thought.

### 4. Findings

#### 4.1. Liberalism, Conservatism, and Economic and Social Progress

In short, Eminescu’s historical and economic national model can be summarized like this: 1700 the foreign element’s domination (the Phanariot element), 1821 national rebirth, 1866 reinstatement of the foreign domination (Carol I). In 1876 Eminescu published *Influența austriacă asupra românilor din Principate*-The Austrian Influence upon the Romanians in the Principalities, a study which is considered to be a landmark of his economic thinking. Eminescu noticed that at first, the Austrian influence was mainly religious, based on an “international element” without country, without nationality, without its own language: the Catholic clergy. (Eminescu, 1941, vol. I, p. 46). Later on, once the idea of religious freedom spread throughout Europe, the Austrian influence shifted towards the commercial element; Eminescu claimed that any Austrian patriot has

the duty to open the gates of the East in order to colonize it with their children and to sell their merchandise. (Eminescu, 1941, vol. I, p. 47)

In 1820, besides the layman and monastical clergy, in the Romanian society there were three main social categories – the big boyars, the small boyars (the clerks) and the serfs - who were not under direct rule and control of the government. There were also two more relatively independent elements: the peasants that had become owners of land / freeholders and the incipient bourgeoisie (the traders and the guilds). In his study, Eminescu drew a picture that was realistic, suggestive, complex and historically argued of the social dissolution of those times, that was favored by factors such as alcoholism and gambling. Eminescu found that social mobility that was inherent in the existing conditions – Eminescu observed that the trader wants to be a boyar, the peasant wants to be a boyar’s son, the small boyar wants to be a big boyar, the big boyar wants to be the ruler of the country (Eminescu, 1941, vol. I, p. 56) – left behind “economic gaps” that were filled in by an element that was foreign “by origin, by morals, and by education” and that was rising: the Jews (Eminescu, 1941, vol. I, p. 56). Eminescu synthetically described the views of the Jews on the government and on the society as follows: “to enjoy all the rights, but to avoid, if possible, all duties” (Eminescu, 1941, vol. II, p. 41).

On the other hand, the peasants got poorer and poorer as a result of unfair trials. The middle class, which was so important in the evolution of the western societies, was considered by Eminescu as a “balancing element”. In our country it was barely “rudimentary” and in its place there appeared an unproductive and extremely harmful class of “proletarians of the pen”, “without a great positive importance for the government”, made up of “people who did not believed what they said and did not say what they believed” (Eminescu, 1941, vol. II, p. 21); the sons of the layman clergy, the servants of the former boyars, the former tradesmen (Eminescu, 1941, vol. I., p. 57).

As the aristocracy as a historical class had disappeared, it meant that the only remaining “positive” class was the peasantry, which was increasingly subdued and less numerous. Eminescu pointed out the negative natural growth rate: “100 die and 60 are born in their place” (Eminescu, 1941, vol. I, p. 61) and the Romanian race falls into decline, and reaches the status of monkey. (Eminescu, 1941, vol. II, p. 10). The peasant was the only producer of “raw materials” necessary to satisfy the fundamental needs of the human being and the only social layer that yields the biggest production is the rural population. (Eminescu, 1941, vol. II, p. 27)

Eminescu was in tune with the ideas of the great economists of those times when arguing for the economic importance of the peasantry. He quoted the physiocrat Francois Quesnay’s famous epigraph addressed to king Louis XV in the beginning of his *Economic Table* (1758): “Poor peasants, poor kingdom. Poor kingdom, poor king.” The peasantry was considered the fundamental class of the Romanian people, whose freedom was insured by the right of ownership on land.

At the end of his analysis, Eminescu offered some solutions to improve the state of the country, which, in his opinion, was the result of internal factors (“the evil is therefore within”) and the background of the “killer” proximity to Imperial Austria:

- stability: attained through a monarchical hereditary government (political parties were established and acted based not upon principles, but in accordance with personal interests); as a matter of fact, as there was no educated and wealthy middle class, Eminescu believed that is dangerous to leave this delicate instrument of the government, this representative of both the historical life and of the harmony of a nation’s interests, at the absolute discretion of a single political party; (Eminescu, 1941, vol. II, p. 41); thus, Eminescu opted for a hierarchy of merit to the detriment of the liberal egalitarianism;
- labor: by excluding the “proletarians of the pen” from the government structure and by forcing them to do productive labor;
- economy: by rationalizing and making efficient the spending of both the government and of the individual.

Eminescu considered that the Romanian civilization retained the exterior forms of the European culture, but lacked any real substance. Given the generalized lack of culture and the preserved byzantine mentality, it had always been characterized by the contradiction between forms and substance. It was an era of empty forms: “Not a utopia, but a thousand utopias lingered in the heads of the past generation, who imagined freedom without work, culture without learning, the modern

organization without an analogue economic development” (Eminescu, 1941, vol. II, p. 33).

The past, “the necessary historical element”, appeared as the basis of the modern society, not in the sense that it was necessary to go back to the previous economic and social situation, but to put social progress in the spotlight. The evolution of the Romanian civilization had to be part of a causal chain that should start with tradition, and not a development pattern borrowed from abroad.

#### **4.2. Nationalism and the “superimposed layer”**

Fully aware of the national reality, Eminescu showed patriotism since his first writings and he had an essential contribution to the development of the national idea. His economic, social and political thinking reflect his theoretical background, but also his position within the political life. (Murgescu, 1990, vol. II, p. 576)

Eminescu’s nationalism has as its core the idea that any economic and social change had to spring from the requirements of the evolution of the nation. Given the negative influence of the forms borrowed from abroad, the mission of the government was to launch, support and develop the native Romanian element, especially in the economic field. Preserving and protecting the national element against foreign competition was, in his opinion, the only approach that could guarantee the independence of the country.

The Gordian Knot of Eminescu’s economic view is the congruence between needs (very important within the process of economic development) and the productive conditions that ensured their satisfaction. The widening of the gap between the system of needs generated by the demands of the modern civilization and the ability of the economy to yield a production in accordance with the new needs twists and bends the normal trend of the economic development process. An example would be the exponential increase of imports, with devastating effects upon the trade balance.

A right-wing individual, Eminescu wanted a natural, organic progress for his country. For him, the authentic progress of a nation was a natural link between the past and the future, as a result of the slow, progressive assimilation of the intellectual work done throughout the previous centuries (Eminescu, 1941, vol. II, p. 32). Basically, any state of affairs has its cause in a previous state of affairs and an event is nothing but a causal relation which has not been discovered yet. (Eminescu, 1941, vol. II, p. 32).

In Eminescu’s view, there was cause-effect inter-generational dynamics. What was required as the solution to the problems was “an *iron hand*, fair and aware of the well-established goals, to inoculate to all political parties the conviction that the Romanian government, inherited from dozens of generations who had fought and suffered for its existence is the legacy of other dozens of future generations and not the toy and the exclusive property of the current generation”.(Eminescu, 1997, p. 230)

His organicist economic view helped him foresee the risk of major unbalances generated by sudden bursts in the evolution of the national economic structures, which had deep historical roots. Eminescu noticed that putting into practice the liberal ideas and policies had brought about the government’s being taken over by a “superimposed layer” which excluded labor from their existence and which, as the economy dealt with mechanisms to integrate itself into the international capitalist economy, generated alienation, poverty and hatred for undertakers and for peasants.

Considering these, the conservationist Eminescu considered modernization and colonialization to be one and the same. Being at the meeting point of three civilizations (Slavic, eastern and western ones), the Romanian nation was “polluted” with all the Bulgarian, Greek, and Jewish “waste” that had constituted a “superimposed layer” that was ruling the society. These “strangers” (foreigners from other countries) were a “virus” and had taken over the role of the historical aristocracy as a form of governing exerted by the “seed of Phanar’s eye discharge” (Murărașu, 1932, p. 87)

## 5. Conclusions

In his analysis of the Romanian economy, Eminescu used a double approach: from the perspective of the historical heritage, but also from the perspective of the values of the European capitalism.

Given his way of understanding the economic phenomena by relating his own observations and analyses to the ideas of other Romanian and foreign economists, given the solutions he deemed suitable for the development of the Romanian economy (industrialization and economic protectionism), we can say that Eminescu was one of the pioneers of the Romanian doctrinaire economic thought.

In a traditionalist and nationalist spirit, Eminescu focused constantly upon the Romanian economic identity in a historical period in which the values of the western European system were a bench-mark and a model to follow. In his view, preserving our national individuality against the imperial economic expansionism was a desideratum of the process of economic modernization.

P. Pandrea considered that Eminescu was part of the “creative current” of the Romanian culture. He “bore the curse of inner restlessness” (Murgescu, vol. 2, 1990, p. 227). He was constantly concerned about the prosperity of his country’s economy, about discovering the ways to ensure his country’s progress.

The fact that Eminescu’s economic thinking is so up-to-date comes from “a great internal logical coherence”, which is apparently surprising for a poet who “seemed to have been living in sideral spaces in his poems” (Constantinescu, 1999, p. 163).

Mihai Eminescu was “an economist of action, not a teaching one”, “an important representative of the theory in action” (Nechita, 1989, p. 152-153), and the universe of his economic ideas continues to fascinate us through its richness and geniality.

Eminescu was a revolutionary scientific spirit by excellency, as he understood the fact that the postulations of the classical political economy become relative or even false in the case of an agricultural economy such as Romania’s. Just as M. Manoilescu noticed, “in the economic science, what is true for the West can be a lie for the East”. Eminescu’s economic patriotism has three cornerstones: “independence, justice, the Romanian spirit” (Manoilescu, 1993, p. 64).

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## Petre Țuțea’s Economic Philosophy

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### Abstract

*Petre Țuțea (October 6, 1902 – December 3, 1991) was a Romanian Christian thinker and an orator, who was preoccupied with philosophical and religious matters. He was the author of numerous studies and articles that focused on economic, social and political issues in the inter-war era. This paper intends to point out the main guiding lines of Petre Țuțea’s system of thought as an economist and his personal comprehension of the relation between the economic and the political elements.*

**Key words:** liberalism, communism, nationalism, democracy, entrepreneur  
**J.E.L. Classification:** B31

### 1. Introduction

Petre Țuțea was born in Boteni (Argeș) on October 6, 1902. He attended *Dinicu Golescu* High School in Câmpulung-Muscel, then *Gheorghe Bariț* High School in Cluj. He received a Bachelor Degree in Law from the University in Cluj in 1927 and then a PhD title in administrative law from the same University in 1929. That was the year he began his political career.

Although his ideology was a bit to the left (though he dismissed the Stalinist totalitarianism) in the beginning, he became a member of the National Peasants’ Party. With candor and humor, he later on admitted that in his youth he had communism and communitarianism mixed up: “if you are not a leftist by the age of 30, you have no heart; if you are still a leftist and not a conservationist after the age of 30, you are a moron” (\*\*\*, 1993, p. 101-102). Later on, he understood everything (he “saw the light” as his good friend Nae Ionescu put it), and, just like many other personalities of those times, he became an extreme rightist, as a radical position against the Russian bolshevism manipulated by the Jews.

He got a job with the Ministry of Industry and Trade (later on the Ministry of National Economy), from which he was deployed as an attaché to the Economic Agency in Berlin just as the German national socialism was rising, a current that would significantly mark his political aspirations. During the time he spent in Berlin, he intensively studied and “prepared his intolerable illusions for a democratic reform of his country” (Cioran, 2017, vol. II, p. 1035). Aware of Țuțea’s inner torments and implications in the economic and political life, Cioran addressed him as a friend in a letter in 1938: “[...] for an infinitely superior spirit indifference is the only solution to useless restlessness” (Cioran, 2017, vol. III, p. 421).

Despite the feelings of friendship and appreciation that Cioran had for him, Țuțea decided to keep on getting himself involved as a publicist and a political activist. Back in the country, he “steered right”: uplifted by the nationalist goals of the legionary movement, he stated that the Romanian right wing was clearly different from the European one – Italian fascism and German national socialism – through its religious, mystic and Christian streak.

Called back to the country from Berlin, he received a position as secretary general within the Ministry of National Economy. As such, he was a member of several delegations whose mission was to carry out inter-governmental economic negotiations in Berlin and Moscow. Until 1948 he held different positions within that ministry.

He was imprisoned by the Communist regime (1948-1953 and 1956-1964). After he was set free, after 13 years of hard imprisonment, the former political prisoner sent the authorities a “Project for Romania’s economic reform”, which was rejected as it was not in accordance with the Marxist-Leninist doctrine.

Renegaded by the regime with which he refused to make even the slightest compromise, Petre Țuțea lived in poverty, on a pension received from the Writers’ Union, in a studio he would have liked his friend Emil Cioran to have bought since he said that in a piece of property owned by Cioran I do not feel like a tenant (Cioran, 2017, vol. III, p. 1188). He died on December 3, 1991.

As Emil Cioran claimed, there is no book, no text, to reveal an absolutely authentic image of Țuțea (Cioran, 2017, vol. IV, p. 1668). He considered Țuțea a true “linguistic genius” (Cioran, 2017, vol. IV, p. 1665) and said that he was the only genius spirit he had the chance to meet in his life (Cioran, 2017, vol. IV, p. 1978).

After Țuțea’s death, many writings and anthologies were written. Amongst them, the following are tangential to his economic, social and political views: *Între Dumnezeu și neamul meu*-Between God and My Nation (1992), *321 de vorbe memorabile ale lui Petre Țuțea* [321 Memorable Words of Petre Țuțea] (1993), *Manifestul revoluției naționale* [The Manifesto of the National Revolution] (1998), *Ieftinirea vieții* [Cheapening of Life] (2000), *Reformă națională și cooperare* [National Reform and Cooperation] (2001), *Anarhie și disciplina forței* [Anarchy and the Discipline of the Force] (2002).

## 2. Theoretical background

Among the writings on Petre Țuțea’s bibliography and work, we mention the following: Aurel Ion Brumaru, *Pariul cu legenda sau viața lui Petre Țuțea așa cum a fost ea* [The Bet with the Legend or Petre Țuțea’s Life as It Was] (1995), Marcel Petrișor, *Sacerdotul fără parohie* [The Priest without a Parish] (2019) and Radu Sorescu *Petre Țuțea. Viața și opera* [Petre Țuțea. Life and Work] (2019).

A well-documented study is *Petre Țuțea – românul absolute* [Petre Țuțea – The Absolute Romanian], which was published in *Atitudini* magazine in 2015. A special writing about and with Petre Țuțea is *Jurnal cu Petre Țuțea* [Journal with Petre Țuțea] (1992), published by theologian Radu Preda.

Petre Țuțea’s economic ideas are probably best presented in Vasile C. Nechita’s writing *Petre Țuțea și provocarea sa economică* [Petre Țuțea and His Economic Challenge] (2000), in which the professor from Iași was well inspired to call Țuțea “a philosopher among economists and an economist among philosophers”.

Varujan Vosganian published a remarkable study titled *Viziunea economică a lui Petre Țuțea* [Petre Țuțea’s Economic View] in *Rost* magazine in 2002, and Mircea Coloșenco grasped Țuțea economic ideas in his introductory studies to the volumes *Ieftinirea vieții* [Cheapening of Life] (2000), *Reformă națională și cooperare* [National Reform and Cooperation] (2001), and *Anarhie și disciplina forței* [Anarchy and the Discipline of the Force] (2002).

## 3. Research methodology

Searching for the most representative elements of Petre Țuțea’s economic philosophy was a challenge that we accepted after covering an extensive number of writings written by him or written about his life and work. We have not been the first to be fascinated by his ideas and the way they developed and changed throughout his existence. To understand his analysis of the realities of those times and to comprehend the solutions he put forward in his books and articles, we used the method of descriptive research. In this way we were able to delineate in our paper Țuțea’s place and importance in the history of the Romanian economic thought.

## 4. Findings

### 4.1. Liberalism, Entrepreneur and Democracy

Liberalism is considered to be “the most suitable social and political system” as it insures the “triumph of personality, the triumph of the leading elite” (\*\*\*, 1993, p. 64), but it has one single flaw: competition inevitably generates the existence of socially assisted people (social waste, as Țuțea called them).

At the same time, democracy was seen by Țuțea as a victory of quantity over quality (\*\*\*, 1993, p. 39) and was figuratively compared with canine distemper: only those that are strong survive!, he said. (\*\*\*, 1993, p. 41); he questions the very major prerequisite of democracy, that according to which people are equal by nature. (Țuțea, 1992, p. 89)

Despite the fact that he assumed the clear extremist position of a political partisan, Țuțea did not revoke the intrinsic fundamentals of his liberal thinking, as his economic creed was that one can change an actual mechanism in case it does not work properly, but one cannot change the natural economic order”. (Țuțea, 1940, no. 1)

While in Berlin, Țuțea met Werner Sombart, the last great representative of the historical German School of Economics, who believed that the trivalent entrepreneur (conqueror – organizer – negotiator) was the driving force of economic development. (Sombart, 1926, p. 69-74). As a true Sombart supporter, fully convinced that the central element of the liberal economic view was the entrepreneur, Țuțea stated that modern civilization is born upon the steps of this very grand gentleman that is called an entrepreneur, upon his very steps. (\*\*\*, 1993, p. 65)

In the article *Întreprinzătorul în regimul legionar* [The Entrepreneur in the Legionary Regime], Țuțea analyzed the role and the importance of the entrepreneur in the economic activity: his decisions and his plans insure the activity of the enterprise, as the cell of the economic life. Bankers, industrialists, traders, they all have beneficial characteristics: “initiative, courage, unlimited desire for profit, instinct for possession”. However, if this entrepreneur clearly sees his interest, even though he has freedom of action, he has to take into consideration the interests of his employees, of his competitors, of the economic players in the non-capitalist area, of the nation as a whole, and of the government.

The dominant position of the entrepreneur (monopoly, as Țuțea said) resulted from a separate action or from one that combined several factors: the personal skills of the entrepreneur, the pure chance, but also “the will of the political leadership”. The limiting of the entrepreneurial liberty by the government was justified and compensated in Țuțea’s view by advantages such as the increase in the level of security and stability. Social harmony was no longer the automatic result of an invisible hand’s action – Țuțea thus questioned the validity of the dogma of the classical economic liberalism – but “it involves an intervention from above, to obliterate conflicts” which has as a supreme and well-justified goal to match the national interest to the individual one. (Țuțea, 1940, no. 22).

### 4.2. Manifesto for a National Revolution

Petre Țuțea was concerned about the actual and fundamental problems of the Romanian economy. Together with philosopher Sorian Pavel, priest Ioan Crăciunel, mathematician Nicolae Tatu, economist Petre Ercuță, and diplomat Gheorghe Tite, Petre Țuțea signed the *Manifestul revoluției naționale* [Manifesto for a Romanian Revolution] in 1935. This document is a well-argued X-ray of all the levels of the Romanian society (economic, social, political) that started from the fundamental idea that Romania’s history had always been under the sign of the “feud” between its two Fates: the western money and the Romanian nationalism. (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 33)

Even in the prologue of this essentially anti-liberal manifesto, its authors point out the fact that Romania was not the national country of the Romanians, but the western bourgeoisie’s branch country at the mouth of the Danube (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 35). Political subject, ethnical mixture and economic colony, the Romanian country was plundered and ruined by the liberal political regime, whose supporter and accomplice was the West.

*The Manifesto for a National Revolution* has three parts:

1. The first one is an introduction to the history of the Romanian politics;
2. The second one is an analysis of the status of the Romanian country in those times;
3. The third one brings forth solutions for the freedom and the development of the Romanian people.

We will limit ourselves to presenting the political and economic component of the third part of the Manifesto, as it was undoubtedly thought out by Petre Țuțea.

The political view of the authors includes identifying the country with the nation (thus solving the issue of ethnical minorities and foreigners). It was a national monarchal country (authoritarian and totalitarian), built upon the principles of hierarchy (aristocratic principle of nature, placing the good ones, not the money or family privileged ones, in command) and of dictatorship. Dictatorship was a constitutional expression of the government and stood for concentrating the political power in the hands of a ruler and of an aware minority around him, for giving up the (artificial!) principle of the separation of powers and for abolishing “the egalitarian anarchy of the democratic country”. (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 84-86)

The economic view (presented in 12 articles) rejected both the ideology of the (western) liberalism and that of the Soviet communism (Țuțea explicitly launched himself in a diatribe against the famous *Manifesto of the Communist Party*). Țuțea stated that the control over the national economy was the fundamental economic principle of the national country. (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 119)

The government had to ensure the balance of the domestic market, which was being negatively affected by the process of birth and economic and social development of the bourgeoisie in the era when feudalism was disintegrating.

*Homo economicus* of the liberalism, as it had been analytically drawn by Francois Quesnay, Adam Smith and David Ricardo, turned into a merchandise-man, whose living standards were incorrectly measured through prices against his own nature, and at the same time crashed by accountancy procedures (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 106). To continue this social view, Țuțea made a statement that is both categorical and surprising: “The logical value of the solutions given through the mathematical method to economic problems is deeply controversial!” (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 108).

As a rational economist, he had the strength to dispute the utility of making the economic science mathematical! The wellbeing of the individual did not depend on mathematical calculus, but rather on two factors: the subjective effort of each individual and the conscience of the statesman. In the name of social justice, the Romanian society had to be rebuilt according to the principle of excellency of natural qualities and conscientious effort. (Țuțea, Pavel, Tite, Tatu, Ercuță, Lăpușneanu, 2001, p. 112)

We could conclude that the value and the importance of the Manifesto reside not with the correctness and validity of the solutions put forward, but rather with the critical and realistic presentation of the consequences of the democratic and liberal government in those times.

## 5. Conclusions

In a purely Romanian tradition, many authors consider that “there is a circuit of brilliant ideas in the Romanian culture, including Mihai Eminescu – Nae Ionescu – Petre Țuțea, that awaits being finally captured in a writing of superior synthesis” (Codrescu, 2000, p. 223).

“Socrates of the pubs of Bucharest”, “the conversational philosopher”, Petre Țuțea “was not a man, but a universe” (Liiceanu, 2011, p. 105).

A few months before his death, in a dialogue on the Romanian economy, Țuțea synthesized the essence of his economic thinking and enumerated the major lines upon which it had to be set: private ownership, individual initiative, and legal order. (Țuțea, 1992, p. 354). The number one priority should be the denationalization/privatization, which means building two sectors: the rural one, based upon the insightful and skillful householder, and the urban one governed by enterprises. He believed that, for the well-being of the economy, private property in the countryside or the agricultural / rural family needed to be limited to 50 hectares, while private property in the urban area (industrial, commercial, banking) needed to become unlimited.

The 35 economic articles published in *Stânga* and *Cuvântul* newspapers, in the context of the practical economic activity he carried out at a high governmental level, make Petre Țuțea a remarkable representative of the Romanian inter-war economic thought. After having oscillated his entire lifetime between the left and the extreme right, he self-defined himself as a liberal and as a rightist, as “an absolute Romanian!”

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# Research Ethics and Artificial Intelligence: Exploring Opportunities and Challenges in Higher Education Institutions

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## Abstract

*This paper aims to analyse the advantages and disadvantages of using technologies based on Artificial Intelligence in Higher Education Institutions. In this way, both teachers and students can be more aware of the implications of using platforms based on these technologies, such as ChatGPT. The research method used is qualitative research. On the one hand, this article will present a brief review of the specialized literature, and on the other hand, it will highlight the results obtained following a focus group conducted with students from a university in Romania. The research findings suggest that the authorities responsible for the educational system should adopt new regulations to monitor the ethical use of AI-based tools, respecting moral and legal principles.*

**Key words:** artificial intelligence, ChatGPT, higher education institutions, research ethics  
**J.E.L. classification:** I23, O39

## 1. Introduction

Research ethics is a subject that, in recent times, has gained more and more importance in the academic sector, also determined by the increasingly frequent use of platforms based on Artificial Intelligence (AI). According to specialists, this is part of the series of sciences that “are concerned with moral behaviour in research context” (Wiles, 2013, p. 4). At the same time, it is also defined as “the fundamental ethical standards that members of the academic community should adhere to, along with the social responsibilities and obligations they must assume in their scholarly activities” (Chen and Liu, 2024, p. 108). According to the definitions, when we carry out research, we should respect certain principles, so that our approach is as honest as possible and free of errors that can negatively influence the conclusions we have obtained and future directions. With the responsibility of producing a paper in which this reasoning is applied, automatically, the results can be more credible among the public and meaningful to the researched field.

However, there are times when the rules are not followed exactly. This can be determined by several factors. Firstly, because of the conditions they have to meet in order to advance in their career, various teachers are pressured to publish articles, some even in high-impact scientific journals, within a certain period. However, the pace with which some of the studies are published may raise certain question marks regarding compliance with ethical principles. Also, the process by which scientific articles are accepted for publication conveys the feeling of total mistrust in those who provide these services, on the one hand, but also about those who used them, on the other hand.

Secondly, considering the momentum that Artificial Intelligence has gained in recent years, some researchers may be attracted to the use of these technologies in carrying out scientific papers. Such practices are not bad ones. They can even enhance the learning experience of students and the professional development of teachers (Selvanathan and Narayanan, 2024). However, these things are possible as long as the requirements of academic ethics are respected. As even anti-plagiarism software cannot fully detect the fact that some text fragments are generated by AI-based tools (Abd-Elal et al., 2019; Çerasi and Balcioglu, 2023), the temptation of researchers and students to deviate from academic ethics is a high one.

In the following sections of the paper, we will present some aspects regarding the use of Artificial Intelligence in the educational process, a series of advantages and disadvantages of this behavior, in certain contexts an immoral one, and some impressions of students from a university in Romania regarding on this topic.

## 2. Literature review

Even though they have gained momentum in the last few years, tools based on Artificial Intelligence are not recent (Zawacki-Richter *et al.*, 2019). Moreover, they were seen as "one of the most effective tools for developing education globally" (Rahman *et al.*, 2023, p. 4). Depending on the context in which these were applied in the field of education, the tools manifested in various forms: "adaptive learning platforms"; "automatic grading"; "language learning"; "virtual assistants"; "special education support" (Wilyt, 2023). Taking these things into account, the involvement of such tools in the daily work of researchers and teachers, on the one hand, but also of students, on the other hand, was seen as an opportunity (Mhlanga, 2023). However, if they are not used in an ethical and effective way, the tools can lead to a setback in the education sector.

According to Dodigovic, Artificial Intelligence represents "an interdisciplinary area of knowledge and research, whose aim is to understand how the human mind works and how to apply the same principles in technology design" (Dodigovic, 2007, p. 100). More specifically, depending on the inputs and the models presented to it, AI delivers results as per them.

The use of AI-based tools in the education sector can be motivated by the series of advantages these offer. For example, the involvement of ChatGPT in teaching can present the following opportunities: "instant and customized feedback"; "reducing the workload of educators"; "making educational resources available 24/7" (Samala *et al.*, 2024, p. 111). Also, another advantage of using Artificial Intelligence in the educational sector is the provision of a personalized learning experience for each student (Almahasees *et al.*, 2024; Yang *et al.*, 2024). Often, this support is tailored to the needs of learners, compared to traditional educational methods (Ventura, 2017). In this way, depending on the learning pace of each one, they can reach, with the support of AI tools, a higher level of knowledge and learning, thus being able to cope with the demands of the teaching staff in the assessment sessions. At the same time, when they are unsure or did not understand very well a certain concept taught by a teacher, learners intend to use platforms based on AI technology to ask certain questions, avoiding interaction with a person. Thus, they develop a sense of security and will no longer feel constrained or threatened that they will be given a certain label that would create a negative image for them.

All these things are determined, on the one hand, by the basic characteristics of the ChatGPT language model (Mhlanga, 2023), and on the other hand, by that "feeling of friendship" that was born between the digital interface and the learners (Pelau *et al.*, 2024). Even so, regardless of the platform used, the feeling seems to be manifested in only one way. According to the literature, one of the challenges for ChatGPT is the lack of emotion (Bettayeb *et al.*, 2024). This makes it harder to process a response that is based on analysing, understanding, or recognizing the feelings the user wants to convey. Also, in the specialized literature it is mentioned that in the educational system, the use of a language model based on Artificial Intelligence should only complement human interaction or teaching staff, not replace them (Evans *et al.*, 2023).

According to a study conducted among students in Hong Kong, even if some of them have already been mentioned, in one form or another, other advantages generated by the use of AI-based tools in the educational process are: "personalized and immediate learning support"; "writing and brainstorming support"; "research and analysis support"; "visual and audio multi-media support"; "administrative support" (Chan and Hu, 2023, p. 13).

Analysing these opportunities very well, Artificial Intelligence not only supports interested people to complete their tasks. This allows teachers to adopt more interactive and attractive strategies and methodologies in the teaching process (Albadarin *et al.*, 2024), so that the free time can be used in other directions.

Unfortunately, in addition to the previously mentioned advantages, the use of ChatGPT in the educational process also presents certain disadvantages. Their nature is given by the effects and the way students understand to use Artificial Intelligence. For them, it can only be reduced to a series of

solutions when they are in the position of giving a written assessment, preparing a research project, responding to some requirements or solving some problems. As we already anticipate, the adoption of certain forms of cheating, such as plagiarism or copying, when students are made to react to teachers' requests, represent negative phenomena generated by the use of AI-based tools (Almahasees *et al.*, 2024; Samala *et al.*, 2024; Yang *et al.*, 2024). Thus, educational institutions are forced to introduce certain regulations to discourage the use of these tools in a way contrary to academic ethics.

At the same time, another disadvantage could be represented by the underdevelopment of students' analytical and cognitive skills. They, instead of creating their own ideas and opinions, prefer to use the ChatGPT platform without filtering the information they receive (Isiaku *et al.*, 2024; Yang *et al.*, 2024). In many cases, not filtering the data generated by AI platforms can give students, but not only, a false sense of achievement. Also, according to various studies, the generated outputs can be based on fictitious, unverified data that can also mislead the evaluators, without there being a control bridge between the quality of the written material and the purpose for which it will be used (Selvanathan and Narayanan, 2024).

According to the same research mentioned above, conducted among students in Hong Kong, the series of challenges generated by the excessive use of AI-based tools can also include: “accuracy and transparency”; “privacy and ethical issues”; “holistic competencies”; “career prospects”; “human values”; “uncertain policies” (Chan and Hu, 2023, p. 13). In addition to ethical issues, these challenges bring into question, again, aspects regarding the personal development of individuals, which may also be affected. From this point of view, people who try to break certain rules of academic conduct should think twice before acting.

Other limits that should be considered by students and teachers are: “data privacy issues”, “cultural differences”, “language skills”, and “ethical problems” (Selvanathan and Narayanan, 2024, p. 967). Some of these negative points could be avoided by drawing up informed consent forms or by asking advice from ethics committees when particular research is conducted.

Following the above, what both learners and teachers should understand is that AI-based platforms should only be used as a support in academic writing, not as a substitute for human creativity and intelligence (Aljanabi *et al.*, 2023).

### 3. Research methodology

To carry out the case study of this paper, we chose the focus group method. The target group was made up of students from a university in Romania, enrolled in a Didactic Master's study program. The main motivation for the selection of this group was represented by the career opportunities they will have after graduation. By attending the courses of a department that supports psychopedagogical training, they will have the chance to become future teachers. Thus, they were able to answer the questions posed by the research moderator as university students, but also thinking about their future profession.

The research objectives were:

O1: to identify the advantages of respecting ethical principles in scientific research.

O2: to identify the advantages of using tools based on Artificial Intelligence in carrying out projects and assignments requested by teachers.

O3: to identify the disadvantages of using tools based on Artificial Intelligence in carrying out projects and assignments requested by teachers.

O4: to identify the ways in which students are trained on compliance with the norms of ethics and academic integrity.

Before participating in the research, the students were notified about this activity, through an information sent to their institutional email, and were invited to express their intention. Also, those who accepted the invitation and filled out the informed consent form were assured that all the information presented during the research will be confidential and anonymous, the identity of the persons not being made public. Thus, the principles of the General Data Protection Regulation (GDPR) were also respected.



The discussions held were free and respected the structure of an interview guide prepared in advance by the moderator and made known to those who accepted the invitation. At the same time, depending on the direction in which the discussions continued, helpful questions were also asked, so that the participants did not deviate from the main topic.

Considering the peculiarity of the research method, the sample was made up of six people. The discussions lasted approximately 50-60 minutes and took place in a physical format, in a lecture hall, in May 2024.

#### 4. Findings

The question that started this focus group referred to the identification of keywords associated with research ethics. A centralization of the answers can be observed in Figure no. 1.

Figure no. 1. Keywords associated with the concept of research ethics



Source: own data processing.

As can be seen in the previous figure, when discussing the concept of research ethics, students assimilate it, most often, with the following words: *integrity*; *respect* and *correct conduct*. This confirms that during the conduct of a research it would be good to have an appropriate behavior and to respect the target group and those who will use the obtained results. Thus, without deviating from ethical standards, we will keep an intact profile that can be rewarded, in the future, by different means.

The next question referred to the degree of students' familiarity with the observance of ethical principles in the writing of various educational materials. The answers were unanimously positive. This can be explained, on the one hand, as the students also said during the research, by their participation and involvement in the *Ethics and academic integrity* course, a component discipline of their master's program curriculum. During this course they learned about citation norms and avoiding plagiarism in scientific research. On the other hand, the positive attitude can also be generated by the instructions that the students receive from the teaching staff, along with the requirements for preparing projects and assignments.

Another aspect addressed with the students participating in the focus group referred to the advantages of respecting ethical principles in scientific research. Among them, we can mention: *research success*; *the correct use of the collected information*; *the research results are real, easy to centralize and reflect reality in relation to its subject*; *ensuring a normal and fair competitive environment*; *respect for the work of other researchers*; *respect for the legislation in force and for the educational institution to which the researcher is affiliated*; *carrying out original research works, which can bring added value and innovation in the respective field*; *originality in terms of the material produced*; *good conduct in research activity*; *professional, moral and social responsibility*.

In addition to the previously mentioned advantages, students were also asked about the disadvantages that non-compliance with the principles of research ethics might have. Although this activity requires more effort and time to carry out the studies, if the principles are not respected, there is a risk of a violation of the intellectual property rights of genuine researchers, without adding value to the respective field. Thus, students recommend compliance with the norms of ethics and academic conduct in scientific research.

Because Artificial Intelligence has penetrated, intensively, in this field in recent years, the students also discussed the use of tools based on this principle in the accomplishing of various projects or assignments. Their answers were some negative, reasoning that by using ChatGPT, they would assign themselves a work and a result that would not belong to them. At the same time, Artificial Intelligence is not recommended for writing scientific research materials, ChatGPT not being approved and agreed in this context.

However, some advantages and disadvantages were presented among students who used this platform in different contexts. From the series of advantages, we can mention: *saving time or elevated expressions, with specific terms*. When discussing the disadvantages of using ChatGPT, students mentioned the following: *using exaggerated or unfamiliar terms; the possibility of the existence of papers identical to those of other colleagues, if for this purpose they used ChatGPT; lack of originality; lack of creativity and analytical ability*.

At the end of the discussions, concluding, the students consider the fact that they respect the principles of ethics in scientific research when they develop different projects for the university. Also, since they did not violate these rules, the students affirmed that they have not been penalized, until now, for not respecting the principles of ethics in scientific research.

## 5. Conclusions and recommendations

This paper aimed to analyze the opportunities and challenges arising with the involvement of Artificial Intelligence in research ethics at the level of higher education institutions.

As mentioned, systems based on Artificial Intelligence are in continuous development and will be increasingly requested by users, once the advantages they offer are identified. However, depending on the field in which they are applied, the systems can present certain limits that can put users in not very pleasant situations. Therefore, when considering the use, development or promotion of Artificial Intelligence, three major criteria should be considered: (1) “transparency and accountability”; (2) “moral and legal principles”; (3) “environmental protection and sustainability” (Wu *et al.*, 2023, p. 1130). In this way, we should always be honest with ourselves and our actions, be fair and promote green behavior that does not harm the environment. This last aspect is generated by the increased energy consumption that the use of technologies based on Artificial Intelligence implies.

When discussing the use of ChatGPT or other mechanisms based on Artificial Intelligence in the educational system, in general, and in the university environment, in particular, in addition to other conditions and considering the three criteria mentioned, it is vital to guarantee compliance privacy, fairness and non-discrimination, while ensuring transparency throughout this process (Mhlanga, 2023).

Taking into account what was presented previously, Artificial Intelligence can have a negative effect on the educational sector, with an emphasis on respecting the principles of ethics in research, but not only. To eliminate this risk, authorities should adopt a set of rules that outline how Artificial Intelligence can be used. Even if, despite the technological progress, banning the use of ChatGPT in the academic environment could be a measure, the authorities should better focus on conducting certain training sessions, in which educators and students are present (Selvanathan and Narayanan, 2024). The seminars will teach attendees how to use these tools to their advantage. Training events will also be able to add value to ethics in scientific research. Developers of AI-based tools can participate in the sessions to make attendees understand the mechanisms behind their operation. Thus, new methodologies can be developed to regulate the use of ChatGPT in the educational sector, but with the inclusion of very well-defined ethical aspects (Acosta-Enriquez *et al.*, 2024; Isiaku *et al.*, 2024). In this way, the reputation of the educational institutions will be able to be high, without being affected by the quality of the scientific papers published by the academic community or the

quality of the graduates who are preparing to enter the labor market.

Regarding this last topic, in addition to the rigor of the results obtained in the research carried out, Artificial Intelligence can also have effects on future graduates. Because they turn to such tools, students will be tempted to stop analysing and interpreting certain data collected by different methods, putting everything based on new technologies (Pittner *et al.*, 2023). Thus, when they occupy a position within a company, they will not be able to solve a certain task individually but will feel the need to call on the tools that are built based on Artificial Intelligence. In this way, their productivity at work will be low and their job security may not be high.

Finally, in order not to put pressure only on the representatives of higher education institutions, students should assume the originality of the papers they write, by completing a declaration stating that the content of the material is original and that it respects the standards of professional ethics and quality. Universities should promote these standards by publishing them on the website, accessible to anyone who is interested.

For future research, we propose to carry out a semi-structured interview with teachers who work in departments that support psycho-pedagogical training. The interview will be approached from a dual perspective. On the one hand, we will want to analyse the relationship that teachers have with students, when it comes to respecting ethical norms in scientific research. This relationship encompasses both how students are trained to behave ethically and with integrity, but also how they are punished if they do not follow the principles. On the other hand, the interview will include aspects regarding the activity of teaching staff in the writing of various academic papers and the analysis of their behavior regarding compliance with the norms of ethics and academic integrity.

In conclusion, the involvement of Artificial Intelligence in the higher education system can have positive effects, as long as the threats that its existence can cause are avoided and, at the same time, the principles of academic ethics are respected.

## 6. Acknowledgement

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## Controversies and Misunderstandings in the Issue of Assuming Responsibility for Changing Educational Organizations

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### Abstract

*The preparation of the change process involves concerns in the direction of the clarification of some aspects related to the identification of the problem and the definition of the conditions, the specification of the goals, and the elimination of false goals, as well as the verification of the feasibility of the change. Through multiple research methods, structured observations, survey techniques, and systematic analysis of documents, norms, and legislation specific to the quality of educational organizations, the present study offers, as an answer, implementation models of change. The result that emerges from the analysis is the following: at the level of educational organizations, the adaptation process has a multi-determined character (by the internal needs of the organization, which may concern the administrative, instructional-educational, managerial level or the requirements of the social environment), multidimensional (the change having strong psychological, educational, social, strategic influences), multilevel (targets both the individual and the organizational level).*

**Key words:** planned organizational change, proactive attitude, resistance to change, organizational adaptation

**J.E.L. classification:** D83, I20, M12

### 1. Introduction

This study brings to attention the paradoxes that, from the perspective of other researchers, characterize the process of changing school organizations.

To better understand the nature of current contradictions and changes, it is relevant to consider the experiences and expertise of specialists.

The problem analyzed through the study's presentation reflects the situation of the Romanian educational system's national crisis against the allergic background of impotent political influences in a context in which many other systems, such as the economy, health, tourism, and others, are in one state of collapse.

If post-pandemic changes mean misalignment, there is a risk of imbalances and chaos. Therefore, the post-pandemic world is becoming unsafe, an insecurity that is accentuated by the use of information and communication technology tools. In this case, the nostalgia of educational institutions towards the past should not be surprising, even more so, as sometimes the change only targets external demands, like a wound healed from the outside, leaving the inside in tremendous suffering.

Regardless of whether they have their source in the individual plan or the organizational plan of the school, the resistance to change should not be ignored, but the most effective ways of improving them should be sought; the risk is that they will affect the achievement of the objectives of the change

and, last but not least, the ability to respond to social requirements adequately (Burlea-Schiopoiu, 2009). They produce moral and psychological wear and tear, although their manifestation is fully justified in some cases. It is the case of unplanned changes or, more precisely, those that are not appropriate to each organization's context, needs, and requests.

Organizational development begins to acquire increasing importance in terms of permanent learning for the individual as the leading solution for adapting to society's demands. If the pace of changes was initially slow, allowing the progressive evolution of ideas and values, today, the social environment and educational organizations are in a permanent dynamic, causing sudden changes that require anticipation. Achieving performance, development, and adaptation of human resources presupposes an effort to acquire knowledge and skills, especially attitudes favorable to change.

## 2. Literature review

The educational organization has become the paradigm of modern organizations, as stated by Sagie and Koslowsky (2000), structures in which people can create the results they want, stimulating new ways of thinking and having the freedom to aspire and learn how to adapt to others.

Most of the time, the content of the change is varied and complex, requiring sustained efforts and recourse to a set of strategies that facilitate the correct appropriation of the change or its actual production at a practical-applicative level. The role of educational organization managers is vital in this direction, as they are responsible for carrying out strategic analyses and applying change at the level of the guided organization.

The adoption of changes in education implies the modification of the institutional philosophy, of its operating model, the assumption of responsibilities, but also an effort to penetrate the risks that arise from maintaining a bankrupt educational reality. Although it has clearly defined targets, change has not infrequently been found to have a mobile, non-linear trajectory, for which *learning to change* would generate vital experience in dealing with the unpredictable (Alehegn, 2020).

The actual content of this learning at the level of the educational organization is given by the concrete ways in which it can deal with change, more precisely, the promotion of strategies that facilitate the improvement of personal and organizational performance that reduce resistance to change, develop prospective capacity or training proactive skills. For this reason, it is essential to restate the demand for education through and for change at the individual level and the organization's level as a whole. If change cannot be avoided, it is important that we at least learn to deal with it (Lauzier et al., 2020).

The ways in which the organization can learn are among the most diverse. There is no need to clearly announce the moment from which learning begins or for the triumphant declamation of the content of this endeavor. The change must gradually insinuate itself into the life of the organization and its people, without glaring leaps, and by adopting compensatory mechanisms designed to soften the *shocks*.

The relativity of the idea of educational institutions' autonomy, which is discussed at the level of the educational system, must be considered. It shows up at the organizational level when a manager or member of the teaching staff is free to adapt their plans to the needs of the beneficiaries and employ instructional and managerial techniques that work well to accomplish the stated goals.

## 3. Research methodology

The school organization must take responsibility for coherent changes and the quality of managerial and educational acts. The diagnosis is relevant and must be carried out by the organizational development advisor to realize a viable project for the school organization's development. In the case of the school organization, the diagnosis task rests with the school manager and the management team at the organizational level. The diagnosis should target the two environments of the educational institution (Table No. 1).

*Table no. 1 The analysis criteria for organizational change*

<b>The internal environment of the organization</b>	<b>The external environment of the organization</b>
Mission, objectives	Opportunities
The type of organizational culture and climate	Existing threats at the level of the local community
The quality of the human resource and the degree of its motivation	Competing organizations
The quality of material resources	Society's requirements
The organization's ability to financially support its change	How school-community interactions are established
Managerial type and effectiveness	Competing organizations
The organization's ability to develop and carry out institutional development projects	Partnerships and projects
The quality of institutional processes	Legislation and new technologies

*Source:* The authors' contribution

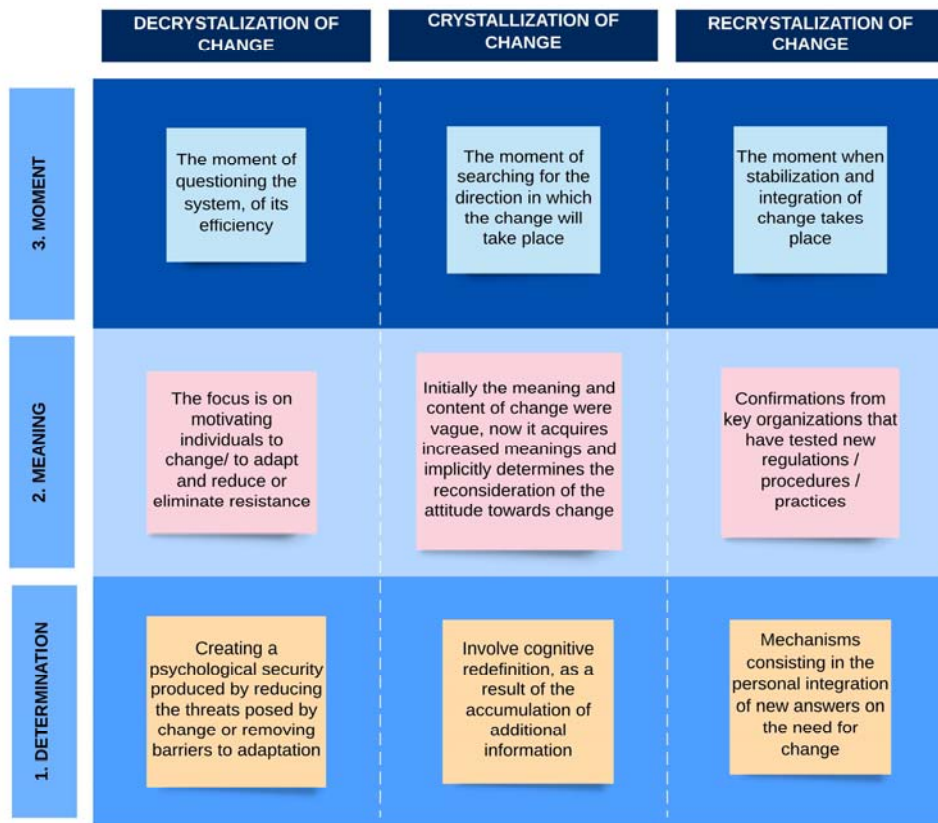
The relativity of the idea of educational institutions' autonomy, which is discussed at the level of the educational system, must be considered. It shows up at the organizational level when a manager or member of the teaching staff is free to adapt their plans to the needs of the beneficiaries and employ instructional and managerial techniques that work well to accomplish the stated goals. They represent the first and most important step in planning educational change.

According to organizational development experts, another idea that has recently gained traction is planned organizational change. It can be produced externally due to changes in technology, laws, or market competition or internally due to a collection of actions intended to alter people, groups, structures, or organizational procedures. After carefully analyzing the existing specialized theories regarding the change process, through their comparisons and revisions, the authors generate predictions that assume the passage of some stages, described in Figure No. 1, which are constituted at a given moment in accurate implementation models of the change.

Although pertinent through the objective perspective it provides in understanding moments of change, the phasing proposed by Levin and Schrum (2016) overlooks the need for rigorous planning.

In order to realize the importance and the complexity of this process, it is necessary to analyze its essential elements, described in what Constantin (2004) calls the stages of the intervention process for change and which are also perfectly valid for the school organization: the diagnosis phase, the preparatory phase of the change process, the planning phase, the implementation phase, and the impact evaluation phase. It is very important to identify the key components of the problem because unclear contractual policies and problem definitions frequently lead to resistance to change. At this point, inquiries about the nature of the activity are the most common. Analyzing most of the attempts to stage the planned organizational change, it is found that we can speak of three fundamental moments: the beginning of the change, which involves the preparation for change and the diagnostic analysis; an intermediate moment, for the implementation of innovative measures in practice, and a final moment, with the role evaluation of the quality of the results obtained. Although infallible rules for promoting change and no immanent models can be established, at the level of any school organization, there is a need to go through additional moments that escape the quoted authors.

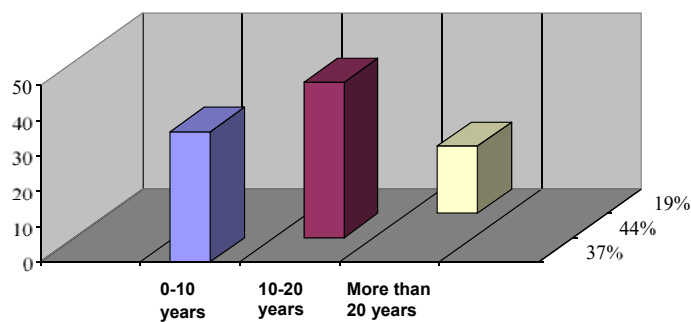
Figure no. 1. The stages of the planned organizational change/adaptation process



Source: Adaptation and processing by the authors after Schein, 1992, 1996

The research adopted deductive approaches, with significant elements regarding examining the adaptation of change management in educational organizations, which emerge from the analysis of the empirical base found in the collected data and documents. Regarding the attitude of teachers towards change, the authors undertook quantitative research on a sample format of 100 employees of some educational institutions in Dolj County. After presenting the problem to the employees, using both face-to-face and questionnaire techniques and based on a thorough review of the current legislation, the survey results and their interpretation will provide details about the behavior change.

Figure no. 2. Distribution of the sample according to seniority in education



Source: The authors' contribution



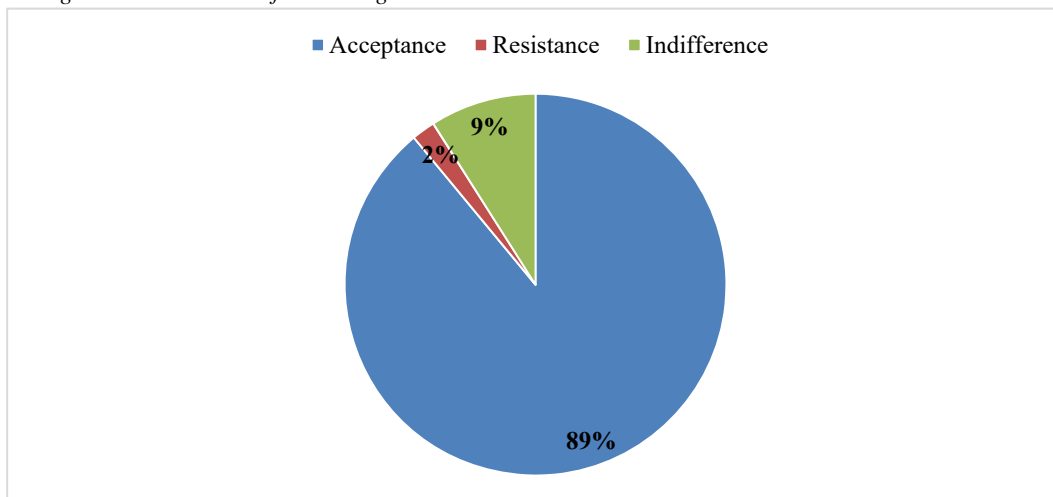
Following the analysis of Figure No.2, it can be seen that in the distribution of the sample according to seniority in education, most of the respondents have seniority between 10 and 20 years.

#### 4. Findings

The investigation of teachers' perceptions of the change process confirms the hypothesis regarding the positive effects of accepting and embracing change on educational organizations. Within educational institutions, teaching staff consider it necessary and beneficial to implement change through responsible and assumed involvement.

The perception of the teaching staff selected in the research revealed an openness and willingness to change that was considered necessary by 89% of the respondents, while 9% were indifferent; they believed that the organization's situation would not be affected, regardless of the change. As shown in Figure No.3, only 2% showed resistance, considering that it is unnecessary and has a state of denial towards any form of change activity. The 98 respondents, those who accepted the change and those who showed indifference, thought the change was planned with great care.

Figure no. 3. The need for a change in the educational institution



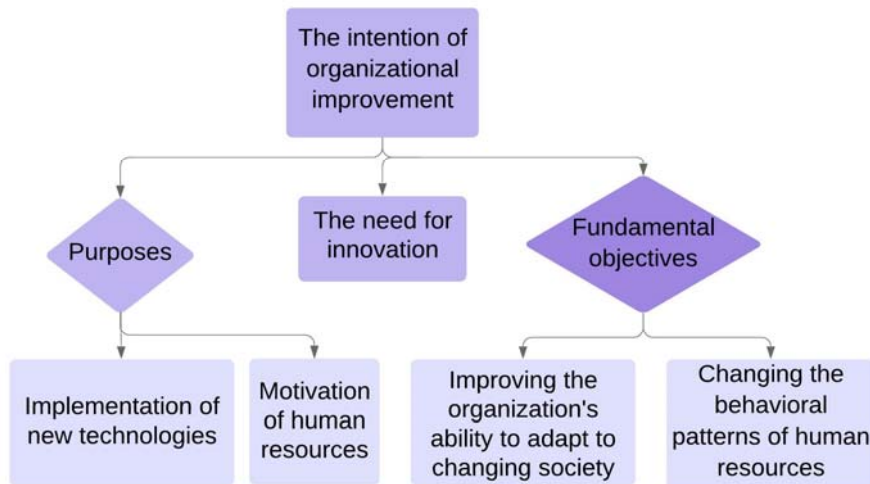
Source: The authors' contribution

Planned organizational change, considered as the intention of managers and employees to improve the functioning of groups, departments, or the entire organization in its important phases, is necessary to be based on specific goals (Figure no.4) and is oriented towards two fundamental objectives:

- a) improving the organization's ability to adapt to changes in the environment in which it operates;
- b) changing the behavioral patterns of employees.

Moreover, both are important for imposing change, the priority of its planning must be changing individuals' attitudes and behaviors. Promoting change in the presence of change-resistant behaviors is nonsense because the change of strategy, which would facilitate the organization's adaptation to the environment, becomes effective only in the conditions of proactive behavior (Burlea-Schiopoiu et al., 2011). In other words, the success of the process fundamentally depends on achieving the second objective (Kin and Kareem, 2017).

Figure no. 4. The new trend model for planning efficient organizational structures



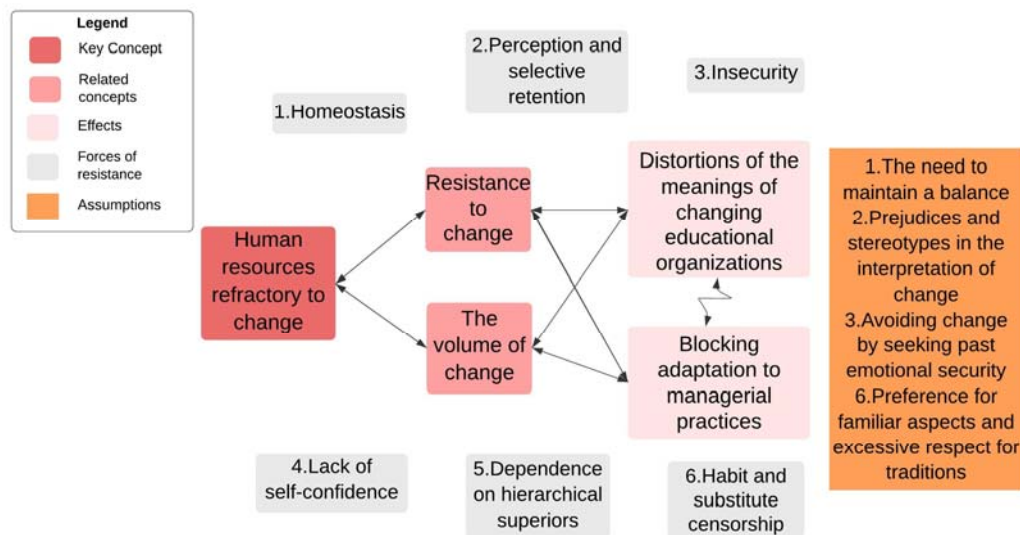
Source: The authors' contribution

Although rigorous planning for adaptive change does not guarantee absolute success, it is preferable to unplanned, unanticipated change, which risks failing miserably due to resistance to change (Burlea-Schiopoiu and Lefter, 2011; Clegg et al., 2021).

One justified reason for an interrogative attitude regarding the sincerity of the educational organization's acceptance of change is the finding of a major gap between the scenarios and adaptations promoted, on the one hand, and the concrete aspects of the organizational reality, on the other. In other words, change is not objectified in the mentality and in the organizational practice.

In an attempt to analyze the characteristics of human resources refractory to change, the authors concluded that the resistance to change is directly proportional to its volume to the amount of change requested, as can be seen from Figure no.5, a prediction that has among the confirmation forces the forces of resistance identified by Weiner (2020).

Figure no.5. Behavioral patterns of human resources that need change and adaptation



Source: The authors' contribution

To these forces, the authors consider it pertinent to add four individual variables mentioned in Guskin's studies (Fox, 2019), which are expected during the accommodation and adaptation of the educational system to the economic one. These are the sense of competence and vanity (fear of failure), authoritarianism and dogmatism, the feeling of threat and fear, and self-fulfilling prophecies.

The manifestation of these resistances, even if not in all the forms described, is unfortunately also found at the level of educational organizations. To these can be added eight reactions of refusal identified by authors in specialized studies, namely: refusal out of ignorance, refusal out of whim, refusal to maintain a status quo, refusal out of conformity to the social group, refusal generated by interpersonal relationships, refusal by substitution, refusal due to lack of utility, refusal motivated by experience (Rogers, 1964). Although human resources are reluctant to change and are unwilling to openly admit fear of failure, lack of confidence, vanity, or active learning and superficialize the activity of educational management, they betray either ignorance, habit, or insecurity. These can be considered psychological variables according to which individuals function and which manifest themselves in explicit behaviors.

## 5. Conclusions

During the adaptation process at the level of the educational organization, it must be taken into account that, above the requirements, principles, or the quality and necessity of innovations in education, the change is carried out by the human resources who, not infrequently, can show defensive attitudes towards of an aspect that they consider a real danger for their professional stability. These defensive attitudes need to be known and evaluated in terms of their intensity to anticipate the chances of adaptation and real implementation of the change.

Individual resistance becomes, by extrapolation, an organization's defense mechanism against transformative actions. The perspective of systemic analysis is verified, and the organization tends to preserve its balance. For this reason, any transformation that occurs in this system involves installing a state of chaos or uncertainty until the balance is restored.

Arguably, the greatest paradox of change is change itself, the fact that promoting system coherence involves undoing the original coherence. Also, the tensions manifested at the psychological level are most often doubled by nostalgia, attitudinal conservatism, a real barrier to change, and organizational adaptation.

Therefore, strategies to promote change must start with locating the motivation for this resistance. The change must represent the expression of voluntary behavior by individuals and the school organization, not an added task, something imposed from the outside. Within Romanian educational institutions, overcoming the stimulus-response learning model is imperative. The demands of postmodernity force change to be provoked, rigorously planned, and not simply to react to an external stimulus.

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# Sustainable Tourism and the Forms it Generates on the Tourism Market

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## Abstract

*The tourism market is essential for a country's economy because it is represented by the forms in which tourism demand and tourism supply manifest themselves. Thus, the existence of natural and artificial resources, as well as their utilization, determine the forms of tourism existing on a country's tourism market.*

*In the tourism market of a country, sustainable tourism can take the form of tourism based on ecological principles, the form of cultural tourism and that of rural tourism. At the same time, I consider that religious tourism is an important form of sustainable tourism because through its practice both natural, cultural and social resources are protected.*

*Therefore, the aim of this paper is to reflect the forms of sustainable tourism and their importance in the tourism market of a country such as Romania.*

**Key words:** sustainable tourism, ecotourism, cultural tourism, protected areas, rural tourism

**J.E.L. classification:** L80, L83

## 1. Introduction

The forms of tourism practiced differ from one tourist destination to another, depending on the use made of existing tourist resources and attractions, but also on the tourist motivation of tourists.

Sustainable tourism is a positive alternative to mass tourism because it seeks not only economic benefits but also to minimize negative impacts on the natural, cultural and social environment.

Currently, sustainable tourism is a tourism activity that is particularly important in a country's economy because it takes into account not only the economic impact, but also the cultural, social and environmental impacts of a country as a tourist destination.

## 2. Theoretical background

Sustainable tourism is an alternative form to mass tourism, which primarily takes care of the natural environment, but also of the social communities in the tourist destination, reducing the tensions caused by mass tourism between locals and tourists.

Concerns about the definition of sustainable tourism and the forms it generates are numerous, which is why the different conceptual approaches developed in tourism theory and practice are important.

Sustainable tourism may be applied to all forms of tourism which are in harmony with their physical, social and cultural environment in the long term (Medlik, 1993, p.141). It is essential not to see tourism as an isolated phenomenon but to place it in a social context (Aronsson, 2000, p.19).

In other words, all forms of tourism are expected to respect the principles of sustainable tourism, although many economic agents are only looking for economic benefits without taking into account the expenses that are necessary to restore the natural, cultural and social environment and consequently, the people are the ones which are affected because if the natural, cultural and religious environment is destroyed, man is also destroyed.

These principles refer to the involvement of the local community in the development of a sustainable tourism business that generates sufficient income to meet their consumption needs and to preserve and protect the natural environment. At the same time they refer to minimizing the

negative impact on the cultural and religious environment, as well as on the social environment concerning the relations between locals and tourists, in order to reduce tensions caused by high intensity tourist flows in certain tourist destinations.

Tourism businesses have a particular responsibility for the type and scale of development imposed on environmentally sensitive areas (Middleton *et al*, 1998, p.7).

Therefore, a particularly important role for sustainable tourism is played by protected areas that aim to preserve and protect the natural, cultural, social and religious environment. The practice of ecotourism is closely linked to the existence of protected areas directly, which is why protected areas are regulated by law at both national and international level. Parks and protected areas have a certain mystique to travellers interested in some of the best representative natural regions or countries (Fennell, 2003, p.45-46).

Ecotourism differs from nature-based tourism because ecotourism emphasizes conservation, education, responsibility and active involvement of the local community (Nistoreanu *et al*, 2003, p.81). Religious tourism is a form of sustainable tourism even if in the specialized literature it has not received this status in all conceptual approaches. It integrates with the other forms of sustainable tourism respecting its principles. In the case of religious tourism, people who travel with the motivation of pilgrimage need to travel to their destination, eat and sleep, all these services being part of the tourism sphere (Tala, 2012, p.62). It is often difficult to delimit these forms of sustainable tourism, especially in rural or mountainous areas where ecotourism, rural tourism and religious tourism overlap within certain limits, even territorially, but also in terms of sustainable tourism principles.

### 3. Research methodology

Sustainable tourism is an important topic for scientific research because it has positive implications for society, but above all it is an activity aimed at minimizing the negative impact on the social, cultural and natural environment.

The use of descriptive methods of the concepts under which sustainable tourism is manifested, as well as the use of research methods based on the indirect analysis of the tourism phenomenon and statistical data, reflecting sustainable tourism in Romania, play an essential role in this paper.

### 4. Findings

In Romania, unfortunately, there are no registered statistical data that distinctly reflect the forms of sustainable tourism. There is no statistical categorization of tourists according to the reasons for their trips which would accurately reflect sustainable tourism.

But, an analysis of sustainable tourism and the main forms it generates can be made with statistical data on tourists accommodated in tourist accommodation facilities, because tourist accommodation facilities are specific to the areas that generate the forms of tourism, including sustainable tourism, by capitalizing on the natural resources and tourist attractions of the areas concerned.

Thus, according to the data in Table 1, regarding the number of tourists accommodated in Romania in 2023, we can draw the following conclusions:

- of the total number of tourists staying in Romania (13910956 tourists) most of them are staying in hotels, namely 63%. Since hotels are usually located in cities, we can conclude that a large part of the tourists staying in these hotels are motivated by the visit of cultural sights and attractions, thus cultural tourism as a form of sustainable tourism. Urban tourism, which is based on more than one reason for traveling, should not be confused with cultural tourism because cultural tourism is only a part of urban tourism, which takes place within cities. While cultural tourism is a form of sustainable tourism, urban tourism as a whole does not respect the principles of sustainability because it takes more the form of mass tourism, which is often of high intensity, generating a high degree of pollution and tensions between residents and tourists

- agro-tourist boarding houses as well as tourist boarding houses and tourist inns are accommodation units that reflect the motivation of tourists for rural tourism and agro-tourism. Therefore, tourists staying in these tourist accommodation structures reflect the extent of rural

tourism as a form of sustainable tourism, namely: most tourists were accommodated in 2023 in agro-tourist boarding houses (1306683 tourists), i.e. approximately 10% of the total number of tourists accommodated in Romania, then in tourist boarding houses (1037475 tourists), i.e. 7.5% and in tourist inns 1820 tourists, representing 0.02%

- tourists accommodated in tourist chalets (137390 tourists) and those accommodated in tourist halting places (18224 tourists) can reflect ecotourism as part of mountain tourism

Table no. 1. Tourists accommodated in tourist accommodation establishments in Romania in 2023

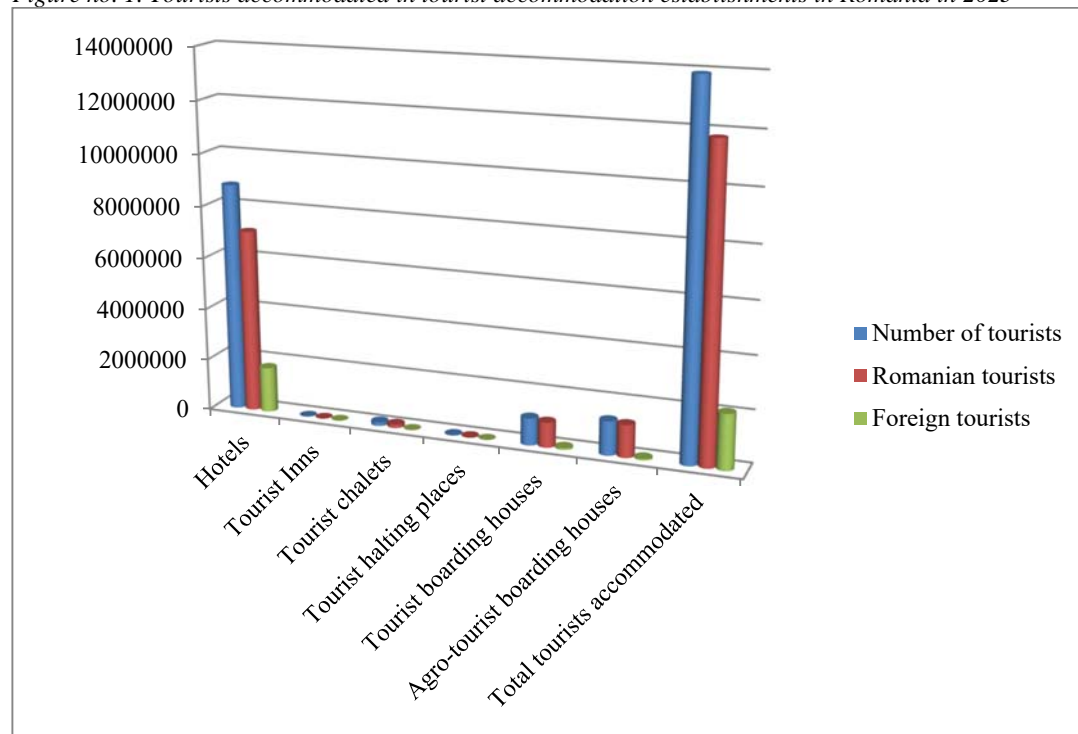
Type of tourist accommodation establishments	Total		Of which:			
	Number of tourists	%	Romanian tourists	%	Foreign tourists	%
Hotels	8790053	100	7046613	80.2	1743440	19.8
Tourist Inns	1820	100	1739	95.5	81	4.5
Tourist chalets	137390	100	130104	94.7	7286	5.3
Tourist halting places	18224	100	18167	99.7	57	0.3
Tourist boarding houses	1037475	100	961547	92.7	75928	4.3
Agro-tourist boarding houses	1306683	100	1245163	95.3	61520	4.7
Total tourists accommodated in Romania	13910956	100	11790888	84.8	2120068	15.2

Sources: (National Institute of Statistics in Romania, [www.insse.ro](http://www.insse.ro))

If we consider the structure of tourists (see figure number 1) we notice that:

- the share of Romanian tourists accommodated in these tourist accommodation establishments is the highest, between 80% and 95% of all tourists accommodated in 2023 in Romania
- foreign tourists have a small share, between 0.3% and 19.8%, which indicates that in 2023 Romanian tourists will continue to have the highest share, i.e. 84.8% compared to 15.2% of foreign tourists staying in Romania

Figure no. 1. Tourists accommodated in tourist accommodation establishments in Romania in 2023



Source: Table no.1, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

An overview of tourists in Romania, by reason for their trip, is presented in Table 2.

Thus, the analysis of these data aims at the possible forms of sustainable tourism in Romania in 2023 compared to 2022, based on tourists who traveled through travel agencies, by forms of tourism. Of course, only tourists who traveled in an organized way through travel agencies are taken into account here, but in Romania a significant share of tourism is own account tourism, not organized by travel agencies, especially ecotourism, cultural tourism, rural tourism and religious tourism as essential forms of sustainable tourism. It should also be pointed out that there are currently no travel agencies in Romania specializing in offering tourist packages specific to sustainable tourism, providing tourists with sustainable tourism education services.

The training of tourists regarding sustainable tourism and its principles is very important, as is the one aimed at local communities as hosts, local authorities and tour operators as manufacturers and organizers of tourist trips specific to sustainable tourism.

Table no. 2. Number of Romanian tourists according to the reason for traveling to Romania

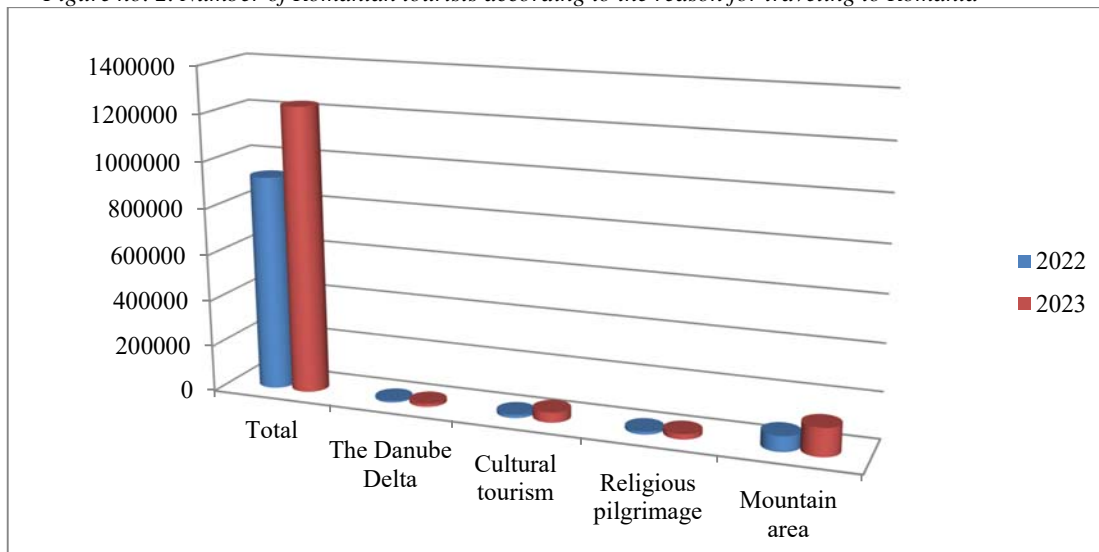
Tourists	Travel agencies organizing tourist service packages		Retail travel agencies	
	2022	2023	2022	2023
Total	838416	1133866	86582	99536
Of which:				
The Danube Delta	7404	12733	765	635
Cultural tourism	14439	43340	79	216
Religious pilgrimage	12800	22064	8	67
Mountain area	59298	114234	7087	6778

Sources: (National Institute of Statistics in Romania, [www.insse.ro](http://www.insse.ro))

Thus:

- has been an increase in the number of tourists going through travel agencies organizing tourist service packages (from 838416 to 1133866 in 2023, i.e. an increase of 35.2% in 2023 compared to 2022) but also in the number of tourists who traveled through retail travel agencies (an increase of almost 15%) which highlights the positive trend of tourism in Romania

Figure no. 2. Number of Romanian tourists according to the reason for traveling to Romania



Source: Table no.2, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

- there are also significant increases in the forms of tourism specific to sustainable tourism, both ecotourism and rural tourism in the Danube Delta and ecotourism in the mountain area, as well as cultural and religious tourism



- mountain tourism shows an 82% increase in the number of tourists traveling through travel agencies in 2023 compared to 2022. Some of these trips are motivated by rural and ecotourism

Of course, this analysis focuses on the changes in tourism flows according to the tourism motivation based on which tourists traveled through the two types of travel agencies in Romania.

Positive developments were also recorded for the other forms of sustainable tourism, as follows (see Figure 2):

- in the case of cultural tourism, the tourist flow increased by 200% (from 14518 tourists in 2022 to 43556 tourists in 2023, tourists who traveled through the two types of travel agencies. This reflects the potential of this form of sustainable tourism by capitalizing on Romania's existing cultural resources

- ecotourism in the Danube Delta, together with rural tourism, recorded an increase of 63%, with the clarification that eco-tourism in Romania is not only represented by the Danube Delta but also by eco-tourism trips to protected areas, but for which there are no statistics reflecting the ecotourism phenomenon in Romania's protected areas

- religious tourism, as a form of sustainable tourism, recorded a 72% increase in the number of tourists traveling through travel agencies in 2023 compared to 2022 (from 12808 tourists to 22131 tourists in 2023).

*Table no. 3. Tourist arrivals in tourist accommodation establishments in destinations in Romania that can reflect the forms of sustainable tourism in 2023*

The tourist destination	Total arrivals		Of which			
	Number	%	Romanian tourists		Foreign tourists	
			Number	%	Number	%
Mountain area	2689496	100	2534420	94.2	155076	5.8
The Danube Delta	136974	100	128031	93.4	8943	6.6
Bucharest and cities of county residence	6129640	100	4493836	73.3	1635804	26.7
Other localities and tourist routes	2389113	100	2127662	89.0	261451	11.0

*Sources:* (National Institute of Statistics in Romania, www.insse.ro)

This analysis highlights the positive trend of the main forms of sustainable tourism in Romania in 2023 compared to 2022.

The dimensions of sustainable tourism in Romania can still be highlighted with the help of tourist arrivals in tourist accommodation establishments by tourist destinations in 2023, according to the data in Table 3, namely:

- the first place by tourist destinations is occupied by tourist arrivals in Bucharest and the cities of county residence (6129640 tourists) which, together with tourist arrivals in other tourist destinations and tourist routes (2389113 tourists), reflect cultural and religious tourism

- the mountain area generates significant tourist arrivals (2689496 tourists), which, in addition to other reasons for mountain tourism (such as white tourism and spa tourism), also highlights the forms of sustainable tourism, namely tourism in protected areas such as nature parks or biosphere reserves, ecotourism, as well as rural and cultural tourism in Romania's mountain areas

- The Danube Delta is the most important protected area in Romania and therefore has a special place in sustainable tourism

- the structural analysis of tourists indicates the high share of Romanian tourists compared to foreign tourists, although ecotourism is a form of sustainable tourism which plays an important role in the preferences of foreign tourists at international level

- Romanian tourists prefer all tourist destinations, while foreign tourists prefer the Dan Danube Delta, thus ecological and rural tourism, as well as cultural tourism in big cities.

The analysis carried out shows the importance of sustainable forms of tourism in Romania. However, although there are conceptual approaches to these forms of sustainable tourism, including at the level of the Romanian Ministry of Tourism, as well as at the level of non-governmental organizations such as the Romanian Ecotourism Association or the “National Association for Rural, Ecological and Cultural Tourism in Romania”, which aims to develop and promote sustainable tourism in Romania, there are no statistical data that clearly reflect the forms of sustainable tourism in Romania, which makes it difficult to analyse this tourism phenomenon.

## 5. Conclusions

In the case of sustainable tourism, its forms are not clearly delimited but intersect with each other, which makes it difficult to accurately assess each form of tourism from a statistical point of view.

Thus, ecotourism intertwined with rural and cultural tourism in many areas, and cultural tourism with religious tourism, depending on the motivation of each tourist.

In Romania, some forms of sustainable tourism are older and established, such as those of cultural, rural and religious tourism, while ecotourism, being a form of tourism developed after 1990, is not perceived at its true value by Romanian tourists, but not by the local and central authorities, which makes it not captured in the statistical data as a distinct form of sustainable tourism.

Sustainable tourism, through the main forms in which it manifests itself, plays an important role at the local and global level, due to the minimization of negative effects and the maximization of positive ones.

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## Tourism and its Impact on the Economy

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### Abstract

*Tourism is an activity whose content can have a positive or negative impact on the economy of a country seen as a tourist destination.*

*Seen as an economic activity, tourism involves costs determined by the use of the specific technical and material basis of tourism, the use of human resources, but also by attracting tourists and capitalizing on natural and man-made resources that have tourism value.*

*If initially tourism was seen as an economic activity that has only a positive economic impact on a tourist destination, materialized in the revenues it generates for service providers, local communities and the central state budget, in the jobs created and in satisfying the consumption motivations of tourists, later on the negative implications of tourism on the natural, social and cultural environment were also taken into account. Therefore the purpose of this paper is to highlight these issues.*

**Key words:** tourism, economy, impact

**J.E.L. classification:** L80, L83

### 1. Introduction

In an economy, tourism is an activity that is part of the service sector, which is why tourism is seen as a set of tourism services offered to consumers by tourism service providers. These services are closely dependent on the human resources specialized in tourism, on the tangible resources embodied in the tourism infrastructure and in the tourist resources and attractions that can be exploited, and on the legislative regulations in the field, since tourism is one of the most regulated activities in an economy, from a legislative point of view.

### 2. Theoretical background

Tourism is a complex concept that has continuously developed in specialized tourism theory. While initially the term was used to denote a trip from one's place of residence to a tourist destination for pleasure, thus a purely touristic motive, the scope of the tourist motivation has subsequently been extended by the addition of new tourist motivations for travel, such as business. In any case, in the specialized tourism literature, tourism is seen as an activity which falls within the service sector, but which also involves physical components necessary to satisfy tourists' motivations and to provide tourist services.

So the tourist motivation is the one that underlies the initiation of tourist flows to a tourist destination, specific to domestic or foreign tourism. Tourism motivation is what determines whether or not a tourist trip takes place, in order for tourism consumption to take place and consequently for tourism activity to develop. If there is no tourist motivation to induce a person to travel to a tourist destination and thus initialize tourist demand, then the tourist offer is formed in vain because it cannot be exploited.

Many people have psychological reasons not to travel because they don't feel safe in a foreign world, they are afraid that they don't get along with strangers because they don't know the language and therefore will never travel (Hudman *et al*, 1989, p.43).

In conclusion, the concept of tourism is given multiple meanings, which in most cases are related to the purpose of leisure, to which other motivations have been added over time and have given rise to increasingly comprehensive definitions (Cristureanu, 1992, p.26), definitions that seek to capture all the motivations of tourism.

Tourism is one of the great industries of the world, therefore it has a noticeable impact in the balance of payments of many countries (Cosmescu, 1998, p.55), thus contributing to balancing the balance of payments. It has an important driving effect, stimulating production in other fields as a result of its nature as a branch of interference and synthesis (Minciu, 2002, p.25).

Tourism has an important impact on a country's economy through its multiplier effect, i.e. the multiplication rates of tourism receipts in the economic circuit that depends on the speed of money flow to other destinations, which occurs during the period of tourist spending (Snak et al, 201, p.74-75).

Because of the economic, political, social and environmental importance of tourism, there is a real need for organization, policies and regulations (Landry *et al*, 1994, p.7).

In other words, each country needs to establish tourism strategies and policies to increase investment in tourism and get tourists to spend as much as possible, and reallocate these tourism revenues to the development of the tourism sector and thus the economy in general.

### 3. Research methodology

The impact of tourism on an economy can be quantified using statistical data by sectors of the tourism industry. Thus, in this paper, in addition to the method of typological description of the impact of tourism and the positive or negative effects it generates, the method of analyzing the statistical data series provided by Eurostat, which reflect the implications of tourism activity in the Romanian economy, is also used.

### 4. Findings

The impact of tourism on Romania's economy covers four types: economic impact, impact on the natural environment, cultural and social impact.

If we consider the economic impact on the economy, first of all, the importance of the tourism industry in the economy is emphasized, which is determined by the contribution that tourism has to economic growth and implicitly to the economic development of Romania, but also the impact that tourism has on employment and consequently reducing unemployment.

*Table no. 1. Employed persons by full-time/part-time activity in tourism industries in Romania*

Tourism sector	2016	2020	2021	2022	2023
	Thousand persons				
Total tourism industry	8448.8	8521.1	7755.5	7806.5	7696.4
Air transport	7.0	-	-	7.3	-
Accommodation and food service activities	205.4	206.1	197.1	191.4	198.6
Accommodation	46.4	41.8	47.8	46.2	40.2
Travel agency, tour operator and other reservation service and related activities	14.5	14.0	11.6	13.1	12.8

*Source:* (Eurostat, <https://ec.europa.eu/eurostat>; [www.insse.ro](http://www.insse.ro))

If we consider the natural and socio-cultural impact of tourism on Romania's economy, we can make the following observations:

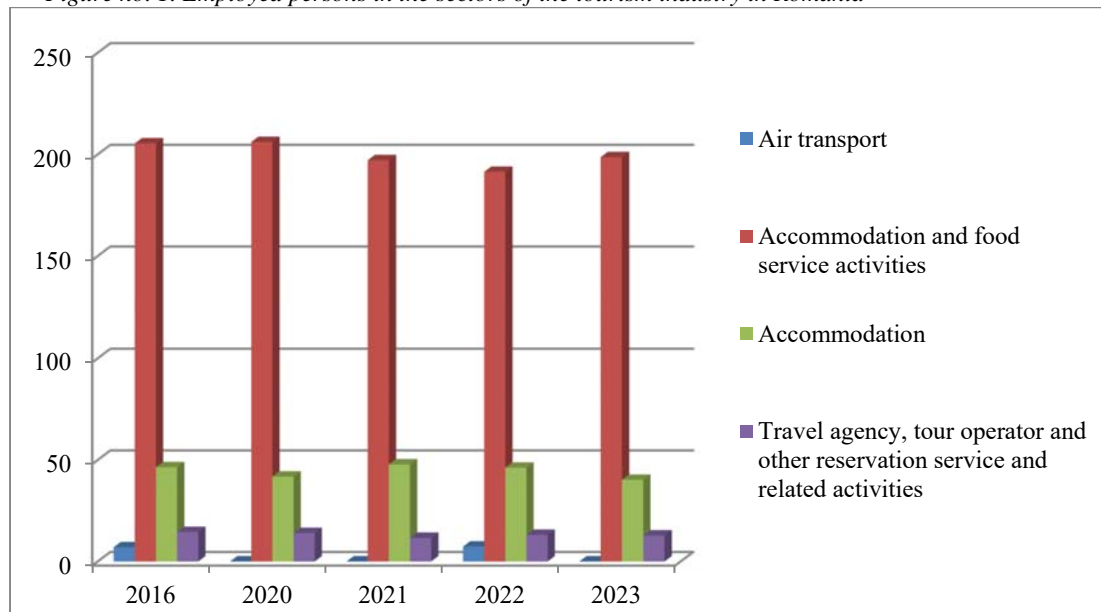
- Romania's tourism potential is not being exploited to its true value, which is reflected negatively in tourism revenues, leads to a reduced contribution of tourism to economic growth compared to the economies of other countries, and at the same time not enough jobs are created to absorb the surplus labor force from agriculture and industry or even from other service sectors.

- Tourism flows are high for certain forms of tourism, such as urban tourism, seaside tourism, white tourism or other forms of tourism which do not have a sustainable component and do not respect the principles of sustainable tourism.
- In the case of certain forms of tourism, there is a pronounced seasonality, which determines a negative impact on the labor force, but also on the tourism employers who register a labor shortage at the peak of the season.
- In terms of cultural impact, there has been an infusion of specific characteristics of urban tourism into rural areas in Romania after 1990, which has partly imprinted these characteristics on rural tourism in certain areas of Romania. The desire of rural tourism investors to make a huge profit quickly has negatively influenced or may influence rural tourism, religious and cultural tourism and tourism based on ecological principles in rural areas in terms of traditions, customs, faith and way of life.
- The small size of tourism in Romania also has positive aspects, since it does not lead to overcrowding in some tourist destinations in Romania and in this way the negative effects of high tourist flows on the environment and social environment are attenuated.

However, at the level of tourist destinations, but also at the level of Romania, tourism is seen as a positive activity that creates jobs, both directly in sectors specific to the tourism industry and indirectly in tourism-related activities such as public transportation services, banking services, insurance services, communication services, food services, medical and cultural services, agriculture and industry.

An important role in highlighting the impact of tourism in Romania's economy results from the analysis of the data in Table 1, data related to the population employed in the tourism industry, including in the main sectors of the tourism industry that provide basic services, namely transportation, accommodation, food and beverage, as well as services offered by tour operators.

Figure no. 1. Employed persons in the sectors of the tourism industry in Romania



Source: Table no.1, Eurostat, <https://ec.europa.eu/eurostat>; [www.insse.ro](http://www.insse.ro)

The analysis indicates the following over the period 2016-2023:

- There is a decrease in the number of people employed in the tourism industry in Romania from 8448.8 thousand people to 7696.4 thousand people, i.e. a decrease of 8.9%. It is observed that this decrease occurred after 2020 and is due to the crisis generated by the COVID 19 pandemic, the crisis that most affected the tourism industry and its sectors. After 2021 there is an increase in the employed population, but not reaching the pre-2021 level, which means that the tourism industry is slower to recover, as tourism demand is based on satisfying tertiary needs rather than primary, vital, fundamental needs.

The same downward trend caused by the COVID pandemic is also registered in the tourism industry sub-sectors (see also Figure 1).

Thus:

- The population employed in accommodation and food service activities in tourism decreased by 3.3% in 2023 compared to 2016. The decline in the population employed in this tourism sector started in 2020 and it is not until 2023 that the upward trend resumes.

- In accommodation services, employed persons have shown an undulatory trend, with pandemic-induced decreases from 46.4 thousand persons in 2016 to 41.8 thousand persons in 2020, a decrease of almost 10%. After reaching a peak of 47.8 thousand employed persons in 2021, there is a continuous decrease from 47.8 thousand persons in 2021 to 40.2 thousand persons in 2023, which means a decrease of 16%. This decrease is driven by the shortage of skilled labor as well as the use of computerized accommodation systems leading to the substitution of the accommodation sector workforce, as well as the provision of accommodation services using self-service accommodation services.

- In the case of persons employed in the sector of intermediaries in tourism, i.e. travel agencies, there is a decrease in the labor force from 14.5 thousand persons in 2016 to 12.8 thousand in 2023 (11.72%), a decrease due to the decrease in the number of tourists who traveled through travel agencies, due to the pandemic (in 2021 the largest decrease was recorded, with 2.9 thousand persons, i.e. 20%), which led to the collapse of many travel agencies.

- However, the decrease in the number of people employed in the travel agency sector is also due to the preference of Romanian tourists to travel on their own, using unorganized tourist trips, due to the decrease in trust in travel agencies operating in the Romanian tourism sector, both for domestic and foreign tourism. This decline in Romanian tourists' confidence in travel agencies is due to the bankruptcy of some well-known Romanian tour-operating agencies and the fact that this has caused significant damage to tourists.

- If we consider the share of each activity in the tourism industry in Romania, it can be observed (see also figure 2) that in each year from 2016 to 2023 accommodation services together with food services account for around 97% of the total number of people employed in the tourism industry..

## 5. Conclusions

This analysis highlights the impact that tourism has on Romania's economy in terms of employed population. The adoption of policies to increase investment in tourism will increase tourism's contribution to employment, reduce unemployment and also to economic growth.

In Romania, as in other countries, it is not only the positive economic impact that needs to be looked at in terms of the revenue generated by tourism, but also the negative impact that tourism can have, both in terms of the cultural and social aspects and the negative impact it can have on the natural environment and the expenditure that can be incurred in restoring, protecting and preserving it.

Because, after all, tourism must have a positive impact on an economy and aim not only to meet the present needs of tourists, but also to protect and satisfy the tourism needs of future generations.

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## The Implications of Unforeseen Circumstances and Crises on Tourism Destinations

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### Abstract

*The world is facing more complex and interconnected challenges than ever. Crises, which often stem from unpredictable factors, can have widespread and varied impacts. This is particularly evident in the tourism sector, which is highly vulnerable during times of crisis and natural or anthropogenic disasters. The unpredictability and global reach of crises pose significant challenges for tourist destinations as they rely heavily on people, natural and cultural resources, and financial capital. This study aims to identify the type and characteristics of crises and unpredictable situations and to appreciate their consequences on tourist destinations. By combining quantitative and qualitative research methods, this study provides useful information to those who manage tourist destinations, tourism companies, and all interested parties.*

**Key words:** tourism destinations, crises impact, crisis mitigation

**J.E.L. classification:** D89, Z32, Z39

### 1. Introduction

The world of today is experiencing increasingly complex events and challenges that are interconnected. While globalization has enabled economic development and increased social connections, the resulting global transformations have given rise to new challenges. Risk landscapes are constantly changing with the emergence of new unpredictable situations reshaping the global ecosystem, from climate change and environmental threats to epidemics, geopolitical conflicts, terrorism, and economic tensions. In addition to the complexity of risks, globalization and the rise of the middle class have made international travel more accessible. As a result, the tourism industry has become one of the significant contributors to the global economy. Over time, tourism has led to higher living standards, created more employment opportunities, improved the overall income level of the economy, and established relationships between people from different cultural backgrounds. Despite this, tourism relies more on a stable climate than most other industries because of its sensitivity to economic, environmental, and socio-political events.

The world is currently experiencing a very difficult time. From epidemics and natural disasters to political and economic instability, the various crises, which have simultaneity tendencies to turn into poly-crises, harm tourist destinations at human, infrastructural, and financial levels. Understanding the socio-economic impact of such unpredictable situations, especially on local communities, is essential to manage it effectively. It is essential for economic growth, competitiveness, and sustainable development of destinations and the tourism industry as a whole to be able to respond, recover, and increase resilience in the face of crises. It is nearly impossible to predict when the next crisis will occur or what form it will take. But it is crucial to understand the risks and find the best solutions to manage and recover quickly from a crisis to enhance resilience and eventually safeguard a vital sector of the economy from disruption. And central and local government authorities, the



private sector, and representatives of local communities must work together to build resilience and ensure the safety and security of visitors, the host population, and the destinations themselves.

This paper aims to enhance understanding of unpredictable situations and crises that could impact the tourism industry. It also seeks to offer recommendations on how tourism destinations can bolster their resilience and improve preparedness to address and recover from potential future crises.

## 2. Literature review

Due to the inherent natural hazards in human existence, there is a long-standing tradition of recording and sharing knowledge about disasters. Research suggests that as human interactions with the environment have grown, risks have multiplied in both number and variety (IFRC, 2004; Pelling et al., 2002). Most disaster analysts concur that the complexity and interconnectedness of urbanized and industrialized systems will further increase the quantity, scale, and negative consequences of disasters (McEntire, 2004).

Disasters can be characterized by various factors such as hazard, location, time, or societal constructions. A key aspect in most disaster definitions is the need for substantial assistance. As per the United Nations Office for Disaster Risk Reduction (UNISDR, 2009), a disaster is defined as a significant disruption to a community or society's functioning, causing extensive human, material, economic, or environmental losses that exceed the affected community's ability to cope with their own resources. There are two types of disasters: those caused by factors like extreme weather that affect entire industries, and those caused by institutional stress (Faulkner, 2001). The latter are more controllable, but both types share common qualities and are connected when external catastrophes cause a crisis within an industry. Another related concept is risk, which refers to potential states rather than actual conditions. Risk assessment is crucial in crisis planning, as it involves anticipating potential problems.

A crisis is not universally defined, with specialist studies offering varying interpretations. However, they share common elements: a trigger event causing significant change or potential, perceived inability to cope, and a threat to the organization's existence (Keown-McMullan, 1997). The World Tourism Organization has defined a tourism crisis as any unexpected event that affects a traveler's confidence in a destination and interferes with their ability to continue to operate normally (UNWTO, 2003).

The tourism industry faces a higher risk of crises compared to other industries due to its complex structure and the marketing of experiential products involving multiple suppliers. When a crisis occurs, it can affect interconnected components and spread to other areas.

Peace, security, and protection are crucial for normal tourism activities in any country, region, or destination (Cavlek, 2002). However, Breda and Costa (2006) note that the tourism industry has been significantly impacted in recent decades by increasing security concerns related to crime, terrorism, food security, health issues, and natural disasters.

According to Mikulić et al. (2018), forest fires, floods, and earthquakes have the biggest impact on tourism. These natural disasters cannot be predicted accurately. Faulkner (2001) and Faulkner & Vikulov (2001) explain that natural disasters can happen suddenly, without warning, and can have a domino effect on the local industry (Cioccio and Michael, 2007).

Natural disasters cause widespread human suffering and significant physical and economic damage. The impact extends beyond the immediate disaster area to affect other parts of the country, either temporarily or permanently, and overall economic development (Bhati et al., 2016; Loayza et al., 2012). Sanders et al (2015) emphasized the importance of addressing natural disasters for the sustainability of many tourism destinations.

The tourism industry often faces challenges, especially during global market crises, which can have serious economic and reputational effects, putting the industry's survival at risk (Preble, 1997; Wall, 2006). Therefore, the industry needs to plan for crises and take proactive steps to effectively manage and resolve these situations. Strategic management actions can also help reduce the negative impact and play a key role in developing tourist destinations (Mikulić et al., 2018).

Despite studying crises and unpredictable situations that can impact tourist destinations, we have made progress in understanding the types, causes, and consequences of crises. This information helps those responsible for managing them make better decisions and policies. However, there is still a lack of data on the extent of the crises and the effectiveness of their management, despite the extensive literature available.

### **3. Research methodology**

The research was undertaken through secondary means, employing a combination of quantitative and qualitative methods, involving a literature review, examination of extant documents, reports from national and international organizations, statistical databases, and media communications. Following data collection, a descriptive analysis was performed.

### **4. Findings and recommendations**

International travel has grown significantly due to globalization and increased accessibility to travel. From 1950 to 2023, international arrivals increased by over 5,500%, creating one in five new jobs worldwide and contributing 10.4% to the global GDP (according to UNWTO and WTTC statistics). The growing popularity of global tourism has expanded the industry's vulnerability to unforeseen events, as its reliance on public perceptions of safety, security, and reputation make it highly susceptible to crises and disasters.

Unforeseen situations and emergencies that significantly impact tourism are typically caused by non-tourism-related incidents, such as terrorism, security concerns, health issues, and natural catastrophes. As these unforeseen situations become more frequent, the tourism industry faces an increased risk of disruptions, crises, and losses.

According to Karagiannis et al. (2006), tourism crises can be categorized into three categories based on the role of human intervention: crises without human intervention, crises with indirect human intervention, and crises with direct human intervention.

Additionally, Peters and Pikkemaat (2006) classified crises into manageable and unmanageable categories. Manageable crises, which can be predicted and planned for in advance, occur due to factors such as financial miscalculations or inadequate safety and security measures. On the other hand, unmanageable crises, which are beyond the control of organizations, can have severe negative effects on the tourism industry. These crises can arise from various causes, such as wars, religious conflicts, terrorism, political instability, pandemics, natural and environmental disasters, recessions, and declining income levels.

#### **4.1. Climate change and natural disasters**

Climate change, a leading challenge for tourism destinations, has significant implications for health and well-being. Additionally, the frequency and severity of natural disasters have increased, exacerbating their socioeconomic impact. The increase in natural disasters and their severe consequences can primarily be attributed to climate change.

Between 2000 and 2019, there was a significant rise in climate-related disasters, averaging 314 per year. This represents a 44% increase from the 1994 - 2000 average and resulted in global economic losses of \$2.97 trillion. These losses can be attributed to the increase in climate-related disasters, such as floods, storms, and droughts. In 2019 alone, there were approximately 396 natural disasters, causing an estimated \$130 billion in economic losses and affecting 95 million people. Asia was the most affected region, accounting for 40% of disasters, followed by Africa with 20%.

Climate change exacerbates disaster risks. Extreme weather events disrupt tourism infrastructure and affect traveler experiences, leading to economic losses for both the destination and host communities. The tourism industry is particularly vulnerable to these impacts. Climate change poses a significant threat to tourism, as it can disrupt supply chains and reduce demand by negatively impacting destinations. The vulnerability of a tourist destination to climate change depends on its location and dependence on nature. Climate change can result in natural disasters such as melting glaciers, lack of snow, and increased intensity of avalanches, as well as rising sea levels, storm

surges, and stronger tropical cyclones.

These can have devastating effects on the tourism industry and the destinations that rely on it, as evidenced by the loss of 826,000 visitors and \$741 million in revenue in the Caribbean during the 2017 hurricane season (WTTC, 2018). Hurricane Irma caused significant damage to Dominica's tourism sector and hospitality industry, resulting in an estimated \$71 million in losses due to reduced cruise and non-cruise visits and visitor spending. The hurricane also destroyed the country's rainforest, its main tourist attraction. In Thailand, flooding in 2011 caused an estimated \$3 billion in damage to the tourism industry and forced the closure of Bangkok's airport for several months. Costa Rica experienced a severe drought, a hurricane in the northern region, and Tropical Storm Nate, which caused damage throughout the country in the past five years. Natural disasters such as fires, earthquakes, and volcanic eruptions can have a significant impact on tourism. For instance, the eruption of Hawaii's Kilauea volcano in 2018 led to the closure of Hawaii Volcanoes National Park, causing a 15-50% drop in bookings for hotels and leisure businesses between June and August, with some venues forced to close and refund money to customers (WTTC and GR., 2019). In Dominica, Hurricane Irma caused around \$20 million in damage to the tourism sector, leading to reduced room availability in the hospitality industry. Estimated losses from reduced visits and visitor spending totaled \$71 million. Additionally, Dominica's main tourist attraction, its rainforest, was destroyed (World Bank, 2018). In Thailand, the 2011 widespread flooding led to the closure of Bangkok airport for months, with an estimated \$3 billion impact on tourism (World Bank, 2012). Over the past 5 years, Costa Rica has faced its worst drought in 75 years, a hurricane crossing the northern region, and infrastructure damage from Tropical Storm Nate. Severe wildfires caused widespread damage across Europe in the summer of 2022 and 2023, especially in countries such as Greece, France, Portugal, and Spain. Similar fires also occurred in North America, impacting tourism activities and destroying infrastructure and tourism resources.

Romania is exposed to natural disasters like earthquakes and floods, which have significant social, physical, and financial impacts. The potential effects of these disasters are increasing due to greater exposure of people and economic assets, insufficient funding for risk reduction, and the impact of climate change. Natural tourist sites are also being affected, with coastal areas shrinking and less snow covering the mountains. While no natural disasters have caused tourist crises in this century, it's important to note that Romania is one of the EU countries most at risk of earthquakes (Dinescu et al., 2022). Additionally, Romania is one of the countries in Europe most prone to flooding (World Bank, 2018). But warmer temperatures are expected to change tourism patterns. Some places will become less appealing due to hotter weather and more rain, while others may benefit and attract tourists for a longer time.

#### **4.2. Health crises**

Health is a major public and private concern and a key element in destination choice. Disease outbreaks have increased in number and diversity since the 1980s. Today, health crises and epidemics have become the new normal. The increasing population density in cities and more travel to remote areas have raised the risk of exposure to new diseases and disease transmission. Travelers can spread viruses during their trips, negatively impacting the tourism industry.

Outbreaks of diseases like Ebola, MERS, influenza, Zika, and COVID-19 have shown the dangers to public health and the impact on destinations. In 2002, severe acute respiratory syndrome (SARS) emerged in mainland China, quickly becoming the first pandemic of the 21st century. It affected over 8,000 people and caused 774 deaths in 26 countries on five continents. This outbreak highlighted the potential of air travel and globalization in spreading infectious diseases. A single traveler turned a local virus into a global outbreak, and the tourism sector became connected to the spread of SARS.

The World Health Organization began issuing travel warnings to limit the spread of SARS through international travel by advising people to postpone non-essential travel to affected areas. This led to a significant drop in air travel to these areas. International tourism arrivals fell by 1.2 percent in 2003, with East Asia experiencing a 41% decrease in tourist arrivals. The economic impact on China, Hong Kong, Singapore, and Canada was estimated to be between \$30 and \$50 billion, with tourism to Singapore falling by 70% (UNWTO). The H1N1 virus, which caused an epidemic in 2009, had a worldwide economic impact estimated between 45 and 55 billion dollars (FAO, 2018). The

Mexican tourism industry suffered an estimated loss of 5 billion dollars as a result of the outbreak (World Economic Forum, 2016). Additionally, the economic impact of the Zika outbreak in 2016 was estimated to be between \$7 billion and \$18 billion (WTTC, 2019). In spring 2000, the World Health Organization declared COVID-19 a global pandemic. This led to a crisis, impacting the tourism industry and other connected sectors. By April 6, about 96% of tourist destinations worldwide had travel restrictions, and 43% had closed their borders. In 2020, international tourist traffic fell by 73%, reaching a 30-year low.

The tourism industry depends on international travel. Previous crises had less of an impact on tourism. In 2020, global passenger traffic dropped by 50%, with a loss of \$372 billion in revenue (<https://www.icao.int/2022>). The COVID-19 pandemic caused a big drop in international air travel and the hospitality industry suffered huge losses, bringing the industry back to 2006 levels. Health crises in destinations can significantly impact the tourism industry. The effects depend on the severity, global response, and duration of the crisis. The economic impact can extend beyond the crisis, especially for places heavily reliant on tourism.

### **4.3. Political crises and terrorism**

Tourism is sensitive to conflict and responsive to peace. Serious political conflicts and violence impact millions of lives, while corruption, lawlessness, and organized crime deepen poverty in poor countries. Tourist spots are less attractive if they are unsafe or likely to have serious issues like war, political unrest, terrorism, human rights violations, or other major crimes, regardless of the natural or cultural attractions they offer. Peaceful destinations with minimal perceived threats to personal safety and security are preferred by all (visitors, entrepreneurs, investors, etc.). Conflict or terrorism can make a place unattractive for tourists. Foreign governments can intervene by issuing advisories to avoid non-essential travel to that destination to protect their citizens from the dangers associated with political unrest. If a place becomes unsafe, tourists might go somewhere else. This can seriously affect tourist destinations.

There is a spectrum of intensity in terms of political instability, and war is perhaps the most catastrophic for tourism. The 1999 Gulf War caused a significant drop in international tourism around the world. This led to more people choosing to travel domestically or to nearby destinations. A similar effect was seen during the conflict in Kosovo in Central Europe in 1999 (Cavlek, 2002). As a result, the growth rate of European tourism decreased by 50% (UNWTO, 2002). The world is facing two other wars whose impact on the recovery of the tourism industry cannot yet be quantified, but they certainly lead to a slowdown. The war in Ukraine is causing political instability, rising inflation, and economic slowdown. Destinations in Eastern Europe are being more deeply affected due to the war's image as a high-risk area. The most affected destinations so far (apart from Russia and Ukraine) are the Republic of Moldova, which has seen a 69% drop in flights, Slovenia (-42%), Latvia (-38%), and Finland (-36%) (UNWTO). Source markets in the US and Asia could be particularly affected, especially in terms of travel to Europe, as these markets are historically more risk-averse. In the future, disruptions in oil, gas, and food supplies will worsen high inflation rates in Western economies, especially in Europe, putting more pressure on household budgets and slowing the post-pandemic recovery. The conflict between Israel and Hamas has resulted in one of the deadliest wars in Gaza's history. Thousands of tourists were evacuated from the area as soon as the conflict began, and tourism operators canceled trips to Israel.

Terrorism and conflicts in an area can discourage tourism. Even though tourists are not usually targeted, the perception of risk can impact the tourism sector. The economic impact depends on the type of conflict and the destination. For example, a 2019 study found that terrorism-related incidents had the lowest economic impact and fastest recovery time, while civil unrest took the longest to recover (WTTC, 2019). Political and civil unrest can take many forms, such as domestic violence, mass protests, and coups. One significant example of civil unrest is the "Arab Spring", which began with pro-democracy demonstrations in Tunisia in December 2010 and spread to other countries in the Middle East and North Africa stopping the tourism activity in this areas.

Political instability or civil unrest can harm the tourism industry more than individual terrorist attacks. Ongoing disruptions to the economy and a perception of instability at the destination can result from demonstrations, civil unrest, or political instability. For example, the 2014 coup and

subsequent curfew in Thailand lasted just over three weeks but led to a loss of over 790,000 visitors and \$1.2 billion (WTTC, 2019). The political unrest and violence associated with sub-Saharan Africa and Algeria are obstacles to realizing its immense tourism potential (Christie and Crompton, 2001). The Middle East is in the same situation.

Political instability and conflict can create opportunities for the tourism industry. If a destination becomes unsafe due to conflict or terrorism, tourists may choose a different safe destination with similar characteristics. This can benefit nearby destinations. Conflict can provide an opportunity for a destination to rebrand itself and align with current travel trends. A revitalized destination can attract visitors, create jobs, and expedite the recovery process.

#### **4.4. Economic crises**

The economy significantly impacts tourism, shaping tourist flows and spending habits. Changes in economies influence the tourism industry, affecting demand in source markets and destination attractiveness. Economic uncertainty means a high chance of bad events in the financial system, leading to a slow economy and recession.

This can hurt industries in both starting and ending countries. The recession in the US during the 1990s contributed to a decline in Hawaii's tourism from 1990 to 1993, and Japan's economic difficulties had negative consequences for outbound tourism in the same decade, including travel to Hawaii. The late 20th-century global economic decline contributed to a slowdown in worldwide tourism.

Conversely, domestic industries may benefit as tourists choose more affordable options closer to home due to income and job uncertainty. This lack of funds and uncertain investment climate could lead to a crisis for the tourism industry, exacerbated by political and social tensions accompanying economic instability. In general, economic and financial crises have lasting and detrimental effects on the overall economy.

Crises that start in one sector of the economy often spread to other sectors. Tourism is a sector that is frequently negatively impacted by economic and financial crises. The impact of an economic or financial crisis on international tourism will ultimately depend on the nature of the crisis, such as a stock market crash, inflation, debt or banking crisis, or a mix of crises. Based on a study by Khalid et al. (2019), tourism demand and spending decrease during inflationary crises as high inflation erodes consumer purchasing power. During the domestic debt crisis, international tourism arrivals increase in destination countries, while demand for international tourism services decreases in origin countries. The economic crisis of 2007-2009, or "global financial crisis" (GFC), the worst worldwide economic crisis since the Great Depression, resulted in a loss of more than \$2 trillion from the global economy (Merle, 2018). The economic downturn impacted the tourism industry, resulting in a 12% drop in international tourist arrivals and a 6% decline in tourism revenue (UNWTO & ILO, 2013). In Romania, the number of tourists fell by 13.8% in 2009 compared to 2008, and by 14.77% in 2010. Amid the crisis and reduced tourism spending, the tourism-generated GDP decreased to 1.832% in 2009 and 1.819% in 2010 (INS). Recovery only occurred in 2013.

During economic and financial crises, consumers tend to reduce discretionary spending, which can lead to a decrease in demand for both domestic and international tourism services. Additionally, a decline in investor confidence can result in a decrease in tourism investments. These effects can result in stagnation and job losses in the tourism sector. However, the tourism industry can provide opportunities for economies that face certain types of crises. For instance, when a host country experiences a domestic crisis, it may become more attractive to international tourists because of its increased purchasing power, which can help mitigate the negative effects of the crisis on the host economy through tourism receipts and job generation. Furthermore, the tourism sector can contribute to the host economy's quick recovery with minimal government intervention and market distortions if it can take advantage of the opportunities presented by domestic crises.

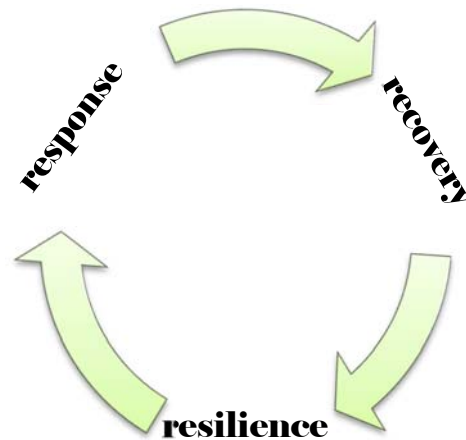
According to "The Global Risks Report 2023", published by the World Economic Forum, there are several major risks for Romania, including those that pose challenges to tourism destinations, such as rising inflation, geoeconomic conflict, interstate conflict, severe commodity price shocks, and a living-cost crisis. They influence both tourism supply and demand.

#### 4.5. Crisis mitigation

The growing intricacy and interdependence of unforeseeable events necessitate cooperation between governments and the private sector to heighten their capacity to deal with crises, effectively manage them, and promptly recover. The tourism industry has demonstrated its capacity to withstand crises. However, it is crucial for destinations and the private sector to learn from past experiences and adopt measures to mitigate the potential effects of future crises, as these are inevitable.

Although there are many other elements that need to be considered depending on the type of crisis, such as infrastructure recovery, travel warnings, and support for tourism businesses, in dealing with any type of crisis, it is recommended to follow a three-step reaction and response (during crisis): recovery: adaptation and recovery (post-crisis) and resilience (post-crisis and before a new one), see Figure no.1. Every step should include a feedback mechanism to capture the interconnectedness of the relevant issues to be addressed. Along with this, cross-cutting dimensions related to continuous communication and public relations should be incorporated. This involves involving relevant stakeholders throughout the process to determine the most effective way of management and preparation.

Figure no. 1. Crisis mitigations steps



Source: the authors

The biggest risk often lies not in the crisis itself, but in how it is managed - including the response, recovery, resilience, and preparation for future crises. It is crucial for the public and private sectors to collaborate in order to establish intelligent policies and effective communication to support the development of sustainable tourism destinations. While implementing strategic recommendations and policies can enhance the resilience of the tourism sector, it is also important for destinations to adopt a comprehensive approach to promote societal resilience more broadly. This approach should encompass core elements such as trust, collaboration, communication, openness, empathy, honesty, and efficiency.

Regarding Romanian destinations, as they strive to recover from the shock of the health crisis and bolster their resilience, they must embrace a comprehensive vision, establish platforms, and devise a diagnostic strategy based on their current context, including strengths, weaknesses, and future aspirations.

Since most crises are unforeseeable and unavoidable, it is vital for destinations to integrate crisis management as a crucial element of their overall tourism strategy.

## 5. Conclusions

Tourism crises are often caused by non-sectoral developments in areas such as the economy, politics, society, and the environment. These developments can affect tourism demand and supply, leading to crises such as economic decline, exchange rate fluctuations, loss of market confidence, political events like war, and natural disasters. As unpredictable situations become more frequent, the risk of disruptions, crises, and losses in the tourism industry also increases.

Identifying and understanding threats is a critical first step, but the tourism destinations must also adopt an all-hazards approach to resilience to navigate and operate in the diverse, dynamic, and distributed global risk landscape. While it is impossible to predict when the next crisis will arise and what form it will take, preparing with an all-hazards approach to managing crises can help build resilience and protect tourism industry from disruption. It is crucial for governments and the private sector to collaborate and plan for the safety and security of travelers, local communities, and destinations. Building the capacity to prepare for, respond to, manage, and recover quickly from crises is essential for economic growth and sustainability, not just for the sector but also for destinations that depend heavily on tourism. Strong collaboration between the public and private sectors, local authorities, and communities is necessary to establish trust with travelers, improve reputation, and enhance societal resilience. Despite the dynamic and complex global risk landscape, international travel continues to thrive, and today's travelers have more resources to prepare for and mitigate risks. Being prepared for crises is essential because stakeholder influence is weakened during a crisis. Tourism destinations must continually develop policies and tools to respond to future crises.

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## **Cohesion Policy and Social Aspects in the Non-reimbursable Allocation for Low-carbon Economy**

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### **Abstract**

*To reach the necessary cohesion for the member states at socio-economic level, the EU sets substantial budgets in motion to implement its policies. This study proposes an analysis of how European funds were used for the construction of the Cohesion Policy in the segment of transition to low-carbon economy within the South-East Region of Romania, with a focus on the social side. The study case reveals challenges in implementing non-reimbursable financing for programming period 2014-2020/2023. The source of data are the official reports of the ministries with the role of management authority and that are updated up to this moment. The results of this study emphasize the importance of the Cohesion Policy financing for reaching the energy transition targets, but also the need to use a part of this fund for supporting social aspects so that people can more easily overcome the financial barriers on the way to green transition.*

**Key words:** energy transition, energy efficiency, cohesion policy, European funding, sustainable development

**J.E.L. classification:** B26, D60, E60, F15, F36, Q56

### **1. Introduction**

This article aims to underline the European funding contribution in Romania to the Cohesion Policy construction for transition to low-carbon economy. Thus, the paper refers to the financing allocated for energy transition through the structural funds in the programming period 2014-2020, until December 2023. We conducted a study about non-reimbursable funds for the thematic objective 4 (OT4) in South-East (SE) Region of Romania between 2014-2020, the former programming period, which ended on 31.12.2023. We also proposed a focus on calls involving support on the social side. The working hypothesis was that there is a balance between the amounts capitalized for OT 4 from EU funds in the SE Region by comparison with other development regions of the country. As sources of data, we used the officially reported information regarding the implementation of the projects on the resort ministry's site, where we selected OT 4 – "Supporting the transition to a low carbon economy" - objective of the Cohesion Policy.

## 2. Literature review

Decision-makers all over Europe are facing the difficulty to strengthen budgetary support for the energy transition, along with specific patterns of the process in each country (Grigorescu, A. et al, 2023, p. 6). (Gkonis et al., 2020, p.83) underline that the implementation of balanced energy efficiency policies must be based on realistic estimations of costs, paying attention to social and economic particularities of each state. From the perspective of sustainable development objectives, public-private partnerships are essential given the complexity of the energy transition and the challenges that new technologies bring (Shahbaz et al., 2020, p.74; Kirikkaleli, D. et al, 2021, p. 590; Gheorghiu, G. et al, 2020, p. 116). Investments in development of projects for the financing of renewable energy are challenging worldwide the very high level of total expenses, which creates a negative impact on the process of switching to low-carbon energy (Panait, M. et al, 2022, p.112; Martí-Ballester, 2022, p.1163).

Within 2014-2020 financial programming period, the Cohesion Policy (CP) was an extremely important source of investment for the EU member states, especially in the context of rising economic difficulties (Aivaz, K. A. et al, 2022, p. 338; Comes, C. A. et al, 2018, p. 238) and an important element supporting the consumption habits of the population (Aivaz, K. A. et al, 2024, p.13; Zaharia, A et al, 2019, p. 4147; Dănila, A. et al, 2023, p. 1003; Bostan, I. et al, 2019, p. 466). Interventions for energy efficiency are structural measures addressing the energy poverty on a long-term (Gouveia, J.P. et al, 2019, p. 188; Boemi, S.-N. et al, 2019, p. 243;), and it will positively impact EU states' needs for energy imports (Iancu, I. A. et al, 2023, p. 17; Polimeni, J.M et al, 2022, p.21).

## 3. Research methodology

Data used in this study were extracted from MySMIS 2014 (MIPE, 2023). We used the "Open Data database" for projects contracted under Operational Programs, published by the Government of Romania (MIPE, 2024). Data are reported for the period 2014-2023, considering the fact that the programming period 2014-2023 was closed on 31.12.2023.

Further, we selected the 6 counties that belong to SE Region and we aggregated the information. In the database, the term "operation" means "financed project".

The limits of our paper are, on the one hand, the period of time for which the analysis was carried out (2014-2020/23), on the other hand, the administrative area of the projects (counties of Brăila, Buzău, Constanța, Galați, Tulcea, Vrancea).

## 4. Findings

In Romania, the main programs that financed OT4 of the Cohesion Policy, dedicated to transition towards low-carbon economy, were POIM and POR.

*Table no. 1. Number of projects by field codes within OT 4 in South-East Region*

Field code	No. projects
001 Generic productive investments in SMEs	8
010 RES: solar energy	23
011 RES: biomass	1
012 Other RES (hydroelectric, geothermal, marine) and integration of RES (storage, gas production infrastructures and hydrogen)	1
013 Public infrastructures renovation to increase EE, demonstration projects and support measures	79
014 Renovation of the existing housing stock in order to increase EE, demonstration projects and support measures	30
015 Low and medium voltage intelligent power distribution systems (including smart grids and ICT systems)	16
Multi-thematic (roads, air quality, cycle paths, etc.)	30

068 EE and demonstration projects in SMEs and support measures	10
069 Supporting ecological production processes and efficient use of resources in SMEs	1
070 Promoting EE in large enterprises	1
090 Cycle paths, ecological transport	11
116 Efficiency, quality, access to higher and equivalent education to increase skill levels and participation, especially for vulnerable categories	4
Total	215

Source: authors, based on MySMIS 2014 Open Data, 2024

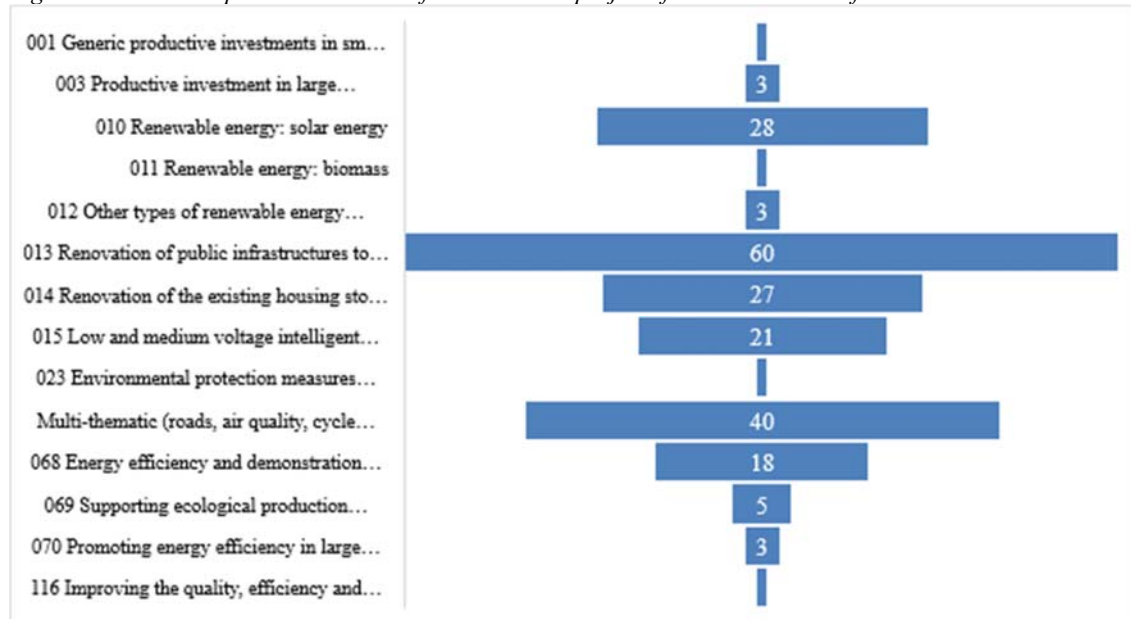
The analyzed data show that, in the South East Romania, during 2014-2020/2023 programming period for the financing objective dedicated to “low-carbon economy”, most projects (over 36%) were contracted for energy efficiency of public buildings. These allocations have supported renovation for buildings of the public education infrastructure (including nurseries, schools, high schools, kindergartens), but also the headquarters of public (central and local) authorities infrastructure.

A significant category of projects in the analyzed development region (19%) was represented by multi-thematic financing including air quality, cycle paths, development of ecological routes, intelligent transport etc.

Approx. 11% of the projects contracted on OT 4 in the SE Region aimed at developing capacities for renewable energies; thus, alongside the projects that addressed solar energy, biomass, 1 project also financed facilities for hydropower and gas and hydrogen infrastructure.

As for SMEs, 4.2% of the projects were contracted by this category of beneficiaries in this analyzed region. 7,5% of projects at the regional level aimed at the development of intelligent electricity distribution systems, including smart grids and ICT systems.

Figure no. 1 The comparative situation of the submitted projects for OT 4 on each of the thematic details



Source: authors, based on MySMIS 2014 Open Data, 2024

We observe that, of the total number of projects on OT 4 in SE Region, over 55% of them targeted financing for energy efficiency (EE). The projects addressed public infrastructure and renovation of housing blocks (mainly in the urban environment), also EE in SMEs and large enterprises.

If we look from the social perspective, an important number of projects come to support the protection of the vulnerable consumer. About 16% of the contracts refer to the renovation of the population's housing stock, which impacts the achievement of a more affordable energy cost level for the final consumer, as well as investments in in the area of education for sustainability for disadvantaged categories.

In the following, we have extracted and analyzed the data related to the contracted value of the projects financed. In order emphasize the real implemented financial investments, we chose the statistics of spent values and not those of the contracted values. From the total of these eligible expenses, the adjacent column quantifies the financial contribution from the EU budget. The values are expressed in millions of lei and have been approximated by rounding.

*Table no. 2. The value of projects financed for OT 4 in the South-East Region of Romania through non-reimbursable funds, 2014-2020*

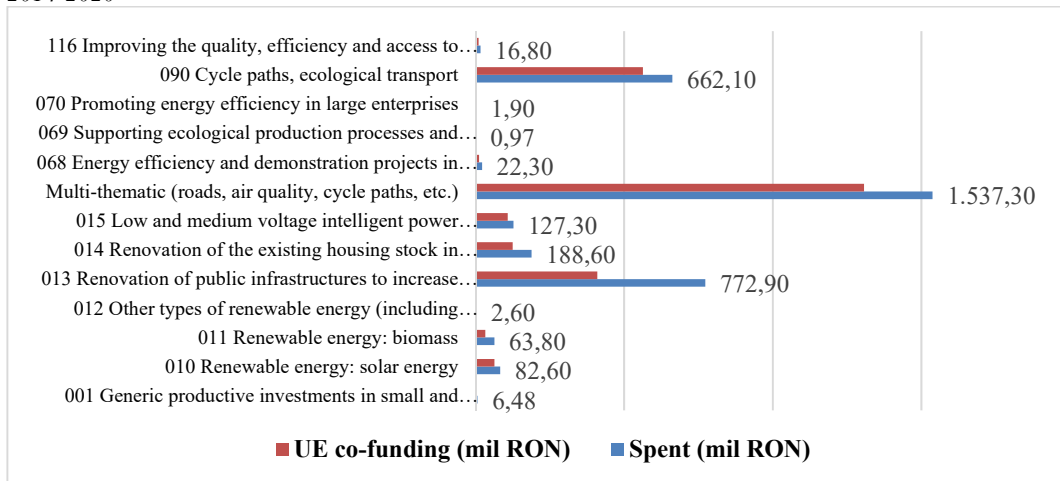
<b>Field code</b>	<b>Spent (mil RON)</b>	<b>UE co-funding (mil RON)</b>
001 Generic productive investments in SMEs	6,48	4,24
010 RES: solar energy	82,60	63,40
011 RES: biomass	63,80	32,60
012 Other RES (hydroelectric, geothermal, marine) and integration of RES (storage, gas production infrastructures and hydrogen)	2,60	2,20
013 Public infrastructures renovation to increase EE, demonstration projects and support measures	772,90	409,70
014 Renovation of the existing housing stock in order to increase EE, demonstration projects and support measures	188,60	124,60
015 Low and medium voltage intelligent power distribution systems (including smart grids and ICT systems)	127,30	108,10
Multi-thematic (roads, air quality, cycle paths, etc.)	1.537,30	1.306,70
068 EE and demonstration projects in SMEs and support measures	22,30	11,90
069 Supporting ecological production processes and efficient use of resources in SMEs	0,97	0,82
070 Promoting EE in large enterprises	1,90	0,67
090 Cycle paths, ecological transport	662,10	562,80
116 Efficiency, quality, access to higher and equivalent education to increase skill levels and participation, especially for vulnerable categories	16,80	10,50
Total	3.485,65	2.638,23

*Source:* authors, based on MySMIS 2014 Open Data, 2024

The statistical analysis of the financial data show, however, a significantly different perspective than the one we obtained when previously considered the number of projects. By far, the largest investments for OT 4 were made on multi-thematic objectives for the SE Region (air quality, planning of bicycle paths, development of ecological routes etc.). So, 19% of the total number of projects on OT 4 add up to over 63% of the total funds spent.

For more than 55% of the total number of projects addressed energy efficiency, the amounts spent represent approx. 28,3% of the total value on OT 4 in the studied region. The projects for the development of facilities for RES (solar, biomass, hydroenergy and hydrogen) summed up 11% of the total number of projects and the value of the expenses totaled 4,28%. Less than 0,5% of the expenditure value was carried out through projects whose beneficiaries were SMEs.

Figure no. 2 Comparative situation of projects values financed in OT 4 for the SE Region of Romania, 2014-2020

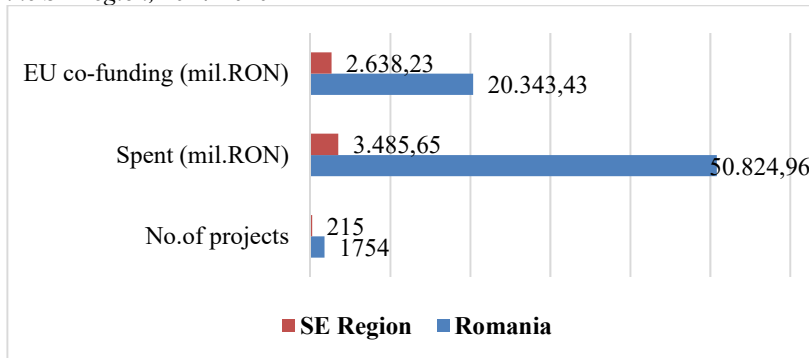


Source: authors, based on MySMIS 2014 Open Data, 2024

Regarding the projects that directly support the difficulties of the energy transition period from the perspective of high costs for the final consumer, they totaled for the analyzed development region a percentage of about 6% of the allocated amounts (energy efficiency of the housing stock and investments in education for sustainability).

In the next stage of our study, we quantified the number of projects and the amount of expenses incurred for their implementation at the level of the SE Region by reporting to similar values at the country level, in Romania.

Figure no. 3 Comparative situation of the number and value of projects financed in OT 4 - in Romania and the SE Region, 2014-2020



Source: authors, based on MySMIS 2014 Open Data, 2024

The statistical data show that the rate of projects implemented to achieve OT 4 in the SE Region was 12,26% compared to total for the country, and the amount of expenses incurred amounts to approx. 7% of the national total on this target. The amount of EU co-financing attracted to the SE Region was approx. 13% of the total per country on the transition objective to the low-carbon economy.

On the other hand, a positive aspect that deserves to be pointed out is that the projects implemented for OT 4 in the SE Region managed to capitalize on EU co-financing 76% of the value of eligible expenses, while, at the national level, the co-financing was capitalized in a percentage of just over 40%.

## 5. Conclusions

The research carried out confirms the hypothesis of a proportional use, at the SE Region level vs. national level, of the European co-funding that was available in the 2014-2020 programming period for the thematic objective for “low-carbon economy”. The disproportion seems to come rather from the area of expenses incurred from the national budget vs. EU-cofunding, which is more balanced at the level of the SE Region than at the national level, where it appears much more pronounced.

These disproportions show the challenges that beneficiaries and management authorities had to face in the previous contracting period. They have come either from the area of financial corrections or from the area of overcontracting - a strategic decision taken by many Member States towards the end of the 2014-2020/2023 period in order to obtain the greatest possible absorption of the allocated non-refundable funds. The possibility for Romania to extend the programming period by another 3 years in order to increase the degree of absorption of the EU funds through the Cohesion Policy (n+3 rule) represented an opportunity also for the South-East Region to complete part of the projects that reached maturity at the end of the initial period, but also the capitalization of funds still available by resuming some calls in the period 2020-2023.

From the social perspective, a significant number of projects come to support the protection of the vulnerable consumer. Thus, the contracts for the renovating the population's housing stock positively impacts the achievement of a more affordable energy cost level for the final consumer, and the investments in the education for sustainability aimed to help disadvantaged categories. As well as at the national level, projects with much higher values were implemented in urban areas compared to rural areas, a fact that explained in terms of the use of energy resources in urban agglomerations.

As an important conclusion of our analysis, we believe that the previous programming exercise it is an experience that the management authorities and local authorities from SE Region of Romania should have in attention for the 2021-2027 programming period, especially for the management of overcontracting processes, so as to increase the chances of a better absorption of non-refundable funds in Romania, in the planned time.

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## Navigating the Double-Edged Sword of ChatGPT: Enhanced Learning vs. Ethical Issues

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### Abstract

*In the present day, artificial intelligence has become a double-edged sword in educational environment. While it provides tremendous opportunities, it also raises serious issues regarding ethics.*

*Strong arguments for ChatGPT's revolutionary impact on the education system serve as a catalyst for investigating its effects in this context. This study attempts to explore the possible advantages as well as the moral dilemmas related to the use of AI technologies such as ChatGPT in educational environment.*

*This research demonstrates the transformative educational effects of ChatGPT, such as increased student involvement and critical thinking abilities, through an extensive literature assessment of current studies. Moreover, it also explores the moral dilemmas raised by the use of AI, such as the elevated risks related to educational misconduct and plagiarism. The results highlight the need for educational establishments to tackle these moral dilemmas through the promotion of digital literacy and the establishment of strong regulations.*

**Key words:** Artificial Intelligence, ChatGPT, Education, Digital literacy, Generative AI

**J.E.L. classification:** I00, I21, I25, O33, O38

### 1. Introduction

Artificial intelligence (AI) has both a friendly companion and a problematic disruptor in the quickly changing field of education. Leading this transformation is Chat Generative Pre-Trained Transformer, also commonly known as ChatGPT, an advanced language model created by OpenAI that is well-known for producing perceptive and logical answers on a wide range of subjects. A crucial discussion has emerged as teachers as well as students are depending more and more on this AI: Is ChatGPT a useful tool for improving learning or does it jeopardize the growth of critical thinking abilities? This paper explores the dual nature of ChatGPT's influence on education, showing how it can be both a priceless teaching tool and a possible crutch that compromises the critical thinking process and academic integrity.

The present paper objective is to present a balanced viewpoint on this technological phenomenon and its consequences for education in the future by analyzing the advantages and disadvantages of incorporating ChatGPT into educational settings while also showing its significance in students' life. Therefore, in this context, the present study can be divided into three main sections:

- The significance of AI tools in student life
- ChatGPT: A boon for education
- ChatGPT: A bane for education

Every coin has two sides. On one side, this recent discovery has affected students in numerous ways, such as by providing personalized feedback and assistance in completing homework, writing essays, doing other classroom assignments, encouraging interactive learning, clarifying concepts in little time, and thereby increasing efficiency. On the other side, it is associated with plagiarism, lack of academic integrity, data privacy concerns, misinformation, logical inconsistency, inaccuracy of content, threat to job security, copyright infringement, and so on. As a result, it is crucial that students use it under the proper guidance while not raising ethical concerns.

Considering the above drawbacks, it is a challenge for teachers to incorporate generative AI, such as ChatGPT, into the education system. To restore academic integrity, AI detectors are used to prevent plagiarism and cheating. However, it is not enough to address this serious issue. In fact, researchers are of the opinion that there is an urgent need to establish policies, guidelines, and regulations that mention the extent of AI tool usage. Moreover, it is equally essential to inform students as well as teachers regarding these rules to combat a lack of digital literacy.

To summarize, even though ChatGPT has many benefits for assisting students in their learning, it's crucial that they use it sensibly and build their own knowledge and abilities instead of depending just on the AI to solve their problems.

## **2. Theoretical background**

In past few years, the domain of AI has evolved drastically, especially in the field of natural language processing as well as generative AI technologies. These developments laid the foundation for the creation of useful instruments such as ChatGPT, which transformed the way people acquire and search information online (Al Shloul et al., 2024).

Furthermore, it is interesting to observe that even though humans have had access to generative AI for decades, the previous year saw a sudden increase in the number of research contributions that discussed AI (Al Shloul et al., 2024). The reason might be the attention that ChatGPT received from social media, and because of this hype, people started getting more interested in the subject of AI (Statista, 2024). According to Rejab et al. (2024), ChatGPT has emerged as a revolutionary instrument to transform the way people acquire, access, and circulate information.

ChatGPT is a generative AI, which means that it can generate a wide range of content, such as texts, videos, poetry, audio, and images, in all languages with simple human input. Such AI models utilize complex machine learning techniques as well as complex algorithms for identifying and learning different patterns by making correlations in the existing data and producing well-structured, immediate responses based on the provided information (Giordano et al., 2024).

ChatGPT's popularity has led the masses to believe that it can completely replace human efforts in professions. This will lead to a huge transformation in the demographics of the workforce (Trifan et al., 2023). Others claim that it can revolutionize older search engines such as Bing and Google (Niloy et al., 2024). Due to its significant impact on the education sector, it is essential to study the role of this AI model in students' life to raise awareness regarding its advantages and drawbacks. Moreover, as AI continues to become an integral part of students' life, it is essential for scholars to research the progression of reliance patterns and their influence on the learning process and overall academic results (Stojanov et al., 2024).

## **3. Research methodology**

The purpose of this study is to examine the possible advantages as well as the moral dilemmas that come with using ChatGPT and other AI tools in educational environment. The primary goal of this paper is to understand ChatGPT's role in terms of transformative educational potential for promoting digital literacy while also addressing ethical or academic integrity issues, as well as educational policy and curriculum development. This article is written using a literature review methodology and attempts to address all the areas mentioned above.

The following standards were applied when choosing the papers to guarantee that the literature review is up-to-date and pertinent:

- Sources of research material: Scientific papers and review papers published in journals, as well as reputable studies and survey results on websites such as Statista, were considered.
- Publication period: Papers published in the yearly time frame of 2023-2024 were given preference. The underlying motivation behind this decision was to maintain recency and present the latest trends and relevant, up-to-date information.
- Keywords: Searches were made using keywords such as "ChatGT," "*role of ChatGPT in education*," "*recent surveys on ChatGPT*," and "*ethical issues caused by AI*" to find the relevant materials.

After carefully reviewing the chosen publications, information was retrieved with an emphasis on:

- The underlying advantages of incorporating ChatGPT into the learning process.
- Ethical concerns about AI in education that have been documented, like plagiarism, lack of privacy, and academic dishonesty.
- Best practices and recommendations put out by researchers to address ethical issues and their effectiveness.

Finding recurring themes, patterns, and gaps in the literature were all part of the investigation. The findings were recorded, and a thorough comprehension of the existing literature was made possible by analyzing the research papers selected based on the above criteria.

## 4. Findings

### 4.1. Significance of AI tools in student life

Since years, students have been taking advantage of the internet to get creative ideas for completing their assignments and classroom projects, as well as to use educational content and materials available online. There are several websites and search engines that students use, depending on the nature of the given tasks. The internet greatly improves education by giving students access to a variety of resources, facilitating collaborative learning, customizing instruction, and helping them develop critical skills. All of the above factors help to create a more productive and interesting educational setting for students. However, more recently, a shift in this pattern has been observed by researchers. While earlier the students mostly relied on search engines such as Google to find immediate responses, the appearance of AI tools such as ChatGPT has made them rethink their decision. The students are increasingly using such tools, even for the easiest tasks, such as writing essays.

As the AI-based model, namely ChatGPT, first emerged in November 2022, it has been the cause of increased fascination among students. What distinguishes ChatGPT from other AI interfaces is that it can respond to normal language inputs and provide, in return, well-structured, human-like feedback. While other AI interfaces remain limited to finding patterns in data, ChatGPT is superior in the sense that it has been trained to interact with humans and engage with them by adapting to different contexts. This capability of ChatGPT to generate an ongoing conversation with humans provides its users with a different experience in comparison to the traditional search engines that do not consider the chronology of responses (Essel et al., 2024).

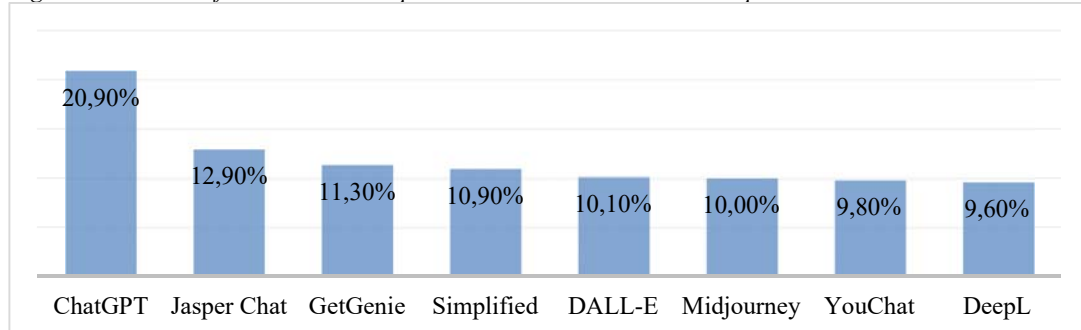
Even though there were other impressive AI tools in the past before the appearance of ChatGPT, none of them received so much attention and recognition. The public hype caused this AI model to gain millions of subscribers within the first week of its emergence. As per the findings of a survey conducted among 1237 United States people last year, around 20% of the respondents claimed to have used ChatGPT during March–April 2023, which positioned it much ahead of its competitors.

The below figure no.1 shows the opinions of those people who participated in this survey and used AI tools in the past 12 months (Statista, 2023c). It is evident from figure no. 1 that ChatGPT is already leading the generative AI market, followed by Jasper Chat (12.90%) and Get Genie (11.30%). Albayati (2024) also confirms the findings by claiming that ChatGPT has gained significant attention and popularity in a short span of time ever since it was first released by OpenAI and made available for public usage in November 2023. With millions of subscribers

within the first week of launch, it has affected all sectors. However, education is one such domain where its impact is most evident.

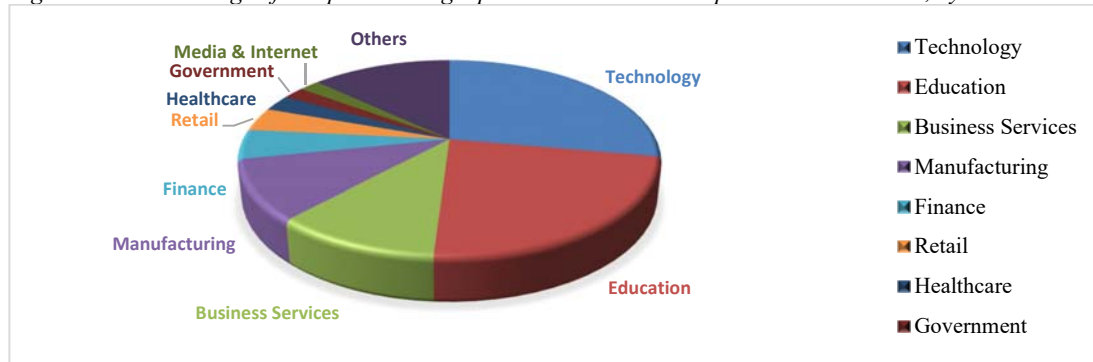
The above statement can be justified by the findings of research conducted in United States of America. A study from last year focused on companies that use OpenAI in their business processes worldwide. The results (figure no.2) revealed that, besides technology, the education services sector is now actively benefiting from OpenAI solutions (Statista, 2023b).

Figure no. 1 Share of United States respondents who used AI tools in the past 12 months



Source: (Statista, 2023c)

Figure no. 2 Percentage of companies using OpenAI in their business processes worldwide, by sector



Source: (Statista, 2023b)

Since ChatGPT is dominating in the education service, it is imperative to study its implications so as to benefit the most from this useful tool. Furthermore, in the educational sector, students are the primary products or customers of the teaching institutions; thus, it is essential to know the role of ChatGPT in their daily lives. Understanding their behavior can open new ways for teachers to improve their learning style and get better outcomes.

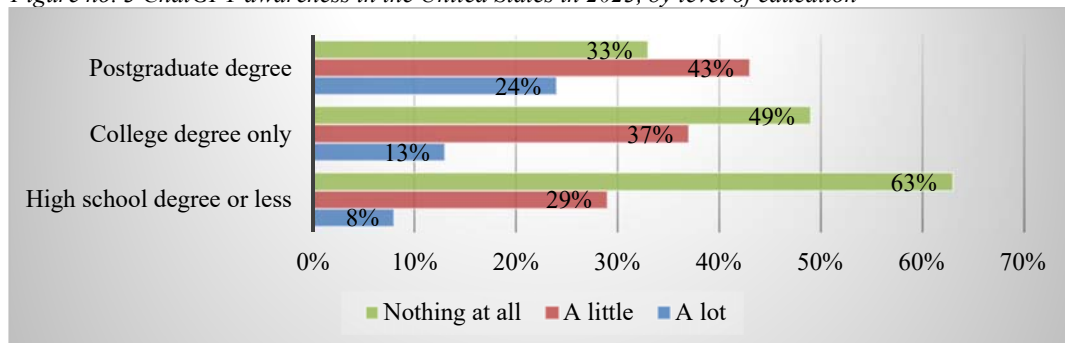
#### 4.2. ChatGPT: A boon for education

AI has revolutionized many fields of activity, and the educational system is no exception. ChatGPT stands out in the educational landscape due to the great assistance that it provides to students as well as to their teachers. With the help of generative AI, teachers may design extensive lesson plans that include goals, exercises, and evaluation strategies customized for various age groups and skill levels. Teachers may save a great deal of time and effort by using it to create educational content like worksheets, question papers, homework, and assignments. In order to keep students interested and make learning more dynamic and pleasurable, AI tools may provide strategies and activities. Al Shloul et al. (2024) explain that ChatGPT can act as a precious educational tool as it facilitates interdisciplinary collaboration, persuades a paradigm shift in what we perceive as learning, eliminates any type of obstacles between different information fields, and also provides new perspectives.

The students’ reliance on AI tools also highly depends on their level of education. For instance, students in elementary school might not have access to electronic devices such as mobile phones and laptops, while others might not be aware of such tools altogether. Besides, higher education relies more on AI tools because of the advanced nature of the courses, the demand for specialized tools for analysis and research, the emphasis on self-directed learning, and the need to prepare students for occupations requiring fluency with cutting-edge technologies. Advanced AI techniques may not be as readily available or necessary in elementary education, which places a greater emphasis on core skills.

As per the findings of an online survey (figure no. 3) conducted among Unites States adults with different educational levels, the ones with the highest educational level were more familiar with ChatGPT. Interestingly, more than half of the adults with only high school degree know nothing at all about the AI-tool. It is believed that adults are more aware of the technology because of the substantial coverage it received from the media, thereby, spreading awareness regarding the application (Statista, 2023a).

Figure no. 3 ChatGPT awareness in the United States in 2023, by level of education



Source: (Statista, 2023a)

As per new research, activity-based learning has a positive influence on the students’ performance and motivation level as it encourages them to learn through interaction, collaboration, and critical thinking. This type of learning method is believed to be one of the most efficient in modern education because, during active learning, students collaborate to find solutions on their own, which provides them the opportunity to self-reflect and instill creativity. However, the appearance of ChatGPT in the modern education context has made everyone rethink the definition of “intelligence” (Al Shloul et al., 2024). Some researchers believe that ChatGPT is an effective tool for improving student participation and collaboration. The scholars further claim that ChatGPT provides access to information much easier in comparison to traditional search engines such as Google and Bing. Hence, the tool is almost addicting to users and provides quick access to information regarding any subject (Rejeb et al., 2024).

During a study conducted among dental students, when given the choice to use ChatGPT to solve a quiz, only a few of them were initially interested in using ChatGPT as they lacked trust in its ability to perform and thought that the tool might not be reliable and safe enough. However, later on, reading its description significantly altered their views about the tool and even improved their quiz performance (Roganović, 2024). This shows that along with access to AI tools, students must be educated about their features for better results.

The primary purpose of active learning is to encourage student engagement by involving them in interactive tasks. ChatGPT possesses the capacity to enhance the existing educational experience of students. Research states that by doing real-time chats with students, this AI-wired mechanism allows them to enhance communication skills. Furthermore, it is important to mention that the role of ChatGPT is not to eradicate traditional learning practices but to enhance the existing educational system by integrating AI tools for improving the quality of learning.

In this context, the teachers would have the responsibility to provide proper instructional assistance to students for exercising caution when using ChatGPT for educational purposes such as making assignments (Al Shloul et al., 2024).

Ghafouri (2024) explains that teacher-student rapport plays a crucial role in motivating learners, which ultimately increases the probability of academic success as it creates an atmosphere of trust, understanding, and compassion between learners and teachers. The latest papers have been focusing on how AI-wired mechanisms such as Chat GPT can potentially impact this teacher-student rapport.

As per the results of a recent study, ChatGPT has been proven beneficial in improving the cognitive skills of students. Furthermore, the scholars claim that by using AI chatbots at school premises to perform tasks, skills such as self-reflection and creativity can be developed (Essel et al., 2024). According to Albayati (2024), ChatGPT helps students gain insights about different subjects in depth and lends a helping hand in completing academic assignments. Moreover, it also assists researchers in their understanding of a topic by analyzing huge amounts of information, such as scientific papers, posts on social networking sites, and news articles in different languages. Another interesting feature of the tool is that it can quickly summarize the data for the users to gain a better understanding of a subject in very little time. In this context, the Chatbot saves time for scholars and leads to increased efficiency.

To adapt to the digital era, educational environment must incorporate AI and benefit from its transformative capabilities rather than dismissing or prohibiting its usage. In fact, ChatGPT is already being used in various school courses because of its positive influence on student learning. Moreover, the tool helps the students in real-time by providing them assistance when they face some difficulties and require an immediate response (Al Shloul et al., 2024).

There are several studies that show that AI tools can also play a critical role in enhancing the language learning process by eliminating various obstacles that a learner usually comes across. The chatbot does not cause any shame or embarrassment among language learners, as is the case in public settings such as classrooms. Oftentimes, students feel ashamed of making mistakes while speaking in a foreign language. Personalized assistance and immediate feedback provided by the AI tools are proven to be helpful and eliminate any type of distraction in the process of language learning.

Grit has been defined by several researchers as the incorporation of persistence in making considerable efforts for achievement of success in accomplishing long-term objectives. It has a strong correlation with positive teacher-student rapport. As per the findings of a study, ChatGPT fosters language learners by providing an emotionally supportive atmosphere. Its integration in the language learning process results in higher grit among learners, which ultimately assists them in achieving objectives in the long run and pushes them towards a sense of satisfaction and accomplishment (Ghafouri, 2024). According to Ghafouri (2024), the emergence of chatbots provides students with the opportunity to have a more personalized self-regulation process, which can assist them in learning without being bothered by any external stressor, for instance, teachers' immediate feedback or interference from classroom peers.

It is a well-known fact that technological innovations have always transformed jobs, besides improving work productivity. Hence, for the companies to completely ignore such inventions might not be a good (profitable) idea. Similarly, educational institutions must adapt to external environments. Hence, studying how ChatGPT can be incorporated into educational systems and improve students' performance is a subject worthy of research (Giordano et al., 2024).

### **4.3. ChatGPT: A bane for education**

Opinions regarding this technological advancement are divided, especially in educational settings. For instance, regardless of its capacity to generate personalized responses, inculcate self-learning processes, increase student engagement, and improve cognitive skills, some educators still see its usage in classrooms negatively. This might be due to their lack of willingness to adopt new teaching practices or their lack of expertise to integrate such modern technologies into daily teaching practice (Essel et al., 2024).

Albayati (2024) expresses his concern as follows: "it is essential to examine the user privacy and security of using ChatGPT". To support this, another study (Rejeb et al., 2024) shows that while chatbots can potentially uplift the learning atmosphere of classrooms and make everything appear more interesting, they can also serve as a threat to students' privacy. Moreover, such privacy concerns are not limited to the education sector. Most companies expressed privacy-related issues and a lack of trust in this relatively new tool.

Since ChatGPT provides shortcut solutions for a variety of tasks, numerous workers worldwide have begun to use it to perform better at work. However, people may accidentally reveal confidential company information if the technology is misused. Users frequently believe that the information they share stays private when utilizing the service's premium edition. Nonetheless, ChatGPT gets aware of the exchanged data in general. According to research, as of June 2023, more than 10% of responding employees globally had used this AI tool at least once at work, and about 5% had entered sensitive company information into the platform (Statista, 2024). Furthermore, in 2023, around 80% of Germans expressed that they were not prepared yet for such advanced technology, while 76% believed that AI tools were not protecting personal data.

The above arguments explain why lack of adequate privacy, trust, transparency in operations, and security measures are the primary concerns that scholars usually raise in their research papers, besides the ethical debates associated with their usage (Sinaci et al., 2023). Even though Generative AI is great at offering quick and well-structured responses to all questions and regarding any subject, it provides no details regarding the source of the information that was collected, analyzed, and used to generate the feedback. Therefore, this technology presents several risks, among which we can include misinformation and credibility issues, academic integrity, inaccurate data sets, etc. (Albayati, 2024).

While some view generative AI as an instrument for humans to increase productivity and efficiency, others claim that its usage may replace researchers as well as their creativity completely (Albayati, 2024). As discussed earlier, the application of this AI tool for research-related purposes has ignited a huge ethical debate in academics (Niloy et al., 2024). More precisely, some authors also express issues regarding misuse of this AI tool, for instance, students cheating to finish assignments, which ultimately demands the educators seriously address the associated ethical risks. Researchers also emphasize the significance of informing students as well as teachers regarding the correct usage of AI tools to avoid any potential ethical risk or threat associated with them.

Consequently, teachers need to come up with modern techniques to teach and assess students' abilities in the presence of ChatGPT to avoid situations in which pupils cheat or copy the assignments from AI-driven tools. There is a growing need for proper regulations, policies, and guidance that limit the usage of generative AI to restore academic integrity in educational settings (Rejeb et al., 2024). Stojanov et al. (2024) also support the above statement by adding that with AI evolving at an alarming pace, educational institutions are required to establish proper policies that show the limits of using ChatGPT for school assignments.

The appearance of ChatGPT also caused a debate on whether AI technology can completely replace employees and wipe out many jobs or can be served as an instrument to increase human productivity at work (Giordano et al., 2024). In the education sector, professionals are concerned that AI might replace some teaching positions, especially those that entail repetitive duties. However, it's unclear whether AI will be able to fully replicate the complex and compassionate parts of education.

Stojanov et al. (2024) are of the opinion that when discussing about higher education, ChatGPT is often associated with its potential misuse and how it may lead to academic dishonesty. However, scholars emphasize that a more important question to ask in this context is how reliant are students on this tool? Unfortunately, the literature does not provide a clear answer to this question. According to Stojanov et al. (2024), reliance on ChatGPT depicts the extent to which a student is dependent on the tool for finalizing the tasks. To shed some light on this topic, research claims that a student's knowledge about AI and his attitude towards this useful tool can impact the extent to which he will depend on it to perform different tasks.

In their paper, Stojanov et al. (2024) explain that the students have been using a variety of tools to get assistance during the learning process and when writing assignments or projects. For instance, as per a research conducted in Germany, mostly students use non-institutional resources, such as databases and search engines, on a regular basis. Nevertheless, they are not good at making the best use of these resources. It is more important to discuss how students use ChatGPT rather than asking how frequently they use it. This is because once we know how they use this technological tool, we can acquire a deeper understanding regarding their interaction with this AI-wired mechanism.

To address the above issue, it is high time for the authorities to increase digital literacy, especially among educators and students. Niloy et al. (2024) support the idea by writing that teachers and instructors should focus more on providing digital literacy to students for taking well-informed decisions regarding the usage of Large Language Models (LLMs) such as ChatGPT. This may encourage students to utilize ChatGPT without causing any type of ethical misconduct. Nevertheless, there are scholars such as Roganović (2024) who claim that in order to restore academic integrity in the education sector, proper guidelines and regulations must be established. Regardless of the widespread use of AI-based educational systems, according to Rejeb et al. (2024), plagiarism and cheating will be facilitated on their own among students by permitting AI-driven tools for educational purposes.

Besides ethical and privacy-related issues, generative AI has also faced other allegations. For instance, it is often associated with logical inconsistency, plagiarism, and misinformation. Regardless of all these disadvantages, students are becoming highly dependent on ChatGPT as it provides them with quick responses. This requires the publishers to come up with strict regulations for including ChatGPT as a co-author in research papers. As a defensive response, AI detection tools can be used to identify text generated by chatbots. For instance, Turnitin has AI detectors for identifying responses or text generated by ChatGPT. However, this has failed to limit its usage. Traditional plagiarism checkers should be enhanced to recognize AI-generated content.

## 5. Conclusions

This study sheds light on the ways in which generative AI benefits the educational environment, thus playing a key role in the lives of students and teachers. Even if it can be seen as an effective tool, it is important to realize that technology has a darker side. Regardless of all the advantages that AI tools like ChatGPT offer, there are several risks associated with them that cannot be ignored. These include lack of data privacy, inaccuracy of content, threat to job security, copyright infringement, bias, misinformation, logical inconsistency, cybersecurity risks, transparency in operations, etc. However, academic dishonesty is the most widely discussed issue in educational settings. Depending on ChatGPT to finish homework, copying assignments and cheating can eliminate creativity and hinder the development of students altogether. However, this is primarily because of the lack of proper guidelines, regulations, and policies that draw a clear line for students when using generative AI.

As AI advances, its impact is felt in all fields, including the educational sector. Therefore, educational institutions must make sincere attempts to adapt accordingly and find solutions to new problems that are arising with the use of AI tools. Enhancing traditional plagiarism checkers can be proven useful, but it does not represent a long-term solution for restoring academic integrity. People are already realizing this, which is why plagiarism detectors such as Turnitin are enhancing their features to detect AI-generated content. It is imperative to keep in mind that temporary solutions do not provide long-term benefits, and therefore, to restore academic integrity, it is essential that schools and universities educate their staff and students regarding the potential consequences of plagiarism. Moreover, digital literacy will allow students to make the best use of AI tools by teaching them how to retrieve effective information, which can ultimately encourage critical thinking. By incorporating ChatGPT into the curriculum, teachers may prepare their students for dealing with the complicated dynamics of the digital world with consideration and responsibility.



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## Types of Teaching Materials for ESP in the Economic Environment

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### Abstract

*This paper explores the importance and diversity of teaching materials used in teaching specialist languages to economics students. We look at different types of educational resources, including textbooks, academic articles, case studies, financial reports, multimedia resources and legal documents, and how they contribute to the development of language and professional skills. We highlight the essential role of these materials in facilitating theoretical and applied learning, stimulating critical thinking and preparing students for the challenges of the global business environment. We also discuss the impact of digital and interactive resources in creating a dynamic and engaging learning environment. We conclude that the effective integration of didactic materials into the economics curriculum is crucial for ensuring a relevant and quality education, preparing students for professional success in various economic fields.*

**Key words:** teaching materials, specific purposes, language

**J.E.L. classification:** Z19

### 1. Introduction

The omnipresent socio-educational changes on a global level require new approaches in the organization of the educational process, in continuous training, cultivation and optimization of the teaching-learning process of foreign languages - a reality that calls for the integration of information and communication technologies in this activity.

From this perspective, the application of foreign languages, as a result of globalization and the increase in the degree of specialized communication, is of major current importance in order to use and implement specific knowledge in one field of activity or another. The formation of communication skills in English for specific purposes involves not only the knowledge of the specialized language, but also facilitates understanding and intercultural cooperation on a global level. Along with the fluctuations of communication and intense collaboration at the international level, there is a tendency to develop the so-called "language of specialists" (language for specific purposes), which differs from everyday language (common language) and which includes terminology specific to the field of activity.

In the context of the achievements of the educational reforms, there is a tendency to propose new strategies for teaching and learning foreign languages as important criteria in the formation of professional skills for students. Thus, the process of teaching-learning the specialized vocabulary in English for students with communication needs in the field has become a priority in their professional training.

Studying a foreign language of international circulation (English) will indisputably contribute to the professional training of students, favoring, to a large extent, the definition of interests and reasons versus professional options. In the process of teaching-learning the specialized English language, the student is in the center of attention; the in-depth analysis of needs is insisted upon as one of the most important premises in the teaching-learning process of ESP. In our case, the teaching-learning of the English language for economics, has an additional requirement, implying a close cooperation with the specialized disciplines. This process is focused, in particular, on professional communication skills, conditioned by: the constant global development of intercultural communication; trends in the modernization of the university curriculum (teaching / optimization / evaluation of the foreign

language training process); adequate management of teaching-learning methodologies in higher education institutions, etc.

The use of authentic didactic materials in the act of teaching-learning English for economics as a motivational factor from a communicative perspective offers future specialists the opportunity to implement professional knowledge and comply with international requirements and rigors in a later professional plan.

## 2. Literature review

Practical approaches to the issue of the act of teaching and learning ESP, have been reflected in numerous studies, which have highlighted and argued various methods as relevant. Thus the researcher G. Gradinari (2006, p.29) mentions, describes and argues the application of the case study as an effective method of developing communication skills; A. Afanas (2019, p.1) approaches the reading of texts and their understanding in the context of the formation of communication skills; L. Schiopu (2017, p.57) renders the efficiency of teaching English through personalized learning, etc. The principles of teaching-learning English for specific purposes have been redefined and reworked according to the specific objectives, considered as one of the concerns of the methodologists: T. Hutchinson, A. Waters (1987, p.123), D. Crystal (2003, p.107), D. Nunan (2004, p.133), H. Basturkmen (2010, p.68,69), D. Douglas(2000, 109), J. M. Swales(1990, p.151), P.C. Robinson, (1980, p.144), T. Dudley-Evans and M.J. St. John (1998, p.110) , M. Peacock (1997, p.139), etc.

Materials are the resources used in education (learning and teaching) including commercial materials (global and local coursebooks/textbooks, teachers' books, tests, visual aids), reference materials (dictionaries) as well as DIY (teacher- prepared and learner-generated) materials (Mc Grath 2013, pp.2-5) According to Tomlinson, materials for language learning can serve numerous functions: they can inform learners about the target language, guide them in language practice, provide experiences of the language in real use, encourage active language use, and help learners make discoveries about the language they study. (Tomlinson, 2012, p. 143)

Materials development involves practical tasks such as creating, assessing, modifying and utilizing language materials to aid language learning and development. It is also an academic field that examines the principles and methods of designing, writing, implementing, evaluating and analyzing educational materials. Ideally, practitioners and researchers in materials development collaborate and share insights through conferences, publications and joint projects.

Several approaches, such as the Dogme movement by Thornbury and Meddings (2001), have tried to promote teaching languages without relying on materials. However, it is widely acknowledged that in most language classrooms all around the world, lessons continue to predominantly depend on materials. Richards (2001, p. 251) notes that instructional materials typically form the foundation for much of the language input that learners receive and the language practice that takes place in the classroom.

Regarding material development in ESP courses, Bocanegra- Valle (2010) highlights the significance of materials in ESP for exposing students to the actual language used in specific disciplines. Dudley-Evans and St John (1998) succinctly describe these materials as a source of "real language".

Therefore, the development of teaching materials must be at the heart of courses aimed at the education, training and development of new and in-service teachers, and must be undertaken by applied linguists and teacher trainers who direct such courses and by the articles, chapters and books that are to be published for use in these courses.

In addition to its clear practical purpose of preparing teachers for the task of developing classroom materials, it can also be highly beneficial in helping teachers comprehend and apply language learning theories, thereby promoting both personal and professional development. (Tomlinson, 2001, p. 67).

### 3. Research methodology

#### A. Key Principles in Designing ESP Materials for Business

ESP teaching materials are more than just teaching tools; they are central to the learning process. In a business context, these materials must provide learners with the language and skills needed to perform specific tasks, such as negotiating contracts, giving presentations, or writing reports. Documents must also reflect actual business language use. This requires a careful balance between language teaching and the incorporation of authentic business content.

According to Pilbean, A.(1987, pp. 120-123), ESP materials should be needs-based, appropriate, valid, flexible, incorporate suitable methodology, of high quality, practical and economical to produce.

Therefore, when developing ESP materials for the business world, several key principles should guide the process:

- a. Needs analysis: Understanding the specific language needs of learners is the first step in developing effective materials. This involves analyzing the learners' business roles, current proficiency levels and the language requirements of their learning objectives. For example, a needs analysis might reveal that learners need to focus on business correspondence or intercultural communication skills.
- b. Authenticity: ESP materials should contain authentic business language and context. This helps learners become familiar with the types of language they will encounter in real business situations. Authentic materials might include actual business documents, meeting notes, or case studies about real companies.
- c. Relevance: The content of learning materials should be directly relevant to the learners' professional context. This relevance increases learner engagement and motivation. For example, materials for finance professionals should include terminology and scenarios related to financial trading, while materials for marketers should focus on language used in advertising and customer engagement.
- d. Integration of skills: ESP materials should integrate the four language skills (listening, speaking, reading and writing) in a way that reflects their use in the business world. This approach ensures that learners develop a balanced range of skills. For example, a task might be to listen to a business presentation, take notes, discuss the content and write a summary.
- e. Task-Based Learning: ESP materials emphasize task-based learning, allowing learners to apply their language skills to practical, business-related tasks. This includes role-playing, simulations and problem-solving activities that reflect real-life business challenges. Such tasks help learners practice and hone their language skills in situations that mimic professional environments.

#### B. Challenges in Designing ESP Materials for Business

Developing effective ESP materials for the business world presents several challenges.

- a. Keep up with industry changes: The business world is dynamic, with frequent changes in practices, technology, and language usage. To remain relevant and effective, ESP materials must be regularly updated. This requires ongoing research and adaptation by educators and materials designers.
- b. Balance language and content: Finding the right balance between teaching language skills and providing industry-specific content can be difficult. Materials that are too language-focused may not adequately prepare learners for specialized roles, while materials with too much content may overwhelm learners who have not yet mastered the language.
- c. Cultural Sensitivity: Business practices and communication styles can vary widely from culture to culture. ESP materials need to reflect these differences and enable learners to manage them effectively. This includes understanding cultural nuances in business etiquette, negotiation styles, and communication preferences.

- d. Learner diversity: In each ESP class, learners come from different disciplines and have different levels of experience and language skills. Developing materials that accommodate this diversity while meeting their individual learning needs can be a challenge.

#### 4. Findings. Types of ESP Teaching Materials for Economics Students

Taking into account the basic model proposed by Hutchinson and Waters (1987), effective didactic materials in the acquisition of specialized language in the academic environment should contain four basic elements: input, content, language and task.

By complying with these basic requirements in the teaching of ESP for economics, these materials help to consolidate theoretical knowledge, develop practical skills and prepare students for the challenges of the real business world. Here is an overview of the main types of teaching materials used in teaching economics:

1. Textbooks and Specialty Books

- a. Textbooks

Textbooks are fundamental to any curriculum. They provide a clear and progressive structure of economic knowledge, covering topics such as macroeconomics, microeconomics, finance and accounting. Examples include "Principles of Economics" by N. Gregory Mankiw and "Corporate Finance" by Jonathan Berk and Peter DeMarzo.

- b. Specialty books

These books are written by experts in the field and provide in-depth insights into specific topics such as financial markets, risk management or econometrics. They are essential for advanced understanding of economics issues.

2. Academic Articles and Professional Publications

- a. Academic Journals

Articles from academic journals, such as "The American Economic Review" or "Journal of Financial Economics", provide access to recent research and developments in the economic field. These resources are valuable for deepening knowledge and developing critical reading skills.

- b. Business magazines

Professional publications such as "The Economist", "Harvard Business Review" and "Financial Times" provide up-to-date articles on global economic trends, case studies and market analysis. These are excellent resources for staying up to date with developments in the field.

3. Case studies

- a. Real Case Studies

Case studies allow students to analyze real economic problems encountered by companies or organizations. They help develop analytical and critical skills and provide opportunities to apply theory in practice. Students can analyze the causes and consequences of the 2008 financial crisis, identifying the key factors and discussing the measures taken to recover the economy. This case study develops analytical skills and understanding of global economic mechanisms.

- b. Simulated Case Studies

Case-based simulations give students the opportunity to make decisions in hypothetical scenarios, thereby developing their strategic thinking and decision-making skills. A business negotiation simulation between two companies allows them to practice negotiation and communication skills. This includes preparing negotiation strategies and using specific English terminology.

4. Financial Reports and Accounting Documents

The actual financial statements of companies, such as balance sheets, profit and loss accounts, and cash flows, are essential to a practical understanding of accounting and finance. Students can analyze these documents to learn about a company's financial performance and economic health. They may be involved in writing a financial report for a fictitious company, analyzing financial data and formulating recommendations to improve economic performance. This exercise develops writing and data interpretation skills.

## 5. Marketing and Advertising Materials

Marketing materials such as brochures, advertisements and marketing campaigns are useful for studying marketing strategies and business communication. Analyzing these materials helps students understand how companies promote their products and services.

## 6. Multimedia and Digital Resources

Technology plays an essential role in modernizing education and can significantly transform the teaching of English for economics students. The integration of digital resources and technological tools not only improves access to information, but also creates an interactive and attractive learning environment. There are various methods and advantages of using technology in this context.

### a. Educational Videos

- Learning Management Systems (LMS)

LMS-type platforms such as Moodle, Blackboard or Canvas allow teachers to create structured online courses, distribute teaching materials, manage assignments and monitor student progress. These platforms also provide discussion forums where students can interact and collaborate.

- Webinars and Online Courses

Webinars and online courses, offered through platforms such as Coursera, edX, or Udemy, allow students to participate in interactive lessons, watch recorded lectures, and access additional resources. These courses can be adapted to include content specific to the economics field.

### b. Mobile Applications and Digital Resources

- Foreign Language Learning Apps

Applications such as Duolingo, Babbel or Memrise offer interactive exercises for learning English, including specific economics vocabulary. These apps are affordable and allow for flexible learning anytime, anywhere.

- E-books and Audiobooks

E-books and audiobooks are valuable resources for economics students. These include specialist books, academic articles and business literature, available in digital formats that can be accessed on mobile devices.

### c. Communication and Collaboration Tools

- Videoconferencing Platforms

Video conferencing platforms such as Zoom, Microsoft Teams or Google Meet facilitate online lessons, group meetings and individual discussions. These tools allow for screen sharing, use of interactive whiteboards, and recording of sessions for later review.

- Online Collaboration Tools

Google Workspace (Google Docs, Sheets, Slides) and Microsoft Office 365 (Word, Excel, PowerPoint) allow students to collaborate in real time on projects and documents. These tools facilitate teamwork and the development of business projects in English.

### d. Multimedia and Interactive Resources

- Educational Videos

Platforms such as YouTube and TED-Ed offer educational videos on economic topics that can be integrated into lessons to illustrate economic concepts and theories in English. These visual resources help reinforce knowledge and capture students' attention.

- Simulations and Educational Games

Economic simulations and educational games, such as financial market simulators or business management games, give students the opportunity to apply economic knowledge in a virtual environment. These interactive activities develop practical skills and encourage active learning.

### e. Digital Evaluation and Feedback

- Online Testing

Online testing platforms allow the creation and administration of tests and quizzes, providing instant feedback. These tests can assess both language skills and students' knowledge of economics.

- Automated Feedback

Automated feedback tools, such as text editors and language analysis applications (Grammarly, Turnitin), provide students with suggestions for improving their writing and avoiding common mistakes. These resources are useful for developing English writing skills.

## 7. Legal Documents and Contracts

Legal documents such as commercial contracts, confidentiality agreements and compliance documents are crucial to understanding the legal aspects of business. Students can study these documents to learn about the structure and terminology used in business transactions.

## 5. Conclusions

Teaching materials are essential in teaching specialist languages to economics students, contributing significantly to the development of skills necessary for professional success. These materials, which include textbooks, academic articles, case studies, financial reports, multimedia resources, and legal documents, provide a diverse range of perspectives and information that help students understand and apply economic concepts in a real-world context.

Textbooks and specialist books provide a solid theoretical foundation, covering essential topics and providing relevant examples. Academic articles and business journals keep students abreast of recent research and industry trends, developing their critical reading and analysis skills. Case studies and practical exercises facilitate the application of theory to real situations, stimulating critical thinking and problem-solving skills.

Multimedia and digital resources such as educational videos and online platforms make learning more interactive and engaging by providing access to courses and lessons from experts around the world. Authentic documents such as financial reports and legal contracts provide practical insight into how economic concepts are applied in the business environment.

In conclusion, didactic materials are fundamental for a complete and contextualized education in the economic field. They not only facilitate the learning and understanding of specialized language, but also prepare students for the challenges and opportunities of an international career, providing them with the necessary skills to communicate and perform effectively in the global business environment.

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# The Double Way between Financial Indicators and Innovation Investment Behavior for the Romanian Agri-Business Actors: Entrepreneurship and Innovation

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## Abstract

*Within a world dominated by risks and uncertainties, the agriculture sector has limited options to develop and one of these is the innovation, as in many other economic sectors. The actors of this sector behave differently and their choices linked to innovation should have always an economic basis. The investments decisions in capital expenditure, better quality of the working capital, human resources or processes are influenced by different financial indicators obtained as liquidity level or rentability expressed through return on equity or return on assets. The study is based on a qualitative methodology related to a field questionnaire for 201 companies. A good position of liquidity will determine the farmers to invest in a better quality of the raw materials and technology connected to them. The entrepreneurs who get better rentability rates will invest in development of the internal processes and in classical form of innovation represented by capital expenditure.*

**Key words:** innovation, agriculture, behavior, financial indicators

**J.E.L. classification:** G31, Q12, Q16

## 1. Introduction

The innovation is one of the main drivers for the company performance, including the emerging markets like Romania. Even it has been emphasized within market studies that the research and development activity (R&D) is a central development point for new products, the risks and high costs are barriers for investments for innovative solutions in such countries. (Ahmed *et al*, 2020) The approach of the innovative management and of the need of utilization at strategic level are imposed by two directions of action: business development and addressing of the risks through limitation of the adverse effects. (Cambalikova *et al*, 2021). This new approach in agriculture is dominated by entrepreneurship used under restrictive conditions due to the climate changes and regulations imposed by authorities regarding environment sustainability. Even the interest of farmers for improving the resilience of the business to climate changes is increasing, they are more focused on short-term results. Following this purpose, the investment process should be based on innovation packages for covering the needs for both productivity and climate resilience which are connected. (Dossou-Yovo *et al*, 2024, p.7) The resources allocation process within the overall range of resources is very important for conducting the development process in agriculture. The farmers have to respond to the challenges of the very complex environment they work with. The investments in Research and Development (R&D) represent the basis of innovation, environment protection, use of energy and financing facilitation, contrary with the use of natural resources which have a negative impact on the green development of the agriculture production. (Ren *et al*, 2023, p.7) The innovation is negatively correlated with the big investment, especially in financial resources. (Kangogo *et al*, 2021, p.1)

The rationalization and bureaucracy are two main elements of the modern agriculture. The social behavior is dominated by the economical one. The businesses are conducted in an extremely rational way, the purpose being the cost optimization for getting higher profits. This type of entrepreneurship has benefits for the economic side of activity, but could have negative effects on social and environment. (Gittins *et al*, 2022, p.502) The big farmers with more available resources in term of

land and technology are more suitable to implement innovative solutions like digitalization (Cheng *et al.*, 2024, p.11), especially for processes optimization.

Considering the main goal of the farmers for obtaining profit, the major climate changes in the last years, the increased bureaucracy related to environment sustainability, the relationship between innovation and entrepreneurship, the aim of the present study is to emphasize the link between the financial indicators related to liquidity and returns and the investment decisions for innovative solutions within the Romanian farms and vice-versa.

One of the main questions for entrepreneurs is related to the options for growing the business and the resilience of it against crises which can affect the development or even can conduct to bankruptcy. Considering the domination of the competition at global level, the connections and the low level at barriers, it is compulsory to apply an innovative management at strategic level for performing within a very dynamic environment. Therefore, the present study assesses the behavior of the farmers for making innovation investments depending on the different level of the profitability – return on assets and return on equity - and financial position – current ratio. The types of innovation taken into consideration are connected to capital expenditure – production processes/equipment, drones, weather stations; processes – services for satellite tracking, financial processes; working capital improvement – technologies for agriculture inputs; human resources – people involved in the digital area. On the other perspective, we can conclude about the impact of the innovative management on the financial results.

The level of innovation awareness of the business environment from Romania is still very low compared with other countries, especially from the western part of Europe. This study is aiming to increase this level and to contribute to the general development through innovation. The farmers are still focused on the traditional innovation methods which related to equipment and agriculture inputs. The processes improvements, especially for finance, and the services related to digitalization and data integration can improve a lot the control over the production process and costs as well. The farmers can react very quickly and in a very efficient way for addressing the production risks (diseases, adverse factors) using modern monitorization systems. On top of the contribution at farm level, the results of the study will give clear indication regarding the state approach for the sustaining measures for the agriculture sector. The subsidies or the grants should give incentives to farmers for systems or processes for which they are not opened to take risks or to invest on short-term due to the higher costs involved.

The study concluded that the farmers are aware about the innovation importance and benefits, but they do not take actions to be informed about the new technologies. On top of the information sources preferences are the events or the visits organized by suppliers. The research from their own initiative through internet is on the second place. Depending on the profitability obtained and expressed through return on assets and return on equity, they prefer to invest in capital expenditure, like agriculture equipment and drones. The short-term cash availability conducts the farmers' decisions for improving the quality of the agriculture inputs used. Even these materials are more expensive due to high quality level, they consider this decision in a positive way due to cash availability. The implementation of better financial processes is done by farmers which have a good return on equity, meaning a good return on the capital invested in the business. For the rest of factors considered within the study – services for satellite tracking, weather stations and people development in the digital area – no correlations were found with the financial determinants.

The study will be completed with sections related to specific literature for the analyzed factors, research methodology, findings and conclusions.

## **2. Literature review**

Within the methods for achieving innovation, it can be defined: digital technology, considered a dominant factor (Cambalikova *et al.*, 2021), long-term investments in technological equipment with positive impact on labor and equipment productivity and performance and on production capacity improvement (Juris *et al.*, 2020); development of human resources, which is considered a very important factor for both operational processes and overall business (Juris *et al.*, 2020). The investment in processes improvement is not enough and it should be sustained by new production capabilities - tangible elements. (Ahmed *et al.*, 2020) The innovations expressed by technical or

business model improvements can be integrated using the new technologies. In this context, digitization can be considered as main driver of innovation (Niewohner *et al*, 2020). Not only the investments in tangible elements are necessary. The sustainability can be obtained by focusing on the non-tangible assets as well, which are the basis for sustainability increase (Skare *et al*, 2021). The human resources development is a key factor for improving the internal processes by integrating all the activities. Consistent budgets should be allocated for necessary competences and skills of the employees to be in line with the market trends and requests. Therefore, the overall competitiveness of the company will increase (Ahmed *et al*, 2020).

Considering the new trends in the sustainability area, the most common concepts used today in the modern agriculture are: agriculture entrepreneurship, climate smart-farming, green innovation. They are imposed by both needs of farmers and authorities, each of them having their own interests as stakeholders of the agriculture sector.

The new normal represents the transformation for the implementation process considering the sustainability of the agriculture. (Lang *et al*, 2023 p.1) The green innovation is a key driver for economic and environmental development. It can be stimulated by the awareness related to environment, but also by the health concerns. (Chi, 2022, p.1) Also, climate-smart agriculture innovation has become a concept that should be integrated in an accelerated way. The level of usage is very low due to the lack of several factors as knowledge, finance processes, equipment, quality of the agriculture inputs. (Dossou-Yovo *et al*, 2024, p.1) The agriculture expansion is influenced by the lack of investment in technology and research. (Ren *et al*, 2023, p.8)

As the resources are becoming an issue at global level, the farmers are obliged to use more innovative systems for increasing the productivity and for facing the volatility of the yields and prices. The agriculture entrepreneurship is driven by the structural social capital (Lang *et al*, 2023 p.10), considering the institutional requests related to sustainability. The macro-economic policies have a direct influence on the agriculture sector development and vice-versa. The strategies for innovation management should be aligned at all levels. (Taishykov *et al*, 2024, p.6). The farm technologies in term of equipment should be used in the environment protection direction, this being a very important goal of the modern economies. (Chi, 2022, p.10)

The farmer decisions are influenced by the lack of information. They should be in direct contact with the external environment for getting a higher level of qualitative information (Taishykov *et al*, 2024, p.1). In general, the farmers use to copy the success models they observe around them. The technological innovations should be facilitated and diffused in a proper way and the readiness level should be the same for all relevant dimensions of it. This is the only method to accelerate the innovation implementation process. (Stræte *et al*, 2024, p.7)

Even there is an important development for the model innovation and entrepreneurship, it is still in the initial phase, especially in the rural areas. This combination has a positive effect on the business growth and a big influence over the regions near-by with similar characteristics. (Pan *et al*, 2023, p.15) The digitalization is correlated with the agriculture entrepreneurship (Cheng *et al*, 2024, p.1) as it offers resources for optimization and for the increase in control. The digital skills are a good driver for attraction external resources as financing or technology as the good perception about them is both from internal and external side of the organizations. The results can be increased using a good combination between digital and financial skills. (Cheng *et al*, 2024, p.11) Also, there is a direct connection between the technology market value and the regulatory acceptance. Between the two of them should be a direct correspondence and they should go in the same direction. (Stræte *et al*, 2024, p.7)

The farmers should take care of the institutional environment when they take business decisions for development as the focus is more and more on environment sustainability. (Gittins *et al*, 2022, p.502) The green innovation is increasing overall, but the impact in the emerging economies as Romania is still low. The conversion from conventional to green production which involves innovation can be done just using better the available resources as technology, finance, human. (Chi, 2022, p.10) The involvement of all actors should be at the same level: farmers, authorities, research centers and universities. (Shi *et al*, 2023, p.15)

The capacity of the farms from both technological and operational point of view are still the main drivers for increasing the production, but they do not influence the environment protection. (Chi, 2022, p.10) The climate change is a motivating factor for developing the green agriculture. (Ren *et*

*al*, 2023, p.1) The production increase is sustained by the energy consumption, but is very important to use sustainable energy sources, as the quality of these can influence into a negative way the green agriculture. The resilience can be obtained by using more efficient energy solutions. (Ren *et al*, 2023, p.9) The green agriculture system sustained by innovation had a rapid growth during 2010 and 2019, with a higher influence of the companies compared with the individuals, while the influence of the science and academic environment was weak. (Shi *et al*, 2023, p.1) The resources excess does not have a positive impact on the green agriculture. (Ren *et al*, 2023, p.1) The optimization through irrigations, organic pesticides and measures for soil-preventing should be considered priorities for the near future. (Shi *et al*, 2023, p.15)

The realistic view of the business identified by the lack of optimism is in direct correlation with the digital skills of the farmers. (Cheng *et al*, 2024, p.11) “Smart-farming” technologies are part of innovation which is increasing rapidly. The drone-based supervision is one technology that should be studied and applied within this new concept. Each step of development process for innovation overall should be supported by adequate and customized technological innovation, quantified using more elements as technology, availability, standards and laws, social impact, company maturity. (Stræte *et al*, 2024, p.7) The drivers for climate-smart agriculture are represented by innovation, degree of risk-taking and proactivity. A need for training has been identified, but this should be customized for each farmer and for each one of the three dimensions. The farmers adopt more multiple methods in the same time. (Kangogo *et al*, 2021, p.10) The unskilled-labor influences in a negative way the proactivity in term of climate-smart agriculture. (Kangogo *et al*, 2021, p.10)

### 3. Research methodology

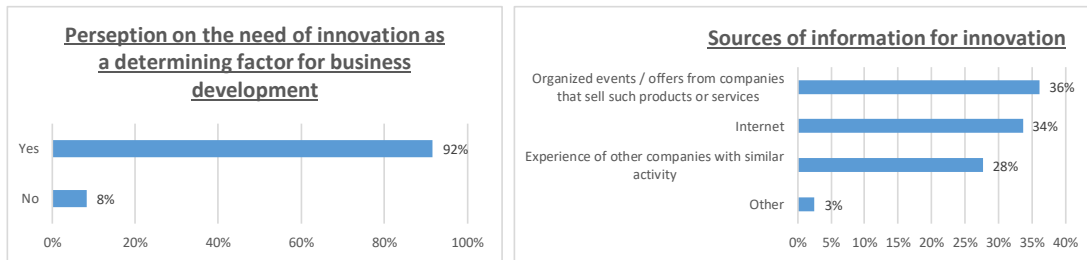
A questionnaire survey with closed questions was performed for collecting data of 201 companies in Romania. The sampling was chosen using a non-probability method with a non-sampling geographic criteria. The farmers are located in all the districts of Romania, covering almost all the country. The purpose of the questions was to observe the focus of the farmers for innovation investments: services for satellite tracking (M1); production processes/equipment (M2), drones (M3), weather stations (M4); technologies for agriculture inputs (M5); people involved in the digital area (M6); financial processes (M7). Other questions were in connection with the perception of the need for innovation, the sources of information related to innovation and the intention of the farmers to take decision and to invest in innovation. Additionally, the financial data for year 2021 were studied. The financial indicators analyzed were: current ratio (current assets / current liabilities), return on assets (operational result / total assets) and return on equity (net profit / equity).

The model was empirically validated through ANOVA-F method together with robust test of equality of means and test of homogeneity of variances. The SPSS software was used for performing the tests.

### 4. Findings

Even the Romanian economy is characterized by the domination of the medium and weak technologies, with a low knowledge request and underdeveloped innovation culture sector (Ionescu, 2015), 92% of the respondents consider that innovation is a determinant factor for the business development (*Figure no.1*). The low knowledge request was confirmed by the answers received to the question concerning the sources of information for innovation. The farmers wait to receive information from service suppliers which promote their products. The internet research is on the second place on their preferences. The activity and results of companies with similar object of activity are not an inspiring source or them, being not a main preference (*Figure no.1*). The good level of perception of the innovation need and advantages correlated with the low interest for finding out solutions reflect the high level of barriers for proceeding with the investments in new technologies and processes. These barriers are related to the perceived risks and related costs of them, but the entrepreneurs should look ahead, anticipate the changes and decide strategies for passing the turbulences caused by changes. (Cambalikova *et al*, 2021)

Figure no. 1 Perception on the need of innovation and the source of information for it

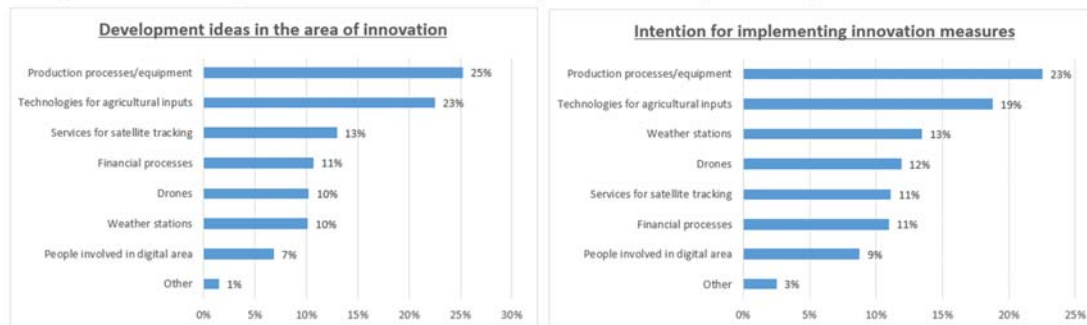


Source: Author’s own research

The main actors of the agriculture sector behave into a traditional way of doing investments for innovation. They are focused on using new and modern equipment and improving the inputs technologies, like better inputs (fertilizers, seeds, crop protection materials) or better production processes (e.g. no-till technology). The services for satellite tracking are used quite a lot and this fact can be explained by the need of farmers for working efficiently and for applying inputs exactly in the area when it is really necessary. Using this technology, they can obtain an efficiency increase along cost savings with people, fuel, etc. The internal financial management processes are considered important, but not at a high level. The need of using proper financial approach is very high due to the risks of the sector coming from weather conditions, volatilities for production yield and prices. Other investments as drones and weather stations have a low level of interest. Even the digitalization is considered a dominant factor on the innovation, this is the last on top of preferences. They do not prefer to internalize the IT activity. (Figure no.2)

The intention for future decisions is not so different compared with what the situation of today. They do still prefer the classical investments in equipment and high-quality working capital. Next is the interest for weather stations and drones. The digitalization is still on the last place. Neither today and not in the future, the intention is not to improve the activity using people specialized in the digital area. The efficiency of the innovation activity of the farms which act in a very dynamic context is possible only under the condition of implementing in time of development projects which are able to satisfy the requests of both external and internal environments. The companies should contribute to the development of the own potential on a long-term perspective (Khrystyna et al, 2021). The farmers should have a higher level of internal motivation for searching new technologies and for getting out from the traditional way of doing things as the potential of the sector is very big and the results are under it, compared with other similar activities from different countries in Europe.

Figure no. 2 Actual focus on innovation idea and future intentions for development



Source: Author’s own research

The influence of the financial indicators over the decisions to invest in innovation was tested using ANOVA-F method. The results are presented in the Table no.1.

Table no. 1 ANNOVA-F

ANOVA – F	M1	M2	M3	M4	M5	M6	M7
CR	0.394	1.310	0.839	0.589	3.126*	0.196	0.570
ROA	1.190	2.106***	2.111***	0.628	0.822	0.279	0.661
ROE	1.466	0.961	0.961	0.418	1.344	1.080	2.050***

Source: Author's own research. SPSS results.

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

The results reflect a correlation between the CR (current ratio) and technologies for agriculture inputs (M5); ROA (return on assets) and the investments in production processes/equipment (M2) and drones (M3); ROE (return on equity) and financial processes (M7). The services for satellite tracking, weather stations and involvement of people in the digital area (M6) are not correlated with financial determinants.

The related Robust test of equality of means and Test of homogeneity of variances are presented in the Tables no. 2 and 3.

Table no. 2 Robust tests of equality of means

Robust Tests of Equality of Means		CR		ROA		ROE	
		Statistic	Sig.	Statistic	Sig.	Statistic	Sig.
M1	Welch	0.330	0.857	1.147	0.339	1.260	0.291
	Brown-Forsythe	0.368	0.831	1.193	0.315	1.470	0.213
M2	Welch	1.287	0.287	2.193	0.075	0.949	0.439
	Brown-Forsythe	1.294	0.278	2.106	0.082	0.961	0.430
M3	Welch	0.764	0.553	2.376	0.057	0.985	0.419
	Brown-Forsythe	0.841	0.503	2.113	0.081	0.960	0.431
M4	Welch	0.758	0.557	0.614	0.653	0.385	0.819
	Brown-Forsythe	0.624	0.646	0.629	0.643	0.418	0.796
M5	Welch	3.462	0.014	0.829	0.510	1.326	0.266
	Brown-Forsythe	3.277	0.014	0.822	0.512	1.344	0.255
M6	Welch	0.190	0.943	0.245	0.912	0.949	0.439
	Brown-Forsythe	0.188	0.944	0.279	0.891	1.080	0.368
M7	Welch	0.920	0.459	0.866	0.487	2.985	0.023
	Brown-Forsythe	0.608	0.658	0.611	0.620	2.054	0.089

Source: Author's own research. SPSS results

Table no. 3 Test of Homogeneity of Variances

Test of Homogeneity of Variances		M1	M2	M3	M4	M5	M6	M7
CR	Levene statistic	1.353	1.087	2.832	3.905	5.807	0.798	3.026
	Sig.	0.252	0.364	0.026	0.004	0.000	0.528	0.019
ROA	Levene statistic	4.710	2.805	9.329	2.324	2.982	1.009	3.433
	Sig.	0.001	0.027	0.000	0.058	0.020	0.404	0.010
ROE	Levene statistic	4.953	0.325	4.030	1.230	2.432	3.832	11.792
	Sig.	0.001	0.861	0.004	0.300	0.049	0.005	0.000

Source: Author's own research. SPSS results

## 5. Conclusions

The study applied a statistical method for identifying the correlation between the financial determinants as current ratio, return on assets and return on equity, and different innovative tools available for farmers. A good current ratio will encourage the entrepreneurs from the agri-business sector to use better technologies for agriculture inputs. The standard investments in innovation

represented by technologies for production and equipment, along with drones, are correlated with a good return on assets, while the financial processes have a significant relationship with the return on equity. All the others analyzed investment options as services for satellite tracking, weather stations and involvement of people in the digital area are not influenced by the financial determinants and vice-versa.

The farmer behavior is to invest in better inputs if they consider that they have enough resources on short-term, meaning good financial position presented as current ratio. On the other hand, the good position for liquidity will allow them to purchase better products. The spending on sustainable technologies for production processes, equipment and drones will contribute to the overall development of the farms. The investment in this area is encouraged by good levels of return on assets. The farmers awareness for improvement is increasing as they see good results concluded in good return of their investments. The focus on the financial processes will increase the level of control over the business and will help farmers to find financial solutions for improving the rentability. The ones which have a good financial experience know how and when to use solutions for addressing the risk, for example hedging for foreign currency or for crop prices. Also, their way of thinking is going in the directing for getting higher profits by revenues increases based on good investments or by costs reduction.

The continuous changes from the economy put under question mark the traditional concepts for business and economy. In the past, the innovation was used mainly by the big companies, but today, it is a necessity to apply it for surviving and development. Just with innovation, the companies can go ahead in the same time with the changes in all business areas, especially in technology. (Cambalikova *et al*, 2021) The dimensions analyzed and the conclusions resulted reflect the double way between financial indicators and innovation process. Farmers are more than aware about the necessity of investing in new methods of doing business: modern equipment, input technologies, people, processes. Despite this high level of awareness, they do not have a specific interest to find information about sources of inspiration. They just wait specialized suppliers to approach them.

The new innovative products and methods will continue to appear in the market as the conditions are completely different from one year to another one from all points of view: economic, social, weather, geopolitical. The farmers should increase the level of awareness about the advantage of the innovation and look continuously for adaptive solutions. Further researches should investigate more the link between risk perception and level of innovation integrated at company level.

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# The Impact of the Financial Profile on the Resilience Capacity of the Agri-Business Companies in Romania

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## Abstract

*In general, the effect of the crisis over economy could be very big as in 2008. 2020 was a year with a double crisis in Romania: COVID-19 and draught. From a sample of 2.970 companies from the Romanian agri-business sector, 1.176 had decrease of the profit. The present study analyses the financial situation of 503 companies which passed from profit in 2019 to losses in 2020. The methodology is based on linear regression method which considers the variation of the net profit and independent factors as variation of turnover and the level of fixed assets, stocks, receivables and cash in the year before the crisis. The higher turnover decrease and company size, the higher negative net result variances. Only the companies with a good treasury position went through the crisis more easily. If the companies will not assure a sustainable growth, they will be exposed in front of crisis periods.*

**Key words:** crisis, agriculture, net result variances, turnover, financial profile

**J.E.L. classification:** G01, G31, Q12, Q14

## 1. Introduction

The resilience capacity of the companies should be increased in a continuous way before the crisis appear. This behavior gives companies the possibility to apply measures for correction in short-term and the reaction capacity could be very good. 2020 was considered an important year from crisis point of view for the agricultural sector in Romania. 2020 was affected not only by the climate effects dominated by draught, but also by the reduced demand due to COVID-19. Even the demand decreased, the prices for crops remained stable and therefore the revenues of the farmers decreased dramatically. The effect of draught was much higher than the one of COVID-19. The total production of wheat was at 62% compared with 2019, corn at 58%, sun-flower at 26% and rape-seeds at 92%. (Romanian National Statistics Institute, 2020) The main reason for this huge decrease in revenues was due to the yields obtained considering the fact that the surfaces were more or less the same in term of number of hectares. (Romanian National Statistics Institute, 2020) The crop prices were close to the ones of previous year. Therefore, multi-disciplinary efforts for determining the impact of the climate-changes are put for having a clearer image about the prices volatility and negative effects on yields. (Thompson et al, 2018) Price volatility represents a risk for the global food security. If the productions cannot satisfy the internal demand of the countries, these may decide to ban the exports and therefore, the global markets can be affected both from quantities and prices point of view. Each financial crisis which affects both micro and macro environment reveals major vulnerabilities. In the absence of financial reserves in the private sector, the uncertainty affects significantly the results of the entrepreneurs. (Busega, 2015) Contrary to the general theories that climate changes affect the crop prices and generate high volatility, according with (Thompson *et al*, 2018) the prices can be stabilized using crop storage, meaning that the offer will be limited. The yields are reduced by the climate changes, but the incomes of the farmers can be the same or even better due to price increases. This is the perception and behavior of the Romanian farmers as well. The crops are not included in future contracts for securing the price or even sold immediately after the harvest. The farmers prefer to keep the crops on stock taking additional risks of price volatility as the market price in Romania

is coming from outside the country, even Romania is an important player in the agricultural European market. In 2020, the yields decreased dramatically up to minus 40%, but the prices remained more or less the same as in the previous year. This led to revenues decrease for all the market.

This study explores the financial profile of the companies that had positive net result in 2019 and they ended with losses in 2020. Determinants as company size, policy for dividends, debt structure, cash-flow or working capital can influence the level of cash. They are different depending on the period we are referring to: pre or post crisis period. The working capital, cash-flow and leverage should be applicable for both periods, before and after the crisis. (Batuman *et. al*, 2021) The study observes the relationship between the decrease of the net result and the turnover decrease and the financial profile of the company expressed through the assets structure.

Contrary to other sectors, like retail where the turnover needs to be sustained by high level of stocks, in agriculture there is no need of stocks to sustain the future production and therefore the turnover. The actors of the agriculture sector in Romania invested in storage capacity for keeping the stocks with the believe that the prices can increase. The stocks are used for a speculative purpose and this involves big market risks in term of prices. The quality of the assets, in general the stocks, should be tested properly as they can be affected by depreciation. There is no good accounting culture for reporting the value of the assets properly. Considering that the stocks can bring high risks due to price volatility, the big companies are more exposed to this risk. The probability for the big companies to be affected during crisis is much higher than the one for the small ones.

The study methodology involved the selection of the companies which had profit in 2019 and loss in 2020 and the use of the regression model for identifying the relationship between the net profit decrease and the variation of the turnover and the balance sheet profile in term of assets.

The study concludes that in the view of the Romanian farmers, the very good business perspective of the assets structure capable to sustain the business growth was transformed into a negative result due to the immediate effect of the 2020 crisis. The higher was the level of turnover decrease and the dimension of assets, especially stocks and receivables, the higher was the probability to transform the profit in loss. This negative effect can be partially balanced by a good treasury position. This significant statistically relationship is explained by the lack of liquidity in the market in 2020 and the impossibility of the farmers to cover the costs due to the revenue decreases: same prices for crops, but lower yields. The market requests and the logistics shortage have led to difficulties in selling the products and did not allow for taking advantage of the stocks from both current and last years.

The balance sheet effects had negative impact on the net profitability for the big companies in term of assets with higher turnover decrease. It seems that they do not have big resilience capacity and a more conservative approach should be used in the future. The famers have a lot of instruments for addressing the business risk as future contracts, insurance or they can use the new technologies and innovations to decrease the costs and to increase the level of control over the fields. This will allow them to act quickly in case of necessity and to adapt the technological decisions to the new reality.

The study will be completed with other relevant sections as literature review, methodology, findings and conclusions.

## 2. Literature review

Along the macro-economic issues and draught, the COVID-19 crisis came with a double negative situation for the farmers' revenues: decrease of the consumption capacity and an increase of the competition at market level. (Abilda *et al*, 2024) The expectations for the next decades are related to a fast-growing population that will require more food production. This is going to be a challenging situation considering the climate changes. (Roubík *et al*. 2022) Crisis factors as wars or pandemics can disrupt the supply chains for both crops and agriculture inputs, the food security being in risk. A such situation can be amplified by other factors like exchange rates volatility. (Urak *et al*, 2018) The crops price volatility can be reduced by the production increase. This can be sustained by state through comprehensive policies applied in the rural areas. The purchasing of agricultural inputs and development of the warehouse should be on top of the priorities for governments. (Urak *et al*, 2018) The structural reforms are necessary for improving the companies' productivity. On the other hand, the process of “immunization” should create a protection against both external shocks approach

related to general risks in agriculture. (Busega, 2015) The management decisions are taken more often depending on the crops price volatility and not considering the climate change. This is valid in the countries where the state intervenes and offers subsidies in case of calamities. (Lehmann *et al.* 2013) The Romanian farmers do not have a clear visibility on the possible aid coming from the state and they have to consider the climate changes as a very important business risk. The most used method to hedge the crop prices is the future contract, but the farmers prefer the natural hedging or the speculative position. This behavior depends on the financial perspective over the innovation processes. (Nienhaus *et. al* 2023)

During crisis periods, the companies should make compromises all the time. They tend to reduce the costs, especially with the work force, training programs or marketing. The effect on short-term could be positive, but on medium and long-term will affect the employees and the trust in the company will decrease. (Ogbonnaya *et al*, 2024) So, the adverse effects of crisis, including COVID-19, can be addresses using different cost cutting strategies, especially for seconday costs, changes in the supply chains using the proximity, innovations in term of production proceses and management system transformation. (Abilda *et al*, 2024)

For a company it is very important to have access to the finance sources. The trade credit is a very good alternative for the bank credit during crisis periods. The companies who relied more on trade credit had better performance considering the difficult external situation. (Heo, 2024) The farmers relay on trade credit in general as they find more flexibility in the discussions with the suppliers, but the cost is much higher than the one asked by a bank. This can involve financial difficulties when the farmers are to exposed and the percentage of stocks and receivables are significant in the balance sheet. They are covered by debts with high costs, even they are not seen directly in the interest expenses. The finance cost is included by the suppliers in the cost of goods.

The new technologies are not considered a main focus for farmers in general, (Passarelli *et al*, 2024) but in special for the Romanian farmers. (Passarelli *et al*, 2024) There is no link between environmental performance and the financial performance in countries like Romania. The orientation through “green” economy is not perceived yet as a sustainable factor for the business development. The business environment from Romania does not have yet this type of behavior, (Pintea *et. al* 2014) but it has to change as the new regulations will go in this direction more and more. The long-lived assets presented in the agricultural sector are considered investments with low-liquidity. They can be easily devaluated by the climate changes which can contribute at their devaluation. This can influence the balance sheets of the companies presented in the agribusiness sector. The accountants have the need to use standards for this topic, considered very important. (Tingey-Holyoak *et al*, 2024) It is proved that a farmer which invests in new technologies will not do it again so soon. The investment decision is taken depending on the low education related to modern technologies, deficiencies of experienced people and also due to the missing information. (Passarelli *et al*, 2024) The specific literature does not contain studies that present the main factors that quantify the probability of adopting modern technologies during the crisis period by the actors from agricultural sector. (Passarelli *et al*, 2024)

It is difficult to recover the losses in agriculture sector, especially in some areas if the situation continues for more than two consecutive years. During the pandemic period and just after that, the countries showed efforts to keep the agricultural markets and food industry at a satisfactory level, but the supply chains and the market access was not secured yet. (Roubík *et al.* 2022)

The crisis situation should be accepted and the farmers should adapt the business to the new normal, (Abilda *et al*, 2024) considering new methods as new technologies as part of innovation, hedging contracts for securing the prices, qualitative agricultural inputs and focus on the “green” agriculture as this will be the trend in many countries imposed by the state authorities. Ideally for the Romanian farmers is to increase the productivity in the same time with the decrease of the risk which are directly connected with the value of the assets.

### 3. Research methodology

The study approach was through a two steps method for analysis the 2019 and 2020 financial data for 2.979 companies. All the companies included in the sample are present in the Romanian agribusiness sector with crops production as main activity. The first step was to select the data for the

companies which had profit in 2019 and loss in 2020. The results showed that 503 companies were in this position. In the second step, a regression model was used for describing the relationship between the net profit variances (NPV) as dependent variable and the turnover variances (TUV), fixed assets (FA), stocks (ST), receivables (RE) and cash (CA) as independent variables, for the 2019 financial data. The analysis can be considered a stress test over the financial position of the analyzed companies in strong connection with the business volatility expressed through the turnover decrease.

The regression equation is:  $NPV = \alpha + \beta_1 TUV + \beta_2 FA + \beta_3 ST + \beta_4 RE + \beta_5 CA + e$ , where  $\alpha$  is a constant variable,  $e$  is residual and the regression coefficients are  $\beta_1, \beta_2, \beta_3, \beta_4$ . Multiple tests were performed for validating the model using the SPSS software: normality, multicollinearity, autocorrelation, heteroscedasticity, correlation coefficient and determination coefficient tests.

#### 4. Findings

The financial situation was very affected in 2020 at both macro and micro level in Romania under the effects of multiple crisis. Compared with other years, 2020 was dominated by severe drought and on top of that there was the negative impact of COVID-19 with consequences on blockages on the logistic routes, impossibility of working for some people and other aside effects.

Analyzing the sample of 2.979 companies, we can observe that the turnover decreased with 7% and the net profit decreased with 48% (Table no. 1 and 2). There were 503 companies which had profit in 2019 and loss in 2020, 2.098 companies with profit in both years, 221 companies with losses in both years and 157 companies which succeeded to transform the loss of 2019 in profit in 2020.

The highest decrease in turnover (-25%) was for the 503 companies which had profit in 2019 and losses in 2020.

Table no. 1 Turnover evolution: 2020 vs 2019 (RON)

No	Year		No of companies	Turnover (kRON)			
	2019	2020		2019	2020	2020 vs 2019	2020 vs 2019
1	Profit	Loss	503	3,287,189	2,451,291	-835,898	-25%
2	Profit	Profit	2,098	21,212,199	20,285,958	-926,242	-4%
3	Loss	Loss	221	584,177	476,573	-107,604	-18%
4	Loss	Profit	157	545,129	651,760	106,631	20%
<b>Total</b>			<b>2,979</b>	<b>25,628,694</b>	<b>23,865,581</b>	<b>-1,763,112</b>	<b>-7%</b>

Source: (Author's own research)

Approximately 60% of the net profit decrease was represented by the variance of the result for the 503 companies which obtained profit in 2019 and loss in 2020. So, 17% in term of number of companies contributed with 60% net result decrease.

Table no. 2 Net profit evolution: 2020 vs 2019 (RON)

No	Year		No of companies	Net profit (kRON)			
	2019	2020		2019	2020	2020 vs 2019	2020 vs 2019
1	Profit	Loss	503	187,238	-381,361	-568,599	-304%
2	Profit	Profit	2,098	2,191,589	1,797,671	-393,918	-18%
3	Loss	Loss	221	-290,434	-436,177	-145,743	-50%
4	Loss	Profit	157	-89,000	63,072	152,072	171%
<b>Total</b>			<b>2,979</b>	<b>1,999,393</b>	<b>1,043,205</b>	<b>-956,188</b>	<b>-48%</b>

Source: (Author's own research)

Based on the Tabel no. 3, in average the percentage of the cash within the balance sheet structure for 2019 is not significant. The stocks and receivables have a significant percentage along the fixed assets.

Table no. 3 Descriptive statistics (RON) - 2019

Variable	Mean	Std. Deviation	N
PNV	-1,130,416	2,475,655	503
TUV	-1,661,825	8,798,484	503
FA	3,959,424	9,700,759	503
ST	1,845,677	7,227,309	503
RE	1,835,567	10,543,217	503
CA	547,759	2,735,471	503

Source: (Author's own research, SPSS)

The Pearson correlation test shows a strong correlation between all the variables taken into consideration (Table no. 4).

Table no. 4 Pearson correlation

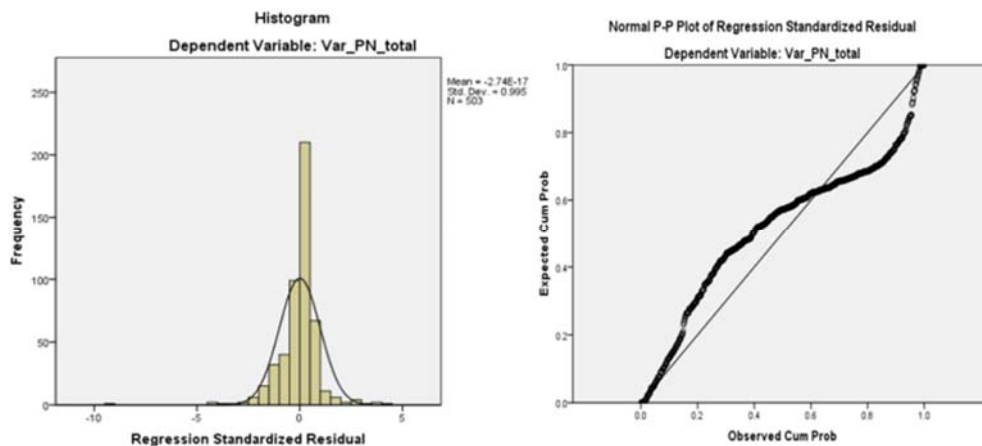
Variable	PNV	TUV	FA	ST	RE	CA
PNV	1.000					
TUV	0.363**	1.000				
FA	-0.871**	-0.469**	1.000			
ST	-0.878**	-0.618**	0.884**	1.000		
RE	-0.590**	-0.540**	0.447**	0.667**	1.000	
CA	-0.290**	-0.709**	0.271**	0.487**	0.819**	1.000

\*\* Correlation is significant at the 0.01 level (2-tailed)

Source: (Author's own research, SPSS)

All the other tests performed and presented in the figure 1 and 2, tables no. 5, 6 and 7 are validating the model.

Figure no. 1. Normality test: Histogram and Normal P-P plot of regression standardized residual



Source: (Author's own research; SPSS)

The statistical F test reflects a p-value < 0.05 concluding the fact that the model is statistically significant in term of independent variables.

Table no. 5 Statistical F test

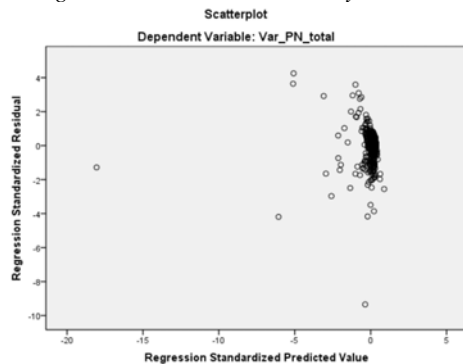
ANOVA <sup>b</sup>					
Model.	Sum of Squares.	Df.	Mean Square.	F.	Sig.
Regression	2,697,054,723,677,640	5	539,410,944,735,529	706.168	0.000
Residual	379,636,743,902,970	497	763,856,627,571		
Total	3,076,691,467,580,620	502			

a. Predictors: (Constant), TUV, CR, DR, FA, ST, RE, CA

b. Dependent variable: PNV

Source: (Author's own research, SPSS)

Figure no. 2. Heteroscedasticity test



Source: (Author's own research, SPSS)

The Durbin-Watson coefficient is close to 2 which shows a non-correlation situation between variables meaning a low degree of similarity.

Table no. 6 Model summary<sup>b</sup>: Result of the determination coefficient test (R<sup>2</sup>) and Autocorrelation test

Model.	R.	R Square.	Adjusted R Square.	Std. Error of the Estimate.	Durbin-Watson.
1	0.936	0.877	0.875	873,989	1,983

Source: (Author's own research, SPSS)

Regarding collinearity statistics, as all the tolerances are > 0.1 and the Variance Influence Factor (VIF) are < 10, the studied model is free of multicollinearity.

The R Square coefficient is 0.877 meaning that the model explains 87.7% of the net profit variance determinants and gives high confidence to the model.

Table no. 7 Multi regression analyses<sup>a</sup>

Model.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity statistics.	
	B	Standard Error.	Beta.			Tolerance	VIF
(Constant)	-431,927	44,208		-9.770	0.000		
TUV	-0.040	0.008	-0.142	-5.074	0.000	0.319	3.138
FA	-0.113	0.010	-0.443	-11.876	0.000	0.178	5.609
ST	-0.152	0.016	-0.443	-9.261	0.000	0.108	9.228
RE	-0.091	0.009	-0.389	-10.501	0.000	0.181	5.520
CA	0.239	0.034	0.264	7.007	0.000	0.175	5.723

Dependent variable: PNV

Source: (Author's own research, SPSS)

The regression equation resulting from table no. 7,  $NPV = \alpha - 0.040 TUV - 0.113 FA - 0.152 ST - 0.091 RE + 0.239 CA$ , shows that the net profit decrease is in line with the turnover variation and the high value of the fixed assets (FA), stocks (ST) and receivable (RE), all relationships being statistically significant. Only the good treasury position (CA) can have a positive impact on the net profit variance meaning that higher the cash lower the net profit decrease.

## 5. Conclusions

The study revealed that the most exposed companies are the one with high level of stocks and receivables which involves business risks, high level of fixed assets which came with high fixed costs, high level of volatility in term of revenues which can be addresses using innovative business solutions. The higher proportion of the cash in the balance sheet can assure a higher level of resilience. So, the farmers should prioritize the cash-flow instead the profit. The risks in agriculture are too high and the situation can become critical as it was in 2020 when more important risks appeared: COVID-19 and a severe draught in Romania. The speculative behavior should be combined with a more conservative one and they should try to keep an optimal structure of the balance sheet with lower level of stocks and receivables. For doing this, they should sell earlier even the prices could be lower. Or they can use different hedging options using future contracts. For protection the level of revenues against weather risks, solutions as insurance can be used.

The companies will pass more easily through crisis if they will become more flexible in term of workplaces, investments and financial. (Barry et al, 2022) The investments in agriculture are quite important from value point of view. In general, just the land is rented partially. The trend of the recent years is to purchase all agriculture machines even they become very expensive. This will lead to an inflexibility in term of fixed costs and can have a negative effect on the financial performance during crisis periods. The financial flexibility can come using diversified financing sources. The farmers should keep good relationships with all time of creditors even the business is doing well in a certain period of time. Relying mainly on trade credit as they consider this as the most flexible solution, can bring negative impact on the company rentability. In general, the financing cost included in the cost of goods is higher than the one obtained from traditional creditors as banks.

During crisis, the farmers should choose the development in an optimal way with reduced costs and capacity for adapting in short-time. The digital transformation is a key element for surviving during the crisis. (Abilda et al, 2024) There are microeconomic determinants which influence the performance of the companies as well. They are related to the size of the company, capital structure and human resources. The most important influencing factor is the company size. (Pantea *et al.* 2014) As the present study revealed, the company size can have a negative effect on the performance during crisis period if the risks are not anticipated properly. Big level of fixed assets, stocks and receivables under the condition of a market decrease can put big pressure on the company results as the attached costs are too high compared with the generated revenues. The resilience can come if the companies are growing in a very flexible way and they are ready to adapt very quickly to the new market conditions. For doing this, sometimes they have to make compromises in term of profitability and to invest more in the risk management processes.

For entrepreneurs it is important to control the level of fear and the excessive level of optimism. If this will affect their business behavior, they should think about the performance which will be affected for sure. (Deniz *et. al.*, 2011) Under this view, the farmers should keep a level of balance between conservatorium and the level of risk that they intend to take. A middle-way solution is always better when we observe businesses performed within environments with high level of risk. In order to limit the exposure of the current assets, especially stocks and receivable, they can use methods as hedging to sell the stocks earlier or to transfer the credit risk through insurance. The profitability may be affected, but the risks will be addresses and the business visibility will be higher for all stakeholders, including creditors.

Future studies should investigate more the behavior of the farmers in term of risk and innovation and their perception in connection with the financial results of the companies.

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## Intercultural Communication in Business English. Issues and Solutions

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### Abstract

*This paper is a meta-analysis which tackles issues relating to intercommunication, such as: definitions, characteristics, issues, solutions and recommendations. The idea is that students, specialists, managers and leaders, decision-makers must be aware of and understand the importance of communication and culture similarities and differences in an intercultural environment, the challenges posed and the solutions to be found. Thus, communication skills along with other social and digital skills can be the key to success in today's age of fast changes and globalization. Considering that businesspeople and decision-makers need to engage with partners and customers from around the world, this process requires relevant, impressive skills to manage intercultural perspectives and contexts.*

**Key words:** communication, culture, intercultural, business, skills

**J.E.L. classification:** I25, Z13

### 1. Introduction

In order to be successful in a cross-cultural environment, the people doing international business via the English language need to understand and overcome major challenges, to adapt to new cultures' needs, demands and particularities, to ensure that their business stays competitive in the market. Using their knowledge of English, their resources to the fullest and the latest technologies, businesspeople and enterprises can avoid ineffective communication and improve their performance efficiency. According to Buzarna-Tihenea (2020, p. 306), the implementation of intercultural elements in English language teaching should take into account “both learners and teachers as key actors that employ language to solve a variety of tasks, to make connections and compare source and target languages and cultures”. Moreover, to master their English, and their communication skills in English, lots of terms, collocations and idioms must be learnt and practised.

### 2. Literature review

One must become aware that it is essential to go beyond the descriptivist and traditional perspective of defining culture as “the totality of material and spiritual values created by mankind and the institutions necessary for the communication of these values” (DEX). Moreover, in Nieto's (1992) view, culture is a complex concept that includes elements such as: the content/product (what culture is), the process (how culture is created and transformed) and the agents of culture (who is responsible for creating and changing it). Moreover, the same researcher states that culture cannot be reduced to celebrations, food or dances, even if these are elements of culture (Nieto, 1992).

In her turn, Nedelcu (2008, pp. 18-27) refers to several UNESCO reports (from 1982 and 1995) specifying a set of defining indicators for the clarification of cultural dimensions in relation to projects of development (the relationship with the temporal dimension, with the environment, the relationship of the individual with the social group, the relation to hierarchy and power, to economic life and to innovation), to cultural models and explains the transition from cultural competence to intercultural competence. In the author's opinion, the term “intercultural competence”, inspired by Geertz's semiotic vision of culture, emerged at the end of the 80s as an

attempt to define new objectives for learning foreign languages (based on the idea that it was important to master the rules of grammar and vocabulary, but also to acquire a new skill to easily manage cultural differences between environments) (Nedelcu, 2008, p. 25).

In the Preface to the book entitled "Inter/Cultural Communication. Representation and Construction of Culture" (2013, pp. XX-XXI), the editor Anastacia Kurylo introduces readers to unique approaches to topics relating to this domain through an "inclusive understanding of culture", the definition of culture provided by the author being: "inclusive of gender, race, sexual orientation, ethnicity, class, geographic location, generational identity, and so forth". The focus should be on learning about underrepresented cultural groups through narratives, case studies, and examples provided throughout the text. The impact of interpersonal topics, interpersonally oriented intercultural communication topics (verbal and nonverbal communication) must also be emphasized. Research is explained through case studies based on specific methods, while current topics in inter/cultural communication are discussed by well-known and emerging scholars in the field.

According to Kurylo (2013), the learning goals for students should include the examination of fundamental concepts, theories and approaches connected to inter/cultural communication. This would enable students to explore communication in terms of its literal and figurative cultural borders. Furthermore, it would provide an insight into cultural influences but not the elements predetermining the behavior patterns of its members. This would also allow students to discuss the connections between culture and communication and it would encourage their involvement in the collaborative co-construction of culture. In addition, according to the same author, their self-awareness about the development and preservation of cultural identities could enhance, by acquiring knowledge of the experiences, behavior patterns, and insights of their own and other cultural groups. Communication is "a vital instrument in a wide array of business contexts" (Buzarna-Tihenea, 2023a, p. 279). Furthermore, successful business communication involves – among many others – the mastery of speaking skills, negotiation abilities and knowledge of verbal and nonverbal elements (Buzarna-Tihenea 2023b, p. 191). Acquiring greater intercultural communication abilities in an intricate social world, thinking critically about the dynamics of cultural and intercultural relationships, better assessing the part played by media and technology as cultural agents on local and global scales, implementing text concepts in daily practical situations, comprehending ethical issues connected to inter/cultural communication are other learning objectives pursued by those who want to get acquainted with this area of knowledge (Kurylo, 2013, XXI-XXII).

As teachers of English (Teaching English as a Foreign Language and Teaching English for Specific Purposes - ESP), we are particularly interested in English language business communication. Thus, the specialized literature has shown to us that interculturality is the basis of "intercultural teaching and learning", as a new and challenging field in the education system, strongly influenced by globalization (Ogay and Edelmann, 2016, pp. 388-400). The main aim of this field, in relation to the English for Specific Purposes (ESP) classroom, is to move from traditional ways of teaching a foreign language (with an emphasis on language structures and vocabulary) to teaching cultural elements, promoting the students' intercultural awareness and contributing to the development of their intercultural communication skills (Planken et al., 2004).

By relying on the specialized literature (see Patel et al.; 2011; Liddicoat et al., 2003; Liddicoat, 2004; Kohler, 2015), we can distinguish five principles that emphasize the interconnections between culture and language: active construction (the involvement of learners and of teachers in the language learning process); making connections and comparing source and target languages and cultures; social interactions (operating with personal, cultural and linguistic values, goals and preferences); reflection (understanding cultural differences and interculturality when reflecting on "social processes and their outcomes"; responsibility (Byram, 1997, p. 19).

### 3. Research methodology

The methodology of this study is based on the analysis of various bibliographical sources, on our long-time experience as teachers of English, and our business encounters, challenges and struggles. In order to discuss intercommunication issues, one needs to differentiate between stereotyping (when people expect all cultural group members to have the same characteristics and engage in the same behaviors), prejudice (a "hostile attitude" toward members of a cultural group because the person is a member of that group and is assumed to have qualities stereotypically associated with that group – see Allport, 1954/1979, p. 7), discrimination (the extension of prejudice into behavior), diversity (a variety of cultural groups/groupings).

Kurylo (2013, p. 7) warns us about the dangers incurred by the generalizations about a culture and the damage to the communication process, as stereotypes can emerge from erroneous perceptions. These distorted perceptions are triggered by the expectations that the members belonging to the same cultural group share the same features and display identical behavior patterns. Nevertheless, the above-mentioned scholar underlines the idea that individuals are unique, and irrespective of their membership to a certain cultural group, they also display considerable intracultural variety, as they also identify themselves with multiple cultures; each person is a map where different cultural identities intermingle in a unique pattern, triggering distinct behavior types.

Stereotypes are dangerous as they cancel individual differences and entail damaging consequences, such as prejudice. Stereotypes can also entail discrimination, seen as the materialization of prejudice into behavior patterns, and consisting of different, undesirable, and consequential attitudes towards a person belonging to the stereotyped group. One of the solutions to this issue, suggested by the experts in the field is to accept diversity and suppress stereotypes (Kurylo 2013, p. 8). This would enhance the efficiency of the communication process at intercultural level and would also contribute to the increase in one's awareness of their culture and of the ways it influences others.

### 4. Findings

During our research, we have noticed certain major issues that should be considered in intercultural communication. Firstly, the vocabulary used in a business environment. Besides everyday English and specific terminology, businesspeople need to be familiar with collocations such as: business associate/ dealing/ incubator/ partner; types of business (consulting/ contracting/ day-to-day/ diversified/ ailing or failing/ family-owned/ family-run/ flourishing/ for-profit/ high-tech/ home-based/ legitimate/ local/ lucrative/ medium-size/ medium-sized/ profit-making/ regulated/ reputable/ retail/ risky/ shady/ shrewd/ small-scale/ sordid/ successful/ thriving/ tricky/ wholesale – see <https://dictionary.cambridge.org/collocation/english/business>). Kenneth Beare (2020) refers to collocations with the verbs "to do" (accounts/ business/ deals/ due diligence/ paperwork/ research; "to make" an appointment/ a calculation/ cutbacks/ a deal/ an investment/ a loan/ money/ a profit; "to manage" a business or factory/ expectations/ a project or a team; "to operate" or "to run" an airline/ a facility/ a service; the noun "deal" to cut a deal/ do a deal/ to give someone a deal/ to close a deal/ to work on a deal; the noun "contract" to write/ draw up a contract/ to sign a contract/ to negotiate a contract/ to offer someone a contract/ to bid on, etc.

Secondly, lack of clarity/ ambiguity might occur (for more details see Pop-Flanja & Gâz, 2015). Since cultures furnish people with various ways of thinking, perceiving and interpreting the world, the same words can engulf distinct meanings to people from different cultures, even when they use the "same" language. When languages differ, and translation has to be employed to communicate, the risk for misunderstandings enhances because each culture bears the imprints of its unique background; it has been shaped according to a certain value system and it is permeated by a specific communication style. The lack of an appropriate comprehension of these elements (that are associated to the cultures of the actors involved in the communication process and that are often triggered by culturally embedded presuppositions, lack of awareness of the value system of the other culture and differences in communication styles) entails ambiguity; this hinders the communication process, as the listener loses part of the message and develops an incorrect viewpoint about the conveyed pieces of information.

Thirdly, the inflexible attitude is concerned. When entering different cultural backgrounds, some people avoid consciously or unconsciously the exposure or experience of the respective cultures, triggering introvert behavior patterns, closed mindset, and the impression that the visitor rejects the host culture. These people miss out on the opportunities to learn and adapt to the new culture, which undermines team spirit and weakens business relationships. Therefore, people should pay more attention to the cultural foundations of their behavior patterns, perceptions, beliefs, and values in order to perceive their interactions from a cultural viewpoint.

Fourthly, ethnocentrism – i.e., the idea that one’s culture is correct, etc, and rational, and that others are inferior – can also trigger serious consequences. It can be considered as a barrier to communication (see Jandt, 2007). This behavior (that often occurs unconsciously) is difficult to prevent because individuals usually judge different cultures in connection to their own standards, and do not assess other cultures from the host country’s perspective. This behavior also consists of selective listening and value judgement, negatively affecting the quality of the communication process.

The development of the right competencies, such as tolerance for ambiguity, cultural flexibility, and reduced ethnocentrism is paramount to the enhancement of the intercultural communication process. These competencies are supported by exposure to foreign cultures, active feedback, and personal features such as receptiveness, amiability, cordiality, extraversion, uprightness, dignity, etc., playing an important part in the establishment of efficient communication and global leadership. Thus, business leaders would be able to assess and harness the differences among various cultures in order to boost the quality of the business communication process with persons belonging to different cultures, on the globalized market.

The efficiency of intercultural communication is also influenced by the individuals’ understanding of the communication styles associated to the cultures they interact with. For instance, some cultures are “high context”, as communication depends to a great extent on the physical context and on the information transmitted by it rather by written or spoken lexemes (see the Japanese culture, for example), while others are “low context”, as the communication process is direct, precise, open and feeling-based (e.g., Australian, German, US cultures) (for more information on this topic see <https://www.crossculture.com/the-lewis-model-dimensions-of-behaviour/>).

The British cross-cultural communication expert Richard D. Lewis (1999) greatly contributed to the research in this field and to the improvement of the interaction between various cultures by designing a model focused on the definition and simplification of inter-cultural analysis. In addition, this scholar explained a taxonomy of cultures whose comprehension could assist business leaders in attaining efficient cross-cultural communication, i.e., “linear-active” (calm, factual and decisive), “reactive” (gentle, considerate, hospitable, and good listeners), and “multi-active” (warm, amiable and sensitive; talking in an indirect way; desire to do many things at once).

The specialized literature highlights several steps that enhance intercultural communication skills. First of all, preparation is very important in order to become acquainted with the culture of the persons involved in the communication process (cultural norms, social customs, etc.). Learning the language is also extremely useful as it reveals one’s effort to create connections, which will be highly appreciated and respected. Observing the behavior of the persons belonging to different cultures, listening to them carefully, paying attention to the ways in which they react during various interactions, searching for common cultural elements also play an essential part in intercultural communication. Qualities such as open-mindedness and self-awareness should be taken into consideration; cultural assumptions and preconceived ideas should be put aside as each individual is unique and has his/her own preferences irrespective of his/her cultural identity. Open dialogue is also a vital element when it comes to the interaction between people belonging to different cultures as it diminishes the risk of misunderstandings and embarrassing situations. Asking for support in order to learn more about the culture of future communication partners will facilitate these interactions (see “Intercultural Communication in Business” EHLION Language Consultancy”, at <https://ehlion.com/magazine/intercultural-communication/>).

Prisca Valentino (2018) refers to one major reason for ineffective intercultural communication (i.e., cultural differences) and explains several ways for improving it: Be aware of your own culture; Be curious; Experience different cultures regularly; Listen and observe; Learn to ‘read’ body language and understand non-verbal cues; Be aware of cultural differences and individual cultures; Simplicity is key.

## 5. Conclusions

Living in this contemporary globalized world imposes a permanent need for communication and brings into contact more and more people who speak different languages and belong to different cultures. Language is embedded in society and culture, and thus learning a foreign language also involves learning at least a part of its culture. The literature in this field has always pinpointed to the inherent interfingering of language and culture in foreign language teaching and learning activities. Grounded in the prominence of communication in a multilingual environment, the teaching of specialist languages should focus not only on grammatical structures and vocabulary, as this does not help learners to use the specialist language in the real world. The main purpose of learning everyday English and specialized English is represented by the need for communication. Pupils/students need to acquire those skills that help them understand others and understand each other, both from the point of view of action and identity. Given the rise of globalization and the (increasingly) multicultural work, the need to develop interculturality has become an urgent issue, as intercultural competence requires a good understanding and operation in the cultural and intercultural environment, online and offline. In terms of ESP (English for Specific Purposes) teaching, the intercultural approach can transform pupils/students from foreign language users into intercultural speakers, stimulating their curiosity and improving their cultural knowledge and language skills.

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# Economic and Financial Performance of the Company Alphabet Inc. (Google) - Company with a Global Footprint in the Development of the Knowledge-Based Economy

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## Abstract

*Interest in intangibles has become increasingly important in recent decades. Intangible assets have gradually become the most important sources of competitive advantage. The traditional factors of production (material resources, labor, capital) have gradually diminished in importance. At the same time the importance of intangible assets such as knowledge, information, creativity has increased. Before the organization can grow it has to learn. For most organizations, the ability to create a sustainable future is directly proportional to how well they develop the intellectual capabilities of their employees. Organizations that use their knowledge as a source of competitive advantage are referred to as "knowledge-based organizations". In this paper we analyze the performance of Alphabet Inc. (Google)-a company with a global footprint in the development of the knowledge-based economy.*

**Key words:** Google, knowledge-based organization, performance

**J.E.L. classification:** O3

## 1. Introduction

In the context of the knowledge-based economy it is necessary to shape a **new type of organization - knowledge-based organization, a new type of management - knowledge-based management and a new type of employees - knowledge-based employees**. "As a practice, knowledge-based management consists of approaches, methods, techniques in firms focused on the production and use of knowledge, which ensure a higher value [...] of knowledge." (Ovid, N. et. all., 2005, p. 204)

Alphabet Inc. (Google) is a relevant case study for understanding how the **knowledge-based organization** works.

More than just a search engine, Google has been involved in numerous initiatives that promote education, research and access to information and knowledge. Google Scholar, for example, is an essential tool for researchers and academics, providing free access to a wide range of scientific papers and scholarly materials. In addition, through programs such as Google for Education, the company is helping to modernize the educational process by providing digital tools and resources to educators and students.

In addition to its services, Google has played a significant role in developing and promoting new technologies. For example, through Android, the open-source operating system for mobile devices, Google has democratized access to mobile technology, having a major impact on the smartphone and tablet industry.

## 2. Literature review

In a knowledge-based organization, employees, management, stakeholders become aware of the decisive role of knowledge in achieving performance, focus on accumulating knowledge and using it to improve their work, thus becoming more innovative and efficient.

The knowledge-based organization has a number of defining characteristics identified by Professor Nicolaescu (Ovidiu, N. et.all, 2005, p. 105):

- The process of building an effective, dynamic and competitive knowledge-based organization starts with **employee satisfaction**, which requires constant and rapid processes of individual and organizational learning, harmonization of individual and organizational objectives, rewarding the company's staff according to their performance.
- **The use of intangible assets** represented by the knowledge of the organization and its employees at the expense of physical, tangible assets and thus the generation of new knowledge.
- **Outsourcing activities that are not core to the firm** while internalizing those that are part of or strongly complementary to the organization's core knowledge.
- Knowledge-based firm development will be based on **increasing the depth and/or breadth of firm knowledge**.
- **Simplify the internal organization of the knowledge-based firm**. The knowledge-based firm will be simple with fewer layers, more flexibility and intelligence.
- **The integration of "knowledge managers"** who often start their work as agents or consultants of change within the organization.
- **Targeting investment in training**, in the external workforce used to replace own staff not progressing effectively.
- **Redesigning the motivation system** by increasing rewards based on the performance of company staff.
- **Developing an open organizational culture** by inviting customers, suppliers and other stakeholders into the company who can see how decisions that affect them are made.
- **Practicing** multiple forms of collaboration with other firms, e.g. **strategic partnerships**.
- **Lower the barriers between the individual and the organization**.
- **Focus on obtaining, using, protecting and capitalizing on intellectual capital**.

## 3. Research methodology

This paper is part of a broader research project in which we delve into the impact of Alphabet Inc.'s (Google) services on the advancement of knowledge, innovation and the valorization of intellectual capital in the context of the knowledge-based economy. Through this paper we aim to conduct an X-ray of the economic performance of Google - a company with a global footprint in the development of the knowledge-based economy. In this direction we aimed to focus our attention on analyzing the main economic and financial indicators of the company and finally to present the main actions and policies directed by Alphabet Inc. (Google) towards human resources management.

## 4. Findings

### 4.1. Evolution of economic and financial indicators within Alphabet Inc. (Google)

Alphabet Inc, the holding company that comprises Google LLC, originated from an ambitious project developed by two Stanford University students Larry Page and Sergey Brin on September 2, 1998. Google began as an innovative search engine with the goal of organizing the world's information and making it globally accessible and useful. The company is headquartered in Mountain View, California, in the heart of Silicon Valley, a recognized center for technological innovation and entrepreneurship.



Google initially distinguished itself with its unique approach to ranking and searching web pages, using an algorithm called PageRank. This algorithm represented a significant breakthrough in the way information is searched and indexed on the internet, providing more relevant and higher quality results than the search engines available at the time.

As Google has grown, the company has expanded its range of products and services, diversifying beyond simple internet searches. Google's services today include Google Search, Gmail, Google Maps, Google Drive, Google Cloud, Android and YouTube. Each of these services has had a profound impact on the way people access information, communicate and interact in the digital environment.

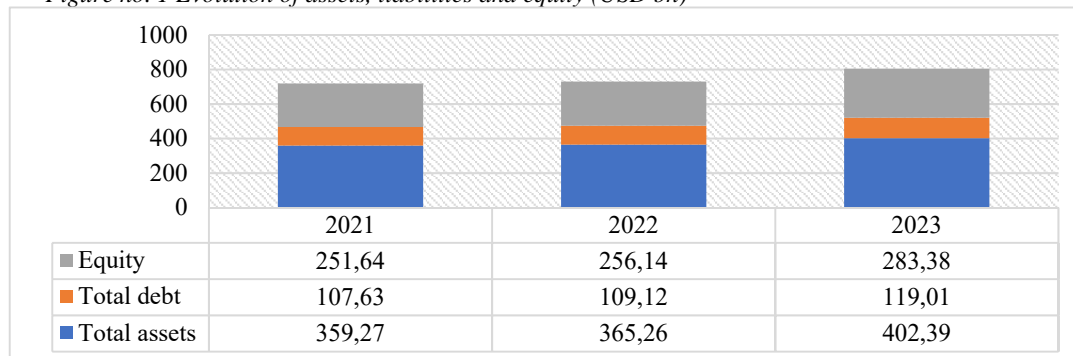
Table no. 1. General data on Alphabet Inc.

Data name	Data presentation
<b>Name:</b>	Alphabet Inc.
<b>Official year:</b>	1998
<b>Registered office:</b>	Mountain View, California, USA
<b>Industry:</b>	ICT
<b>Founders:</b>	Larry Page Sergey Brin
<b>Main services:</b>	Google Search Engine, Gmail, Google Drive, Google Maps, Google Chrome, Google Translate, Google Photos, Google Calendar, Google Maps, Google Translate, Google Calendar, YouTube, Digital Marketing
<b>Current assets (2023):</b>	171.53 billion
<b>Total assets (2023):</b>	USD 402.39 billion
<b>Current liabilities (2023):</b>	81.81 billion
<b>Total debt (2023):</b>	119.01 billion
<b>Equity (2023):</b>	283.38 billion
<b>Turnover (2023):</b>	307.16 billion
<b>Net result (2023):</b>	73.8 billion
<b>Average number of employees (2023):</b>	182.502

Source: [https://www.marketwatch.com/investing/stock/googl?mod=mw\\_quote\\_tab](https://www.marketwatch.com/investing/stock/googl?mod=mw_quote_tab) [Accessed on 05.01.2024]

The analysis of Alphabet Inc.'s (Google) economic and financial results focuses on an assessment of its financial position as reflected in its balance sheets for the last three years, as well as an examination of its corporate performance, as detailed in the company's profit and loss accounts.

Figure no. 1 Evolution of assets, liabilities and equity (USD bn)

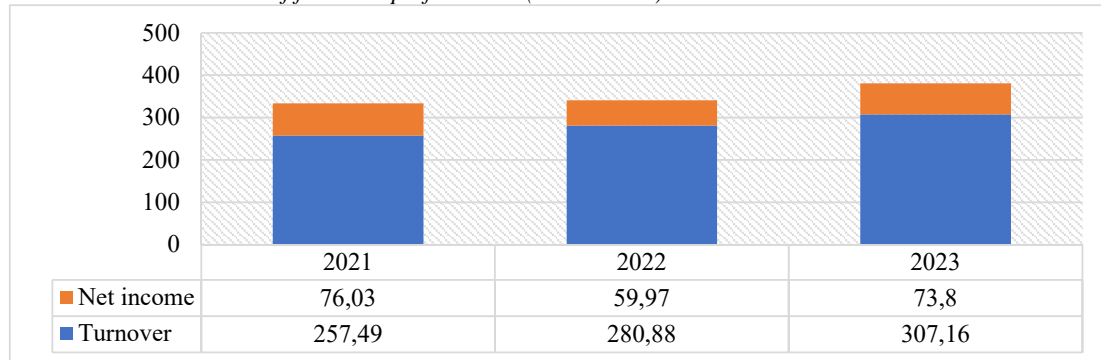


Source: [https://www.marketwatch.com/investing/stock/googl?mod=mw\\_quote\\_tab](https://www.marketwatch.com/investing/stock/googl?mod=mw_quote_tab) [Accessed on 05.01.2024]

According to Figure 1, Alphabet Inc. had the following evolution in terms of assets, liabilities and equity in 2021-2023.

Total assets increased from USD 359.27 billion in 2021 to USD 402.39 billion in 2023.  
Total liabilities increased from USD 107.63 billion in 2021 to USD 119.01 billion in 2023.  
Shareholders' equity increased from USD 251.64 billion in 2021 to USD 283.38 billion in 2023.  
The financial indicators analyzed show that Alphabet Inc. has predominantly structured its assets through equity, demonstrating a strategic tendency to minimize its reliance on debt.

Chart no. 2 Evolution of financial performance (USD billion)



Source: [https://www.marketwatch.com/investing/stock/google?mod=mw\\_quote\\_tab](https://www.marketwatch.com/investing/stock/google?mod=mw_quote_tab) [Accessed on 05.01.2024]

According to Figure 2, the turnover of Alphabet Inc. has increased from 2021 from USD 257.49 billion to USD 307.16 billion in 2023. Likewise, the net income represents a profit which decreased from 2021 from the value of USD 76.03 billion to USD 73.8 billion in the year 2023.

#### 4.2. Human resources management within Alphabet Inc (Google)

Alphabet Inc., the parent company of Google, is recognized worldwide for its progressive approaches to human resources (HR) management.

Since its inception, the company has had an innovative vision of human resources management. Initially, Google focused on attracting tech talent, building an organizational culture centered on innovation and creativity. Over time, the HR strategy evolved to include diversity and inclusion, continuous professional development and a healthy work-life balance.

Alphabet Inc. has implemented a number of HR strategies that have changed the game in the industry. These include flexible work policies, professional development programs and a strong focus on employee health and well-being. For example, their mental health initiatives and collaborative workspaces were pioneering in the industry. These approaches have helped to create a work environment that not only attracts but retains top talent.

Moreover, Alphabet Inc.'s HR practices have had a significant impact on innovation and creativity. By creating an environment that encourages experimentation and calculated risk-taking, the company has spurred the development of innovative products and services. Its 20% time program also allows employees to devote part of their work time to personal projects, which has led to the development of successful products such as Gmail and Google News.

Alphabet Inc. has integrated sustainability and corporate social responsibility (CSR) into its human resources strategy. The company not only encourages sustainable practices in its daily operations, but also invests in the development of local and global communities. Through its volunteer programs, Alphabet engages its employees in initiatives that have a positive impact on society.

Alphabet Inc.'s innovative HR practices have significantly influenced the knowledge-based economy. By attracting and retaining highly qualified staff, the company has contributed to the development and diffusion of knowledge in information technology. Alphabet employees, through their expertise and innovations, have played an important role in shaping technological trends and developing new paradigms in the digital economy.

As regards the evolution of the number of employees, in this part we have centralized the evolution of the average number of employees of the company as follows:

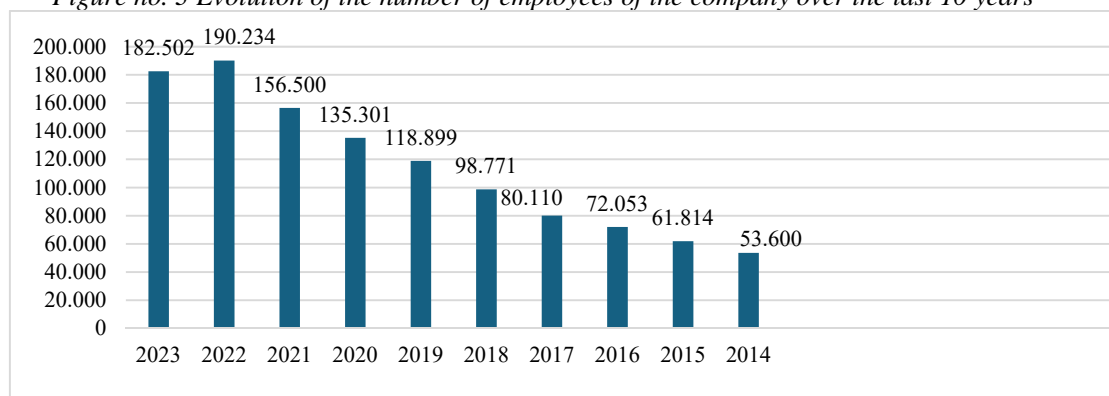
Table no. 2 Evolution of the number of employees of the company over the last 10 years

Year	Average number of employees	Absolute change (no.)
2014	53.600	
2015	61.814	
2016	72.053	Period: 2014 - 2023
2017	80.110	<b>128.902</b>
2018	98.771	Relative change (%)
2019	118.899	
2020	135.301	
2021	156.500	
2022	190.234	
2023	182.502	Period: 2014 - 2023
		<b>240,49</b>

Source: <https://www.macrotrends.net/stocks/charts/GOOG/alphabet/number-of-employees> [Accessed 07.01.2024]

Using the data centralized in the table, we have compiled a visual representation in the form of a graph of the evolution of the number of employees:

Figure no. 3 Evolution of the number of employees of the company over the last 10 years



Source: <https://www.macrotrends.net/stocks/charts/GOOG/alphabet/number-of-employees> [Accessed on 07.01.2024]

According to Figure 3, the number of employees over the last ten years has been on an upward trend from 53,600 employees in 2014 to 182,502 employees in 2023, an increase of 128,902 employees or 240.49%.

## 5. Conclusions

Google's contribution to the knowledge-based economy is notable for its investment in research and development. Its ambitious projects, such as the development of artificial intelligence, autonomous vehicles and augmented reality technologies, are breaking new ground in technological innovation. These initiatives not only push the boundaries of what is possible in technology, but also help create new economic opportunities and shape the future of work and society.

Therefore, Alphabet Inc. and Google in particular, have a profound and lasting impact on the global knowledge-based economy. From simplifying access to information to promoting technological innovation, Google has reshaped the way we interact with the digital world. Its role in advancing technology and contributing to the knowledge-based economy underlines the importance of continuous innovation and adaptability in a rapidly changing world.

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# The Impact of Alphabet Inc.'S (Google) Services on the Advancement of Knowledge, Innovation and the Harnessing of Intellectual Capital in the Knowledge-Based Economy

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## Abstract

*We have chosen this theme because the knowledge-based economy is already the present, and the ICT sector is the optimal infrastructure for its development, so that knowledge, creativity and innovation, as well as intellectual capital, are accessible to all. In this context, we considered it necessary to analyze the extent to which individuals have been concerned to develop their knowledge, skills and creativity with the services of Alphabet Inc. (Google).*

**Key words:** knowledge-based economy, intellectual capital, innovation, knowledge, Google

**J.E.L. classification:** O3

## 1. Introduction

This paper is a research study that encompasses theoretical and practical notions about the knowledge-based economy in the context of Internet and communications development, based on the contributions of the most representative company in the field of Internet browsing, namely Alphabet Inc.

In the first part of the paper we consulted the literature on the knowledge-based economy, with a strong focus on the changes brought about by ICT perspectives. In the second part of the paper we developed a questionnaire to analyze the extent to which Google services contribute to the advancement of knowledge, innovation and the valorization of intellectual capital, respectively to the knowledge-based economy, from the perspective of Google service users.

## 2. Literature review

### 2.1 General aspects of the knowledge-based economy

The knowledge-based economy is a modern term describing an economy in which the production, distribution and use of knowledge plays the leading role. In such economies, intellectual capital and creativity become the main resources, overtaking traditional resources such as natural capital or manual labor. As defined by the OECD, a knowledge-based economy is an economy based directly on the production, distribution and use of knowledge and information.

Historically, the origin of the concept of knowledge-based economics can be traced back to the work of classical economists such as Adam Smith and Karl Marx, who recognized the importance of knowledge and human capital. However, the term began to gain popularity in the 1960s and 1970s as economists began to observe structural changes in advanced economies.

A turning point was the work of Peter Drucker (1969, pp. 34-39.), where he introduced the concept of the knowledge society. Drucker emphasized the importance of knowledge as an economic resource and anticipated the transition from traditional industrial to knowledge-based economies.

In the 1990s, with the expansion of the internet and digital technologies, the concept received increased attention. Daniel Bell (1973, pp. 71-72.), described the shift towards a post-industrial society where services and knowledge become more important than industrial production.

The development of the knowledge-based economy has been accelerated by globalization and technological progress. This has led to significant growth in the service sector, particularly in IT, finance, education and health.

A key element in the development of knowledge-based economies has been investment in education and research. Countries that have invested heavily in human capital training and research and development (R&D) have experienced significant increases in innovation and economic competitiveness.

The knowledge-based economy is therefore the foundation for economic and social development in the 21st century. It implies a shift from traditional resources to knowledge, innovation and technology, emphasizing the importance of education and research, but nevertheless the knowledge-based economy while offering huge opportunities also brings challenges, requiring continuous adaptation from both individuals and societies.

## **2.2 Human capital in the knowledge-based economy**

Human capital, at its essence, is an aggregate of competencies, knowledge, skills and experiences developed by individuals that can be mobilized to generate economic value. In the knowledge-based economy, this concept takes on a new dimension, becoming a decisive factor in determining competitiveness and economic success.

Becker (1964, pp. 39-42.), in his pioneering work on human capital, emphasized that education and training are essential investments that bring benefits both at the individual level - through increased income and career opportunities - and at the macroeconomic level, by stimulating economic growth. This perspective has been supported and extended by subsequent economists, who have shown that investment in human capital can lead to productivity growth, innovation and economic development.

In addition, human capital in the knowledge-based economy is characterized by skills and competences that transcend traditional technical knowledge. Critical thinking skills, creativity, adaptability and digital competences are increasingly valued. This is in line with the observations made by knowledge-based economy theorists such as Drucker (1993), who argued that knowledge workers, i.e. those who apply theory and knowledge to practical problems, are the most important resource of these economies (Drucker, 1993, pp. 101-105.).

In the information and technology age, the labor market is facing increased demand for complex analytical, creative and critical thinking skills. According to studies, such as the one by Levy and Murnane (David et. all pp. 1279-1333), there is a polarization in the labour market, with an increasing demand for high and low-skilled jobs, while middle-skilled jobs are being automated or outsourced.

## **2.3 Key sectors in the knowledge-based economy**

The knowledge-based economy, characterized by an increasing dependence on information, technology and innovation, has redefined the global economic structure. This economy relies on key sectors that are the engines of growth and development.

**Information and Communication Technology.** ICT is an area characterized by constant innovation. With the emergence of emerging technologies such as cloud computing, Internet of Things (IoT), artificial intelligence (AI) and big data, the ICT sector has become a key driver of innovation in the global economy. These technologies not only improve existing products and services, but also open up new markets and opportunities.

**Biotechnology and pharmaceuticals** are key segments of the knowledge-based economy, with a significant impact on public health and technological innovation. At the core of the biotechnology and pharmaceutical industry is research and development (R&D). The development of new drugs and vaccines has contributed significantly to fighting diseases and increasing life expectancy. For example, in the context of the COVID-19 pandemic, the speed with which vaccines have been

developed demonstrates the tremendous capacity of these sectors to respond to global health challenges.

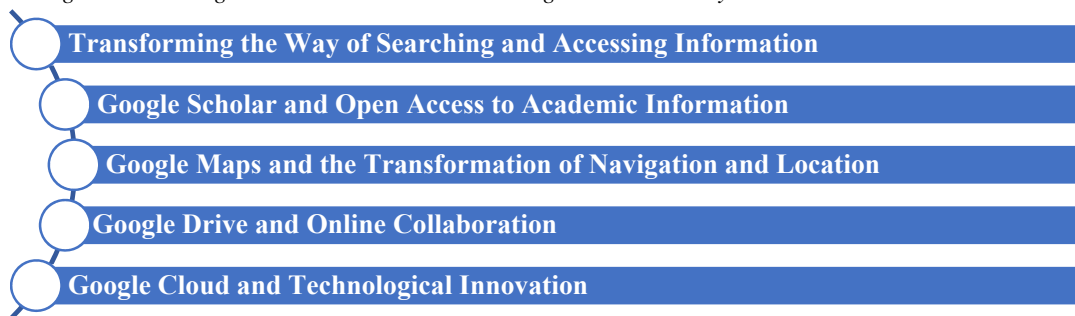
**Financial services and consultancy** are also part of the knowledge-based economy, playing an important role in facilitating innovation and growth. The financial services sector has been profoundly transformed by digitalization and technological innovation. Phenomena such as fintech (financial technology), blockchain and digital currencies have revolutionized the way financial transactions and services are conducted and perceived. These innovations bring increased efficiency, transparency and accessibility, but also present new challenges in terms of cybersecurity and regulation.

**Education and research** are also of great importance in the knowledge-based economy, playing a fundamental role in building human capital and promoting innovation. These sectors provide the skilled workforce needed for other areas of the knowledge-based economy and are also the main source of the research and development (R&D) that fuels innovation in all sectors. In the knowledge-based economy, education is transforming to meet the needs of a rapidly changing world. The focus is shifting from rote learning to developing critical, creative and analytical skills. Continuing education and vocational training ensure the adaptability of the workforce in the face of technological progress and changes in the labor market.

**The creative industries and media** are a dynamic and influential segment of the knowledge-based economy. This section details how these fields contribute to innovation, economic and cultural development, and reflects the intersection between creativity, technology and the economy.

## 2.4 Google's contribution to the knowledge-based economy

Figure no. 1 Google's contribution to the knowledge-based economy



Source: own adaptation

According to Figure 1, Google's main contributions to the knowledge-based economy at a global level are the following:

### **Transforming how we Search and Access Information**

Google's fundamental service, its search engine, has redefined the way people access information. Through advanced algorithms and an intuitive interface, Google Search has provided a fast and efficient way to find answers to a variety of questions. This ability to search for information instantly changed the search paradigm, accelerating decision-making processes and stimulating rapid knowledge transfer.

### **Google Scholar and Open Access to Academic Information**

Google Scholar, a platform launched in 2004, has had a significant impact on the way researchers and academics access scientific literature. By indexing and providing access to a wide range of scholarly works, Google Scholar has facilitated the sharing of scholarly knowledge and contributed to the democratization of scholarly information. This aspect of Google's services has helped to accelerate the pace of progress in scientific research and to create a digital infrastructure for global knowledge sharing.

### **Google Maps and the Navigation and Location Transformation**

Launched in 2005, Google Maps has redefined the way we navigate and interact with physical space. By providing interactive maps, traffic information and navigation directions, Google Maps has facilitated mobility and improved route planning. This technology has not only changed the way

people get around, but has also stimulated innovation in areas such as commerce, local advertising and tourism, contributing to the evolution of the knowledge-based economy.

#### **Google Drive and Online Collaboration**

Google Drive, an online storage and collaboration platform launched in 2012, has had a significant impact on the way documents and data are managed and shared in the digital environment. By providing storage accessible from anywhere, at any time, Google Drive has made it easier to collaborate globally. This has led to increased efficiency in virtual work environments and fostered remote collaboration, essential in the knowledge-based economy.

#### **Google Cloud and Technology Innovation**

Google Cloud, launched in 2011, has impacted digital infrastructure and the way organizations access and use cloud services. By offering services such as storage, data analytics and artificial intelligence, Google Cloud has opened new horizons for technological innovation and product development. Businesses and start-ups have benefited from Google Cloud's ability to offer scalable computing and storage resources, spurring innovation in areas such as medical technology, fintech and artificial intelligence.

Through its services, Google has contributed to the development of a knowledge-based economy through a number of mechanisms. First, providing easy access to information has stimulated individuals and organizations to increase their capacity to learn and adapt. The efficient search for knowledge has become an engine for innovation and progress.

Second, Google's services have created a digital infrastructure essential for businesses and institutions to operate in a global environment. From online collaboration to secure data storage, these services have been fundamental to the development of the digital environment.

### **3. Research methodology**

From a methodological point of view, the questionnaire is a quantitative research that involves collecting numerical data from a sample and analyzing it statistically in order to draw conclusions about the situation in question. In this direction, we developed a questionnaire to analyze the extent to which Google services contribute to the advancement of knowledge, innovation and the valorization of intellectual capital, i.e. the knowledge-based economy, from the perspective of Google services users.

**The investigated sample is made up of** individuals present in the online environment, on social networking groups. The sampling technique is represented by random sampling, dividing a digital questionnaire among social networking groups.

**The aim of the research** was to determine the extent to which Google services contribute to the advancement of knowledge, innovation and the valorization of intellectual capital, i.e. the knowledge-based economy, from the perspective of Google service users.

#### **The research objectives are:**

1. Determining the level of awareness and frequency of use of Google services.
2. Analyzing users' perceptions of their contribution to the advancement of knowledge, innovation and the valorization of intellectual capital, i.e. to the knowledge-based economy

#### **The research hypotheses are:**

1. Frequent users of Google services have a positive perception of their impact in promoting knowledge and innovation compared to occasional users.
2. Users who use Google's services to access information find that they have a significant impact on their cognitive development, particularly in terms of accumulating and understanding new knowledge.

### **4. Findings**

The questionnaire was completed by 100 people and had a total of 10 questions, representing a total of 1000 responses. In order to fulfill the purpose of the questionnaire, i.e.: Determining the extent to which Google services contribute to the advancement of knowledge, innovation and the valorization of intellectual capital, i.e. the knowledge-based economy, from the perspective of



Google service users, we have aggregated the responses to present an overview of the results obtained.

*Table no. 1 Centralization of data on question 1 of the questionnaire*

<b>Question 1: How long have you been using Google services?</b>	
<b>Response options</b>	<b>Number of respondents</b>
I have been using Google services for many years	100
I have been using Google services for some time	0
I started using Google services recently	0

*Source:* own processing

This question is intended to segment respondents according to their experience of using Google services, providing insight into how they have evolved over time. Therefore, when asked how long have you been using Google services, 100.0% of respondents said that they have been using Google services for many years.

*Table no. 2 Centralization of data on question 2 of the questionnaire*

<b>Question 2: How often do you use Google services?</b>	
<b>Response options</b>	<b>Number of respondents</b>
I use them every day	100
I use them a few times a week as needed	0
I use them rarely or not at all	0

*Source:* own processing

This question provides information about their engagement and ongoing use of Google services, which may influence their perception of the impact of these services. Therefore, for the question: How frequently do you use Google services, 100.0% of the respondents use Google services daily.

*Table no. 3 Centralization of data on question 3 of the questionnaire*

<b>Question 3: What services do you generally use?</b>	
<b>Response options</b>	<b>Number of respondents</b>
I use the search engine, but other services: drive, cloud, education services	79
I use the search engine and basic services like email or drive	14
I mostly just use the search engine	7

*Source:* own processing

This question provides insight into the diversity of Google services used, with a focus on those that can have a significant impact on knowledge and innovation.

Therefore, to the question: which services do you use in general, 79.0% answered that they use the search engine, but also other services: drive, cloud, education services, 14.0% answered that they use the search engine and basic services such as email or drive and 7.0% mostly use the search engine only.

Table no. 4 Centralization of data on question 4 of the questionnaire

<b>Question 4: How frequently do you use Google services to develop your personal skills, knowledge and competences?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Very common	75
From time to time	25
Quite rare	0

Source: own processing

This question focuses directly on the impact of Google services on the respondent's personal and professional development.

Therefore, to the question: how frequently do you use Google services for the development of personal skills, knowledge and competences, 75.0% of the respondents state that they use Google services very frequently for the development of personal skills, knowledge and competences and 25.0% use Google services occasionally for personal development.

Table no. 5 Centralization of data on question 5 of the questionnaire

<b>Question 5: How do you think Google's services contribute to the knowledge society?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Google is an important driver in promoting knowledge and education	100
Partial contribution	0
I don't think Google contributes significantly to the development of knowledge	0

Source: own processing

This question explores respondents' general perception of Google's role in promoting knowledge and education.

Therefore, when asked: How do you think Google's services contribute to the development of society in terms of knowledge, 100.0% chose the option: Google is an important driver in promoting knowledge and education.

Table no. 6 Centralization of data on question 6 of the questionnaire

<b>Question 6: Do you think Google stimulates innovation and creativity in society?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Yes, Google is a key factor in driving innovation and creativity	82
Partial contribution	18
I don't think Google helps to stimulate innovation and creativity	0

Source: own processing

This question aims to assess the general perception of Google's role in stimulating innovation and creativity.

Therefore, to the question: Do you think that Google stimulates innovation and creativity in society, 82 out of 82.0% of the respondents chose the option: Yes, Google is a key factor in stimulating innovation and creativity, representing the favorable variant, 18 of the respondents, i.e.

18.0% chose the variant: It partially contributes, representing the neutral variant and 0 respondents, respectively 0.0% chose the variant: I do not think that Google helps to stimulate innovation and creativity, unfavorable.

*Table no. 7 Centralization of data on question 7 of the questionnaire*

<b>Question 7: Do you feel that using Google services has improved your personal skills and competences?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Yes, using the services has helped me develop valuable skills and competences.	80
Partially helped me	20
No, I don't think it had a significant impact on my personal skills.	0

*Source:* own processing

This question explores the direct impact of Google services on the development of the respondent's personal skills and competences.

Therefore, when asked: Do you feel that using Google services has improved your personal skills and competences? 80.0% answered in the affirmative and 20.0% consider that Google services have partially helped them.

*Table no. 8 Centralization of data on question 8 of the questionnaire*

<b>Question 8: Do you feel that using Google services has improved your creativity?</b>	
<b>Response options</b>	<b>Number of respondents</b>
From	78
Partially	22
No	0

*Source:* own processing

This question examines whether the respondent believes that Google has a positive impact on stimulating their creativity.

Therefore, to the question: do you feel that using Google's services has improved your creativity 78,0% answered yes and 22,0% of the respondents say that Google's services partially improve creativity.

*Table no. 9 Centralization of data on question 9 of the questionnaire*

<b>Question 9: How easy do you find it to adapt to the new features and services introduced by Google?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Easy enough	83
Partly easy	17
I find it difficult to adapt	0

*Source:* own processing

This question measures the respondent's level of comfort and adaptability to Google's changes and innovations.

Therefore, to the question: how easily do you think you adapt to the new features and services introduced by Google, 83.0% of respondents answered that they adapt quite easily and 17% partially easily.

*Table no. 10 Centralization of data on question 10 of the questionnaire*

<b>Question 10: To what extent do you think Google services contribute to the global knowledge-based economy?</b>	
<b>Response options</b>	<b>Number of respondents</b>
Contribute significantly	100
Partial contribution	0
Insignificant contribution	0

*Source: own processing*

This question examines the respondent's overall perception of the contribution of Google services to the global knowledge-based economy worldwide.

Therefore, to the question: To what extent do you think Google's services contribute to the global knowledge-based economy, 100.0% of respondents answered yes.

In this context, the majority of respondents use a wide range of Google services, including Google services to develop their personal skills, knowledge and competencies, and the majority of respondents agree that Google services have helped them to develop their skills and knowledge, as well as their creativity and capacity to innovate. The majority of respondents believe that they have a strong overall impact on the global knowledge-based economy.

## **5. Conclusions**

The knowledge-based economy is a system of consumption and production based on intellectual capital, referring to the ability to capitalize on scientific discoveries and applied research. In a knowledge-based economy, a significant component of value may consist of intangible assets, such as the value of workers' knowledge or intellectual property.

Human capital, at its essence, is an aggregate of competencies, knowledge, skills and experiences developed by individuals that can be mobilized to generate economic value. In the knowledge-based economy, this concept takes on a new dimension, becoming a decisive factor in determining competitiveness and economic success.

In terms of its own contribution to this theme, the research aimed to determine the extent to which Google services contribute to the advancement of knowledge, innovation and the valorization of intellectual capital, i.e. the knowledge-based economy, from the perspective of Google's users.

Following the survey of 100 respondents, it was concluded that the majority of respondents use a wide range of Google services, including Google services for the development of personal skills, knowledge and competences, and the majority of respondents agree that Google services have helped them to develop their skills and knowledge, as well as their creativity and capacity for innovation. The majority of respondents believe that they have a strong overall impact on the global knowledge-based economy.

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# Modeling the Education Supply Chain with Network DEA Model: The Case of the European Union

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## Abstract

*This study evaluates the effectiveness of the educational supply chain in 27 EU states using the relational network DEA. The education system consists of three interconnected stages: primary, secondary, and tertiary education. The overall system efficiency reflects the combined efficiencies of each stage, demonstrating the interconnection between these stages. This allows for a comprehensive evaluation of the entire education system while also assessing each stage individually. This approach is important because it helps identify specific subsystems responsible for any inefficiencies within the entire educational system, highlighting areas that need improvement. By addressing these inefficiencies at their source, targeted strategies can be implemented to improve the overall effectiveness of the education system. The results indicate that the inefficiency of primary education explains a significant part of the inefficiency of the entire education system.*

**Key words:** education, efficiency, network DEA, European Union

**J.E.L. classification:** I21, C61

## 1. Introduction

Education serves as a fundamental driver for enhancing individuals' livelihoods and fostering societal advancement. Education has a profound and multifaceted impact on individuals, communities, and society as a whole. The significance of education extends beyond the mere acquisition of knowledge; it encompasses economic growth, social development, health improvements, and the fostering of civic engagement. (Dincă et al, 2021)

The concept of an educational supply chain can be likened to a traditional supply chain, where inputs are transformed into outputs through a series of stages. In the context of education, this involves students' progression through various educational stages, supported by a range of resources, processes, and stakeholders.

Applying industrial models to the services sector, including education, aims to make them more efficient. Education can be considered a supply chain where human, physical, and financial resources are the inputs of the whole system. In general, this chain can be structured as follows: the outputs of primary education will be the inputs for secondary education or the labor market, and the outputs of secondary education will be the inputs for tertiary education or the labor market. Tertiary graduates will either continue their education throughout life or enter the labor market. (Ramzi, 2019) The education supply chain encompasses the entire process of delivering educational services and resources from the initial input to the final output. This process involves several key components, stakeholders, and activities that ensure the effective functioning and delivery of education. (Pasztori, 2023)

The current study's purpose is to evaluate the EU's education system using the well-known mathematic program of data envelopment analysis (DEA).

Efficiency appears when education results, such as scores in testing or value-added outcomes are achieved with a rather low level of financial resources.

## 2. Literature review

Education is the most attractive sector for DEA development and expansion. A large number and variety of applications of DEA have been made to evaluate the performance of this sector and detect its inefficiency. They consider two types of DMUs to assess the level of efficiency. The first group is the micro-education level (university, school, etc), and the second group is the macro level where countries are selected as DMUs. Most of the work considers the micro level, and few of them use countries as selected DMUs.

Table no. 1. Literature

Level	Author, title	Content
Micro level	Tran et al, 'Measuring efficiency of Vietnamese public colleges: An application of the DEA-based dynamic network approach'	The overall efficiencies of Vietnam, public colleges are, on average, 0.741 while the average efficiencies of the financial and academic operations are 0.722 and 0.760, respectively.
	Kashim et al, 'Measuring Efficiency of a University Faculty Using a Hierarchical Network Data Envelopment Analysis Model'	An improved DEA model based on a network structure that accounts for more activities in a university is proposed to measure faculty overall efficiency.
	Chen et al, 'Operating efficiency in Chinese universities: An extended two-stage network DEA approach'	An extended two-stage network DEA approach for measuring operating efficiency of 52 Chinese universities.
	Nazarko & Šaparauskas, 'Application of DEA method in efficiency evaluation of public higher education institutions'	The paper describes a comparative efficiency study of 19 Polish universities of technology.
	Lee & Johnes, 'Using network DEA to inform policy: The case of the teaching quality of higher education in England'	This study contributes to the existing literature by employing a network data envelopment analysis model that truly reflects the production process of HEIs and incorporates qualitative and quantitative data drawn from the UK Teaching Excellence Framework (TEF) to capture the effects from teaching quality and the graduate employment outcomes.
	Yang et al, 'Measuring the inefficiency of Chinese research universities based on a two-stage network DEA model'	The study investigates the inefficiency and productivity of Chinese research universities.
	Guijarro, 'Assessing the Efficiency of Public Universities through DEA. A Case Study'	Efficiency study of Colombian public universities in 2012
	Shamohammadi, 'Measuring the efficiency changes of private universities of Korea: A two-stage network data envelopment analysis'	This study investigated trends in the teaching and research performance of Korean private universities.
	Tavares et al, 'A proposed multistage evaluation approach for Higher Education Institutions based on network Data envelopment analysis: A Brazilian experience'	A network DEA approach is proposed for higher education efficiency evaluation.
Macro level	Koçak et al, 'Efficiency Measurement with Network DEA: An Application to Sustainable Development Goals 4'	The study examines the efficiency of educational systems in OECD countries, considering their characteristics related to SDGs.

Level	Author, title	Content
	Yi-Chun Lin, Ming-Miin Yu, 'Performance evaluation of compulsory education system in Taiwan: A modified dynamic network data envelopment analysis approach'	Examines education efficiency in Taiwan with a modified SBM-DNDEA model.
	Flegl, et al, 'A State-Level Analysis of Mexican Education and Its Impact on Regional, Economic, and Social Development: Two-Stage Network DEA Approach'	This paper examines academic efficiency at primary and secondary levels and the dimensions of human development – including long and healthy life, knowledge, and a decent standard of living – at the state level.

Source: Authors' work

### 3. Research methodology

Data Envelopment Analysis (DEA) began as a theoretical framework and became used in a wide range of applications. DEA is a method that measures the relative efficiency of decision-making units. The main strength of this methodology is its ability to capture the interplay between multiple inputs and outputs. One of the limitations of these models is that they do not consider the internal structure of decision-making units. The network DEA model was developed to take into account the internal structure of DMUs using link variables. It accounts for both the efficiency of a system and the system's interrelated substages.

This study utilizes the relational network DEA model, which consists of a series of three substages under the assumption of constant return to scale and output orientation. The goal is to increase output rather than reduce inputs, revealing that the output-oriented model is the appropriate tool for enhancing efficiency in the educational economy. The overall efficiency of the entire education system is the result of the individual efficiency attributed to primary, secondary, and tertiary education. This emphasizes the interconnection between the three processes within the global system. It allows for the evaluation of the entire education system as well as the evaluation of its components at the same time. This breakdown enables the identification of the subsystem responsible for the inefficiency of the entire educational system and considers it as a potential source of improvement in the future.

The data used are taken from the OECD database, and the World Bank for the year 2022 for the 27 EU states. The DMUs are the 27 European states. Three categories of variables are used for the model, namely input variables ( $x_1, x_2, x_3$ ), intermediate variables ( $z_1, z_2$ ), and output variables ( $y_1$ ).

The input variables are:

- ( $x_1$ ) Government expenditure per pupil, primary (% of GDP per capita).
- ( $x_2$ ) Government expenditure per pupil, secondary (% of GDP) 2022
- ( $x_3$ ) Government expenditure per pupil, tertiary (% of GDP per capita) 2022

Government expenditure per student refers to the average general government expenditure (including current, capital, and transfers) per student at a particular education level, presented as a percentage of GDP per capita. The two intermediate variables used to link primary, secondary, and tertiary education are:

- ( $z_1$ ) Pisa science performance (mean): measures the scientific literacy of a 15-year-old. Scientific literacy is the ability to utilize scientific knowledge to identify questions, acquire new knowledge, explain scientific phenomena, and draw evidence-based conclusions about science-related issues.
- ( $z_2$ ) Employment rate for upper secondary level

The output variable of the tertiary education subsystem but also the entire educational system is:

- ( $y_1$ ) The employment rate for tertiary level



This indicator displays employment rates based on different education levels: below upper secondary, upper secondary non-tertiary, or tertiary. The employment rate is calculated as the percentage of working-age people who are currently employed. The employed are defined as individuals who work for pay or profit for at least one hour per week, or those who have a job but are temporarily not working due to illness, leave, or industrial action. This indicator calculates the proportion of employed individuals aged 25-64 out of all individuals aged 25-64.

#### 4. Findings

In terms of efficiency evaluation, the efficiency scores of the entire education system ( $E_k$ ) and individual stages ( $E_{k(1)}$ ,  $E_{k(2)}$ , and  $E_{k(3)}$ ) are shown in Table 2 and Figure 1. None of the 27 European states performs efficiently in the three stages, therefore, none is characterized by an overall efficient education system. The overall efficiency of  $E_k$  is the product of the three stages efficiency  $E_{k1}$ ,  $E_{k2}$ , and  $E_{k3}$ , every  $E_k$  is lower than its corresponding  $E_{k1}$ ,  $E_{k2}$ , and  $E_{k3}$ .

As regards the overall efficiency of the education system, it is noticed that Romania shows the highest efficiency with a score of 0.9641. The second, third, and fourth ranks are Bulgaria, Ireland, and Hungary with efficiency scores of 0.899202, 0.75565, and 0.732027 respectively. Ten of the analyzed countries (Romania, Bulgaria, Ireland, Hungary, Lithuania, Greece, Slovakia, Finland, Czechia, and Germany) are above the average efficiency score.

The overall efficiency and superiority of education in Romania can be explained by several factors, even though education expenditures have been among the lowest in Europe. The efficiency and superiority of the education system in Romania can be attributed to high academic standards, qualified educators, cultural values, supplementary education, a competitive environment, resource efficiency, policy reforms, and strong parental involvement. These factors collectively contribute to a robust educational framework, even with relatively low financial expenditures.

In the first stage of evaluating the efficiency of primary education, Romania stands out as the only country that performs efficiently. Twelve countries are above average in efficiency, namely Bulgaria, Ireland, Hungary, Lithuania, Finland, Czechia, Malta, Greece, Slovakia, France, Germany, and Austria. Conversely, fourteen countries fall below the European average in terms of primary education efficiency. This assessment highlights Romania's unique position in achieving efficient primary education outcomes despite financial constraints. The comparative efficiency of other countries also reflects a diverse range of educational practices and resource utilizations across Europe. Understanding the factors contributing to Romania's efficiency can provide valuable insights for other nations aiming to enhance their primary education systems.

In the second and third stages of evaluating educational efficiency for secondary and tertiary education, distinct patterns emerge across different countries. In the second stage, which evaluates the efficiency of secondary education, three countries stand out as efficient: Bulgaria, Croatia, and Sweden. These countries have managed to optimize their educational systems to achieve high performance and outcomes at the secondary level. In the third stage, focusing on tertiary education efficiency, three different countries are noted for their efficiency: Romania, Italy, and Luxembourg. These countries excel in optimizing resources and outcomes at the tertiary education level, ensuring effective higher education systems.

These stages of evaluation reflect a nuanced understanding of educational efficiency, highlighting that different countries may excel at different educational levels. Efficiency in secondary and tertiary education involves a combination of factors such as resource allocation, curriculum design, teaching quality, and support systems that vary by educational stage and country.

Another remark to be noted is that most of the countries have a smaller efficiency score in primary education  $E_{k1}$  compared to the efficiencies of secondary and tertiary education ( $E_{k2}$  and  $E_{k3}$ ).

By looking at the ranks of the efficiency scores attributed to the 27 countries, we remark that some of the countries have similar ranks in  $E_{k1}$ ,  $E_{k2}$ , and  $E_{k3}$ . for example Romania, Bulgaria, Ireland, Hungary, and Lithuania, This means that the overall performance of the whole education supply chain is attributed to the performance of its three stages. (primary, secondary, and tertiary education).

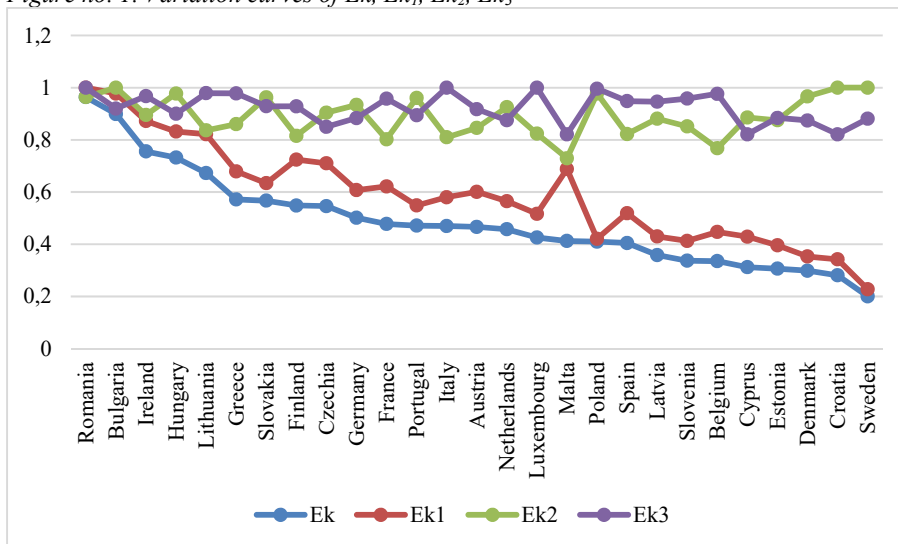
It is also clearly noticed from the ranking results of the efficiency scores and Figure no. 2, a high similarity between the ranks of  $E_k$  and  $E_{k1}$  for all analyzed countries. This means that an important part of the inefficiency of the whole education system in these countries is explained by the inefficiency of primary education.

Table no. 2. Efficiency scores

Country	$E_k$	$E_{k1}$	$E_{k2}$	$E_{k3}$
Romania	0.9641	1	0.9641	1
Bulgaria	0.899202	0.9775	1	0.9199
Ireland	0.755665	0.8722	0.8954	0.9676
Hungary	0.732027	0.832	0.9776	0.9
Lithuania	0.67315	0.8219	0.8365	0.9791
Greece	0.571688	0.6794	0.8603	0.9781
Slovakia	0.567252	0.634	0.9631	0.929
Finland	0.548485	0.7243	0.8154	0.9287
Czechia	0.546088	0.7102	0.9044	0.8502
Germany*	0.501333	0.6074	0.934	0.8837
France*	0.477659	0.6218	0.8022	0.9576
Portugal*	0.471328	0.5486	0.9608	0.8942
Italy	0.469939	0.5801	0.8101	1
Austria	0.466417	0.6009	0.8459	0.9176
Netherlands	0.457659	0.5652	0.9253	0.8751
Luxembourg	0.425792	0.5168	0.8239	1
Malta	0.412437	0.6883	0.7295	0.8214
Poland	0.40995	0.4209	0.9777	0.9962
Spain*	0.404873	0.5191	0.8223	0.9485
Latvia	0.358639	0.4299	0.8813	0.9466
Slovenia	0.336958	0.4129	0.8515	0.9584
Belgium*	0.335216	0.4471	0.7678	0.9765
Cyprus	0.312136	0.4289	0.886	0.8214
Estonia	0.306291	0.3958	0.8753	0.8841
Denmark	0.298489	0.3532	0.9666	0.8743
Croatia	0.281083	0.3422	1	0.8214
Sweden	0.200516	0.2276	1	0.881

Source: Authors' calculation based on OECD and The World Bank's databases

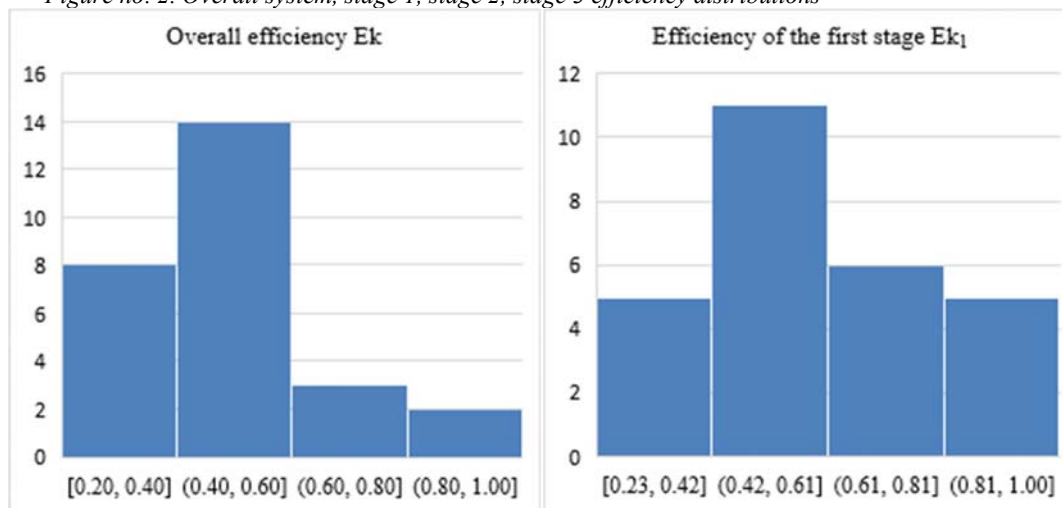
Figure no. 1. Variation curves of  $E_k, E_{k1}, E_{k2}, E_{k3}$

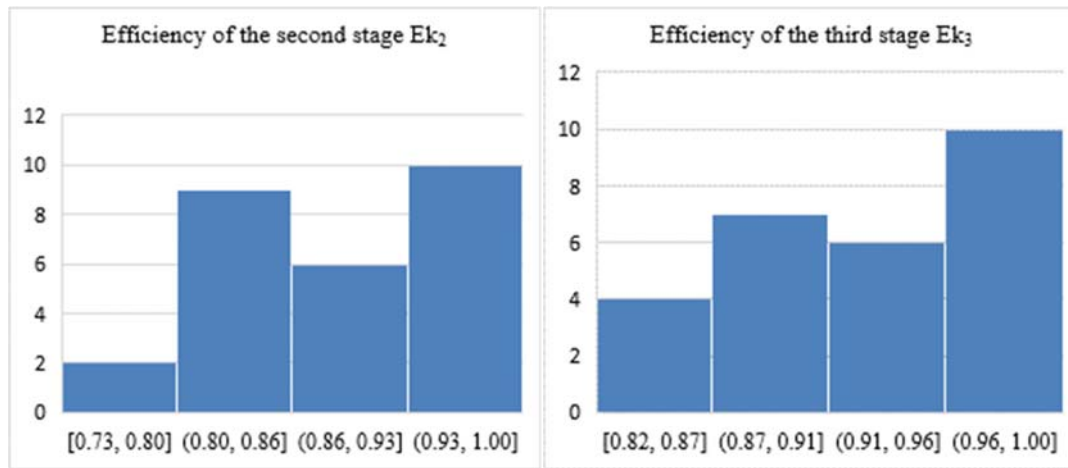


Source: Author representation of the data

The distribution of the efficiency scores for the overall education system, stage 1, stage 2, and stage 3 is provided in Fig.2. For the whole education system, one can observe that none of the countries is overall efficient. This result is not rare with network DEA. (Ramzi, 2019). More than half of the countries have overall efficiency scores less than the average 0.48. This result is mainly due to the inefficiency in the first stage.

Figure no. 2. Overall system, stage 1, stage 2, stage 3 efficiency distributions





Source: Author representation of the data

## 5. Conclusions

Although education is considered one of the earliest areas in which DEA was applied, little has been done to model an education supply chain using network DEA. This paper assesses the efficiency of 27 European Union states educational supply chains using the relational network DEA. The education system is subdivided into three interrelated substages (primary education, secondary education, and tertiary education). The overall efficiency of the entire education system can be understood as the product of the individual efficiencies attributed to primary, secondary, and tertiary education levels. This highlights the interconnection between these three stages within the global system, enabling a comprehensive evaluation of the whole education system while also assessing each component individually.

These stages of evaluation reflect a nuanced understanding of educational efficiency, highlighting that different countries may excel at different educational levels. Efficiency in secondary and tertiary education involves a combination of factors such as resource allocation, curriculum design, teaching quality, and support systems that vary by educational stage and country.

The overall efficiency and superiority of education in Romania can be explained by the fact that education expenditures, inputs of the system have been among the lowest in Europe and the outputs were maximized. The efficiency and superiority of the education system in Romania can be also attributed to high academic standards, qualified educators, cultural values, supplementary education, a competitive environment, resource efficiency, policy reforms, and strong parental involvement. These factors collectively contribute to a robust educational framework, even with relatively low financial expenditures.

The estimation results of the efficiency scores demonstrate that most of the countries have similar ranks in the three stages. This result proves that the performance improvement of the educational supply chain is achieved by the development and interconnectedness of primary, secondary, and tertiary education.

It is essential to enhance the alignment of primary, secondary, and tertiary education to ensure that students are adequately prepared at each educational stage, leading to seamless transitions and success throughout their academic journeys.

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## Work & Life Balance in the Post-Pandemic Period in Romania

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### Abstract

*The world is constantly changing and urging people to prioritize their Work & Life Balance according to their personal needs and make sure they can adapt themselves to the environmental requirements to be socially accepted. The coronavirus pandemic has challenged people to change their lifestyles and shift their attention toward their mental and relationship health while also prioritizing physical well-being. The purpose of this research paper is to analyze different points of view and degrees in which the pandemic has affected people located in Romania by using Cornbach's alpha coefficient. Through Google Forms, a number of 160 Romanians took part in the survey conveying their experience during the coronavirus pandemic.*

**Key words:** work, life, balance, economy, Coronavirus pandemic

**J.E.L. classification:** D23, Z1

### 1. Introduction

Even though WLB does not have a precise definition, scientists have defined it as the notion that refers to the equilibrium between the professional life and the personal life of an individual or a group of people in such a way that both parts ensure a harmonic method of navigating life. Therefore, people can lead their lives as they please following their desires, abilities, and possibilities so they can seize the most outstanding opportunities in their lives while still striving for an overall healthy balance between their private life and professional performance. (Thilagavathy *et al*, 2021)

Considering that WLB is a part of Organizational Behaviour, it is extremely important to recognize the significance that is being brought into the economic and social aspects of life by contributing with a groundbreaking method of finding the most suitable balance between both elements. The main purpose of Organizational behavior is to facilitate effective collaboration between individuals and the groups they interact with to succeed in anything they aim to achieve.

### 2. Literature review

This social construct is made of several factors that bring their contributions such as government policies that shape how the work is being done lawfully so that it can sustain a healthy environment while ensuring the minimum wage and several other benefits for laborers who might find themselves in dire need of sick leave or parental leave. Regulations and policies are seen as means of bringing benefits to the working society and its environment.

A second factor is the organizational practices that help in shaping the form in which labor is being done, whether it has a full-time schedule, a part-time, a flexible schedule, a hybrid one that combines working from home with working on-site or working fully remotely, thus having the opportunity of becoming digital nomads. Another vital factor is the individual circumstances that arise in one's life.

Circumstances can differ from one another just like organizations or people. When it comes to WLB, there is no such thing as ONE SIZE FITS ALL. What could perfectly work for someone could be detrimental to another's mental health, well-being, or life satisfaction. For instance, working flexible hours might be extremely beneficial to someone who needs more control over their free time

and their activities such as studying, pursuing different hobbies, or taking care of someone else. (Gravador *et al*, 2018).

Moreover, the responsibility of making sure that both aspects of life are in equilibrium needs to be taken into consideration by all parties. The individuals, the organizations, and the government are all responsible for ensuring a beneficial and thriving environment where work can be conducted healthily. (Stefanovska *et al*, 2019). The reason why all of them should aim to do so is because one cannot achieve satisfactory results by itself while ignoring the vital role that each of them has. The uniqueness of each role can be seen in how the environment and labor force are being shaped so that it can fully satisfy each need. (Ollier-Malaterre *et al*, 2016). Individuals can not obtain wellness in their day-to-day lives without the support of the organization where they work and governmental policies that protect them from being overworked and underpaid. Without organizations, individuals can not sustain themselves financially. Thus, all of them are interconnected so that WLB can satisfy the nowadays' societal needs and norms.

This multi-faced concept has been shaped by major events that happened in history such as the Industrial Revolution, women's rights, and WW1 and WW2. (Brough *et al*, 2020). The Industrial Revolution made sure that several people would move from rural areas to urban ones to work and gain more. From a financial point of view, it helped production grow and the economy evolve. However, from a domestic point of view, it changed the familial status of having a sole provider in the family to having both partners active in the workforce to sustain the new urban life. (Clark, S. C, 2000). Women's rights is another moment in history that brought financial and overall independence to women, turning them from caregivers into breadwinners. While men were fighting in both wars, women were in their home country making sure that the economy ran as smoothly as possible.

Throughout history and not only, WLB has been deeply influenced by cultures and different groups of societies. Certain practices and policies that prevail in a place can be impractical and not suitable in certain societies. For instance, in Eastern Asia the culture is known as being mostly collectivistic, therefore people care more about what others think of them rather than following their gut feeling. In Eastern Asia, the practice of working long hours at the expense of the time spent with their families is considered as being something normal contrary to the European standard of working. (Vallury, C. 2012).

It is also worth mentioning that according to Geert Hofstede, countries can have either individualistic values or collectivistic. In an individualistic country, individuals care less about impressing their social circles and more about their well-being, while in collectivistic countries it is the other way around. (Hofstede, 2011).

Another cultural aspect is the prevalence of patriarchy in collectivistic societies where household chores and duties are divided according to societal expectations over gender roles rather than interests and abilities. Men are seen as being the sole breadwinners while their female partners most of the time are caregivers. (Adisa, T.A. *et al*, 2019). This adds a certain level of pressure on both partners, one dealing with the pressure of sustaining the whole family at the expense of their mental health and the risk of becoming workaholics and putting their health at risk. (Shockley, K. M. *et al*, 2017). However the financial pressure is also being felt by the female counterpart since financial independence is taken away or even though women would still work, they would be the primary caregivers for everyone else around while also managing other tasks. (Adisa, T.A. *et al*, 2019). Another example of cultural difference when it comes to WLB is the Nordic Europeans's preference to work fewer hours to gain more free time to invest in other activities that bear more importance to them in their overall life such as investing time in hobbies, making memories with family and friends or spending time in nature.

No matter the industry or organization, the primary source that holds the most vital role is the human resource. Due to the changes that happened around the world at a social and economic level, the idea of artificial intelligence (AI) has turned from a futuristic dream into a necessity. Although at first, most people thought that AI would be the antihero that would wreck the labor market and people's lives on different levels, it turned out to be a useful tool to alleviate and solve several business issues. Because the labor market has changed, life shall too. Time is the value that shifts and brings changes if it is used as an actual investment in something that brings healthy outcomes. Time and energy are vital resources that can be used to achieve wellness. If there is wellness, there

is fulfilment in every aspect which results in achievements. Therefore desires, values and attitudes can align to succeed in everything an individual or a group aims to achieve.

To analyze the evolution of Work & Life Balance not only as a theoretical concept but also as a practical one, it is tremendously important to consider that WLB can come in different shapes and forms. Nevertheless, these forms can either bring a positive outcome as known as enrichment, or a negative one, also known as conflict, therefore under the umbrella of WLB, individuals can find themselves in situations that influence their relationship with the professional aspect of their life, the relational one or the personal one. (Erdirençelebi, M., 2020). On one hand, situations when WLB can be satisfactory can vary from WFE (Work & Family enrichment); FWE (Family & Work Enrichment); WLE (Work & Life Enrichment), or LWE (Life & Work Enrichment). In situations like these, every aspect alleviates the general unwellness and ensures diminishing unpleasantness that comes with a lack of time or energy to be present and proactive in society.

On the other hand, there can be times in one's life when WLB is nothing but a mere distant dream that can not be found dwelling in the present moment. Times like these are impacted by an obvious conflict that can influence the other side badly also known as WLC (Work & Life Conflict), LWC (Life & Work Conflict), WFC (Work & Family Conflict) or FWC (Family & Work Conflict). Every form of psychological conflict brings distress and toxic energy.

The various times of WLB were extremely visible during the pandemic time. The Coronavirus urged the world, not only to change the way things would normally happen but also the pace. Digitalization was a vital tool to tackle this issue. (Gualano, M. R. *et al*, 2023). Within the context of social distancing, working from home was not an option anymore, but a mandatory shift towards the idea of putting things into perspective and helping individuals think more about their mental and relational health. (Putri, A. *et al*, 2021). In such a context, the boundaries between work and life started to get blurred from some people resulting in high levels of stress, burn out and anxiety. (Lamprinou, V.D.I. *et al*, 2021). Work tasks blended into household chores, therefore the chances of turning this into a toxic experience got higher and higher. However, for other people, the idea of not having to commute and being able to work in their own comfortable place helped them redefine their individual idea of work & life balance. (Irawanto, D. *et al*, 2021).

Society may not know what the future holds but it is safe to say that digitalization is here to stay no matter what events may occur, therefore it should be used as a tool to alleviate WLB's issues and ensure overall life satisfaction.

### **3. Research methodology**

Considering the common interest for WLB that crossed every geographical and cultural boarder, I thought it would be extremely interesting to analyze the WLB situation during the Corona virus pandemic in Romania. In order to do so, the study was conducted with the purpose of observing from several points of view with the help of Cornbach's alpha coefficient. The survey was created by using Goggle Forms. The total number of participants were 160 Romanian people from different backgrounds.

### **4. Findings**

The Knowledge of the notion of WLB reached a moderate level, considering that half of those who took part in the survey had never encountered the term Work & Life Balance. This fact highlights that WLB is still a relatively new concept for many Romanians. Out of 160 participants, it has been found that 48% were trainees, 27% worked part-time, 14% worked full-time, 6% worked as entrepreneurs, and 5% performed their work as freelancers. The Flexible schedule was chosen as being the most important thing that their workplace could offer. Most people choose family as their primary source of life satisfaction, then personal development, friends, work, and volunteering activities. This detail shows that Romanians are socially driven people who prefer to invest in relationships and keep family values alive. Despite the prevalent patriarchal values, people believe that in Romania, men and women are equal when it comes to dealing with household chores. Financial independence helps tackle gender issues. Moreover, the younger generations of men are more present in the family life by engaging in household chores. Most people considered that if they

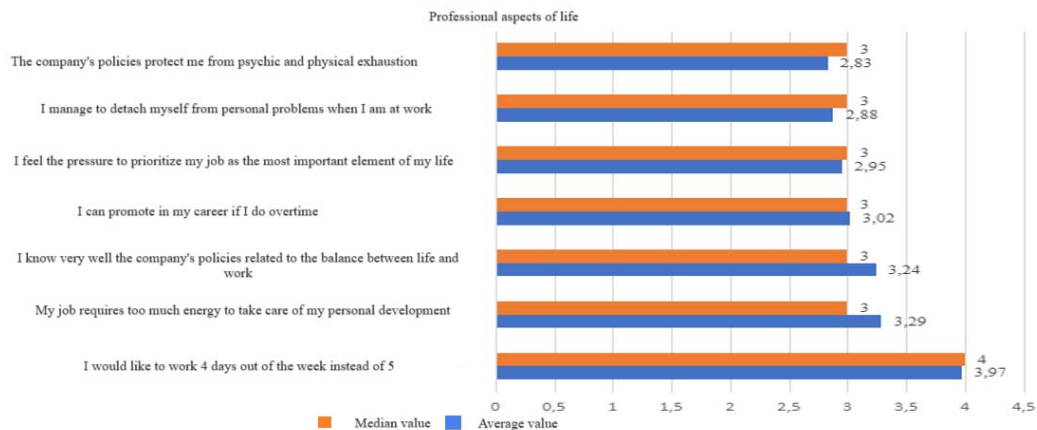


lived in an individualistic country, they could achieve WLB easier than in a collectivistic one such as Romania. On an income-based scale, less than 50% of people have an income greater than 5000 lei. Over half of the people that took part in the survey, consider that they can achieve balance through personal and mental health development while taking more vacations to spend more time with family and friends.

In the context of the Corona virus pandemic, 26% of people prioritized physical health, another 26% of people thought that mental health is the most important thing while the rest of them either changed their job or worked a more flexible schedule.

From a descriptive point of view: 78% of the participants identify themselves as females, while 22% as males, most of them being between 20 and 30 years old, most of them being either single or in a relationship delaying the moment they would become parents. The job field in which most of those surveyed (respectively 22.50%) carry out their activity was the economic field, followed by trade (18.75%), industrial activities (13.13%), HoReCa (12.50%), education (8.75%), medicine (7.50%), entrepreneurship (5.63%), transport and storage (3.13%), construction (3.13%), and 1.25% were people who carry out activities in the IT environment or were unemployed at the time of the research.

Figure no. 1 Professional aspects of life



Source: Author's elaboration

From a descriptive point of view: Following the analysis of the aspects related to professional life, most of the items have the median 3, the average obtained start with 2.83 for the item "the company's policies protect me from psychic and physical exhaustion". The effectiveness of how WLB policies bring a benefit to both the company and the workers are visible at the medium level. This may be due to the ignorance offered by the employee on these aspects. For the second item, "I manage to detach myself from personal problems when I am at work" the media was 2.88. For the third item, "I feel the pressure to prioritize my job as the most important element of my life" the media has reached the level of 2.95. For the fourth item, "I can promote in my career if I do overtime" the average was 3.02. For the fifth item, "I know very well the company's policies related to the balance between life and work" media has reached 3.24. For the sixth item, "my job requires too much energy to take care of my personal development." The media was 3.29; And for the seventh item, "I would like to work 4 days out of the week instead of 5" the media reached the value of 3.97. It was possible to find that the highest average with Median 4 was obtained by the last item meaning agreement.

From a correlational point of view:

- It was found that there is a negative correlation, of very weak intensity, statistically significant (RHO = - 0.168 and P = 0.034 <0.05), between the desire to work four days a week and the existence of the time allocated to achieve Volunteer activities, that is, as he says he has less free time for volunteering, the more he wants to work only 4 days a week. Once there is more free time, the chances of actively involved in the community increase.

● It was found that there is a positive, medium-intensity, statistically significant correlation ( $RHO = 0.406$  and  $P = 0.00 < 0.05$ ), between the success of the company's WLB policies to protect employees of physical and mental exhaustion and professional satisfaction, That is, the increased the success of the company's WLB policies to protect employees from physical and mental exhaustion, the more the professional satisfaction of the employees. Employees feel appreciated and safe in an environment in which they are protected from the toxic tendencies related to the ways in which companies are concerned about making profit in exchange for the use of workers.

From the point of view of the loyalty coefficient Alpha Cronbach:

Table no. 1 Cronbach's alpha loyalty coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,648	0,647	7

Source: Data analyzed by using SPSS

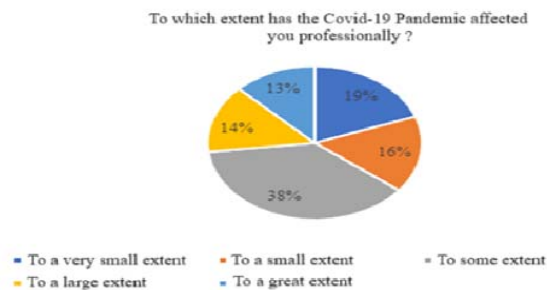
The coefficient of alpha fidelity of the 7 -item scale had a value of 0.648 which exhaustion; the very good knowledge of the company's policies related to the balance between life and work and the opportunity to promote career through overtime; And so it would have reached a loyalty coefficient Alpha Cronbach of 0.708, on a 3-item scale. demonstrates a good level of loyalty; a higher value could have been obtained by eliminating the following items: total detachment of personal problems within the professional framework; The company's policies protect from psychic and physical.

Table no. 2 Cronbach's alpha loyalty coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,708	0,71	3

Source: Data analyzed by using SPSS

Figure no. 2 The extent to which the Covid-19 Pandemic has affected professionally



Source: Author's elaboration

From a descriptive point of view: in terms of the degree to which the Covid-19 Pandemic affected the employees from a professional point of view it was found that on a scale of 1-5 where 1 represents "to a very small extent", 2 -"to a small extent", 3-"to some extent", 4-"to a large extent" and 5-"to a great extent", average 2.84 and Median 3, thus resulting that the Pandemic has impacted from a professional point of view to a medium level, it is possible to improve the pandemic situation by different ways such as professional re-profiling.

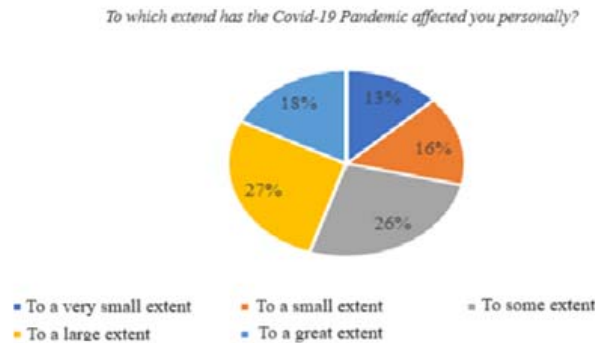
From a correlational point of view:

● It was found that there is a positive, medium intensity, statistically significant correlation ( $RHO = 0.529$  and  $P = 0.00 < 0.05$ ), between the extent to which Covid-19 affected professionally and the extent to which Covid -19 has affected from a personal point of view, that is, the more the Covid-19

Pandemic affected more professionally, the more personal life has been affected due to pandemic conditions. Most of the personal life depends on the financial well-being in order to be supported at the level of satisfaction established by man. Considering the state of uncertainty offered by the pandemic, it is obvious that the lack of financial stability has affected personal satisfaction.

- It was found that there is a positive, poor intensity, statistically significant correlation ( $RHO = 0.287$  and  $P = 0.00 < 0.05$ ), between the extent to which Covid-19 has affected professionally and the level of professional stress brought home, that is, the more the pandemic has affected professionally, the more the level of professional stress has increased from work at home. It was possible to find that people were incapable of detaching themselves from their work issues.

Figure no. 3 The extent to which the Covid-19 Pandemic has affected personally



Source: Author's elaboration

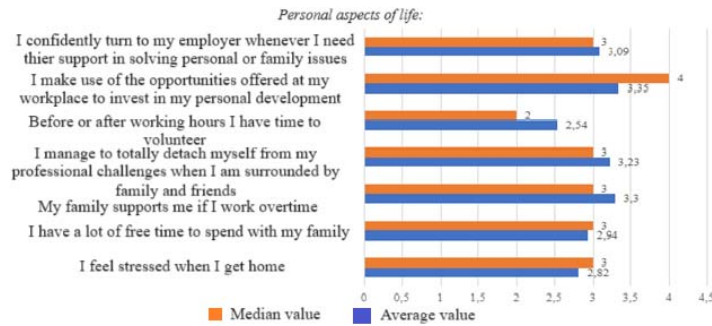
From a descriptive point of view: in terms of the degree to which the Covid-19 Pandemic affected the employees from a personal point of view it was found that on a scale of 1-5 where 1 represents "to a very small extent", 2 -"to a small extent", 3-"to some extent", 4-"to a large extent" and 5-"to a great extent", the average 3.21 and the median 3. This shows that the Pandemic has personally influenced at an average level the way people were able, despite the obstacles from the circumstances due to the virus, to return to normal, even if they were forced to recur to different sacrifices.

From a correlational point of view:

- It was found that there is a negative correlation, of very weak intensity, statistically significant ( $RHO = -0.169$  and  $P = 0.032 < 0.05$ ) between the extent to which the Covid-19 Pandemic affected the employees from a personal point of view and the level in which the level in which The employee is detached from personal problems in the workplace, that is, as the level in which the employee manages to detach from personal problems at work is lower, the more the extent increases the Covid-19 pandemic has affected the employees from the point of view. personal vision. The uncertainty provided by the global virus has brought stress and financial pressure that has affected personal satisfaction often by increasing caution related to daily expenses.

- It was found that there is a negative, very weak, statistically significant correlation ( $RHO = -0.189$  and  $P = 0.016 < 0.05$ ) between the extent to which the Covid-19 Pandemic affected the employees and their monthly income, the more the pandemic affected the employee more personal, the lower the monthly income. Material safety represented many a source of stress to overcome the vulnerable situation in which the pandemic brought people by making them worry about their well-being in the future.

Figure no. 4 Personal aspects of life



Source: Author's elaboration

From a correlational point of view:

- It was found that there is a positive, medium-intensity, statistically significant correlation ( $RHO = 0.448$  and  $P = 0.00 < 0.05$ ), between professional stress and lack of energy for personal development activities, that is, as professional stress increases, the more the lack of energy increases for the achievement of personal development activities due to fatigue. The greater a person he has to become a workaholic, the less he prioritizes his personal well-being to the detriment of his career.

- It has been found that there is a positive, poor intensity, statistically significant correlation ( $RHO = 0.240$  and  $P = 0.002 < 0.05$ ), between the use of personal development opportunities offered by the job and professional satisfaction; The use of the personal development opportunities offered at work, the more professional satisfaction increases. It can be seen that the material resources accompanied by extra wage rewards are the most appropriate way to implement relational management in the company.

From the point of view of the loyalty coefficient Alpha Cronbach:

Table no.3 Cronbach's alpha loyalty coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,643	0,638	7

Source: Data analyzed by using SPSS

The coefficient of alpha fidelity of the 7- item scale had a value of 0.643 which demonstrates a good level of loyalty. A higher value could have been obtained by eliminating the following item: the professional stress brought home and would have reached a loyal coefficient Alpha Cronbach of 0.745, on a 6-item scale.

Table no. 4 Cronbach's alpha loyalty coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,745	0,745	6

Source: Data analyzed by using SPSS

## 5. Conclusions

Work & Life Balance is not an utopic concept because it is achievable if every party aims to improve the living and working conditions. The individual has is the most responsible one for their own well-being and the decisions they make which have to be in accordance with their desires and abilities.

The Covid-19 pandemic helped people reset their priorities. Health, time and energy represent the pillars that form a strong foundation towards wellness and satisfaction in life. The lower the life or work satisfaction level, the more has to suffer the individual. Professionally satisfied individuals represent organizational investments that ensure the success of every company. Technology can be a tool in order to achieve better performances and a better balance. Happy people make a happy and productive environment, moreover, happy environments create a happy society.

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# Enhancing Language Learning: Designing Tests for Business English Students

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## Abstract

*The present paper will focus on test design and development with a particular emphasis on how to devise comprehensive tests for students who attend a course on English for business (BE) purposes, a course which is aimed at enhancing students' grammar, reading, vocabulary, and writing skills at B1 Level. In the introductory section, we are discussing the basic typology of tests as well as their purposes, with particular attention to assessing the skills of BE students. Special consideration will be given to the five phases used when devising a new BE test. Moreover, we will attempt to clarify several aspects concerning test-takers, i.e. BE students. The issues of grading and establishing optimal facility values of test items are also tackled. Some final recommendations on test design conclude our analysis.*

**Key words:** assessment, test design, test development cycle, facility values, Business English

**J.E.L. classification:** I 21

## 1. Introduction

Assessment in English Language Teaching fulfills diverse testing purposes as teachers employ various assessment methods to evaluate *student progress* in English language instruction. According to T. McNamara, there are three key assessment categories including proficiency, achievement, and placement tests (2000, pp. 6-7). First, proficiency tests measure the learner's overall language proficiency, focusing on general language skills rather than specific course content. These assessments need to align with the 'can do' statements outlined in the Common European Framework of Reference for Languages (CEFR) and encompass separate skills and integrated task tests, such as listening comprehension, followed by written production. Typically, educators do not create proficiency tests, however, they play a pivotal role in preparing students for globally recognized assessments like IELTS, TOEFL, and Cambridge Qualifications. Second, achievement tests are customized to specific language courses and aim to evaluate whether students have attained the intended learning outcomes. This type of assessments may be administered at the end of a course or periodically as progress evaluations, often developed by instructors to ensure alignment with their course objectives (Azhar, 2023). Third, placement tests are intended to determine appropriate class placement for new students by evaluating their language proficiency across various levels. So, these tests are essential for matching students with suitable learning environments, and they should be closely linked to the course curriculum, ensuring that students' skills, such as speaking proficiency, are accurately evaluated for effective placement. (Kluitmann, 2008, p. 8)

For professionals interested in doing business in English, obtaining a B1 Business Preliminary certificate demonstrates their ability to engage in discussions on business topics, interpret charts and graphs, compose concise business emails, and participate in brief telephone conversations (see <https://www.cambridgeenglish.org/exams-and-tests/business-preliminary/>). Similarly, end-of-year tests that follow a university Business English (BE) course aim to assess students' accuracy and knowledge of key areas of grammar and essential business vocabulary. Some of their purposes are, apart from grading per se, to see to what extent the course has catered for first-year students' needs, if an engaging and supportive learning environment was created, one which should have helped them develop their language skills and gain a deeper understanding of business concepts.

## 2. Literature review

Traditionally, the language test was seen as a tool which amasses proof of "general or specific language abilities from performance on tasks designed to provide a basis for predictions about an individual's use of those abilities in real-world contexts." (McNamara, 2000, p.11). Nowadays, testing is considered to represent more than evidence of knowledge, it is viewed as a valuable resource for understanding best practices in language teaching (Katz, 2021).

As noted by Kluitmann, the level of detail required for classroom tests may differ from large-scale international tests: "the testing of language within a restricted classroom environment, as clearly, (...) has to follow different rules, meet different necessities and is much more likely to employ alternative forms of assessment" (Kluitmann, 2008, p.8)

With their unique focus on assessing students' progress and understanding of specific course content or learning objectives within a limited context, classroom tests hold a distinct place in language assessment. While it is crucial to ensure that these tests are fair, valid, and reliable (Weir, 2005), they may not demand the same level of complexity and rigor as large-scale international tests. The adaptability of classroom tests to the specific needs and goals of the students and the course curriculum allows for a more personalized and effective assessment approach (Coombe, 2012).

Test specifications refer to a detailed set of instructions or guidelines that outline the purpose, level, timing, and specific details about the tasks included in the test. These specifications provide a test development and administration roadmap, ensuring that the test aligns with its intended purpose and accurately assesses the targeted language skills or competencies (Băcă, 2019, pp. 228-229). Test specifications typically include information such as the overall purpose of the test, the language proficiency level targeted (e.g., CEFR level), the duration of the test, the format and structure of the test (e.g., sections, types of tasks), the number of items or questions in each section, the weighting of items, and any other relevant details necessary for creating and administering the test effectively. Therefore, test developers can ensure test design and implementation consistency, reliability, and validity by following test specifications (Brian, 2008, Jin, 2021, Cohen, 2021).

In our opinion, testing is not to be viewed as a phase which is separated from the process of learning. When analyzing instruction, Katz also sees assessment as its intrinsic part, one that supports the process of learning:

"For teachers, such an approach to assessment provides a window onto classroom learning processes so as to be able to measure and track students' language appropriacy of instruction in meeting students' learning needs. For students, such assessment supports reflection on learning, identifies areas of strengths and weaknesses, and nurtures skills that can lead to life-long learning." (Katz, 2021, p.66). The same scholar concludes that assessment has two roles: first, it influences learning and, second, it plays a vital role in the dynamics of the language classroom. As a result, a special focus should be placed, on students' feedback and on teachers' awareness of the need to adapt assessment to their learners' needs. As the two aspects are closely linked, Katz suggests that teachers need to translate students' suggestions into "learning environments keyed to learner needs". (Katz, 2021, p. 72).

A BE course is characterized by an amalgamation of field-specific vocabulary and general content and by an orientation of the course toward achievement. As such, it needs a solid foundation in test development, meaning that insights and guidance on creating effective assessments for language learners are much needed:

"In language for specific purposes testing, the task of the test designer is to mirror as accurately as possible the language, tasks, and contexts of the target language situation in order to accurately predict workplace language performance." (Moder & Halleck, 2021, p.81)

## 3. Research methodology

Generally speaking, the test development cycle consists of five phases. In the planning phase, the assessor determines the reasons for needing a new test, its purpose, type, test takers, and other users. Next, the design phase involves creating test specifications, detailing tasks, listening and reading features, and sample test materials. During the development phase, sample test materials are tested,

and feedback is gathered. If changes are needed, the process may return to planning and design. The following step is the operational phase which involves creating and administering the complete test to real candidates. Then, in the monitoring phase, the teacher evaluates the test performance, and the evidence gathered is used to make decisions on future test changes. Lastly, all materials are then revised and updated accordingly.

As far as a course in Business Communication and Correspondence is concerned, we suggest the following stages necessary to devise new tests:

1. In the planning phase, the following important aspects need to be considered:
  - The need for new tests arises from the specific requirements of English for communication in business courses. What these tests aim to assess is the language proficiency of students within a business communication context.
  - The purpose of the tests is to evaluate students' ability to effectively communicate in English within a business setting, including skills such as writing emails, reports, memos, reading, and listening.
  - The tests will be designed as a comprehensive assessment that includes, preferably, listening, speaking, reading, and writing components, tailored to business professionals' communication needs.
  - The test takers will be students enrolled in the English for Communication in business course, aiming to enhance their language skills for professional purposes.
  - Other test users may include teachers who will use the results to tailor their instruction to meet students' needs effectively, as well as potential employers who may consider the test results when evaluating candidates' language proficiency for business communication roles.
2. According to the design phase, we have to take into account:
  - Not only the test specifications that will outline the test tasks' format, content, and objectives, including specific listening and reading text features relevant to business communication, but also
  - The sample test materials that will be developed to align with the test specifications, providing a preview of the types of tasks and topics that will be included in the assessment.
3. During the development phase, there are two steps:
  - First, the sample test materials will be trialed with a group of students to gather feedback on the tasks' clarity, relevance, and difficulty level.
  - Second, the feedback collected from the trial will be used to make any necessary adjustments to the test design, potentially leading to revisions in the planning and design phases to ensure the test effectively meets its intended objectives.
4. In the operational phase, we are supposed to:
  - Finalize a complete test version, one that is based on the feedback received and administered to real candidates enrolled in the BE course, and
  - Use the test results to evaluate students' language proficiency in business communication and provide valuable insights for both teachers and students to enhance learning outcomes in the course.
5. In the Business English course context, the last stage, the monitoring one, involves reviewing the test performance. The feedback and evidence gathered during this phase are crucial for determining any necessary adjustments to the test in the future. Additionally, all course materials should be thoroughly revised and updated based on the insights gained from this last phase.

Regarding the students, some crucial aspects that should be clarified are:

What is the class profile? In the example provided below, the class consists of adult learners ranging from 19 to 50 years old, pursuing higher education and, possibly, already engaged in professional settings. Students may come from diverse professional backgrounds, such as business, marketing, finance, or administration, with varying levels of experience and exposure to English in a business context.

What are a) expected topic knowledge and b) background knowledge? In our case, students are likely to possess a fundamental understanding of business concepts and terminology and they may be familiar with common business practices, communication styles, and etiquette. Besides, background knowledge in areas such as sales, marketing, finance, and management may vary among



students.

What is the expected language level? As already stated, the anticipated language level is B1 according to the Common European Framework of Reference (CEFR) for Languages. As such, students should be capable of understanding and using everyday expressions related to work, social interactions, and business situations, although with limited fluency and accuracy.

What are the language strengths and weaknesses? On the one hand, students' strengths include some basic vocabulary related to business topics, the ability to understand simple business texts, and express basic opinions and ideas. On the other hand, weaknesses may include limited fluency and accuracy in more complex language structures, challenges understanding nuanced business language, and difficulty expressing detailed thoughts and opinions.

What are the test specifications? The test we suggest aims to assess students' proficiency in using English language skills in a business context and evaluate their ability to comprehend and communicate effectively in various business situations. This test that will be provided as an example will include sections on grammar, reading comprehension, vocabulary, and writing.

What skills and language elements will be tested? As shown below, the test will assess grammar through verb tenses, reading comprehension through understanding business-related texts, vocabulary through application of business-related terms, and writing through composing a professional email requesting information.

How much time will be available for the test? The total duration of our test is approximately 60-75 minutes, with each section allocated specific time limits.

How many sections will there be in the test? Our test comprises sections on grammar, reading comprehension, vocabulary, and writing, each designed to evaluate different language skills relevant to business communication.

What is the length of each section? While the grammar section includes 10 questions to be completed in 15 minutes, the reading comprehension section includes 5 questions to be completed in 15 minutes. Additionally, the vocabulary section includes 8 gaps to be filled in 13 minutes, and the writing section requires completing one task in 15-20 minutes.

What is the number of questions in each section? As seen in the previous paragraph, each section of the test includes a specific number of questions: grammar (10 questions), reading comprehension (5 questions), vocabulary (8 gaps), and writing (1 task).

How will the final score be calculated? Weighting of questions will be discussed in a subsequent section.

There are some other considerations that need to be taken into account. For example, it is essential to ensure that the test tasks are relevant to real-world business scenarios and include various question types to assess different language skills. Besides, clear instructions for each task should be provided to avoid confusion, and authentic business materials should be incorporated to make the test content engaging and meaningful for students.

Test Title: Business English Test  
Level: B1

#### Task 1: Grammar (VERB TENSES)

Choose the correct verb tense in each sentence that best fits the business context.

- The team \_\_\_\_\_ (work) on a new project this week.  
a) will work  
b) is working  
c) has worked  
d) worked
- Our sales department \_\_\_\_\_ (meet) with prospective clients tomorrow.  
a) will meet  
b) is meeting  
c) has met  
d) met
- The company \_\_\_\_\_ (launch) a new advertising campaign next month.  
a) will launch  
b) is launching  
c) has launched  
d) launched
- The CEO \_\_\_\_\_ (attend) a conference in Paris next week.  
a) will attend  
b) is attending  
c) has attended  
d) attended
- Our marketing team \_\_\_\_\_ (develop) a new branding strategy for the product yet.  
a) will not develop  
b) is not developing

- c) has not developed  
6. The finance department \_\_\_\_\_ (analyze) the company's financial reports last week.  
a) will analyze  
b) is analyzing  
7. The IT team \_\_\_\_\_ (upgrade) the company's software systems next month.  
a) will upgrade  
b) is upgrading  
8. Our HR department \_\_\_\_\_ (conduct) interviews for new employees for three days.  
a) will be conducting  
b) is conducting  
9. The production team \_\_\_\_\_ (manufacture) a new product line for the upcoming season.  
a) manufactures  
b) is manufacturing  
10. We were informed that our company \_\_\_\_\_ (expand) into new markets the previous year.  
a) will expand  
b) is expanding
- d) did not develop  
c) has analyzed  
d) analyzed  
c) has upgraded  
d) upgraded  
c) has been conducting  
d) was conducting  
c) had manufactured  
d) manufactured  
c) has expanded  
d) had expanded

Key:

1. b) is working  
2. a) will meet  
3. b) is launching  
4. b) is attending  
5. c) has not developed  
6. d) analyzed  
7. a) will upgrade  
8. c) has been conducting  
9. b) is manufacturing  
10. d) had expanded

#### Task 2: Reading Comprehension

Read the following text about business strategies and check if the true or false statements that follow are true or false.

In the past year, the company has focused on enhancing its existing product line rather than planning to launch a new product next month. The CEO, known for his forward-thinking approach, strongly advocates for innovation within the organization, emphasizing the importance of staying ahead in the market. Despite facing challenges, the company's profits have remained stable, showcasing resilience and strategic financial management. The marketing team, recognized for its creativity and strategic vision, plays a crucial role in developing innovative campaigns to engage customers and drive brand growth. With a strategic plan in place, the company is determined to expand its market share by 10% this year, leveraging market insights and customer feedback to drive sustainable growth and competitive advantage.

(Text adapted with Chat GPT3, 2023)

1. The company plans to launch a new product next month.  
2. The CEO believes in the importance of innovation.  
3. The company's profits have decreased in the past year.  
4. The marketing team is responsible for developing new campaigns.  
5. The company aims to increase its market share by 10% this year.

Key

1. The company plans to launch a new product next month. F  
2. The CEO believes in the importance of innovation. T  
3. The company's profits have decreased in the past year. F  
4. The marketing team is responsible for developing new campaigns. T  
5. The company aims to increase its market share by 10% this year. T

#### Task 3: Business Vocabulary on Selling

Fill in the gaps in the text about selling with the correct words from the list below.

*knowledge, negotiation, needs, customers, strong, professionally, strong, partnerships*

In the world of sales, it is crucial to understand the 1 of your customers. By building 2 relationships and gaining their trust, you can create long-term 3. It is also important to have a good 4 of the product or service you are selling and be able to 5 its benefits effectively. Additionally, having strong 6 skills and being able to handle objections 7 will help you close deals successfully. Remember, the key to successful selling is providing value to your 8."

(Text adapted with Chat GPT3, 2023)

#### Key

- |                 |                   |
|-----------------|-------------------|
| 1. needs        | 5. communicate    |
| 2. strong       | 6. negotiation    |
| 3. partnerships | 7. professionally |
| 4. knowledge    | 8. customers      |

- Task 4: Email Writing

Write a semi-formal email to a business partner requesting information about a new project. Include relevant details and use appropriate business language.

Suggested key points:

- Introduction and greeting: Start with a polite greeting to the business partner.
- Purpose: State the purpose of the email, which is to request information about a new project discussed in a recent meeting.
- Specific request: Ask for detailed information regarding the project scope, timelines, and key deliverables.
- Collaboration: Express the importance of understanding the project details for effective collaboration.
- Assistance offering: Offer assistance if there are any specific requirements or resources needed from you.
- Closing: Close your email with a polite thank you and a sign-off.

Sample answer:

Subject: Request for Information on New Project

Dear [Business partner's name],

I am writing to request information regarding the new project we discussed during our recent meeting. As we move forward, we need to have a clear understanding of the project scale, timelines, and key deliverables. If possible, I need you to send me some detailed information on these aspects.

Second, if there are any specific requirements or resources needed from our part, please let me know so we can ensure the efficient execution of our project.

Keep in touch.

Best regards,

[Your name]

#### 4. Findings

Grading a test can be problematic and time-consuming. Therefore, it is important to allocate the marks according to the complexity and importance of each task, when assessing the students' English language proficiency in a business context. For the test suggested in the previous section, the marks will be awarded as follows:

1. Grammar (Task 1): 3 marks
2. Reading Comprehension (Task 2): 2 marks
3. Vocabulary (Task 3): 2 marks
4. Writing (Task 4): 3 marks

In what follows we are going to account for this mark allotment. First, grammar is fundamental to effective communication in English, especially in business settings. This task assesses the students' understanding and application of verb tenses, which is crucial for conveying accurate information in various business situations. Second, reading comprehension is considered to be essential for understanding business-related texts, such as reports, emails, and articles. Task 2 evaluates the students' ability to understand and interpret information presented in a business context, which is vital for making informed decisions and communicating effectively with their future colleagues and clients. Third, we think that vocabulary is key to expressing ideas and concepts clearly and accurately in BE. As noted, this task assesses the students' knowledge and comprehension of business-related vocabulary, which is necessary for their effective communication in the workplace. Last, it is agreed that writing skills are crucial for communicating professionally in business environments, particularly through emails, reports, and presentations. This final task evaluates the students' ability to compose a clear, concise, and appropriately formatted email requesting information about a new project, demonstrating their proficiency in written communication.

By allocating the marks in this way, we aim to ensure that each task receives an appropriate weighting based on its significance in assessing our students' English language proficiency in a BE course. The present approach reflects the importance of grammar, reading comprehension, vocabulary, and writing skills in effective business communication, while also providing a balanced assessment of the students' overall language abilities.

In the concluding paragraph of the current section, we are going to discuss the issue of facility values, more precisely what the optimal value of test items are. To determine the difficulty level of a question, we can calculate the percentage of students who answered it correctly. Step number one is divide the number of students who answered correctly by the total number of students who took the test. A score of 0.0 means that no students managed to answer the question correctly, thus making it extremely difficult. Conversely, a score of 1.0 means that all students answered the question correctly, indicating it posed no difficulty. The majority of students is assumed to answer questions correctly in an achievement test which assesses course knowledge. A good value would be if, for example, 21 out of 30 students could answer a question correctly since the calculation would be  $21/30 = 0.7$ . However, in an end-of-year test determining grades, questions that are too easy or difficult are ineffective. The recommended percentages for this type of tests are within the range of 0.25 to 0.75. Scores below 0.25 may be regarded too difficult, while scores above 0.75 may be seen as too easy. Taking into account these optimal values, teachers will be able to calculate facility values in all their tests (Martyn, 2024).

## 5. Conclusions

When creating tests, it is advisable to:

1. Ensure that test tasks align with students' real-life language needs;
2. Design test tasks that prompt students to think and communicate as they would in business-like situations;
3. Create test scenarios that mirror the working conditions in which students will engage in communication;
4. Evaluate whether the test results will provide valuable insights into students' language proficiency and usage abilities in their area of expertise.

Some additional components that could be included in the test to make the assessment more comprehensive and relevant to the student's needs in a business English context are listening comprehension section(s), where students can listen to recordings of business-related conversations, presentations, or interviews. As follow-up activities, students could answer questions or complete tasks based on the content of the recordings, such as summarizing key points, identifying main ideas, or answering comprehension questions. Another option is incorporating a role-play or speaking component which helps students engage in simulated business scenarios, such as negotiating a deal, participating in a meeting, or giving a presentation. Also, this task would assess students' ability to communicate effectively in spoken English, demonstrating skills such as fluency, clarity, and appropriate use of language in real-world business situations. If time allows, the writing section can be expanded to include additional types of business writing tasks, such as drafting a proposal, composing a formal report, or creating marketing materials. Such tasks would enable students to demonstrate their ability to produce various types of business documents, applying appropriate language and formatting conventions.

What we have offered are just a few suggestions among many other tasks that would assess students' ability to think critically, analyze information, and make informed decisions, which are essential skills in the business world.

To conclude, by incorporating these additional components into the test, the assessment would provide a more comprehensive evaluation of students' language proficiency and readiness for success in real-world business environments. It would also help students develop a broader range of skills and competencies relevant to their professional goals, fostering their growth and success in an increasingly globalized and interconnected business world.

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## Aspects of Bounded Rationality in Resource Use

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### Abstract

*Rationality in economics, corroborated with the idea that human action, essentially economic life, cannot be consumed far from rationality, as it has been analyzed by all economic thinkers, is neither inscribed in the sphere of purity nor is it whole.*

*The evolution of economic science has allowed both positive and counter-ideas of rationality, what is worth emphasizing is the fact that the imperfection of economic rationality has been admitted even by its fiercest defenders.*

*The resources attracted and used, viewed in absolute terms, have increased and diversified continuously, on the other hand, relative to the growth and diversification of needs, resources have been and remain limited. In this sense, people's permanent preoccupation with choosing resources and ranking their use to better satisfy needs is the fundamental problem of organizing any economy.*

*Through this paper, it is proposed to analyze through a bibliographic study, comparing the qualitative causal link between the forms of rationality used in economic science. Rationality in economics arose as a result of the limitation of resources, this concept is practically the essence of economic science.*

**Key words:** economic rationality, perfect rationality, imperfect rationality, bounded rationality

**J.E.L. classification:** A13

### 1. Introduction

The current economic conditions require that economic rationality becomes more and more, an absolutely necessary process in fundamental decision objectives within the framework of establishing the fulfillment but also regarding the way in which the resources are to be allocated.

In other words, it can be unequivocally admitted that human action, essentially economic life, cannot be consumed far from rationality, more than that it is imperatively necessary or continuous adaptability to current economic realities through a better understanding of own potential and by applying the principles of rationality specific to the modern economy.

In analyzing the concept of rationality, man oscillates between certain limits, respectively towards a perfect rationality, but closer to his human condition is limited rationality.

### 2. Theoretical background

In economic theory, the term rationality has gone through several stages depending on the dominant economic trend. Thus, at the beginning the term rationality was a holistic and complex one based on the Enlightenment idea of human reason, after which in the classical political economy it was reduced to utilitarianism, becoming more of a calculation tool.

Practical rationality considers the choice of goals and the appropriate behavior in relation to them, based on a reflexive behavior between the antecedents and results of the decision, as well as between norms and decision-making practices

The term economic rationality is the expression by which organizations are understood and studied, relating to the purpose for which they were created and economic intent. Barbara Townley, in her book Reason's neglect: rationality and organizing, presents the fact that organizational structures, systems, respectively the policies undertaken are designed to achieve economic goals that

lead to the achievement of specific objectives, this aspect strengthens the hypothesis that organizations are rational.

However, there are numerous studies that convey that organizations often pursue goals and objectives that are not essentially economic and that structures, systems, and goals are rarely designed and often fail to achieve their stated intent or purpose. Moreover, although economic rationality is often presented as a discrete, coherent and easily identifiable way of rationality at first glance, it has the possibility of eliminating many confusions and contestations that arise from the multitude of disputed definitions of rationality, or disagreements with regarding the behaviors that characterize the economic man.

From the point of view of the organization, in conjunction with the study of economic rationality, several forms of rationality can be identified that are manifested at its level:

- *Bureaucratic rationality* is characterized by knowledge, which allows things to be known. Banal, apparently insignificant acts, the imposition of certain limits, rules, procedures, codes of ethics, etc. they are what enable it to be known, to become predictable, and to be enforced. As such, bureaucratic rationality enables bureaucratic structures to function, and it persists and develops especially when the organizational form identified as bureaucracy undergoes many changes.

- *Technocratic rationality*. The situation in which ends and means are well defined, i.e. cause-effect or means-end relationships are well understood, rational action consists in adopting technically rational means or solutions to achieve the desired ends. Where the ends are not well defined and understood, or the means are not obvious, technically rational action is not possible. Most organizational problems involve either some degree of dispute over ends or means that are not well defined. Hence the reference to a technocratic rationality, this aspect translates into the application of technical means in fields as if cause-effect relationships were well established and rational action from a technical point of view was possible.

- *Institutional rationality*, which can be confused at first sight with the bureaucratic type, at the level of significance it is characterized by its criticism of the universalist concept of rationality, recognizing the fact that "the rational individual is and must be an organized individual and institutionalized". An institutional rationality can be translated by the existence of some levels of society embodied in the institutions whose purpose is the organization of social life (government, law, family, religion, etc.), which are individualized each according to the expressed purpose, which positions the economic man to find multiple forms of rationality.

- *Contextual rationality*, which expresses the idea that a rational action taken need not be fully aware of the reasons for the action, nor fully informed about the causal efficacy of the action. These considerations can be traced back to the "context" in which the action takes place in order to gain its meaning as a rational action. I personally believe that this form underlines how contextual rationality is treated in organization studies and illustrates how context is integral to the operation of rationality.

- *Situational rationality*, which is easily confused with contextual rationality, the difference between them const reporting at the temporal level, which allows for the assumption that behavior is prescient and that rationality occurs before action. A situational rationality recognizes that action is retrospectively rational, but this is also determined by the importance of the 'situation'. We know the aspect according to which rationality is a continuous achievement, in this sense we find situational rationality sequentially in the course of all the interactions consumed between individuals and organizations that aim to satisfy their own interests.

Using an analysis to achieve a situational rationality expresses the degree to which we succeed in augmenting the information needed to better understand the organization.

- *Collective rationality* is rational cooperation guided by collective reasoning: "a cooperative effort, involving linguistic exchange, to answer a question or solve a problem facing a group." "Collective rationality" takes the form of a group process for making rational decisions, which can be achieved by aggregating individual decisions.

It can be considered that collective rationality, as a result of a collective action, an expression of a collective reasoning, manifests itself in the situation of satisfying a common goal and translates into a democratic act in the development of a process of rationality in the field of resource use, but the fact that each individual, on a personal level, reacts differently to different situations, this cannot be fully achieved, which allows the emergence of syncope in the application of a collective decision.

- *Practical rationality*, which is the ability to retain lessons learned about the dimensions of rationality and incorporate or distill them into a unified understanding or picture. This expresses the connection between "knowing that", doubled by the contextual awareness "knowing how". (Townley, 2008)

In The Oxford Handbook of Rationality, authors Alfred R. Mele and Piers Rawling channel their focus on three competing views of economic theory about the instrumental rationality of decisions, namely to maximize self-interest, the second to maximize utility, and the third to 'satisfy', i.e. adopt a satisfactory option. They argue that self-interest maximization is too narrow an approach, that the second overlooks the benefits of teamwork and planning, and that the third, when carefully formulated, reduces to the second. Through this paper, the authors argue for a superior and elegant form of the economic principle of utility maximization. (Mele, 2004, pp. 380-398)

In another vein, focusing on the critical side of economic science, in the opinion of some Romanian philosophers, I noticed that they, with reference to rationality, often consider that economists "do not distinguish between actions in the economic sphere and those outside the economic sphere. For them, there is no difference between buying sausages and reading a book...the difference between what happens in the economic sphere and what happens in other spheres, the spiritual one, perhaps, belongs to the realm of platitudes." (Solcan, 2009, p. 228)

As can be seen, the criticism comes in counterbalance to the accusations brought to economics by the fixed sciences, which demand absolute truths and cold calculations. The economists to whom this accusation is addressed are those who believe that economic rationality requires either the maximization of profits or the maximization of satisfaction, of utility.

A vision that refers more to the mercantilists than to the modern economy and only isolates the individual from thoughts and feelings. That is why Amartya Sen in *Rationality and Freedom* in the essay *Rationality and Uncertainty* argues that: "People in real life are or are not interested in pursuing only their own interests, but it would be absurd to claim that anyone who does not pursue what he or she admits to be self-interest, it must be categorized as irrational." (Sen, 2004, p. 227)

### **3. Research methodology**

The specialized literature represented a source of inspiration, orientation and creativity that helped in the creation and support of research in the segment of the rational use of resources both in the construction stage and in the validation stage of the research work.

Regarding the research result, the validation of the research carried out can be done on a theoretical-conceptual level, by checking the relevance and coherence of the basic statements with the consulted bibliographic references, and with regard to the publication of the research results, the external validation of the research will involve confronting the results obtained with existing theory and actual facts.

The reliability of the results can be tested by comparing the results of the conducted study with similar studies from the specialized literature, including the possibility of effective implementation - the adoption of alternative strategies for the rational use of resources of economic entities in the context of crises.

### **4. Findings**

In the analysis of the scientific route from perfect to limited rationality, we find contradictory meanings between convinced rationalists and apriorists with moderate rationalists or critics of Cartesian rationalism.

Ideologically speaking, convinced rationalists and apriorists present homo oeconomicus and scientific abstraction as powerful tools of analysis, and in this sense, in order to strengthen some shortcomings of rationality, they have identified salutary solutions in the rationality of the market or the rules. The "AS IF" principle (as if he knows) or procedural rationality are just two examples.

Moderate rationalists operate with the idea of limited rationality, which opens new horizons in the view of critics, characterized by paradoxes and dilemmas of rationality (Pohoățã, 2011).



From the analysis of what is presented in this paper, we can admit that the common man is neither in the category of those with perfect rationality, nor in the category of perfect irrationals, but is written in that of individuals with limited rationality. Going further, making causal links, we can deduce that if most people have a limited rationality, this aspect concludes to the idea that the models of perfectly rational or perfectly irrational society exist only in theory and do not represent the whole. This assumes, however, that the market, defined in economic science as the meeting place between demand and supply, cannot be a perfectly rational one, nor is it desirable, because we would frustrate human actions and atrophy their response capacities in a situation of crisis.

The imperfect market, along with the behavior of individuals who show limited economic rationality, lead to situations where economic forecasts have a low degree of realism.

## 5. Conclusions

Economic rationality is not only inscribed in the sphere of logic occupied by the idea of efficiency and maximization of results, because it is found that it differs from each individual.

The research was done by appealing to the approaches of the classics of economic science, but also of some contemporary authors, but it must be emphasized that the research was also based on personal ideas which in turn can be perfected, reasons that must increase in value through a more detailed report judicious in the study of specialized literature, both at the level of economic science and other social sciences, without neglecting the quantitative links that we find in the exact sciences.

Following the ones presented and analyzed in this article, I mention that the stage of the hypotheses is incipient, based on the argumentation and the homogenization in the continuation of some significant meanings stated in the study of the science of economics.

At the same time, it can be considered opportune to create stronger links between the analysis of human behavior and the economy, but also with the applicability of rationality in the use of resources, which would create sufficient premises for the continuation of research in this area of the economy.

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# An Ethical Problem in the Current Global Economy: Gender Pay Gap

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## Abstract

*The global economy is currently facing many challenges, some old and persistent, and some new, in various forms. Gender inequality in the labour market is an older problem that has a global dimension and affects women both in terms of labour force participation and pay. For equal work and similar responsibilities, women earn on average significantly less than men. This paper aims to address gender pay inequalities as a problem of the global economy. The aim of the paper is to review theoretical approaches and explore the extent to which these theories can explain the gender pay gap. The first part of the paper argues for the ethical dimension of the problem studied. Attention is then focused on the main myths that cast doubt on the reality of gender pay discrimination. In the final part, human capital theory, game theory and the theory of labour's contribution to productivity are discussed. Our thesis is that these theories, at a particular level, offer only partial, unsatisfactory explanations. Taken together they provide detail and offer richer explanations of the gender wage gap.*

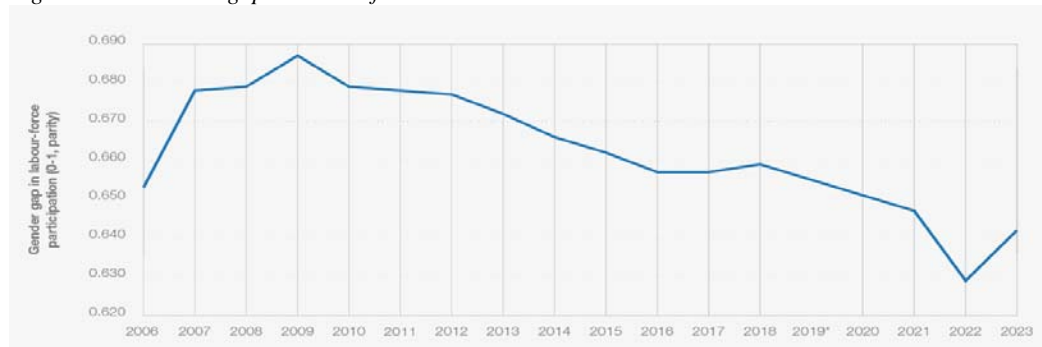
**Key words:** gender pay gap, discrimination, employment, ethics

**J.E.L. classification:** F66, J16, J71

## 1. Introduction

Labour force participation in the global economy in recent years has been characterised by the persistence of a significant gender gap between women and men. World Economic Forum reports (2023) and other specific statistical documents highlight that gender parity levels in the labour market are regionally diverse and have experienced uneven developments over time. Globally, women's participation rate has seen a significant decline since 2019, for example between 2019 and 2020, by 3.4% compared to 2.4% for men. Between 2022-2023, parity is expected to recover from 63% to 64%. But even with this increase, parity is at its second lowest level since the first edition of the index in 2006 and below the 2009 peak of 69%, as can be seen from the figure below.

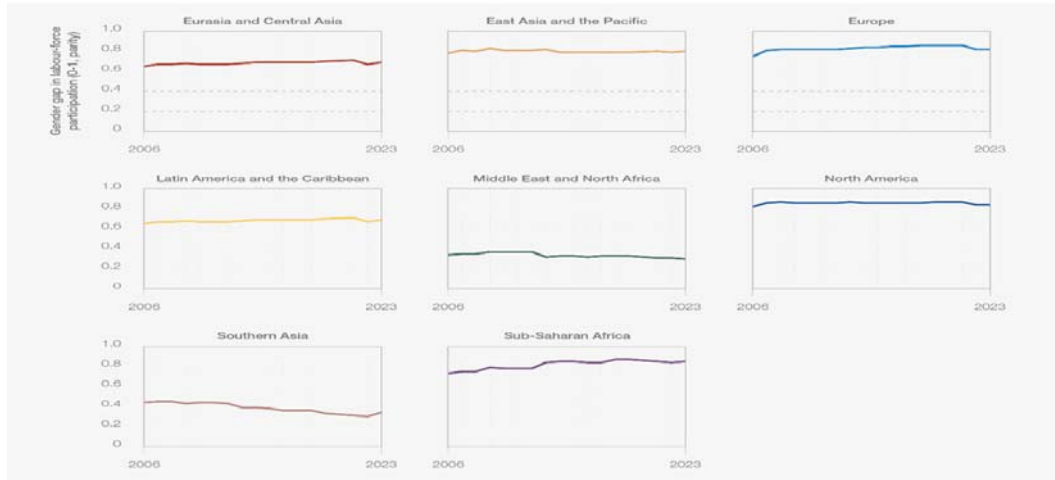
Figure no.1. Gender gap in labour-force 2006-2023



Source: World Economic Forum, *Global Gender Gap Report*, 2006 – 2023

At regional level, developments in labour force participation parity have been uneven, with an overall decrease however in the 2022 edition. The lowest parity levels are present in the Middle East and North Africa (30%) and Southern Asia (34%). North America has the highest score - 84%, followed by Europe at 82% and East Asia and the Pacific at 80%.

Figure no. 2. Gender gap in labour-force participation, by region, 2006 – 2023

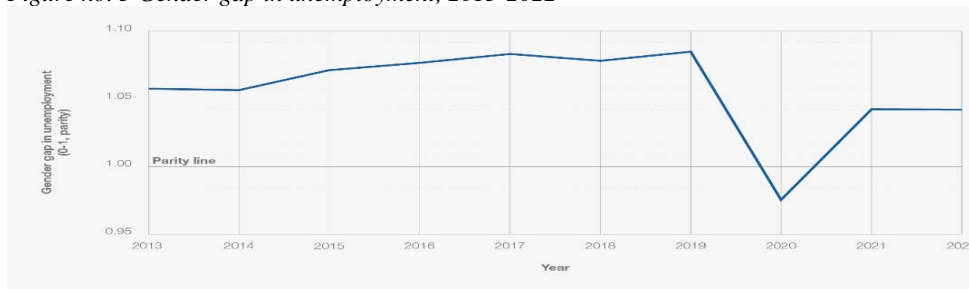


Source: World Economic Forum calculations based on *Global Gender Gap Report, 2006-2023*

The analysis presented in the Global Gender Gap Report 2023 (ch. Benchmarking gender gaps) on the global gender parity index over the last 17 years (between 2006 - 2023), on a constant sample of 102 countries, shows an average reduction of only 0.24 percentage points / year. In this context, it can be seen that the overall progress in gender parity shows an overall gain of only 4.1% from 2006 to 2023. Thus, it is estimated that if the same rate of overall gender parity progress is maintained from 2006 to 2023, the overall gender gap will close in 131 years, i.e. in 2154. An important issue is the correlation between female labour force participation and the level of national income per capita. Thus, according to Ortiz-Ospina *et al* (2018) women have higher labour force participation in some of the world's poorest and richest countries. In middle-income countries, the percentage is in the middle range.

From the above data it appears that gender parity remains a major challenge in the labour market, although the figures show some improvement, the gaps remain wide on several indicators of economic performance. In addition to these trends still present at global level, women also face two particularly important challenges. The first problem is the higher overall unemployment rate among women than among men. On this issue, the most recent data provided to the International Labour Organization (ILO) indicates a global unemployment rate of 4.5% for women and 4.3% for men. In the figure below it can be seen that over the period studied, and in general throughout history, there has been consistently lower participation of women in the labour force. The year 2020 is an exception due to the pandemic, when unemployment peaks for both women and men.

Figure no. 3 Gender gap in unemployment, 2013-2022



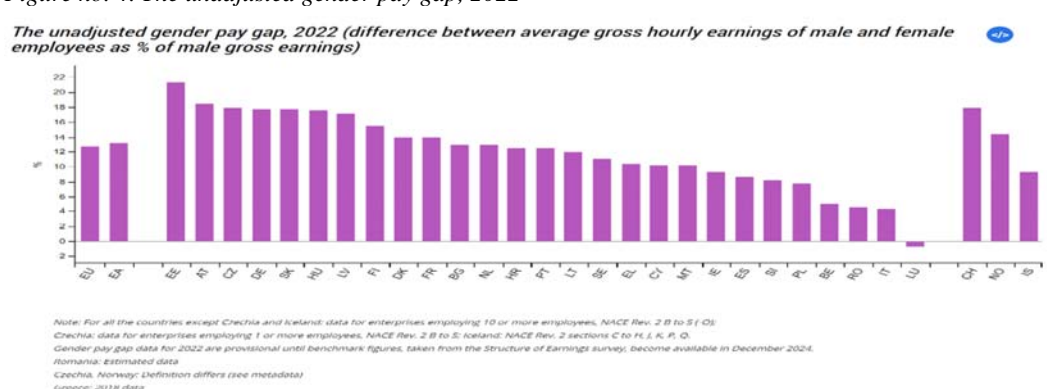
Source: World Economic Forum, calculations based on ILO modeled estimates 100 countries, constant simple

The second issue, which is the subject of this article, is the inequality of pay for work of equal value between women and men. With regard to the concept of "equal pay for equal work" we consider it important to make a few clarifications to avoid ambiguities. As defined in the ILO Equal Remuneration Convention 100, adopted in Geneva in 1951, equal pay for equal work means that all persons, irrespective of gender, are entitled to receive equal pay for equal work and for different work of equal value. The clarification of this distinction is essential because there are situations where jobs held by women and men may require different qualifications, responsibilities or working conditions, but their value is equal and the distinction in fact guarantees equal pay. Beyond this clarification, there are two approaches to pay differentials:

- The pay gap as the difference in average pay between men and women.
- The unadjusted pay gap as the difference between men's and women's average gross hourly earnings, expressed as a percentage of men's earnings. This approach does not take into account education, age, hours worked or type of work (Eurostat, Gender pay gap statistics).

Various countries have over the years harmonised their legislation to ensure equal pay, without gender differences, so that both men and women are paid equally even for different jobs of equal value. An example of the above is the Obama administration, which has taken steps to eliminate discrimination and close the gender pay gap, when the pay gap is 2.5% higher than the average in industrialised countries. Thus, a full-time woman earns 79 cents for every dollar earned by a man (Lam, 2016). At the European Union level, the gender pay gap differs widely across countries. We exemplify with the rate gap in several countries recorded in 2021: Estonia (20.5%), Austria (18.8%), Germany (17.6%), Hungary (17.3%) and Slovakia (16.6). Luxembourg has closed the gender pay gap. Other countries with lower gender pay gaps in 2021 are: Romania (3.6%), Slovenia (3.8%), Poland (4.5%), Italy (5.0%) and Belgium (5.0%). It can be seen that the gender pay gap is much more pronounced in the first group, where it is over 20% (Estonia) and the second group, where Luxembourg, for example, has eliminated this discrepancy, while in Romania the percentage is only 3.6%. In the following year, 2022, the percentages at the extremes are present in the same and even more radical countries: Estonia (21.3%) with the highest gender gap, and Luxembourg (-0.7%) with the lowest. Concerning women's gross hourly earnings in 2022 in the EU, statistics show that they were on average 12.7% below those of men. In countries with lower incomes the pay gap is even more pronounced, for example in Pakistan women are paid 40 or even 45% less than men.

Figure no. 4. The unadjusted gender pay gap, 2022



Source: Eurostat (online data code: sdg\_05\_20)

## 2. Theoretical background

Every year, thousands and thousands of women globally report gender discrimination in the workplace, and most of these complaints concern the significant differences in pay for equal work and equal responsibilities under similar conditions between female and male employees. The issue of pay inequality has both ethical and legal dimensions, as such practices violate ethical principles, rules and declarations developed at global level that regulate precisely these aspects of pay equity. Ignoring and violating these principles of equality and fundamental human rights creates an ethical conflict. The granting of unequal pay on the basis of gender for the same responsibilities and time

worked is immoral and the practice has been likened to discrimination in the workplace, thus depriving women of pay that is rightfully theirs (EPA, 1963, pp. 151-154).

## **2.1. Unequal pay for women and men is an ethical issue**

In the EU, the principle of equal pay for equal work, without gender discrimination, was introduced as early as 1957 in the Treaty of Rome, now called the Treaty on the functioning of the European Union. Article 157 (ex-Article 141 TEC) of the Consolidated version of the Treaty on the Functioning of the European Union explicitly states that: "Each Member State shall ensure that the principle of equal pay for male and female workers for equal work or work of equal value is applied" (para. 1). A significant moment in the USA, one might even say a 'milestone', marking a new direction in relation to gender pay disparities, was in 1963, when President J.F. Kennedy signed The Equal Pay Act, a law protecting people against gender pay discrimination. As can be seen, the issue of pay inequality has an important legal component, as evidenced by the legal rules developed to regulate it. However, pay differentiation, at different levels, persists to this day, globally.

Apart from the legal issue, which is not the focus of this article, the gender pay gap is also an ethical issue. The action itself, with its gender-based pay criteria, is in conflict with various socially established and assumed moral norms and principles, such as equality, justice, respect, dignity, etc. The problem is that, on the one hand, the gender pay gap incorporates discrimination and creates barriers to career development for women. The risk of gender pay discrimination can multiply in other forms in the institution, for example for people with disabilities, or on the basis of older age or ethnicity. On the other hand, a fundamental principle of ethics, the principle of equality, is violated. Therefore, gender pay inequality must be tackled as an ethical problem, with all its specific features, with an impact on society as a whole, not just on women, and which can be resolved using appropriate instruments and mechanisms, involving economic, political and educational factors.

The interest in addressing specific problems in economics in an ethical way has grown considerably in recent decades and is part of a deeper vision, so that there is now talk of "a real thirst for ethics in economics". Kliksberg (2012, p. 277) points out that globally the socio-economic elite supports the idea of corporate social responsibility, which strengthens concern and commitment to problem solving. We mention in this regard Global Economic Ethics - Consequences for Global Business, a document launched in 2009 at the United Nations Headquarters in New York. The Manifesto set out to promote globally accepted norms for economic action that reflect "a common fundamental vision of what is legitimate, just and fair." The content of the Manifesto is linked to other international documents and United Nations guidelines on fundamental human rights, with the explicit statement that "Every human being - without distinction for age, sex, race, skin colour, physical or mental ability, language, religion, political opinion, or national or social origin - possesses an inalienable and untouchable dignity".

Gender equality and pay equity for men and women are imperatives that imply responsibility for both economic communities, governments and society in general. The gender pay gap seems to be a women-only issue, as it is women who face this problem. However, the approach should be different as pay inequality is not only a women's issue, it is a problem for all stakeholders, namely the work group, their families, the community and ultimately society.

## **2.2. Gender pay gap - myth or reality?**

The statistics on the gender pay gap are clear, the principle of equal pay is being violated, which raises many ethical and social/economic issues, yet there are voices that argue that the evidence is irrelevant and that pay is being paid according to existing rules and methodologies that are being applied. A 2019 survey of 8566 adults in the USA highlights the distrust of the pay gap (Renzulli, 2019). Thus, 46% of men and 30% of women do not believe there is a gender pay gap. The issue of equal pay has been "made up to serve a political purpose", without actually representing a legitimate problem.

Various studies point to another perspective on the pay gap, namely that there can be no discrimination. Rather, women choose not to enter higher-paid positions but lower-paid jobs, so the gap is actually their fault (CWF, 2019; Gould *et al*, 2016). In other words, some people believe that

there is no gender pay discrimination in the workplace, only choices by women who tend to gravitate towards careers that pay less. An example that contradicts this position is the case at Google, where more than 10,000 women in various positions have sued the company for damages because the tech giant violated California's Equal Pay Act by underpaying them. Specifically, these women "earned nearly \$16,800 less than 'similarly situated men'". Finally, in 2019 Google paid out several million dollars to close the pay gap and acknowledged that women were paid less than men working in similar positions (Shah, 2021).

An analysis of the gender pay gap should also take into account that women's career choices are frequently influenced by cultural traditions, religious affiliation and gender stereotypes in society. For example, girls may be steered from childhood towards professions considered more 'feminine', with lower average salaries, and discouraged from moving into fields such as technology or engineering, all of which contribute to an increased risk of pay discrimination. Occupational gender segregation has decreased in recent decades, but the pay gap still remains a reality. A study conducted in the US over a 50-year period concludes that the entry of an influx of women into a previously male-dominated occupational area leads to a decline in average wages for the occupation as a whole, even for men in the field (Levanon *et al*, 2009).

In another approach, according to research evidence, the pay gap is blamed on the fact that women are not as good as men at negotiating for higher pay, are less aggressive, and therefore earn less. Babcock *et al* (2003) point out that women are less likely than men to negotiate for several reasons. For example, they are oriented from childhood not to promote their own interests, and internalising this behaviour manifests itself in adulthood. As for the position of companies, many discourage women from asking for pay rises and even penalise them when they do. As a result, when a more attractive offer comes along, women often prefer to accept it rather than use it as a bargaining tool. A 2022 survey in the UK shows that 31% of men who asked for a pay rise were successful, compared to a lower 21% of women (Kirk, 2022). Pay rises awarded to men more than women when requested can be seen as positioning in the area of gender discrimination and, according to the statistics, is a reality, not a myth. According to Bowles *et al* (2007, p. 86) "Women are still expected to fulfill prescriptions of feminine niceness ((e.g., warmth, kindness, sensitivity to the needs of others), which are emblematic of their subordinate status".

A controversial myth about the gender pay gap is that working mothers are less dedicated and less effective. There are many reports of companies dismissing women because of pregnancy, because they consider mothers-to-be incapable of working during this period. Studies have shown that employers prefer to employ women without children rather than mothers, and when they make an offer to a mother, they offer her a lower salary than they offer other women (Kricheli-Katz, 2012). It is true that in most situations mothers take on the role of caring for the child and the number of hours worked, at least for a while is reduced, but this should not become the 'punishment for motherhood'. Mothers become more vulnerable during this period, financially disadvantaged compared to men. A study tracking the state of affairs in Denmark between 1980-2013 shows that childbirth creates a gender gap in earnings of around 20% in the long term. The gender inequality produced by the 'motherhood penalty' has increased, according to the study, from around 40% in 1980 to around 80% in 2013 (Kleven *et al*, 2019).

So while some argue that the gender pay gap is just a myth, research evidence shows that pay discrimination in the workplace globally is still a reality that negatively affects women.

### 2.3. Gender pay gap theories

The issue of the gender pay gap has been studied and interpreted from different perspectives, bearing in mind that beyond this issue there are certain social and economic structures that have been theorised to provide a better understanding of this pay gap.

*Human capital theory* is based on the assumption that education and skills training are necessary to increase the productive capacity of a population and are becoming increasingly important components of the labour market. Education is understood as an investment in human capital, and is considered by proponents of this theory to be as valuable as, or more valuable than, physical capital (Woodhall, 1997). Human capital is therefore the value of an employee's experience and skills, which includes education, skills, training, and other components valued in the workplace, such as

punctuality and loyalty (Ross, 2023). Research by Chan (2016) shows that education increases productivity and raises workers' lifetime earnings. Thus, a positive correlation between education and earnings emerges, confirming human capital theory.

To what extent can this human capital theory explain the discrimination or gender pay gap resulting from education? Mincer (1974) attempts to explain the gender wage gap using a human capital investment model. In his approach he estimates a linear wage equation as a function of both education and experience variables. The gender wage gap is caused by the difference in investment in individual human capital. Several researchers still believe that investment in education will lead to higher wages. Gary S. Becker, winner of the Nobel Prize in Economics (1992), noted the role of human capital theory in explaining and better understanding the gender wage gap. Since women are traditionally more likely than men to work intermittently, especially after having children, they are less motivated to invest in training and education that would improve their income and work skills. Lower investment in individual human capital at the education level would explain the lower earnings gap for women compared to men (Becker, 1985). On human capital theory, most studies suggest that it plays an important role in explaining the gender wage gap. However, because it is based on broader assumptions, human capital differentials fail to provide a satisfactory explanation of the gender wage gap unless factors such as education and experience are included. Therefore, human capital theory alone can only partially explain the gender pay gap.

*Game theory.* The growing number of studies proving the existence of the gender pay gap (Joshi *et al*, 2015; Webber and Canché, 2015) have stimulated investigations in this area with the aim of explaining the gender pay gap. In this context, some studies highlight that the differences could be generated by a female attitude to avoid wage negotiations (Leibbrandt and List, 2014). Behavioral economics, a relatively younger multidisciplinary field of research, studies the approach to decision-making situations, how people make judgments and decisions from different perspectives (Heilman and Kusev, 2017). The behavioral model in Ultimatum Game (Güth *et al*, 1982), which involves a bargaining task between two players - the proposer and the responder - from the perspective of resource allocation, is discussed by researchers to be applied in studies that address gender wage gaps. Some gaps, as revealed by various research, could be driven by women's avoidance of wage negotiations (Leibbrandt and List, 2014). The decision-making situation in Ultimatum Game, if it can prove an association with people's decision-making behaviour in wage bargaining, could be used to investigate and provide new explanations for why women are usually given and accept lower wages than men (Heilman and Kusev, 2017). Eckel *et al* (2008) review laboratory research using two games, the dictator game and the Ultimatum Game, to examine gender differences in bargaining. From the Ultimatum Game it appears that there is a tendency for women to be more egalitarian than men and also "to expect and ask for less in the negotiation". The research shows that differences in the behaviour of women and men in negotiation tend to be small, with negligible differences in many situations, although women may be more sensitive to issues of general fairness in negotiation. The fact that women tend to ask for and accept less in negotiation can influence the final outcome. In most cases, however, women and men behave similarly in negotiations (Eckel *et al*, 2008). Therefore, this theory offers a possible explanation for gender pay disparities from a bargaining perspective. The pay gap can also be explained by the bargaining undertaken by women and men, in the sense that research shows a tendency for women to demand and accept less, which would justify the lower pay as an end result.

*Labour contribution theory of productivity.* Labour productivity is an extremely important factor with a direct impact on the efficiency and success of a job and in a broad sense represents the amount of actual output produced by an employee per unit of time, per hour. Direct measurement of individual labour productivity is problematic, however, as there are occupations to which the usual rules on output per unit time cannot be applied. Could gender differences in wages explain labour productivity theory? Research (Olsen and Walby, 2004) concluded that although productivity theories were true, they did not provide a satisfactory explanation of the gender pay gap. Although working in productive firms, women "do not seem to get as high a share of the realised output as the men do" (Olsen, 2009, p.144).

### **3. Research methodology**

In conducting this study, we used a comprehensive review of research on the gender pay gap. In doing so, we have been particularly concerned with highlighting whether this gender pay gap is a global ethical issue and to what extent theories can provide satisfactory explanations. For theoretical background, recent data on these issues were collected from online databases, Web of Science and journals indexed in international databases. We also used reports from international organisations such as the World Economic Forum, the European Parliament, the International Labour Organization, the OECD. The criteria for selecting the specific studies and reports used in this article were the timeliness of the data provided and the possibility to make a comparative analysis, covering as wide an area as possible in the research, in order to draw conclusions closer to the global. A number of 38 studies and reports were identified that met the above criteria, most of which were published after 2000.

### **4. Findings**

The results obtained from the analysis of reports and research that have been carried out, and from representative case studies, show that there is still a significant gender gap at the global level, expressed on two levels, from the perspective of the objectives of this article. On the one hand, there is a gap in women's participation in the global workforce, with regionally varying levels of parity and uneven trends, with the lowest in the Middle East, North Africa and Southern Asia. On the other hand, there is a gender pay gap globally, even for the same occupations, equal responsibilities and equal work value. This pay gap is present in higher percentages in regions where the gender gap is more pronounced and country-level earnings are lower. Unequal pay is an ethical issue whereby the principle of equality is violated, also incorporating discrimination. Recent trends in economics are to pay more attention to ethical approaches, which is also highlighted in international documents undertaken by different countries and organisations. Although the figures show evidence of gender pay inequality, it is seen by some as a myth, without being understood and accepted as a real problem. These myths are contradicted by statistical data, but they persist because there is probably a misunderstanding of what the pay gap measures or for other reasons. In an attempt to explain and provide a better understanding of the gender pay gap problem we have explored three theories, which we felt were the most appropriate to apply to the topic under study. Each theory offers explanations and provides important understandings of the theme, but each does so only partially, without providing a complete perspective. For this reason we believe that for a better understanding of the situation, the approach must be carried out in a plural approach of theories.

### **5. Conclusions**

The paper addresses the gender pay gap as an ethical issue in the contemporary global economy. Although studies show that progress in gender equality indicators has been made in recent decades, disparities persist at the global level. Reports from international bodies highlight significant gender gaps between women and men in both participation in the global labour force and pay for the same occupation and equal work. Regions with higher disparities are generally those where national incomes are lowest, and there is a correlation between gender gap indicators and material deprivation. The analysis of the most common myths that question pay inequality from different perspectives has shown that a significant percentage of people deny this reality, on the one hand, and on the other hand, show a lack of real knowledge of the whole issue. The three theories used to explain the gender pay gap each provide details that explain this gap. Human capital theory explains the gender pay gap by the difference in investment in individual human capital, involving factors such as education and work experience. Thus, if women invest less in education and have less labour market experience, they receive lower pay, which is a partial explanation. Game theory explains the gender pay gap through bargaining, in the sense that there is a tendency for women to demand and accept less, which would lead to lower pay as an end result. This theory also provides a partial explanation of gender pay inequality. Nor does the labour contribution to productivity theory provide a satisfactory, complete, but only a partial explanation. Analysis of these theories highlights on the one hand the



limitations of each theory in explaining the gender pay gap, on the other hand, taken together they highlight the complexity of this ethical problem. Taking account of these findings in conjunction with legislative measures, collective labour agreements and the application of ethical rules can play an important role in reducing and even combating the gender pay gap. Future research can complement this study by exploring other facets of the pay gap, such as the role of cultural and religious factors.

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**Abbreviations**

CWF – Canadian Women’s Foundation  
EPA – Equal Pay Act  
EU – European Union  
ILO – International Labour Organization  
WEF – World Economic Forum

## Understanding Citizens' Attitudes Towards Energy and Climate Issues. A Comprehensive Survey Analysis

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### Abstract

*Understanding public attitudes becomes crucial in the current context, which is defined by climate change and a critical need for sustainable solutions for energy sources. A questionnaire by the Pew Research Center, conducted through the American Trends Panel (ATP), explores the public's opinions on various emerging energy technologies, preferred energy sources, knowledge of the nation's energy dependence and attitudes toward environmental policies and climate change. The findings offer an insightful perspective on the interests and people's concerns and may influence future innovations and policies in the energy sector.*

**Key words:** climate change, energy alternatives, survey data analytics, attitude, awareness

**J.E.L. classification:** P18, C83, Q54

### 1. Introduction

People's attitudes towards energy and climate issues are shaped by a variety of factors, including personal values, economic considerations, political ideologies and cultural contexts. Many individuals are increasingly concerned about climate change and its impacts, such as extreme weather events, rising sea levels and biodiversity loss (Liu, Shryane and Elliot, 2022). This concern often translates into support for Renewable Energy Sources (RES) or nuclear energy (Muellner et al., 2021) and policies aimed at reducing carbon emissions (Karaeva et al., 2022). Economic considerations play a significant role in shaping attitudes. Some people prioritize economic growth and energy affordability over environmental concerns, which can lead to support for continuing the use of fossil fuels, especially in regions where these industries are major employers. On the other hand, energy poverty is another trigger that may lead to a pro RES attitude.

In many countries, there is a political divide on the issue of climate change and energy policy. Generally, left-leaning individuals are more likely to support aggressive climate action and RES development, while right-leaning individuals might be skeptical of the impacts of climate change or prioritize economic impacts of energy policy changes. Moreover, higher levels of awareness and education about climate science and energy issues tend to correlate with a greater concern for the impacts of climate change and a stronger support for sustainable energy policies (Braunreiter, Stauffacher and Blumer, 2020).

Younger generations, such as Millennials and Gen Z, tend to be more concerned about climate change and more supportive of RES than older generations. This is often attributed to the long-term nature of climate impacts and the fact that younger people will live with the consequences of current policies. Attitudes can also vary significantly by region. For instance, individuals in countries that have experienced severe impacts of climate change might be more supportive of climate action. Conversely, in countries where economic development is still heavily reliant on

fossil fuels, there might be less support for policies that would restrict their use. Personal experiences with climate-related phenomena (like hurricanes, wildfires or droughts) can also dramatically shift people's attitudes and perceptions about the urgency of climate action. Understanding these diverse attitudes is crucial to promote energy transition and climate mitigation efforts that are socially acceptable and politically feasible (Kácha, Vintr and Brick, 2022).

## **2. Literature review**

(Iyke, 2024) investigated the effects of climate change on energy security risk and assesses how investments in clean energy can mitigate these effects. Using a newly developed dataset on historical energy security risk, alongside datasets on climate change and clean energy investments, the researchers found that climate change increases energy security risks. However, investments in clean energy have been shown to lessen these risks. The effectiveness of clean energy investments in mitigating climate change impacts on energy security were more noticeable in countries with lower population growth rates, substantial investments in robust energy infrastructures and minimal corruption. To maximize the benefits of clean energy investments in counteracting climate change effects, it is essential to develop strong energy infrastructures, control population growth, adhere to high environmental standards, and curb corruption, among other strategies.

Global temperature changes are expected to alter energy consumption and electricity production capacities (Ucal and Xydis, 2020). This study explored the connection between climate change and energy resource utilization, noting that temperature variations and the severity and frequency of extreme weather events would influence energy production and consumption. Positioned at the core of climate action, the green economy and green growth are integral for sustainable development. This paper examined the complex interactions between climate change, energy resources and sustainable development, emphasizing a green economic approach through a techno-economic analysis. This analysis was applied in a case study that considers various factors, including the needs of hydroponic units, product prices, and the energy demands of a wind farm, demonstrating that smaller investments, such as those of 2 MW, were often more effective than larger ones, like 18 MW projects. However, the optimal investment size depended on the local societal impacts.

Statistical limitations often led researchers to rely on outdated databases for analyzing the impacts of energy and climate policies into the future, up to 2050 or 2100 (Nong and Simshauser, 2020). This research explored how baselines are projected forward and the significant effect this process can have on evaluating the effectiveness of energy or climate policies. They employed the GTAP-E-Power, a detailed global electricity model, to test these hypotheses. They further assessed the impact of a global carbon tax (\$50/ton of CO<sub>2</sub> equivalent) using three different baseline scenarios, which vary in their macroeconomic projections and sector-specific details. Their findings indicated that the impact on different sectors and the overall economic effects vary significantly across countries depending on the baseline used. For instance, in scenarios with a strong focus on renewable energy and technological advancements, the costs associated with climate change mitigation policies were substantially lower.

## **3. Research methodology**

The Pew Research Center's American Trends Panel (ATP), operated by Ipsos, is a nationwide platform that includes a representative panel of randomly selected adults in the United States. Panelists participate in self-administered web surveys, available in both English and Spanish, providing vital data for a variety of studies. The data used in this report was collected from a panel wave conducted between May 2 and May 8, 2022. Since its inception in 2014, ATP has evolved its recruitment strategy, shifting from address-based methods to random-digit-dial countrywide polls in 2018. This modification has resulted in a more representative and diverse panel. All study respondents received post-payment incentives, with amounts varying based on response accessibility, ensuring equitable and representative participation.

The survey's field session was scheduled from May 2 to May 8, 2022. Postal notices were issued to all panelists with known addresses, and invitations were sent out in two stages: a soft launch and a full launch. Reminders were sent as needed to ensure optimal response rates. Strict checks were conducted to ensure data quality, and responses indicative of satisficing behavior-carelessly answering questions-were eliminated. Consequently, three respondents were removed from the final data set. ATP statistics are weighted using a multi-step process to reflect the demographic distribution of the adult population in the United States. Initially, base weights are calculated to account for the varying probability of selection and non-response. Subsequently, the weights are recalibrated to match Census Bureau demographic criteria, ensuring that the sample is representative of the nation as a whole. The survey examined various indicators to determine how Americans feel about energy and climate change. These indicators include opinions on the diversification of energy sources, awareness of the United States' energy needs and dependencies, and perspectives on environmental regulations and global warming.

To aid in analysis, questions were coded according to the following scheme:

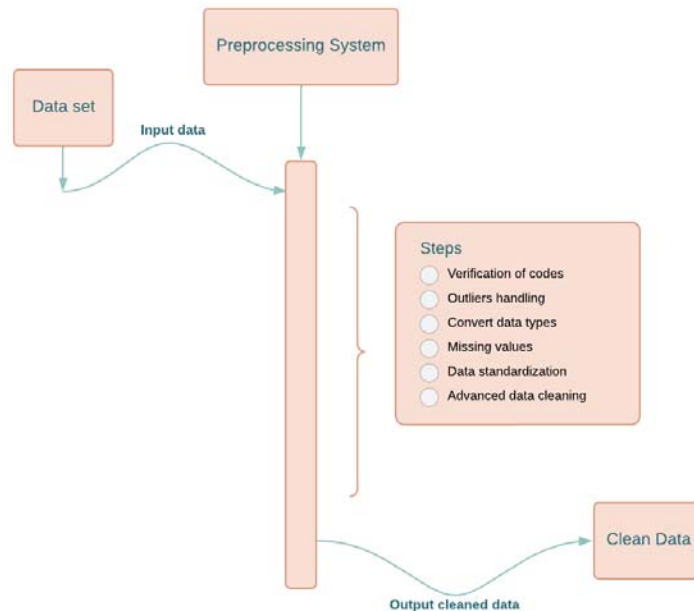
*Table no. 1. Overview of Data Set Representing Citizens' Attitudes Towards Energy Sources and Environmental Policies, as Explored in a Comprehensive Survey Analysis*

Section	Subsection	Details	Response Coding
<b>Choices with Respect to Energy Sources</b>	Oil and Gas drilling offshore	Favor, Oppose	1,2
	Expansion of nuclear power plants	Favor, Oppose	1,2
	Coal mining expansion	Favor, Oppose	1,2
	Expansion of solar parks	Favor, Oppose	1,2
	Hydraulic fracturing for oil and gas	Favor, Oppose	1,2
	Expansion of wind parks	Favor, Oppose	1,2
	Expansion of wind parks	Favor, Oppose	1,2
<b>Understanding of Energy and Dependencies</b>	Energy Needs of the U.S.	Produce most energy domestically, Import most energy, Balances domestic production and imports, Not sure	1,2,3,4
	Dependency on Energy Sources	Fossil fuel energy: oil, coal, and natural gas, Renewable energy sources: wind and solar, Nuclear power, Not sure	1,2,3,4
<b>Priorities for America's Energy Supply</b>	Priorities	Develop alternative energy: wind, solar and hydrogen, Expand fossil fuel exploration and production	1,2
<b>Considerations for Environmental Policies</b>	Natural Gas Exports and Climate Impact	Major consideration, Minor consideration, Not a consideration	1,2,3
	Federal Government Actions on Climate Change	Doing: Too much, Too little, About the right amount	1,2,3
<b>Opinions on Environmental Policies</b>	Policies and Responses (Planting trees, taxing emissions, carbon capture, renewable energy)	Favor, Oppose	1,2
<b>Demographic Analysis</b>	Age Categories	18-29, 30-49, 50-64, 65+	1,2,3,4
	Gender	A man, A woman, In some other way	1,2,3
	Education Level	College grad+, Some college, HS or less	1,2,3
	Marital Status	Married, Partner, Divorced, Separated, Widowed, Never married	1 to 6
	Family Income	Income brackets from < \$30,000 to \$100,000 or more	1 to 9

Source: Adapted from "2022 PEW Research Center's American Trends Panel Wave 108, May 2022".

Special attention was given to the data cleaning procedure in this study, as it was recognized to be crucial for the precision and quality of the analyses that followed. Preparing the data for in-depth analysis required several critical steps, as the data set had already been pre-coded.

Figure no. 1. Data Preprocessing System, detailing the steps from raw data input to clean data output



Source: Diagram created by authors using Lucidchart

We began by verifying that the codes assigned to each variable were applied accurately according to the original definitions. For instance, we checked the consistency and accuracy of the codes for responses such as "Favor (1)" and "Oppose (2)."

Identifying and **handling outliers** was also crucial; some codes, like "99," which denote a refusal to respond, required further consideration. We assessed each case in light of the specific question and its potential impact on the study, deciding to omit or impute data based on the needs of the methodology.

**Converting data types** was another essential step. To prevent misunderstandings as continuous variables, we ensured that all numerically coded values were treated correctly as factors or nominal variables.

We also addressed the issue of **missing values**, evaluating how they affected the study and applying statistical imputation techniques such as mean or median imputation, or removing them entirely based on their prevalence and significance.

In terms of **data standardization**, we performed normalization as needed to facilitate comparisons and further analyses for variables with answers that were on a broad scale, such as income or other continuous measurements.

**Advanced data cleaning techniques** were also employed. We discovered that the inclusion of space characters could obscure missing values, interfering with accurate recognition. To address this issue and ensure that all missing values were consistently identified and handled in subsequent analyses, we replaced all sequences of spaces with **pd.NA** using the replace function in the **Pandas** library.

Moreover, we assessed each variable's applicability to the overall study, removing any redundant or **unnecessary variables**-such as respondents' unique identifiers or other factors that do not add any information to the comparative analysis or exhibit appreciable variance. By removing these factors from the data collection, processing, and analysis were streamlined, focusing on the essential information.

These advanced cleaning techniques enhanced the data set's quality and ensured that any further analysis would be conducted on a clear, well-structured and relevant set aligned with the study's goals. This rigorous approach minimizes the risks of interpretation errors and maximizes the accuracy and relevance of analytical findings.

#### 4. Findings

A comprehensive understanding of public opinion about different energy sources and climate change measures is necessary given the current environmental and energy scenario. Through this investigation, we aim to determine the current patterns in public support for various environmental policies and preferences for conventional energy technology over renewable sources.

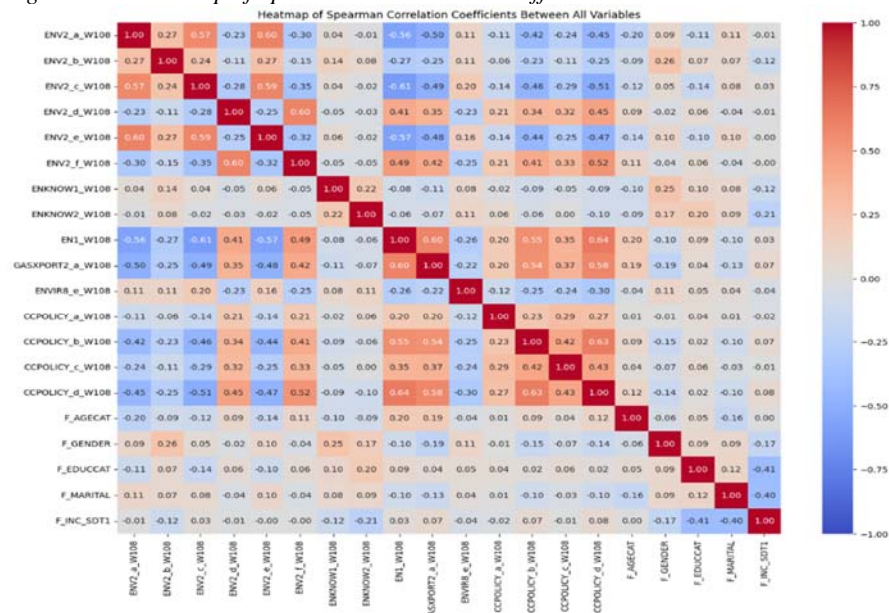
To assess the correlations between variables such as gender, opinions on energy policy, family income, and awareness of the U.S.'s reliance on specific energy sources, we applied Spearman and Kendall correlation coefficients. These coefficients are appropriate for data that may contain extreme values, which is why we included them.

To ensure consistency in analysis, we cleaned up errors in the data, filled in missing data, and performed normalization. For example, we discovered a moderate association (coefficient of 0.26) between views on the growth of nuclear power plants and gender, suggesting that men and women may have distinctly different perspectives on nuclear energy, possibly due to differing perceptions of risk.

Additionally, we found a weak negative association (coefficient of -0.21) between family income and knowledge of energy sources, indicating that individuals from lower-income households tend to know less about energy sources. This disparity could result from varying access to education or information sources.

These results highlight the importance of understanding how demographic factors, such as income and gender, influence perceptions and understanding of energy-related policy. This information may be crucial for crafting adequate policies that are effective and for creating awareness campaigns that reach diverse target audiences.

Figure no. 2 Heatmap of Spearman Correlation Coefficients Between All Variables



Source: Chart created using Python

This section of the research aims to provide perspective on how various American demographic groups perceive and evaluate energy technologies and environmental regulations. We have organized the results to highlight both specific differences between respondent categories and general preferences by utilizing advanced statistical methods.



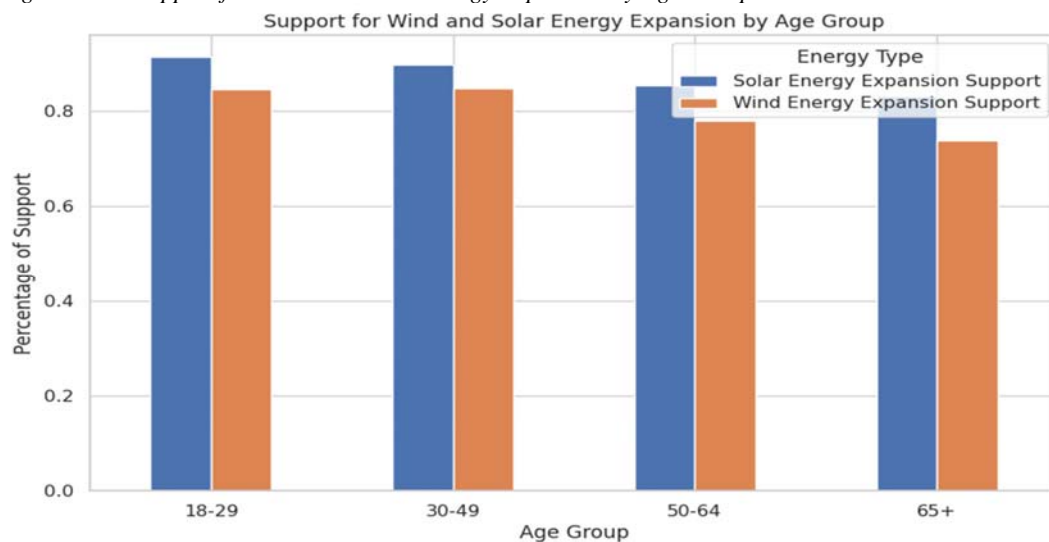
As part of the comparative analysis, we analyzed opinions regarding the development of various energy technologies-like coal mining, nuclear power plants, oil and gas drilling and the construction of solar and wind parks. We also examined opinions on other environmental policies, such as taxes on carbon emissions, encouragement of carbon capture technologies and regulations regarding the consumption of renewable energy sources. Furthermore, we investigated the respondents’ awareness of the energy sources that the U.S. imports and produces, as well as their reliance on different types of energy.

Demographic factors including age, gender, marital status and education levels are used to present the results, creating an understanding of the dynamics of public perceptions. With the application of this methodical approach, we are able to recognize not only the dominant patterns but also the nuances that may impact how public policies related to energy and environmental conservation are formulated.

### **Analysis of age-group preferences for the expansion of wind and solar energy**

Current research investigates the perceptions of various age groups regarding the growth of solar and wind energy. Our goal is to understand the level of support and acceptability for these renewable energy sources, emphasizing differences in preferences that may be influenced by specific demographic factors. This segment of the analysis is critical for identifying potential and obstacles in the promotion of renewable energy among different age groups.

Figure no. 3. Support for Wind and Solar Energy Expansion by Age Group



Source: Chart created using Python

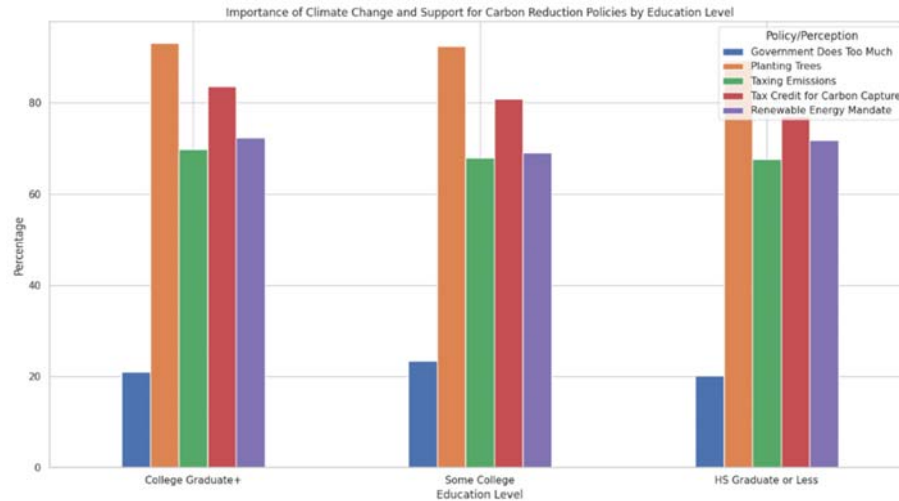
The demographic most in favor of expanding solar energy (91.37%) and wind energy (84.53%) is young people (ages 18–29). Support for both renewable energy sources appears to decline modestly with age, with the lowest proportion of support (83.03% for solar and 73.79% for wind) among those aged 65 and older.

### **Analysis of the importance of climate change and support for carbon emission reduction policies by education level**

This part focuses on evaluating the relationship between an individual's education level and their views of climate change and support for different carbon emission-reduction initiatives. The research intends to demonstrate the relationship between civic participation in environmental issues and educational attainment by comparing responses across different educational levels. This will highlight the need for tailored communication strategies that will enhance the effectiveness of public policies.

All educational levels tend to support the requirement for renewable energy and the planting of trees for carbon absorption, especially among college graduates. Support for taxing emissions and tax incentives for carbon capture generally increases with education level. Compared to those with less formal education, individuals with university degrees seem to be more inclined to support proactive measures against climate change across all stated policies.

Figure no. 4. Importance of Climate Change and Support for Carbon Reduction Policies by Education Level

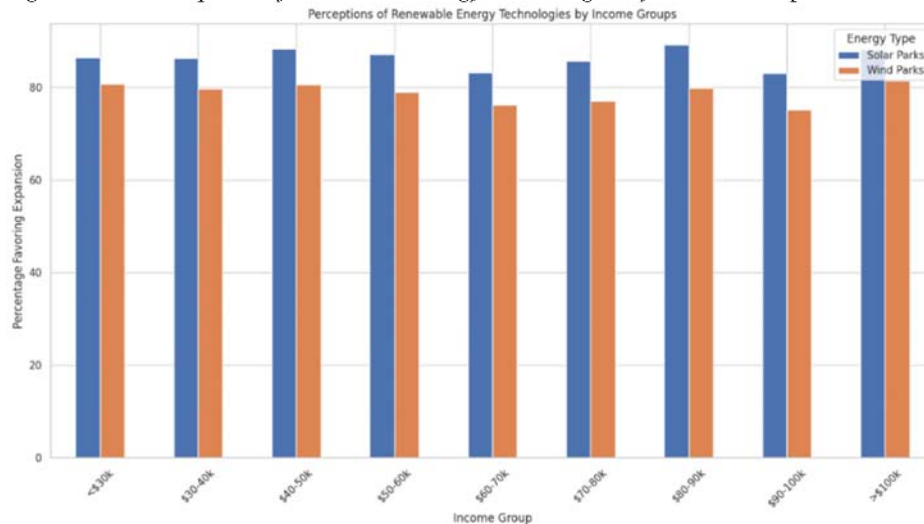


Source: Chart created using Python

#### Analysis of the perception of renewable energy technologies by income groups

Moreover, the research examines how different income levels influence perceptions of renewable energy technologies. Our research explores the economic factors that could impact the adoption and support of renewable technology. Specifically, we aim to identify similarities and differences in perspectives that may inform energy policy decisions and sustainability initiatives across various socioeconomic groups.

Figure no. 5. Perceptions of Renewable Energy Technologies by Income Groups



Source: Chart created using Python

All income levels consistently show strong support for wind and solar energy, demonstrating the general public's inclination towards renewable energy sources. Higher income groups seem to exhibit a slightly greater support for these technologies, particularly those earning \$90,000 or more. This suggests that individuals with higher incomes are more exposed to, or value, sustainability initiatives more.

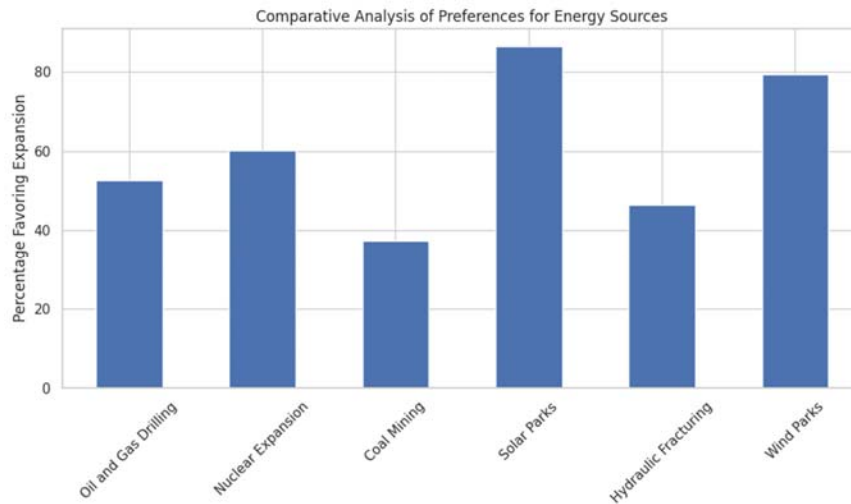
### Comparative analysis of preferences for energy sources

Furthermore, this section provides a detailed comparison of public preferences for fossil fuels and renewable energy sources. The goal of the analysis is to offer a comprehensive view of the patterns and shifts in public support for various energy technologies. This will serve as a vital resource for energy planning and the creation of environmental laws that reflect public preferences.

Among all energy sources, solar and wind parks are the most favored, indicating a strong preference for renewable energy. There are moderate levels of support for both nuclear expansion and hydraulic fracturing, which show more divergent views.

The least popular sectors include oil and gas drilling, and particularly coal mining. This is mainly due to the adverse environmental impacts associated with coal mining.

Figure no. 6. Comparative Analysis of Preferences for Energy Sources

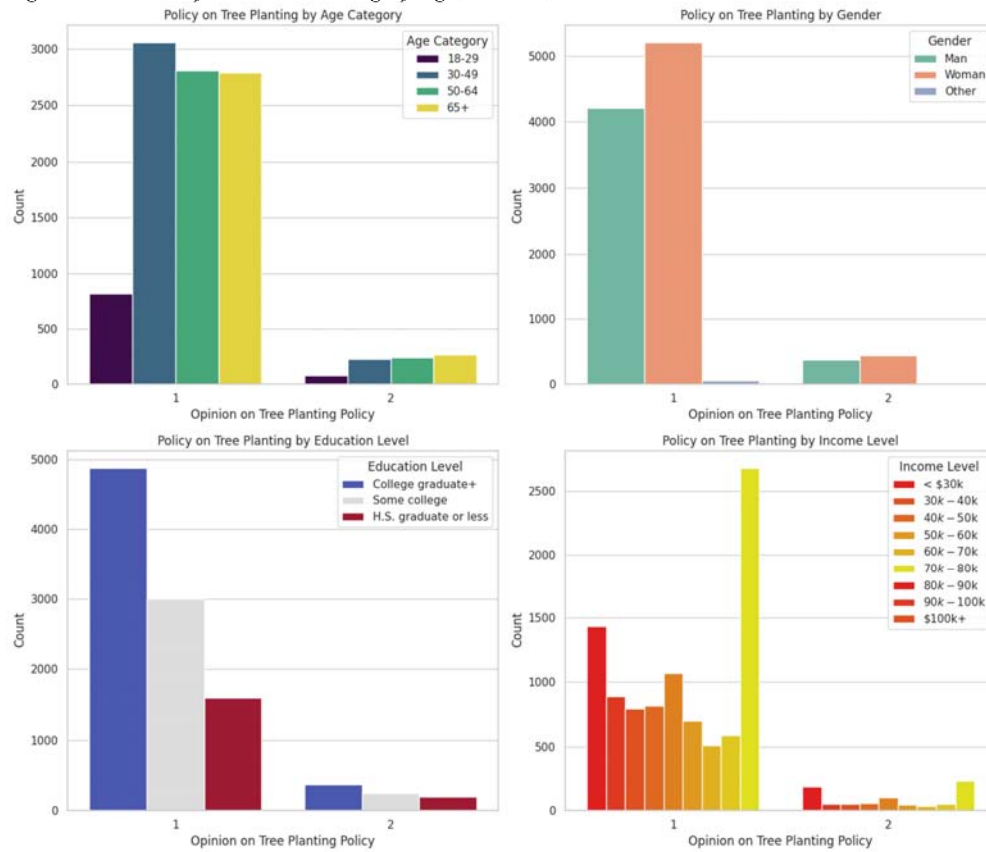


Source: Chart created using Python

### Analysis of perceptions on climate change and government actions, integrating these perspectives with demographic variables

The main focus of this investigation is on perceptions of climate change and the assessment of government initiatives in this area, incorporating these perspectives alongside a variety of demographic factors such as gender, age, income and education. The goal is to gain crucial insights to enhance environmental policies and strategies by understanding the views of different demographic groups on the effectiveness of government responses to the climate crisis.

Figure no. 7. Policy on Tree Planting by Age, Gender, Education Level and Income Level



Source: Chart created using Python

There is strong support for the tree planting policy across all age groups, indicating a generational consensus. Unlike other age groups, the youngest group-those between the ages of 18 and 29-appears to have a slightly higher proportion of support.

The policy is highly supported by both men and women, with very little variation between genders. This implies that beneficial environmental initiatives, such as tree planting, are supported by people of all genders.

Individuals from various educational backgrounds also show strong support for this policy. There is a slight trend towards higher support among college graduates compared to those with less formal education, which may indicate that individuals with higher education levels are more aware of or value environmental solutions.

Support for tree planting increases with income. Individuals with higher incomes seem more in favor of this policy. This could be explained by greater access to information and resources, possibly higher levels of education, and a strong personal commitment to environmental causes.

Based on the data, it appears that the strategy of planting trees to reduce carbon emissions is broadly supported, with only minor variations observed among different demographic groups. This indicates that most people, regardless of age, gender, income, or educational level, have a generally positive view of this specific environmental effort.

## 5. Conclusions

A comprehensive analysis of the public’s attitudes toward energy and climate-related concerns provides important new insights into the opinions and interests of the general population. The study has identified various patterns that demonstrate the complexity of public perceptions regarding energy and environmental policies by utilizing comparative analysis and correlations.

The viewpoints of the public on energy sources and climate change are greatly influenced by demographic characteristics. A moderate relationship has been found between gender and opinions regarding the expansion of nuclear power, suggesting that men and women may perceive the risks associated with nuclear energy differently. People's knowledge of energy sources is also impacted by variations in income; those with lower incomes generally know less, presumably because they have fewer access to educational resources. Regarding public preferences for energy technology, it is clear that younger individuals, in particular, prefer renewable energy sources like solar and wind energy. On the other hand, the popularity of fossil fuels, such as coal, is decreasing mostly because of their negative environmental impacts.

Support for initiatives that focus on minimizing climate change is also influenced by education. More highly educated individuals are more likely to support policies that encourage the use of renewable energy and reduce carbon emissions, indicating a deeper awareness of environmental issues. Additionally, higher income groups are more likely to strongly support renewable energy, probably as a result of being exposed to sustainability campaigns and placing a higher value on environmental preservation efforts. People from a wide range of demographic backgrounds strongly support government initiatives like planting trees to mitigate the consequences of climate change. This consensus shows that there is a general agreement on the importance of implementing effective environmental policies. This broad support underscores the necessity of aligning public opinion with government actions to maximize the efficacy of climate change initiatives.

The primary disadvantage of this study is its reliance on self-reported data, which is subject to memory errors and the propensity for responses that are socially acceptable. Furthermore, because the study only looks at one country, it may be difficult to extrapolate the findings to other political or cultural contexts. Expanding the study to more nations in the future might be beneficial for examining cultural and political variations in attitudes about energy and climate change.

Future research should use longitudinal methodologies that monitor changes in views over time to overcome current constraints and expand understanding of the dynamics of attitudes toward energy and climate challenges. Additionally, including data from social networks and using advanced predictive algorithms may provide innovative and comprehensive views on how public opinion evolves in the digital era. This deeper approach may greatly improve our capacity to create policies that successfully address the urgent issues of energy sustainability and climate change.

## 6. Acknowledgement

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# Directions for Increasing the Effectiveness of Social Assistance Policies in Conditions of Maintaining the Budget Deficit

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## Abstract

*Improving the effectiveness of social assistance policies, within the framework of income redistribution strategies, is important in modern capitalist society, especially in times of crisis.*

*This study, starting from the asylum crisis in Romania, aims to analyze some factors that influence the efficiency of social assistance programs in order to identify directions of action for improving social policies. The author analyzed data from Sustainable Governance Indicators and Worldwide Governance Indicators using specific data mining methods.*

*The conclusions of the quantitative analysis were used to identify possibilities to optimize social assistance in conditions of limited budgetary resources. Based on the direct link between the effectiveness of social assistance, the rule of law and innovation, the author proposes to strengthen the role of the family and primary safety nets. As a course of action, it is proposed to redesign the matchmaking market that meets the principles defined by Alvin Roth, including creating density and facilitating fast transactions specific to online matching portals that stimulate subsidiarity.*

**Key words:** social innovation, social work, crisis management

**J.E.L. classification:** O35, H55, H12

## 1. Introduction

Social programs are part of the redistribution of income collected from taxpayers to people considered to be in need, according to public policies. Government-funded social assistance programs are a safety net for the population in need. They should be a last resort, located after the intervention of the person, family and community, after previous safety nets have failed. The beneficiaries are persons selected by different decision-makers who take into account the situation of those persons, but with a limited degree of knowledge.

Imperfect information causes the transfer of revenues from redistribution to present errors, which lead to the inefficiency of public policies. The closer the safety net is to the individual, the smaller these errors.

Within the framework of social assistance programs, the state finances and regulates social services. Their development without analyzing the failures of previous markets or safety nets can lead to an increase in the need for public funds or even to specific crises, as happened in Romania.

Therefore, intervention at a level as close as possible to the family/person in need, up to costly public interventions, is an important way. This concept of subsidiarity in social assistance has something to do with state intervention in the economy, especially in states with liberal economies.

Income redistribution policy can contribute to the economic growth of states if reducing inequalities eliminates conflicts, increases productivity and reduces the incomes of people facing restrictions on access to credit. The redistribution of amounts can generate controversy, based on the very definition of the term "support", which involves the reallocation of amounts collected from other people. In the context of large budget imbalances or deficits, this problem is even more present. The many controversies related to the efficiency and effectiveness of public policies in the field of social protection stem from various opinions about the sources of poverty that determine the need for state social support for people in need.

With regard to state intervention before the failure of the markets, this limits effectiveness. Basically, the supply can be suffocated. The state knows less about the real state of people in need than the family itself.

I cannot fail to mention a pro-cyclical phenomenon in the sense that when the economy is not doing very well, there is also an increased pressure on the provision of social services and benefits. The experience of the asylum crisis in Romania has highlighted problems related to the effectiveness of the programs, not only in terms of costs, but even in terms of the quality of services.

*Is this an accidental problem or is it a systemic problem?* To answer this question, we turned to the Sustainable Governance Indicators (SGI Indicators) portal, for which we will develop the analysis based on data mining techniques.

From the analysis of the indicator of efficiency of social policies, a minimum score (4) obtained by Romania can be observed. The grade has been consistently low since 2014. All the explanations can be found on the SGI website. We are facing a systemic problem.

The transfer of poverty between generations, the ageing of the population, migration, the inheritance tax policy, the increase in inequalities, the income tax policy contribute to the accentuation of the risks of social exclusion. Migration affects the potential for a young and skilled workforce, impacting the growth of the Gross Domestic Product (GDP). The financing of services, but also of institutions in times when economic growth is limited, is difficult to ensure.

On the other hand, there are currently people who are part of the extended family (children) and are looking for private interventions (because they have income abroad). Migration has meant that many young people have left the country and have income that could help those left behind, especially for the elderly.

The migration of young people for work abroad, the increase in average life expectancy and the demographic explosion of the 67-75 generation, together with the growing trends of inequality, generate an expansion of the social services market. As parents age and children go to work abroad, there is a desire to help them, but often there are no suitable people or services (... *but I don't know how, I can't find the right people/services*). They would be willing to bear part of the costs of care services in addition to the resources already available, including allowances and state programmes for parents.

If not to escape, as one Nobel Prize laureate describes (Deaton 2013, p. 6), at least to improve their lives.

*"What are the instruments that can lead to a quality social assistance policy?" How can markets be redesigned to make intervention more effective?*

To answer these questions, in the study I sought primarily to identify the factors that can contribute to increasing the quality of a social assistance policy. We chose factors that did not directly involve budgetary balance, but which strictly related to the design of markets in the context of the demand and supply of services described above.

## **2. Theoretical background**

The study was based on a correlation analysis and a data mining technology that used decision trees. The decision tree method was introduced in the 1950s. Since then, there has been the conclusion that machines can learn from data, improving their performance as they are exposed to more information. The development of specific data mining concepts is a recent and new concept in the analysis of social assistance problems. Such analyses are found in the literature ( Han, 2006, p. 11). In the 1980s and 1990s, with the technological advancement in data processing and the development of computers, decision tree methods were refined and integrated into various commercial and research applications. Modern algorithms such as ID3, C4.5, and CART (Classification and Regression Trees) have added efficiency and robustness to this analytical tool.

The study is based on the theory of optimal taxation with labeling developed by George Akerlof, which is relevant to the subsidiarity of intervention in social work. The efficiency of the system depends on the way in which a taxation system is designed to gather the revenues necessary to finance public services, while minimizing economic distortions and the negative impact on incentives to work and save under the conditions of the existence of certain categories. In "The



Economics of 'Tagging' as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning" (Akerlof, 1987, p. 7) he emphasizes the importance of strictly targeted intervention only in the event of market failure in social assistance.

Other authors examine the importance of the institutional and political context in which social policies are implemented and how they influence economic efficiency and well-being (Acemoglu et al, 2013, p. 10). The impact of social welfare policies on poverty influenced by various social and economic factors that determine efficiency have been analyzed by numerous authors (Rank, 2004 p. 10, Deaton 2013 p. 9), Sen 1970, p. 7).

Angus Deaton reveals the importance of people's capacity and primary safety nets in providing social assistance (of the great escape that also involves one's own effort). Amartya Sen was also a starting point for this study. It showed that the lack of legal and economic rights affects the quality of social assistance interventions.

The proposal in this study, however, is based on matching markets, and here Alvin Roth is the most important economist to introduce this concept. In the design studies of matching markets he considered a Shapley algorithm for efficiency (Roth, 1982, p 10). Roth applied the theory of design mechanisms to solve problems in a variety of areas, including school seat allocation and organ donation. Roth was also involved in the design of online marketplaces and exchange platforms, such as monetary and labor brokerage platforms. It has applied the principles of stability and efficiency to create more transparent and fair markets.

### **3. Research methodology**

To substantiate the solution in the study, we used the dataset developed by Sustainable Governance Indicators (SGI) (<https://www.sgi-network.org/2020/>), which offers multiple possibilities for comparison, including in the field of social and economic policies. The SGI is a cross-national comparative study that aims to identify key success factors in effective policy implementation and examines how governments are approaching sustainable development. The SGI analyses how well policies are designed to achieve the objectives, assessing results in 16 public policy areas and more than 200 indicators, as presented in Annex 1.

To carry out the study, the authors took data from the SGI website, respectively the annual indicators for the period 2014-2020 for the 41 states (see Annex 2). From these indicators, the authors selected as an output variable an aggregate indicator that quantifies social assistance (SGI Social Inclusion Policy), respectively the social policy indicator. According to the website, this indicator is aggregated and represents an average of several indicators. Romania ranks at the bottom of the ranking in terms of this indicator, occupying the same position as Bulgaria, Croatia, Greece, Hungary, Mexico and the United States.

Another dataset used in the study was the one on the World Bank's website, which ranks countries according to the quality of governance, by aggregating data from several available sources. Worldwide Governance Indicators (WGIs) confirm the perceptions of a significant number of corporations, citizens and experts who have participated in research in industrialized countries, but also in developing economies. The WGI consists of six indicators covering more than 200 countries since 1996: voice and accountability, political stability and absence of violence/terrorism, effectiveness of government, quality of regulation, rule of law and control of corruption.

These indicators are based on 340 variables generated from 32 different sources, including business information providers, firm and household surveys, non-governmental organisations and public sector organisations (<https://info.worldbank.org/governance/wgi/>) and are grouped as follows:

1. Voice and Accountability (VA) measures the perception that a country's citizens can participate in the election of their government, freedom of speech, freedom of association, and free media.

2. Political stability and absence of violence (PV), measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including political violence and terrorism.

3. Government effectiveness (GE), measures the quality of public services and the degree of independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to these policies.

4. Regulatory Quality (RQ), measures perceptions of the government's ability to formulate and implement sound policies and regulations that enable and promote private sector development.

5. The rule of law (OR) is the assessment of perceptions of the extent to which agents trust and comply with the rules of society, in particular the quality of contract enforcement, the police and the courts, and the likelihood of crime and violence.

6. Corruption control (CC) is the analysis of perceptions about the extent to which public power is exercised for private gain, including small and large forms of corruption and the "confiscation" of the state by elites and private interests. The two datasets were concatenated for each year and each country between 2014 and 2020. Regarding the limitations of the research, it is important to mention from the beginning the problems associated with the use of perception-based indicators such as those in the SGI and WG. Of course, the use of these subjective indicators in complex statistical constructions can lead to errors.

For data processing, tools such as MS Excel and IBM Modeller were used, with data being collected for each country and each year. The results of the correlation analysis are presented in full in Annex 3 and indicate a strong link between the explained variable and education. To identify other possible interferences and identify other public policy levers, we used decision trees.

In the field of Data Mining, decision trees are analysis patterns that are used to extract rules or patterns from data sets. These trees are used in classification and prediction. Decision trees consist of nodes and branches, where each node represents a decision made based on a dataset feature, and each branch connects two nodes and indicates the outcome of the decision made. The software packages also indicate the important factors that have been taken into account when grouping.

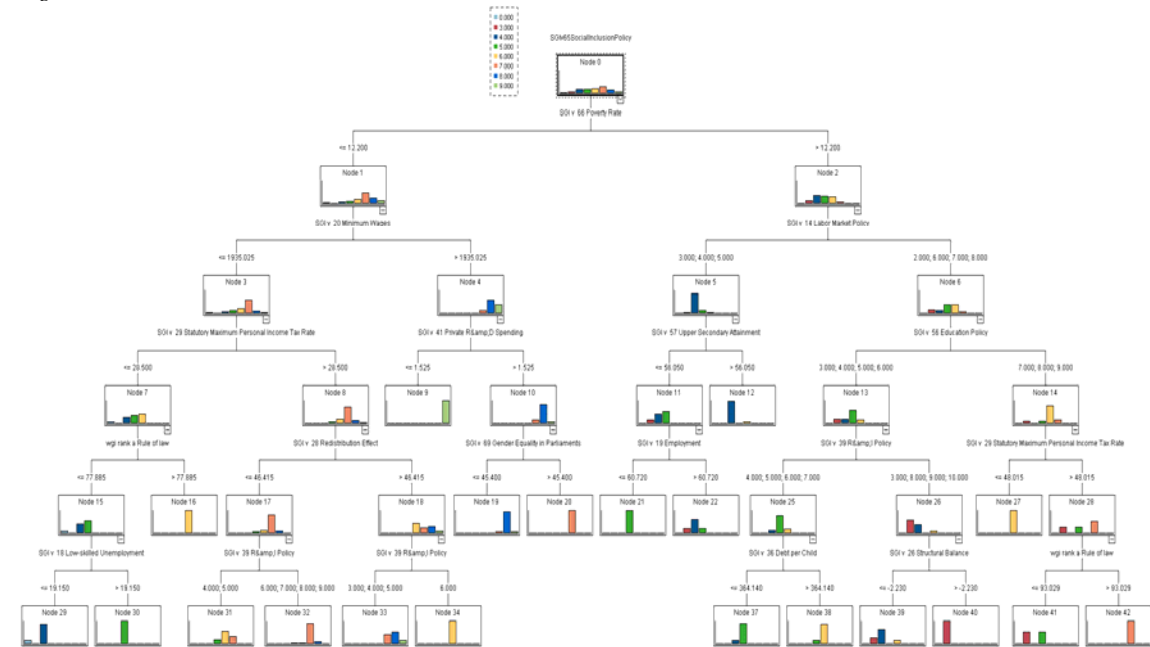
There are several algorithms that build decision trees, such as C4.5, CART (Classification and Regression Trees), CHAID (Chi-square Automatic Interaction Detector). Decision trees are a powerful tool in the arsenal of data mining and are used in a variety of fields, including marketing, medicine, finance, and pattern recognition. CART (Classification and Regression Trees) is an algorithm in this field that builds decision trees for classification and regression.

#### **4. Findings**

First of all, in this chapter I present the data analysis to reveal the factors that are important in increasing the efficiency of social assistance. Further, based on the results, a method of market efficiency based on market design was proposed. Although in social assistance it is apparently a question of a public intervention, it is or should be carried out only after there is a failure of a market. Each of us seeks in the end to ensure well-being (demand) and on the other hand there are always private services to satisfy the needs (supply).

For the data set analyzed according to the methodology described in the previous chapter, the following decision tree resulted:

Figure no. 1 Decision tree



Source: Author's own projection

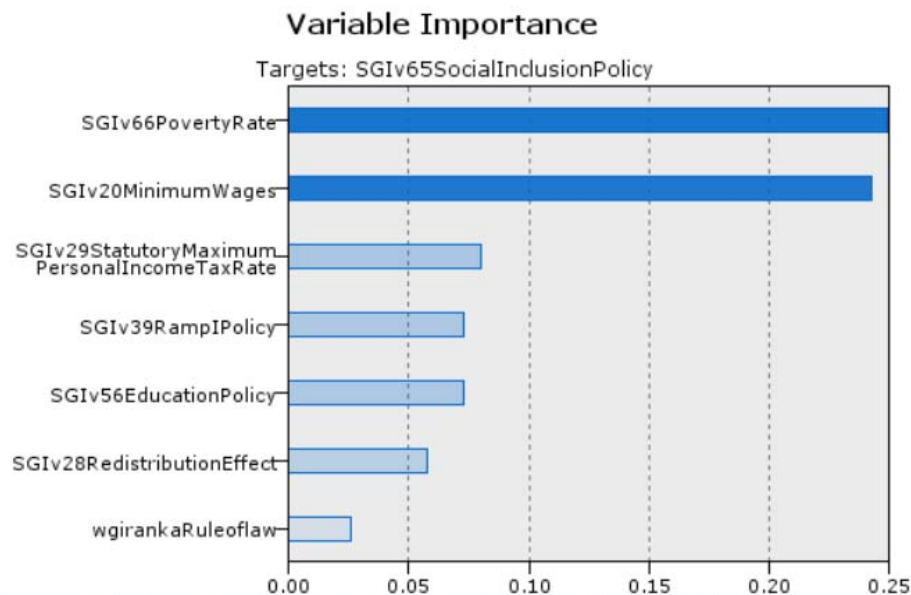
It can be explained according to the scheme described below:

```

SGIv66PovertyRate <= 12.2 [ Mode: 7 ]
  SGIv20MinimumWages <= 1935.02 [ Mode: 7 ]
    SGIv29StatutoryMaximumPersonalIncomeTaxRate <= 28.50 [ Mode: 6 ]
      wgirankaRuleoflaw <= 77.884616852000000 [ Mode: 5 ]
        SGIv18LowskilledUnemployment <= 19.15 [ Mode: 4 ] => 4
          SGIv18LowskilledUnemployment > 19.15 [ Mode: 5 ] => 5
        wgirankaRuleoflaw > 77.884616852000000 [ Mode: 6 ] => 6
      SGIv29StatutoryMaximumPersonalIncomeTaxRate > 28.50 [ Mode: 7 ]
        SGIv28RedistributionEffect <= 46.42 [ Mode: 7 ]
          SGIv39RampIPolicy in [ 4 5 ] [ Mode: 6 ] => 6
          SGIv39RampIPolicy in [ 6 7 8 9 ] [ Mode: 7 ] => 7
          SGIv28RedistributionEffect > 46.42 [ Mode: 6 ]
            SGIv39RampIPolicy in [ 3 4 5 ] [ Mode: 8 ] => 8
            SGIv39RampIPolicy in [ 6 ] [ Mode: 6 ] => 6
        SGIv20MinimumWages > 1935.02 [ Mode: 8 ]
          SGIv41PrivateRampDSpending <= 1.52 [ Mode: 9 ] => 9
          SGIv41PrivateRampDSpending > 1.52 [ Mode: 8 ]
            SGIv69GenderEqualityinParliaments <= 45.40 [ Mode: 8 ] => 8
            SGIv69GenderEqualityinParliaments > 45.40 [ Mode: 7 ] => 7
    SGIv66PovertyRate > 12.2 [ Mode: 4 ]
      SGIv14LaborMarketPolicy in [ 3 4 5 ] [ Mode: 4 ]
        SGIv57UpperSecondaryAttainment <= 56.05 [ Mode: 5 ]
          SGIv19Employment <= 60.72 [ Mode: 5 ] => 5
          SGIv19Employment > 60.72 [ Mode: 4 ] => 4
          SGIv57UpperSecondaryAttainment > 56.05 [ Mode: 4 ] => 4
        SGIv14LaborMarketPolicy in [ 2 6 7 8 ] [ Mode: 6 ]
          SGIv56EducationPolicy in [ 3 4 5 6 ] [ Mode: 5 ]
            SGIv39RampIPolicy in [ 4 5 6 7 ] [ Mode: 5 ]
              SGIv36DebtperChild <= 364.14 [ Mode: 5 ] => 5
              SGIv36DebtperChild > 364.14 [ Mode: 6 ] => 6
            SGIv39RampIPolicy in [ 3 8 9 10 ] [ Mode: 3 ]
              SGIv26StructuralBalance <= -2.23 [ Mode: 4 ] => 4
              SGIv26StructuralBalance > -2.23 [ Mode: 3 ] => 3
          SGIv56EducationPolicy in [ 7 8 9 ] [ Mode: 6 ]
            SGIv29StatutoryMaximumPersonalIncomeTaxRate <= 48.02 [ Mode: 6 ] => 6
            SGIv29StatutoryMaximumPersonalIncomeTaxRate > 48.02 [ Mode: 7 ]
              wgirankaRuleoflaw <= 93.028846741000000 [ Mode: 5 ] => 3
              wgirankaRuleoflaw > 93.028846741000000 [ Mode: 7 ] => 7
  
```

The figure below shows the relationship of the explained variable to other indicators.

Figure no. 2 Important factors in classification



Source: Author's own projection resulting from the analysis of decision trees.

In short, the main determining factors for an effective policy are:

1. Poverty rate - calculated against 50 percent of median equivalent disposable income. In conditions of economic crisis, this factor is difficult to influence in a favorable way.
2. Minimum wage - during the economic crisis, increasing the minimum wage is a measure that can be considered, but due to the influence of taxation, it must be used after appropriate impact studies.
3. Income tax rate for individuals - in times of economic crisis, the tax rate can be an influencing factor, but it can also influence the budget imbalance.
4. Research and innovation policy - effectively supports innovations that foster the creation of new products and increase productivity.
5. Education policy
6. The redistribution effect - the percentage reduction of the Gini coefficient is important in the efficiency of social policies. It can be achieved through a taxation policy that influences imbalances, but also through measures to reform the mechanisms.
7. Rule of law – captures perceptions of the extent to which agents trust and respect society's rules, in particular in terms of the quality of contract enforcement, property rights, police and courts, as well as the likelihood of crime and violence.

In times of economic boom, effective intervention can best focus on the first factors (such as the minimum wage). However, they have a significant impact on the budget balance.

However, it is also important to understand the significance of secondary factors such as research and innovation policy, education policy, the redistribution effect and the rule of law. We can look at these factors from the perspective of a matching market in social assistance (where there are people who need social assistance, people willing to pay and people who want to provide services). The state often intervenes before the family exhausts all the resources it is available to. The need for public intervention in the case of the functioning of matching markets would be less and limited only in situations where those markets fail. In this way, the principle of subsidiarity can be better fulfilled.

But perhaps it is best to consider a concrete case. If you want to look for a caregiver for a person, you need knowledge to recommend someone to you, or you can conduct expensive searches. The regulations relating to temporary work agencies have the same complexity in application. Even a portal that does not generate density in transactions is almost inefficient.

In a famous movie, "Scent of a Woman", things seem to play out differently. A student is in charge of caring for a blind person. The family needed, for a limited period, certain specific care services. In this specific search process on matching markets, privately known information is used. Of course, some questions may arise.

*But what is the monitoring instance? If the student wasn't doing his job and abusing Colonel Slade, who would have been responsible for monitoring the situation?* In the theory of contracts with imperfect information, there are ways to increase efficiency. The first refers to the regime of penalties and rewards. Suppose that the violation of the law or abuses were notified through an efficient monitoring and notification system. Then, the "rule of law" factor would imply appropriate and effectively applied punishments when someone notices, for example, that a person is abused. The development of technology today allows the use of tiny video cameras or any other means of monitoring. *If we go back to the movie, another question, perhaps the most important question would be, where does the money come from?* We notice that in this case a person in the family practically finances a social assistance market with private money. In many cases in Romania, children have income but live in other states far from their parents. However, he would like to take care of them due to pure altruism. *Another question worth discussing is, does the law allow this?* Article 2255 of the Civil Code regulates this situation as an agreement between the parties, serving as the basis for this approach. Of course, we have the right to call on anyone's services under the conditions in which both the person wants and a family member wants. It is the first safety net. What needs to be built, however, is a transparent, fluid market and an adequate "rule of law" through which people are sure that any abuse is punished.

The detailing of the articles of the Civil Code and the corresponding norms, the introduction of a matching portal that facilitates a fluid market (which will also provide counseling facilities for the processes of monitoring and reporting abuses) could be a direction of action in the development of a private market in social assistance.

Another question that could arise is, of course, *what role will the state authorities have, both at the local level (town halls, county councils) and at the central level (the Ministry of Labor and Social Protection, other institutions), as well as the agents in the economic sector?* They will intervene mainly by promoting equal opportunities in emergency situations. State intervention will no longer be so much direct, by granting benefits, only after the failure of the markets.

The direction of action basically involves strengthening the safety nets at the first level (person, family). Access will be put first and foremost on the family of each person, by developing the capacity to access private services. There are a significant number of Romanians who have gained experience in the field, working in Italy or Spain, and could provide such services. They would return to Romania with a capital of experience in care.

A matching portal that could also have a counseling component, a chat bot, a call center could simplify the search and implementation processes and offers consultancy for the application of the Civil Code. It can operate in a similar way to Tinder, with a chat bot for advice and a referral system, or there can even be a clearing house that also facilitates a public intervention but at a much lower cost.

## 5. Conclusions

Based on a qualitative comparative analysis and a quantitative assessment using correlation analysis, artificial intelligence techniques and fuzzy logic, the paper confirms the short-term dependence of the effectiveness of social assistance policies on factors such as education, the rule of law and innovation policy. Based on the relationships empirically discovered through the data analysis technology used in the paper, directions of action for intelligent adaptations of some mechanisms for streamlining the matching markets were also presented.

Increasing the speed of information circulation, reducing the cost of transactions and streamlining matching markets can be implemented by creating a tool to facilitate the exchange of information in the temporary services mediation market. The reform does not exclude public intervention, but places it as a subsidiary and complementary option to private intervention, aiming for versatility and adaptability.

As for the analysis used, the main limitations of the study lie in the statistical methods chosen. The interpretation of the results of the quantitative study also has limits that must be tested by methods specific to experimental economics. Therefore, the author will continue this method of analysis for other aspects, in parallel with a project that aims to develop a private matching portal.

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*Annex no. 1. The set of indicators used*

PolicyPerformance	Education	EnvironmentalPolicies	Governance
Rankamong41countries	EducationPolicy	Environment	ExecutiveCapacity
EconomicPolicies	UpperSecondaryAttainment	EnvironmentalPolicy	StrategicCapacity
Economy	TertiaryAttainment	EnergyProductivity	StrategicPlanning
EconomicPolicy	PISAresults	GreenhouseGasEmissions	ScholarlyAdvice
GDPperCapita	PISA,SocioeconomicBackground	ParticulateMatter	InterministerialCoordination
Inflation	Pre-primaryExpenditure	WaterUsage	GOExpertise
GrossFixedCapitalFormation	SocialInclusion	WasteGeneration	GOGatekeeping
RealInterestRates	SocialInclusionPolicy	MaterialRecycling	LineMinistries
PotentialOutput,GrowthRate	PovertyRate	Biodiversity	CabinetCommittees
LaborMarkets	NEETRate	RenewableEnergy	MinisterialBureaucracy
LaborMarketPolicy	GiniCoefficient	GlobalEnvironmentalProtection	InformalCoordination
Unemployment	GenderEqualityinParliaments	GlobalEnvironmentalPolicy	Evidence-basedInstruments
Long-termUnemployment	LifeSatisfaction	MultilateralEnvironmentalAgreements	RIAApplication
YouthUnemployment	Health	KyotoParticipationandAchievements	QualityofRIAProcess
Low-skilledUnemployment	HealthPolicy	QualityofDemocracy	SustainabilityCheck
EmploymentRate	SpendingonHealthPrograms	ElectoralProcesses	SocietalConsultation
LowPayIncidence	LifeExpectancy	CandidacyProcedures	NegotiatingPublicSupport
Taxes	InfantMortality	MediaAccess	PolicyCommunication
TaxPolicy	PerceivedHealthStatus	VotingandRegistrationRights	CoherentCommunication
TaxSystemComplexity	Families	PartyFinancing	Implementation
StructuralBalance	FamilyPolicy	PopularDecision-Making	GovernmentEfficiency
MarginalTaxBurdenforBusinesses	ChildCareDensity,Age0-2	AccesstoInformation	MinisterialCompliance
RedistributionEffect	ChildCareDensity,Age3-5	MediaFreedom	MonitoringMinistries
Budgets	FertilityRate	MediaPluralism	MonitoringAgencies,Bureaucracies
BudgetaryPolicy	ChildPoverty	AccesstoGovernmentInformation	TaskFunding
DebttoGDP	Pensions	CivilRightsandPoliticalLiberties	ConstitutionalDiscretion
PrimaryBalance	PensionPolicy	CivilRights	NationalStandards
DebtInterestRatio	OlderEmployment	PoliticalLiberties	Adaptability
BudgetConsolidation	OldAgeDependencyRatio	Non-discrimination	DomesticAdaptability
ResearchandInnovation	SeniorCitizenPoverty	RuleofLaw	InternationalCoordination
R&IPolicy	Integration	LegalCertainty	OrganizationalReform
PublicR&DSpending	IntegrationPolicy	JudicialReview	Self-monitoring
Non-publicR&DSpending	FB-NUpperSecondaryAttainment	AppointmentofJustices	InstitutionalReform
TotalResearchers	FB-NTertiaryAttainment	CorruptionPrevention	ExecutiveAccountability
IntellectualPropertyLicenses	FB-NUemployment		Citizens'ParticipatoryCompetence
PCTPatentApplications	FB-NEmployment		PolicyKnowledge
GlobalFinancialSystem	SafeLiving		VoicingOpiniontoOfficials
StabilizingGlobalFinancialMarkets	SafeLivingConditions		VoterTurnout
Tier1CapitalRatio	Homicides		LegislativeActors'Resources
Banks'NonperformingLoans	Thefts		ParliamentaryResources
SocialPolicies	ConfidenceinPolice		ObtainingDocuments
	GlobalInequalities		SummoningMinisters
	GlobalSocialPolicy		SummoningExperts
	ODA		TaskAreaCongruence
			AuditOffice
			OmbudsOffice
			Media
			MediaReporting
			NewspaperCirculation
			QualityNewspapers
			PartiesandInterestAssociations
			Intra-partyDemocracy
			AssociationCompetence(Business)
			AssociationCompetence(Others)

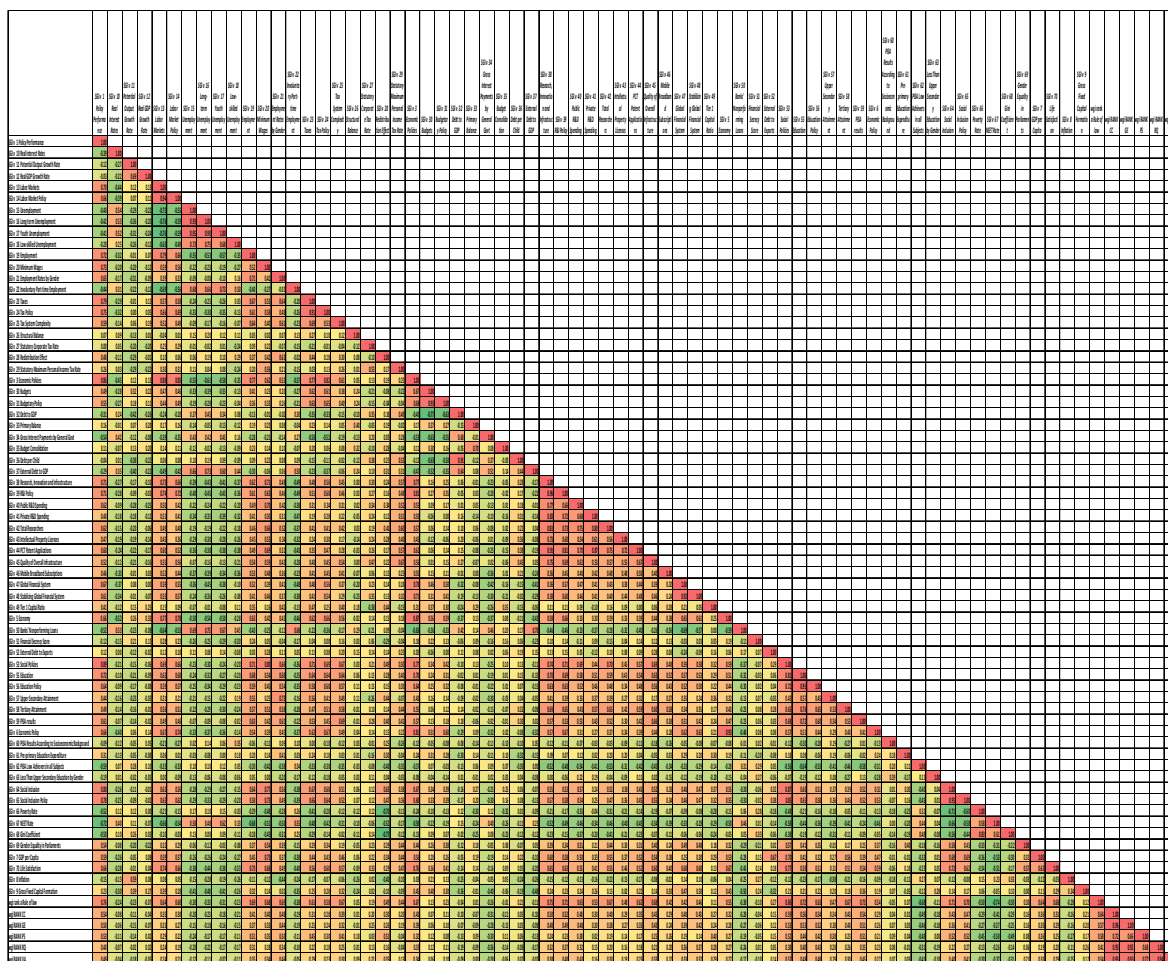
Source: SGI indicators

*Annex no. 2. Countries for which the data was analyzed*

Australia, Austria, Belgium, Bulgaria, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Mexic, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Great Britain, United States of America.

Source: SGI indicators

*Annex no. 3. Correlation Analysis*



Source: Author's own projection



## **Integrating Circular Economy in National Policy: Assessing the Impacts of Romania’s Revised 2023 Action Plan**

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### **Abstract**

*This article explores the integration of Circular Economy (CE) principles into Romania's national policy, mainly through its Revised 2023 Action Plan. It begins by setting the stage for the importance of sustainable development, which necessitates innovative policies that prioritize both environmental conservation and economic resilience. Romania's embrace of CE principles, aiming to redefine resource utilization, minimize waste, and bolster environmental preservation, serves as the focal point of this study.*

*Key findings reveal significant advancements in waste management and infrastructural enhancements that foster CE adoption despite facing challenges in policy implementation. The Revised 2023 Action Plan marks a critical step in Romania's journey towards sustainable development, showcasing the potential for increased employment, resource efficiency, and environmental stewardship.*

*This article makes a vital contribution to the field by charting Romania's progress towards its circularity ambitions and suggesting avenues for policy refinement.*

**Key words:** circular economy, action plan, national strategy, resource efficiency, policy framework

**J.E.L. classification:** H23, O21, O33, Q53, Q56, R11

### **1. Introduction**

The national policy integration of circular economy principles has emerged as an area of notable focus within the realm of sustainable development, especially considering Romania's updated 2023 Action Plan. The main concept underpinning the circular economy pertains to detaching economic growth from resource usage, thereby fostering sustainability and mitigating environmental repercussions. As Romania endeavors to comply with EU directives and better its waste management methodologies, embedding circular economy principles into national policy exhibits considerable promise for both economic growth and environmental safeguarding. By emulating effective strategies from other European nations and engaging a variety of stakeholders, Romania may overcome obstacles and cultivate a more sustainable economic framework. The shift towards a circular economy is critical for realizing extended sustainability objectives, and Romania's methodical alignment with circular economy paradigms is anticipated to yield advantageous outcomes across different sectors.

Incorporation of principles of circular economy into frameworks of national policy assumes a pivotal role in shaping strategies for sustainable development and promoting stewardship of the environment. In Revised 2023 Action Plan of Romania's context, the emphasis upon inclusion of circular economy initiatives mirrors a progressive path towards optimizing resources and managing waste. By aligning policies nationally with objectives of circular economy, the potential for economic growth, creation of jobs, and innovation may be harnessed within a frame of environmental accountability (Bauer et al., 2020-12-21). This alignment strategically not only enhances efficiency

in resource utilization but also aids in achieving broader sustainability targets by reducing dependence on finite resources and minimizing environmental impacts (European Topic Centre on Circular economy and resource use, 2022). Through adoption of policies that are comprehensive and prioritize practices of circularity, a precedent for sustainable development can be set by Romania within the context of Europe, placing itself as a leader in transition towards a model of circular economy.

With regards to the endeavours by Romania to amplify its circular economy structure, the Revised 2023 Action Plan manifests as a cardinal paper delineating tactical routes for enduring resource regulation and economic sturdiness. The scheme accentuates a detailed methodology incorporating domains including agriculture, automotive, construction, consumer products, and textiles, synchronizing with the nation's National Strategy for the Circular Economy. By stressing the stimulation of accountable production routines, inventive answers, and collaborator coordination, the Action Plan delineates a course for attaining ecological aims while propelling economic proliferation. Understandings from the European Topic Centre on Circular Economy and Resource Use elucidate Romania's headway in litter governance and infrastructure advancement, signifying a preparedness to adopt circular economy doctrines. As Romania traverses towards a more enduring economic model, the amalgamation of circular stratagems poses prospects for employment fabrication, resource productivity, and ecological guardianship (Rizos et al., 2018).

In dissection of the investigative pursuits and targets within this scrutiny on amalgamating the circular economy into Romania's national policy, the chief aspiration is to gauge the repercussions of the altered 2023 Action Plan on sustainability and fiscal performance. The paramount ambition targets examining the efficacy of circular economy initiatives within Romania concerning accomplishes in resource efficiency, decrement of waste, and safeguarding the environment. In a specific schema, the inquiry endeavors to scrutinize the adoption of cardinal stratagems depicted in the National Circular Economy Strategy, appraising their impetus on transitioning towards a more sustainable economic configuration congruent with EU ordinances. By probing sector-dedicated measures in agriculture, automotive, construction, consumer goods, and textiles (Can et al., 2023), the examination gears to furnish perspicacity into the prospects and hindrances Romania encounters in propelling its circular economy blueprint. Through an extensive disquisition of policy implications alongside tangible outcomes, the investigational purposes encompass pinpointing obstacles to execution, assessing advancements towards circularity milestones, and prescribing advisements for forthcoming refinements in national policy constructs to efficaciously nurture a circular economy metamorphosis.

In devising structuring of research for evaluating the consequences of Revised 2023 Action Plan of Romania on integrating circular economy principles, the meticulous examination of sources (Traversa et al., 2021) assumes instrumental significance. The fusion of regional, state, and municipal endeavors in refraining resilient strategies, as underscored in (2022), accentuates the relevance of cooperative governance in furthering sustainable policies. Furthermore, the idea of "green VAT" suggested in (Traversa et al., 2021) furnishes perceptivity into likely fiscal mechanisms to undergird circular economy ambitions within the national policy frameworks. Building upon these discernments, research structuration shall initiate by delineating the pivotal stakeholders in circular economy execution, scrutinizing the regulatory frameworks and financial mechanisms put forth in the Revised Action Plan, and culminating with an appraisal of prognosticated outcomes and hurdles in synchronizing Romania's policies with circular economy principles. By amalgamating these assorted viewpoints, the research aspires to deliver an exhaustive assessment of Romania's undertakings towards sustainable development via circular economy integration.

## **2. Literature review**

Principles of the circular economy encompass a comprehensive approach to the resources managing plus the economic system, with the aim of minimizing waste, promote efficient resource, and keep the value in products and materials within the cycle of production and consumption. The basic idea in the circular economy includes a move away from a linear "take-make-dispose" model to a regenerative system where resources reused, remanufactured, recycled to form a closed-loop system. This alters requires a paradigm shift in how resources are used, how products are designed,

and how waste is managed, emphasizing the significance sustainable practices, cutting-edge tech, and cooperation between stakeholders in sundry sectors (Zamparas et al., 2023). By adopting a circular economy framework, country like Romania can shift their economies towards enduring sustainability, green economic growth, and resilience to environmental problems, aiding in a future more sustainable for society and the environment.

Assessing Romania's movement toward adopting circular economy principles reveals a strategic shift aimed at sustainability and efficient use of resources. The nation's dedication to the National Strategy for the Circular Economy marks the significance of aligning with European Union objectives and boosting environmental protection (European Topic Centre on Circular economy and resource use, 2022). Including circular economy approaches in national plans can not only encourage economic growth but also protect the environment via better waste management and development of infrastructure (European Topic Centre on Circular economy and resource use, 2022). By prioritizing innovative practices, cross-sector collaboration, and international cooperation, Romania seeks to hasten its shift to a circular economy framework, nurturing a more sustainable economic environment (European Topic Centre on Circular economy and resource use, 2022). The emphasis on integrating corporate social responsibility (CSR) principles in reporting indicates a comprehensive method, stressing openness and alignment with European sustainability goals for a more circular and robust economy (European Topic Centre on Circular economy and resource use, 2022).

It is observable that Romania, in its endeavor to incorporate principles affiliated with the circular economy within the realms of national policies, has exhibited progress deemed substantial, with the aim directed at augmenting sustainability alongside resource efficiency across assorted sectors. The nation's distillation of a National Strategy for the Circular Economy accentuates a staunch resolve to transition towards an economic paradigm of increased sustainability, in concordance with objectives set forth by the European Union. Illustrations of initiatives such as the Circular Economy Action Plan, anticipated for deployment by the year 2023, underscore Romania's preemptive disposition vis-à-vis the curtailment of resource utilization as well as the attenuation of deleterious environmental repercussions. Maneuvers to ameliorate waste management protocols, institute de minimis aid frameworks, and endorse responsible production principles through entities like the Circular Economy Coalition signify the national determination to promulgate circular methodologies. Nevertheless, impediments manifest in the form of infrastructural inadequacies and consumer behavioral trends, presenting a gamut of challenges necessitating remediation to unlock the full spectrum of advantages inherent in the integration of circular economy precepts within national policy matrices. The impending Circular Economy Action Plan holds potential as a catalyst to spur Romania towards an envisioned sustainable trajectory by the year 2030.

Within the scope of discerning the structural attributes of policy frameworks concerning the integration of circular economy principles into national protocols, a meticulous scrutiny of the efficacy and coherency of Romania's Revised 2023 Action Plan assumes paramount importance. The manifold metrics and projects delineated in the plan, as expounded in (Bătușaru et al., 2023), accentuate Romania's forward-looking disposition in harmonizing with EU mandates and nurturing sustainability via tangible policy enactments. Additionally, the framework delineated by (Ghisellini et al., 2023), which encompasses environmental and energy performance metrics aimed at overseeing the Common Agricultural Policy within the EU, delivers instrumental perspectives into the appraisal of circular economy measure application within select sectors. By embracing a holistic paradigm that coalesces these frameworks into the examination of Romania's policy ventures, a profound comprehension of the nation's strides and impediments in the propagation of circular economy doctrines can be realized, thereby informing prospective strategic undertakings and policy refinements.

Investigative efforts into philosophical standpoints on the repercussions evaluation linked to policy within the scenario of merging the circular economy into nationwide strategies involves the vital contemplation of diverse frameworks and paradigms capable of proficient assessment of outcomes and ramifications tied to such policy enactments. Repercussion evaluation of policy embodies a pivotal function in ascertaining the triumph and competency of policy tactics, predominantly in multifaceted domains like sustainable progression and ecological administration. Utilization of philosophical structures for instance the Institutional Scrutiny and Advancement model and the Schema of Change can render beneficial elucidations regarding the procedures by which

policy-mediated actions sway societal conduct, financial mechanics, and ecological consequences. Through recourse to these philosophical standpoints, decision-makers can acquire a comprehensive comprehension of the conceivable influence of circular economy strategies on resource productivity, refuse governance, and sustainable fabrication methodologies, thereby steering well-informed judgment-making and meticulous strategizing towards an ecologically conscientious and financially sustainable future. (Ghosh, 2019)

### **3. Research methodology**

Romania's policy landscape now shows strategic change toward sustainability and circular economy principles, shown by National Strategy for the Circular Economy adoption. This strategic design highlights the need for resource efficiency, waste reducing, and sustainable production practices. The country is active in aligning policy frameworks with EU directives and global sustainability aims to push a more eco-friendly economic model. Important initiatives involve bettering waste management infrastructure, setting transparent reporting ways, and pushing forward innovation in circular economy areas (Bauer et al., 2020). By bringing circular economy principles into national policies and frameworks, Romania aims to boost economic growth, shield the environment, and match the needs of a fast-changing global field. Joint efforts across sectors, with a focus on innovation and education, are vital for pushing Romania's shift toward a more sustainable and circular economy.

The Romania's Circular Economy targets and initiatives, these do themselves showcase a strategic commitment supposedly to sustainable economic actions of development. The National Strategy for this Circular Economy does be pinpointing key industries such as agriculture, automotive, construction, and also textiles as the main targets for switching to circular ways. By placing an emphasis on bettering resources efficiency, waste managing, and creating policy frameworks that are so matched with sustainability goals of the EU, Romania endeavors to boost environmental protections while promoting economic growth (Kovacic et al., 2019). The country's measures include things like de minimis aid schemes and return guarantee systems for the packaging of products to hurry up the transition. Yet, obstacles do remain, like the need to improve infrastructures for waste collecting and tackling barriers from consumer behaviors. Creating an all-encompassing Circular Economy Action Plan by the year of 2023 stands as critical for Romania in achieving its sustainable development goals and properly integrating circular principles within national policies (European Topic Centre on Circular economy and resource use, 2022).

In the scope of weaving circular economy notions into nationwide policy, the part that stakeholder engagement and teamwork take is key to propelling sustainable and meaningful change. Interacting with a varied cluster of stakeholders, this entails government branches, industry figureheads, nonprofit groups, and the average citizenry is pivotal to make sure the revised 2023 Action Plan in Romania is put into effect properly. By encouraging open conversations, dispersing information, and utilizing pooled expertise, stakeholders could give useful thoughts, standpoints, and tools towards pushing forward circular economy efforts. Team endeavors ease the match-up of interests, the spotting of creative fixes, and build strong regulatory frameworks to back the shift to a circular economy structure. Via involved engagement and teamwork, Romania might tap into the united power of various stakeholders to tackle hurdles, push systematic change, and reach enduring results that profit both the environment and the market (Ghosh, 2019).

Upon scrutinizing the implementation intricacies and advantageous prospects inherent in Romania's amended 2023 Action Plan aimed at weaving circular economy doctrines into national stratagems, a multitude of pivotal elements manifest. In spite of noticeable strides in synchronizing with EU mandates and cultivating sustainability ventures, hinderances persist in morphing policy aspirations into concrete results. The infrastructural constraints, notably within the domain of waste disposal frameworks, emerge as a formidable impediment to the efficacious deployment of circular economy methodologies on a broad scale (European Topic Centre on Circular economy and resource use, 2022). Furthermore, the imperative to modify consumer behavior tendencies and bolster stakeholder participation remains critical for catalyzing the shift towards a more circular economic paradigm (Kovacic et al., 2019). Opportunities abound in sectors like innovation, employment generation, and superior resource utilization, unveiling substantial prospects for both economic

advancement and ecological safeguarding. Through the prioritization of lucid reporting systems in alignment with EU sustainability benchmarks and the harnessing of global collaborations, Romania stands a chance to surmount these encumbrances and harness the merits of a circular economy structure successfully.

An analysis comparatively of the revised that Romania's Action Plan 2023 with policies of the EU Circular Economy unveils essential areas both of alignment and divergence. Although strategy Romania's aims at promoting efficiency resource and sustainability, examination required it must be via the lens of EU directives along with practices best to ensure harmonization overarching with goals sustainability European. Assessing the principles core of Package EU Circular Economy can provide benchmark a for evaluating comprehensiveness and effectiveness the of efforts Romania's in transitioning circularity towards. By comparing specific policy measures, goals, and implementation strategies (Delbeke et al., 2015) nuanced understanding of progress Romania's in adopting practices economy circular within framework EU be gained can. This analysis comparative foundational serves as step evaluating strategic the implications and potential the outcomes of Romania's initiatives economy circular in broader context European.

#### **4. Findings**

The method to unify the ideals of circular economy into national legislative structures can impact the economy importantly, especially when considering the updated 2023 Initiative by Romania. As the nation shifts to adopt a model of economy that sustains more, it likely enhances how efficiently resources are used, propels creation of innovative ideas, and causes creation of employment opportunities in significant industries such as farming, cars, and building sectors. Following the EU regulations tied to sustainability targets will lead not only to better ecosystem safeguarding but also lead to growth of economy by use of less resources and productivity increases (Salomone et al., 2020). Yet, obstacles such as poorly managed waste procedures and upgrading infrastructure necessity must be confronted to realize circular economy's total possible economic benefits. Encouraging multi-sector cooperation, prioritizing idea generation, and highlighting open communication in reporting systems, Romania can surmount these difficulties and gain economically from the circular economic shift.

Pertaining to Romania's 2023 Revised Action Plan and its assimilation of circular economy ideologies, evaluating the environmental ramifications and sustainability yield stands crucial for discerning the plan's efficacy in advancing towards a more sustainable economic structure. Scrutinizing the environmental repercussions triggered by the posited policies and initiatives, including their bearings on resource utilization efficiency, waste governance, and emissions diminution, academics can approximate the plan's hypothesized contributions to environmental safeguarding and sustainable progression. Besides, an all-encompassing evaluation of the sustainability yields from the Action Plan is pivotal to ascertain its conformity with national and EU sustainability aims, along with its aptitude to incite affirmative socio-environmental transitions and endorse a circular economy framework in Romania. Such scrutiny not only bids revelations into the plan's possible advantages but also illuminates domains warranting additional amelioration and strategic emphasis to amplify its environmental and social sustainability consequences.

When look at what Romania's Revised 2023 Action Plan do for putting circular economy ideas into the country's rules, you must think about social and cultural stuff that make such plans work well. Social acceptance and cultural norms really matter for how policy gets taken up and used in a place. Fixing social gaps, getting people involved, and pushing for green thinking are key things for moving to a circular economy model (European Topic Centre on Circular economy and resource use, 2022). Plus, getting what people do, their green beliefs, and how culture affects use of resources is crucial for making policy work right (Rizos et al., 2023). Pushing education, awareness pushing, and working together on stuff that fits with local people can boost how much circular economy practices get used and help a lasting societal shift (Kovacic et al., 2019). By putting social and cultural ideas into the policy rules, Romania can make its circular economy actions work better and include more folks, leading to a tougher and more green society.

In the evaluation of how much national policies impact integrating circular economy ideas, concerns for efficiency and effectiveness are very important, with specific focus on Romania's revised 2023 Action Plan. Policy effectiveness is very important for arriving at the wanted results of moving to a more sustainable economic model, while policy efficiency makes sure there is optimal use of resources and the most output. By checking the strategies for implementation, the mechanisms for stakeholder engagement, and the rules given in the Action Plan, one can measure how effective policy actions are in promoting practices of circular economy. Further, checking how efficient policy actions are in terms of economic practicality, environmental gains, and social effects is very important for making sure the used resources achieve the intended results on Romania's switch to a circular economy. Making stronger the connection between policy goals, strategies for implementation, and results is a key point for encouraging sustainable development and achieving the circular economy aims stated in the national strategy.

In the course of looking into future prospects along with recommendations for introducing a circular economy into the national policy of Romania, manifest is the necessity for concerted efforts to conquer current challenges and realize economic growth that is sustainable. Clearly described in the examination, Romania contends with barriers in managing infrastructure for waste, regulatory frameworks and collaboration among stakeholders. Policymakers, to handle these problems effectively, ought to consider leveraging successful initiatives related to circular economy from various other countries, while bolstering educational and training initiatives on sustainable methodologies (Nyagadza et al., 2024). Besides, escalating transparency and accountability via better non-financial reporting systems can nurture a culture of responsibility in addition to innovation within businesses, which facilitates advancement toward a more circular and efficient economy resource-wise. Suggested recommendations equally involve synchronizing national strategies with EU directives, alongside fostering international collaborations to back Romania's transition towards an economic model that is sustainably more robust. Priority on innovation, stakeholder involvement, coupled with policy consistency, allows Romania to potentially position as a forerunner in sustainable development practices and circular economy strategies.

## 5. Conclusions

With regard to Romania's Revised 2023 Action Plan vis-a-vis integrating the circular economy into national policymaking, emergent key findings are noteworthy—highlighting the nation's advancements and encountered difficulties. The analysis illuminates substantial concentration on sectors including, but not limited to, agriculture, automotive, construction, consumer goods, and textiles as embodied within the National Strategy for the Circular Economy. Noteworthy initiatives, for instance, the inception of *de minimis* aid schemes and return guarantee frameworks for product packaging, are admirable; nevertheless, Romania experiences hindrances pertaining to waste management infrastructure and consumer compliance. Furthermore, notwithstanding the nation's aspiration for a Circular Economy Action Plan by 2023, impediments to its execution include an exigency for enhanced waste collection frameworks to efficaciously cultivate sustainable practices. Collaborative engagements with bodies such as the Circular Economy Coalition are indispensable in fostering data transparency and encouraging accountable production to consummate a more sustainable economy by 2030 (Economic Commission for Europe, 2021).

With emerging focus concentrating circular economy principles amongst national policy frameworks, Romania's Revised 2023 Action Plan presents significant opportunity enhancing sustainability practice, resource management included. Policy implications continuing from this revised plan, multifaceted as they are, hold crucial importance, promoting environmentally conscious economically sustainable future. Aligning with EU directives and emphasizing sectors agriculture, automotive, construction, Romania can foster innovation, job creation added, greener practices shift observed. Recommendations from assessment call for collaborative approach involving stakeholder various sectors grouped, innovation prioritized, education supportive Romania's transition circular economy viewed. Furthermore, non-financial reporting enhancing, aligning with EU sustainability objectives, transparency fostering, are essential steps to achieve an effective circular strategy.

Within reach of circular economy study, boffins made big yields by empiric observances, theoretical maps, and policy meditations. Probing manifold particulars of circular economy putting-through, scholars nosed into fields like resource shining, trash direction plans, and bearable trade types (Cobîrzan et al., 2023-10-03). By spying on the money, green, and group sizes of round-usage, brains swelled knowing in what manner round economy rules can be effectually put in state policy schemas. Further, probings showed big need for stakeholder wrangling, know-how spread, and rule machineries in smoothing the change to a round economy setup. Through mixed-field tie-ups and fact-proven study, schooldom stood as a big force in crafting plans for lasting resource use, boosting eco-minded fresh ideas, and crying for full changes to build a stouter and health-giving economy.

In engaging in the contemplation of the amalgamation of circular economy doctrines within Romania's Revised 2023 Action Plan, a plethora of hindrances and trajectories for ensuing scholarly inquiry come to the fore. While the scheme delineates strategic endeavors aimed at fostering sustainability alongside resource efficiency, obstacles in actualization are manifest, notably in the form of underperforming waste management infrastructure and lagging shifts in consumer behavior patterns. To remedy these impediments, future investigative efforts ought to concentrate on scrutinizing the efficacy of the Action Plan's pivotal priority strategies, evaluating stakeholder cooperation and participation, and surveilling advancements towards circular economy objectives. Moreover, delving into the repercussions of statutory modifications, financial provisions, and administrative frameworks on the prosperous enactment of circular economy protocols in Romania appears imperative. Future discourses might delve into the influence of educational initiatives and public consciousness campaigns in propelling sustainable behavioral transformations and perpetuating the circular economy narrative. Appraisal of the mutable European milieu and international sustainability movements will also be pivotal in molding prospective research trajectories and fortifying Romania's circular economy evolution (Wulansari et al., 2023; Bătușaru et al., 2023). This meticulous examination of the Action Plan's shortcomings coupled with emergent research vectors will impart substantive contributions to the progression of sustainable methodologies and circular economy tactics within Romania's national legislative corpus.

To conclude, the study about Romania's Revised 2023 Action Plan shows noticeable progresses in embedding circular economy principles into the national policy agenda. The nation's dedication to sustainability alongside resource efficacy stands apparent through the enforcement of focused initiatives in primary economic domains such as agriculture, the automotive sector, construction, as well as textiles. Despite facing obstacles in waste management systems and consumer behavior patterns, Romania's endeavors to comply with EU regulations and augment environmental safeguards exhibit a forward-thinking stance towards transitioning to a circular economy. Looking ahead, it's critical for Romania to carry on encouraging collaboration between stakeholders, pushing for innovation, and emphasizing education about circular economy methodologies. Through forming a solid Circular Economy Action Plan backed by clear reporting methods coupled with severe environmental legislations, Romania may straightforwardly progress towards a more sustainable and circular economic structure by 2030.

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## Analysis of the School Abandonment Rate Among Secondary Education Pupils in Romania

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### Abstract

*The subject of this research is school abandonment in secondary education in Romania, marked by problems such as functional illiteracy and social exclusion. Secondary analysis of data collected between 2012 and 2022 reveals a decrease in dropout rates, suggesting a positive impact of recently implemented educational reforms. However, the persistence of differences between urban and rural areas underlines the importance of adapting education policies to the specificities of each region. The study's recommendations emphasise the need for continuous monitoring of data to support informed policy decisions and ensure equitable access to education, making an essential contribution to optimising strategies to combat early school abandonment.*

**Key words:** education, abandonment, society

**J.E.L. classification:** I2, I21, I24

### 1. Introduction

In the last two decades, school abandonment has become a widespread phenomenon in today's school environment, illiteracy being an acute problem of the education system in Romania, but also a problem of the whole society, besides marginalization and social exclusion. Dropping out of school is in fact the result of a combination of personal, social, economic, educational and family factors, closely interlinked, which generate many disadvantages. Without investment in education and without the adoption of optimal educational policies that reduce school drop-out and that are in line with the education system in our country, we cannot expect positive results, but lead to lower educational standards, which obviously limit the future possibility for young people to train and develop professionally in order to integrate into the labour market. The study focuses on the phenomenon of early school abandonment and through research, aims to highlight the consequences of early school leaving and the effectiveness of the school system in terms of solving these issues in urban and rural areas. The investigation focuses on establishing a diagnosis by carrying out an analysis of the risk situations and effects of dropping out of school, in order to prevent this phenomenon and to identify and establish methods and strategies to reintegrate pupils and students in urban and rural areas who have dropped out of school or are at risk of dropping out. The research method adopted for the analysis of the dropout rate in secondary education in Romania is based on a comprehensive secondary data analysis strategy.

### 2. Literature review

School abandonment is extremely widespread in today's educational environment, representing a major problem for the Romanian education system, but also for society as a whole, as early school leaving leads to social exclusion and marginalisation. According to the literature, school abandonment is defined by the absence of pupils and students from school, regardless of culture,

age, ethnicity, nationality, religion, social and financial status. Children at risk of dropping out of school are deprived of the opportunity that the educational institution brings in the formation of the future adult, both personally and professionally (Ekstrand, 2015: 459). In the author's view (Neamțu, 2003: 199) "dropping out of school is defined as a definitive avoidance behaviour that consists in ceasing school attendance, leaving the educational system, regardless of the level reached, before obtaining a qualification or a full vocational training or before the end of the cycle of studies begun. Students who abandon school are not readmitted to the same educational institution and are not enrolled in an alternative schooling programme".

The causes of school drop-out are diverse and can be generated by:

1. *Single-parent families and tragedies* involving increased levels of stress in the child's life, influencing decisions to drop out of school.
2. *The material situation of the family of origin* is a risk or protective factor in the pupil's adaptation to the school environment.
3. *Poor relationship with the education system*, teaching staff, group of students, lack of adaptation to the school environment due to low motivation to attend classes caused by bullying (Cace, 2010: 28).
4. *Student environment*, alcohol and tobacco use are risk factors that can cause dropout. The age of adolescence is an important threshold in further education (Bonea, 2019: 387-403).
5. *The student's inhibitions*, frustrations accumulated in the family, wrong school orientation, lack of emotional and moral support from teachers.
6. *School phobia*, pupil and student personality, depression and introversion decrease academic performance.
7. *Classifying students according to academic performance* and marginalising those who do not measure up to the collective.
8. *Family pressure* to achieve maximum results leads to frustration and traumatic experiences, drawing the student into destructive vices and environments (Manoil, 2019: 350-354).

Given the multitude of causes that lead to school drop-out, one solution to reduce this phenomenon would be to implement strategies to prevent and combat it. There are many aspects that make school drop-out a difficult problem to solve.

Preventing abandonment has its limits. No matter how well conceived and scientifically based prevention may be, limitations arise as a result of many interacting phenomena that influence this phenomenon. Drawing the analogy between early school leaving and pre-delinquency, the effectiveness of preventive action is undermined by internal and external limits.

An effective intervention by teachers through the educational process they carry out with children can be a means of preventing school drop-out by intervening at the level of individual, family and school risk factors determined by the environment of origin.

An important aspect of dropout prevention is the creation of special success situations for school difficulties, as success and rewards develop the pupil's initiative and increase their confidence in their own possibilities. Teachers can only be the promoter of programmes aimed at preventing and combating dropping out.

Another element in combating school drop-out is the participation of all children in the educational programme, according to their respective strengths and possibilities. The starting point is the premise that every child has value, uniqueness and learning potential, regardless of their social needs. "*For better prevention of dropping out of school, it is necessary to know the competences and needs of each child integrated into the education system, whether they are of a different religion or ethnicity than the rest of the children*" (Țoc, 2018: 39).

Early detection of cases at risk of dropping out is the main solution that can improve the phenomenon. The social worker, educational counsellor, psychologist and highly trained teaching staff may be able to recognise the early signs of dropping out and establish an individual and personalised intervention plan to reduce the problem.

Combating and preventing the phenomenon of early school leaving is a current problem for both specialists and authorities in Romania and the European Union. The welfare of the person and human rights present the importance of equal opportunities for any child in terms of completing compulsory education, but the reality presents the ethnic and genetic characteristics of the individual which are discriminatory factors favouring school dropout.

Securing a future for people in society, ensuring respect for the principle of non-discrimination, and the moral commitment of institutions are facilitators in maximising efforts to support students to have an equal chance at education (Bridgeland, 2006). To combat school drop-out, pupils need to adapt to educational requirements and teachers and their families need to provide moral support to help them manage at-risk situations.

Young people who wanted to go to vocational school and were forced to enrol in secondary education subsequently dropped out because of the demands, expectations and discrepancies between what the students wanted and what they received from an educational and less vocational point of view. The main motivation given by high school students for dropping out is based on the hard tasks they receive and the lack of intellectual skills needed to complete them. The difference between school students with intellectual skills and those who want a job needs to be understood by the Romanian state. Tackling the school drop-out rate can be focused on giving importance to vocational school training, which prepares professional workers in specific fields. In this case, attending high school and completing secondary education and then, at the young person's wish, higher education, can be directed only to those high school students who want it, without any obligation (Bonea, 2019: 394-398).

Basic and continuous teacher training is needed to prevent and combat the phenomenon of school drop-out. Children show certain symptoms in different situations, such as juvenile delinquency, decreased motivation, school engagement and performance, they may be introverted or have comprehension problems. The attention of teaching staff must be focused on the problems and symptoms of the pupil in order to be able, together with specialists in education, psychology and social work, to address specific needs. Family problems, social marginalization, prejudice and discrimination, insufficient income are effects that lead to dropping out of school, effects that a well-trained teacher should notice early (Bonea, 2019: 387-394).

EU Member States must implement public policies to prevent and combat early school leaving in order to reach the target of reducing the school drop-out rate below 10%. Through prevention, Member States must facilitate access to educational institutions for pupils on an equal basis, without discrimination and social stigma. Implementing programmes to train teachers to identify and support only pupils at risk of dropping out is another way of reaching the target. Ensuring the quality standards of Romanian education, adequate equipment of schools, implementation of European projects for the rehabilitation of rural schools, as well as compliance with hygiene standards and educational requirements of children, regardless of their status, are other solutions that the Ministry of Education wants to implement (Ministry of Labour, 2014).

Teacher training should include sections on how to tackle and prevent early school leaving. In 2015, the Romanian Government approved the Strategy for Reducing Early School Leaving, which includes measures to be implemented by 2020 to combat early school leaving. Through this strategy, Romania has set as its main objective to reduce the school drop-out rate from 17.3% in 2013 to 11.3% in 2020. Romania has recognised the problem of school drop-out and wants solutions to prevent and combat it, but these solutions need to be implemented from the very beginning of a student's life. Kindergarten is the first environment in which the child is integrated from an early age (Crosnoe, Crumb: 2007:267-282).

Providing continuous and faithful feedback to school pupils and students aims to keep them engaged in the educational process, maintain their curiosity and desire to attend school, with the ultimate goal of lowering the dropout rate. Focusing the educational unit on students' needs and development and less on teaching and memorization is a sustainable solution that can bring positive effects in students' lives (Weerman, 2010: 339-355).

To prevent dropout, educational institutions need to train their teachers to focus on the inclinations of each pupil or student to achieve performance in one or more subjects for which they show curiosity and passion. The support provided by the teaching staff should be focused on helping students towards a correct orientation towards certain fields of study, with the emphasis on preparing high performing students in the field in which they possess skills and aptitudes and less on preparing all students, regardless of their passions, abilities, fields just for the purpose of being promoted to the next grade. Eliminating the traditional and rigid education system can be a starting point in the fight against dropping out. (Dianda, 2008)

### 3. Research methodology

The research method adopted for the analysis of dropout rates in secondary education in Romania is based on a comprehensive secondary data analysis strategy. This methodology involves the use of existing data collected by authorised government entities - in this case, the Ministry of Education and the National Institute of Statistics. Data extracted from the "Report on the State of Pre-University Education in Romania 2021 - 2022" and from the online platform of the statistical institute were used to provide a longitudinal and comparative assessment of trends in the dropout rate over a period of nine school years, from 2012-2013 to 2020-2021.

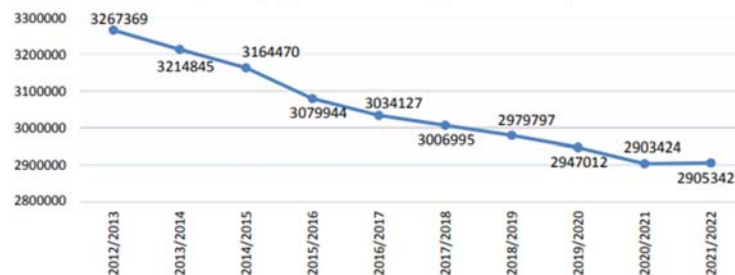
Longitudinal analysis allows the evolution and dynamics of the drop-out rate to be tracked over time, providing valuable insight into temporal changes. This is essential in understanding persistent trends or variations that may indicate the impact of policy interventions or other exogenous factors. Also, the comparative approach to the data by residential background reveals disparities between urban and rural contexts, highlighting the need to differentiate education policies and support initiatives according to the specificities of each area. To ensure rigorous interpretation of the data, the research included data cleaning and validation steps to eliminate potential inconsistencies or errors. Statistical analysis was carried out using appropriate methods that allow data to be visualised in graphical and tabular formats, thus facilitating better understanding of the results and dissemination of information to the general public and policy makers.

It is important to emphasise that although the use of secondary data offers the advantage of access to a large volume of information that has been systematically collected, there are certain limitations that need to be recognised. These limitations include dependence on the accuracy and reliability of data collection by primary sources and the possibility of data gaps that may result from methodological changes over time. Also, the analysis of existing data does not allow causal relationships to be established, only correlations and trends to be identified.

### 4. Findings

In recent years, the number of pupils enrolled in the Romanian pre-university education system has been decreasing from one year to the next. In the school year 2021/2022, the pre-university education system has seen a slight increase in pupil numbers (by almost 2000 pupils), comprising 2905.3 thousand pupils.

Figure no. 1 Changes in pupil numbers in pre-university education



Source: Data processed based on NSI information, 2013-2022

Figure 1 shows the evolution of the number of pupils in pre-university education in Romania over time. It shows a decreasing trend in pupil numbers from 2012-2013 to 2021-2022.

Specifically, in the 2012-2013 school year, the number of registered pupils was 3,267,369, which is the peak of the graph. Subsequently, there has been a gradual decrease in pupil numbers over the years, with minor fluctuations from one year to the next. For example, in the 2013-2014 school year the number drops to 3,214,845, and in the 2014-2015 year it drops further to 3,164,470.

This trend continues in subsequent years, with a notable decrease in the 2015-2016 school year to 3,079,944 pupils, continuing with a gradual reduction to 2,903,424 pupils in the 2021-2022 school year. The data reflect possible demographic changes, changes in educational policies or other socio-

economic factors that could influence the number of pupils participating in pre-university education in Romania.

Analysis of this development requires a comprehensive approach to understand the causes and long-term implications of this decline, with the potential to affect the planning of educational resources, the quality of the education process and the dynamics of the future workforce.

In the school year 2020/2021 the drop-out rate in primary and secondary education has slightly decreased compared to the previous school year. Overall, 1.2% of primary and secondary school pupils dropped out. The rural environment, i.e. the lower grades, has high drop-out rates. The highest dropout rates in primary and secondary education were recorded for the rural school population (1.7% overall, 1.8% primary, 1.6% secondary) and for pupils in preparatory, first and fifth grades. (Ministry of Education, 2022)

At the end of the school year 2020/2021, the number of pupils in mainstream primary and secondary education was 1,545.2 thousand (excluding pupils in the Second Chance Programme). Of the total number of pupils in primary and secondary mainstream education on record at the end of the school year, 97.4% were declared passers and 2.6% repeaters. Compared to the previous school year, the promotion rate decreased by 1 p.p., which is reflected in the repetition rate. The corresponding data for special education are relatively constant compared to the previous school year: 17.2 thousand pupils at the end of the school year, of which 98.5% were declared passed and 1.5% failed.

For primary and secondary education as a whole, the dropout rate (indicator calculated on the basis of the "entry-exit" method) in 2020/2021 was 1.2% (representing 18.4 thousand pupils in absolute figures) (Ministry of Education, 2022).

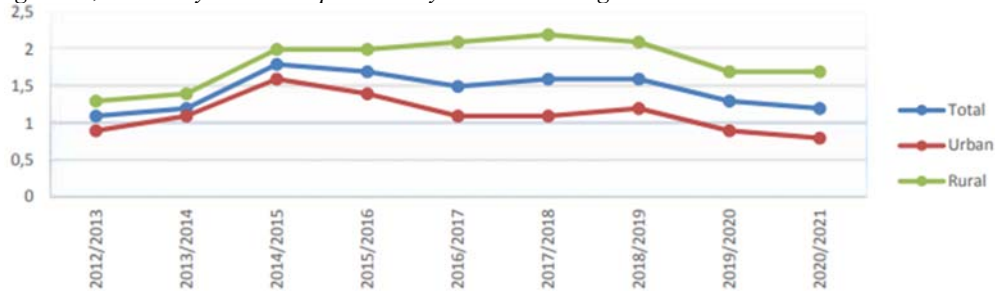
Compared to the previous year, the value of the indicator is slightly decreasing.

- The decrease in the value of the indicator is due to its downward trend in rural schools; in urban areas the value of the indicator is constant compared to the previous school year.
- The difference between the values of the indicator by average is 0.9 p.p. in favour of the urban environment.
- As regards school drop-out by gender, the indicator records for the second consecutive year a low value of 0.1 p.p. (1.2% boys and 1.1% girls). This is the lowest value in the time series analysed. For each level of study, characteristic aspects are highlighted.

In primary education:

- School dropout remains constant compared to the previous school year (1.3%).
- The gap by residence remains high (0.9 p.p.), with rural areas still disadvantaged.
- The gender gap increases slightly in the context of the increase in the value of the indicator for boys (1.4% of primary school boys drop out of school compared to 1.2% of girls).

Figure no. 2 Primary school dropout rate by residence background



Source: Data processed from NSI information, 2014-2022

The graph shows the school years 2012-2013 to 2020-2021, and the evolution of dropout rates is illustrated for each school year. Analysing the trends in the graph, it can be seen that the overall dropout rate (blue line) starts to increase slightly in 2012-2013 and reaches a more stable level in 2013-2016, after which it seems to decrease slightly towards the end of the period, until 2020-2021.

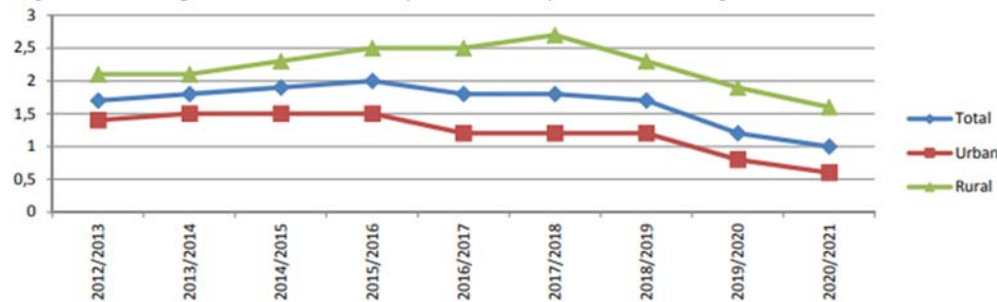
The urban drop-out rate (red line) also starts at a relatively stable level between 2012 and 2014 and then fluctuates over the following years. A sharper decrease is observed in the last years analysed, suggesting possible improvements in retention in urban areas or the effect of educational programmes aimed at preventing dropout.

In rural areas (green line), the drop-out rate is consistently higher than in urban areas. There is a peak in the years 2013-2014, after which the rate seems to decrease slightly, but still remains at a relatively high level compared to the urban environment throughout the period analysed. These trends suggest that while progress has been made in reducing school drop-out rates in both urban and rural areas, there are still significant disparities between the two environments. The persistence of higher dropout rates in rural areas could be attributed to specific challenges such as limited access to educational resources, economic difficulties or lack of transport infrastructure.

In secondary education:

- there is a 0.2 p.p. decrease in the drop-out rate compared to the previous year, thus continuing the downward trend of the indicator in recent years;
- for the second year in a row, the drop-out rate in secondary education is lower than the indicator value at primary level;
- the difference between the values of the indicator by residence is slightly higher than in primary education, with rural areas being disadvantaged in this respect (0.6% secondary school dropout rate in urban areas, 1.6% secondary school dropout rate in rural areas);
- this is the first time in the time series analysed that the values of the indicator by gender are equal.

Figure no. 3 Dropout rates in secondary education, by residence background



Source: Data processed from NSI information, 2014-2022

Analysing the graph representing the dropout rate in secondary education in Romania by residence, we can observe the following trends during the school years 2012-2013 to 2020-2021:

Blue line - Total: This line represents the total dropout rate for the entire secondary school population. An upward trend in the dropout rate can be seen until the 2014-2015 school year, after which it seems to decrease slightly, reaching its lowest point in 2020-2021. This trend indicates possible improvements in the retention of pupils in the secondary education system towards the end of the period.

Red line - Urban: Urban dropout rates increase slightly until the 2014-2015 school year, followed by an overall decrease. There is a significant decrease between school years 2015-2016 and 2016-2017, and then the rate stabilizes until 2020-2021.

Green line - Rural: The rural drop-out rate shows an increase up to the 2014-2015 school year, similar to the urban trend, but at a higher level. After this point, the rate gradually decreases, suggesting that there have been initiatives or changes that have had a positive impact on student retention in rural areas.

Observations on the graph indicate that, despite a start with higher dropout rates in both environments, progress has been made in decreasing these rates in the subsequent period, with a more pronounced improvement in rural areas. This may be the result of targeted educational policies, improved access to educational resources or other socio-economic factors.

## 5. Conclusions

Based on the analysis of empirical data extracted from the "Report on the State of Pre-University Education in Romania 2021 - 2022" and the information provided by the National Institute of Statistics, corroborated with the literature in the field of education, the present study reached the following academic conclusions:

**About School Dropout Rate Trends:** There is a general decrease in the school dropout rate in secondary education throughout Romania during the analyzed period (2012-2021). This evolution suggests a positive impact of the implemented educational reforms and intervention strategies that have been applied in the last decade. This positive dynamic responds to a central objective of education policies, in line with international recommendations on reducing school drop-out.

**Disparities between Residential Settings:** The persistence of significant differences between dropout rates in urban and rural settings highlights the existence of structural disparities. This phenomenon is consistent with literature that identifies unequal access to educational resources and socio-economic differences as among the main causes of these disparities.

**Implications for Policy Formulation:** Current findings recommend increased attention by policy makers in adapting education policies to the specific rural context. Interventions should be multifaceted, including educational support programmes and infrastructure development, in line with research studies that attest to their effectiveness in promoting equality in education.

**The Need for Continued Research:** The study highlights the importance of continuing applied research in education. Ongoing monitoring and evaluation of educational data is essential to ensure a robust evidence base to inform educational decision-making and policy formulation.

The research findings therefore reflect the progress made in Romania's education sector, but also highlight the need for continued and focused commitment to address remaining challenges, particularly in rural areas. In this process, it is vital that decisions and policies are always informed by reliable data and rigorous analysis.

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# The Influence of the Social Perspective on the Performance of Employees

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## Abstract

*Employee performance is crucial for organizational success, significantly influencing productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, 2020). High-performing employees boost productivity, optimize resources, and foster a culture of creativity and continuous improvement, leading to business growth and adaptability. Enhanced employee performance also improves customer satisfaction, promoting repeat business and a strong organizational reputation (Harter et al., 2002). This paper examines how social factors within an organization impact employee performance through the lens of Social Exchange Theory (SET) and Social Identity Theory (SIT). SET emphasizes reciprocal relationships and mutual benefits, enhancing performance through perceived support, trust, and fairness. SIT focuses on group identity and belonging, where strong identification with a group fosters team cohesion and organizational pride. This study's comparative analysis highlights the strengths and applications of both theories, providing actionable insights for managers to improve employee performance by fostering reciprocal relationships, building a strong organizational identity, and developing supportive leadership styles. Ultimately, understanding and leveraging social factors can create a more supportive and productive work environment, ensuring sustained organizational success.*

**Key words:** performance, productivity, innovation, customer, leadership

**J.E.L. classification:** M14

## 1. Introduction

Employee performance is crucial for organizational success, as it significantly influences productivity, innovation, customer satisfaction, organizational culture, and financial outcomes. (Armstrong, M., 2020). High-performing employees enhance productivity by efficiently and effectively completing tasks, optimizing resource utilization, and boosting overall output. This increased efficiency not only saves costs but also helps the organization maintain a competitive edge. Moreover, when employees excel in their roles, they are often more engaged and motivated, fostering a culture of creativity and continuous improvement.

This innovative mindset can lead to the development of new products, services, and processes, driving business growth and adaptability in an ever-evolving market. Additionally, top-notch employee performance improves customer satisfaction by ensuring the delivery of high-quality products and services, effectively addressing customer needs, and maintaining positive relationships. Satisfied customers contribute to repeat business, positive word-of-mouth, and a strong reputation, all essential for long-term success (Harter et al, 2002, p. 268-279). Furthermore, a culture of excellence and accountability is built when employees perform well and are recognized for their achievements, attracting top talent, reducing turnover, and promoting a collaborative work environment. Financially, organizations benefit from high-performing employees through increased sales, higher profitability, and improved financial metrics. Thus, investing in strategies to enhance employee performance, such as training, development, effective leadership, and a supportive work environment, is vital for organizations aiming to achieve and sustain success



Building on the understanding that employee performance is crucial for organizational success due to its significant influence on productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, M., 2020), this paper sets out with three primary aims. First, it seeks to examine how social factors within an organization impact employee performance. Understanding these social dynamics is essential as they can either enhance or impede the ability of employees to perform at their best. Second, the paper aims to identify key social dynamics that specifically enhance or hinder performance. This involves pinpointing elements such as team cohesion, leadership styles, and workplace relationships that play pivotal roles in shaping employee behavior and outcomes. Finally, the paper intends to propose actionable insights for managers to improve performance through social mechanisms. By leveraging the identified social factors, managers can create strategies and interventions that foster a more supportive and productive work environment, ultimately leading to sustained organizational success.

## 2. Literature review

Employee performance is a pivotal factor in organizational success, influencing productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, M., 2020). To understand the multifaceted nature of employee performance, it is essential to explore the theoretical frameworks that explain how social factors within an organization impact this performance. Two prominent theories in this domain are Social Exchange Theory (SET) and Social Identity Theory (SIT). Social Exchange Theory (SET) is a fundamental framework for understanding workplace behavior (Cropanzano and Mitchell, 2005). This theory is so ingrained in our daily interactions that it extends beyond organizational settings to include exchanges with family, friends, and relatives, often occurring on a subtle level. According to Cropanzano et al. (2017), SET involves (i) an action initiated by an actor towards a target, (ii) a reciprocal attitudinal or behavioral response from the target, and (iii) the relationship that ensues.

In today's corporate environment, relationships are becoming increasingly complex, necessitating updates to SET to reflect the evolving nature of organizational operations and employee behavior (Cooper-Thomas and Morrison, 2019). Originating in the 1920s (Malinowski, 1922; Mauss, 1925), SET has implications in various fields, including social psychology (Homans, 1958; Thibault and Kelley, 1959; Gouldner, 1960), sociology (Blau, 1964), and anthropology (Firth, 1967; Sahlins, 1972).

Homans (1958) was the first to introduce the concept of "social behavior as exchange," which he later elaborated in its basic forms in 1961. Thibault and Kelley (1959) developed the idea further with the "social psychology of groups." Blau (1964) expanded on this by discussing "exchange and power," highlighting one party's ability to influence another to act in a certain way. While Blau emphasized the economic aspects of the theory, Homans focused more on the psychological aspects, specifically instrumental behavior. Blau (1964) argued that social exchange is limited to actions contingent on rewarding responses from others, where exchange behavior consists of voluntary actions motivated by anticipated returns.

Social Identity Theory explores how our sense of self is shaped by our group affiliations and how these affiliations influence our perceptions of both group members and outsiders. This theory has been widely applied to study phenomena such as favoritism towards in-groups and discrimination against out-groups but has seen limited application in the context of substance use. Specifically, it has been found that social identity can moderate the impact of peers on substance use behaviors. For instance, individuals who closely identify with their group are more likely to align their drinking habits with the perceived norms and approval of alcohol consumption within that group. The stronger the identification with the group, the greater the influence its members have on the individual. In examining social groups among high school students, athletes are typically more influenced by their fellow athletes, while drama club participants are more swayed by their peers in the drama club. There is a strong correlation between identifying with other substance users and one's own substance use behavior, which is partly attributed to both selection (substance users gravitate towards other substance users) and socialization (interaction with other substance users promotes substance use). Ultimately, those with whom we closely identify exert the greatest influence on our behavior.

Social Identity Theory can be broadly divided into two main components. The first component, which is more fundamental and psychological, explains the cognitive processes involved in defining social identity and the motivation that drives individuals to seek a positive social identity. The second component, which is socio-structural, addresses how individuals manage and respond to a negative social identity (Tajfel, 1970, p.96-102).

### **3. Research methodology**

To analyze and compare Social Exchange Theory (SET) and Social Identity Theory (SIT) in the context of their influence on employee performance, I employed comparative analysis as a key method. This involved a detailed comparison of the two theories based on several criteria, such as their key concepts, focus, main influences on behavior, and their impact on employee performance. By using a comparative framework, I systematically evaluated how each theory explains the influence of social factors on employee performance, identifying similarities, differences, strengths, and limitations of each theory. Employee performance is crucial for organizational success, as it significantly influences productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, M., 2020). High-performing employees enhance productivity by efficiently and effectively completing tasks, optimizing resource utilization, and boosting overall output. This increased efficiency not only saves costs but also helps the organization maintain a competitive edge. Moreover, when employees excel in their roles, they are often more engaged and motivated, fostering a culture of creativity and continuous improvement. This innovative mindset can lead to the development of new products, services, and processes, driving business growth and adaptability in an ever-evolving market. Additionally, top-notch employee performance improves customer satisfaction by ensuring the delivery of high-quality products and services, effectively addressing customer needs, and maintaining positive relationships. Satisfied customers contribute to repeat business, positive word-of-mouth, and a strong reputation, all essential for long-term success (Harter et al, 2002, p. 268-279).

Furthermore, a culture of excellence and accountability is built when employees perform well and are recognized for their achievements, attracting top talent, reducing turnover, and promoting a collaborative work environment. Financially, organizations benefit from high-performing employees through increased sales, higher profitability, and improved financial metrics. Thus, investing in strategies to enhance employee performance, such as training, development, effective leadership, and a supportive work environment, is vital for organizations aiming to achieve and sustain success.

Building on the understanding that employee performance is crucial for organizational success due to its significant influence on productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, M., 2020), this paper sets out with three primary aims. First, it seeks to examine how social factors within an organization impact employee performance. Understanding these social dynamics is essential as they can either enhance or impede the ability of employees to perform at their best. Second, the paper aims to identify key social dynamics that specifically enhance or hinder performance. This involves pinpointing elements such as team cohesion, leadership styles, and workplace relationships that play pivotal roles in shaping employee behavior and outcomes. Finally, the paper intends to propose actionable insights for managers to improve performance through social mechanisms. By leveraging the identified social factors, managers can create strategies and interventions that foster a more supportive and productive work environment, ultimately leading to sustained organizational success.

### **4. Findings**

In examining the impact of social factors on employee performance, this study utilized a comparative analysis of Social Exchange Theory (SET) and Social Identity Theory (SIT). This approach involved a detailed comparison based on several criteria, such as their key concepts, focus, main influences on behavior, and impact on employee performance. The results of this comparative analysis are summarized in Table 1.

Table no. 1 Comparison of Social Exchange Theory (SET) and Social Identity Theory (SIT)

Aspect	Social Exchange Theory (SET)	Social Identity Theory (SIT)
Focus	Exchange of resources and reciprocity	Group identity and belonging
Key concept	Reciprocity and mutual benefits	Social identification and self-categorization
Main influence on Behavior	Perceived support, trust, and fairness	Degree of identification with the organization or team
Impact on performance	High when employees feel valued and fairly treated	High when employees strongly identify with the group
Applications	Enhancing rewards, recognition, and support systems	Fostering team cohesion and organizational pride

Source: (Stets et al, 2000)

**Social Exchange Theory (SET)** emphasizes the importance of reciprocal relationships and mutual benefits. According to this theory, employee performance is enhanced when employees perceive high levels of support, trust, and fairness within the organization. The sense of being valued and fairly treated leads to greater employee engagement and motivation, which in turn boosts productivity and performance. SET's applications in organizational settings often involve enhancing rewards, recognition, and support systems to foster a positive exchange relationship between employees and the organization.

**Social Identity Theory (SIT)**, on the other hand, focuses on the role of group identity and belonging. It posits that employee performance is influenced by the degree of identification with the organization or team. When employees strongly identify with their group, they are more likely to align their behavior with group norms and strive for the collective success of the group. This strong identification fosters team cohesion and organizational pride, which are critical for high performance. SIT's applications include fostering team cohesion and building a strong organizational identity to enhance employee commitment and performance.

## 5. Conclusions

The validity of this study is substantiated by its foundation in two well-regarded theoretical frameworks: Social Exchange Theory (SET) and Social Identity Theory (SIT). These theories have been extensively applied in organizational behavior research, lending credibility to the study's exploration of how social factors impact employee performance. The comparative analysis between SET and SIT, supported by a thorough literature review, ensures that the findings are grounded in established academic discourse.

Despite its limitations, this study offers valuable insights for managers and organizations aiming to enhance employee performance:

1. *Fostering reciprocal relationships:* By promoting reciprocity and mutual benefits, organizations can enhance employee engagement and motivation. Implementing effective reward systems, recognition programs, and support structures can foster a positive exchange relationship between employees and the organization.

2. *Building a strong organizational identity:* Emphasizing group identity and belonging can significantly improve employee performance. Managers should focus on team-building activities and initiatives that strengthen organizational pride and cohesion.

3. *Developing supportive leadership styles:* Leadership styles that emphasize support, fairness, and trust are crucial for enhancing employee performance. Training programs for leaders should incorporate these elements to create a more supportive work environment.

Employee performance is a critical driver of organizational success, influencing productivity, innovation, customer satisfaction, organizational culture, and financial outcomes (Armstrong, 2020). High-performing employees not only enhance productivity and efficiency but also foster a culture of

creativity and continuous improvement, driving business growth and adaptability. Moreover, top-notch employee performance leads to improved customer satisfaction, repeat business, and a strong organizational reputation (Harter et al., 2002).

This study underscores the importance of social factors in influencing employee performance, demonstrating that both SET and SIT provide valuable insights into these dynamics. By understanding and leveraging these social factors, managers can create strategies and interventions that foster a more supportive and productive work environment, ultimately leading to sustained organizational success. Future research should aim to address the identified limitations, enhancing the generalizability and depth of understanding in this vital area of organizational behavior.

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## **Section IV**

### **Marketing – Management**

## Sustainability in Business Models: The Case of MUD Jeans

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### Abstract

*There has been a growing interest in society and among researchers regarding the significance of establishing sustainable business models. As organisations strive to adapt their business models to incorporate sustainability or establish new enterprises to tackle sustainability challenges, it becomes evident that there is no universally applicable model for sustainable business. As a result, companies frequently have difficulties in recognising and executing sustainable business models that are suitable for their needs. This article seeks to highlight the importance of incorporating sustainability into a business plan. Furthermore, it attempts to clarify techniques employed to accomplish this objective. The article is organised in multiple sections, such as a comprehensive analysis of existing literature, highlighting the most significant contributions to this matter. The following section discusses the methodology employed in the investigation. The fourth portion substantiates the study's results by presenting a case study, while the final section provides a summary of the findings.*

**Key words:** business model, sustainability, value creation, value proposition, stakeholders

**J.E.L. classification:** M1, M9

### 1. Introduction

In recent decades, significant resources have been dedicated to discovering novel approaches for creating innovations, such as technologies, products, and services, that can help mitigate climate change and enhance societal well-being. The demand for global sustainability has grown in the era of globalization (Toma, 2005) and is seen in public sentiment, civil society, governments, and scholars (Marinescu *et al*, 2010). However, it is commonly acknowledged that corporations play a significant role in causing environmental degradation and, in some instances, contributing to social injustice. The United Nations has issued a worldwide appeal for a more sustainable, equitable, and inclusive way of living by releasing the 2030 Agenda and its 17 Sustainable Development Goals.

Companies are engaged in this revolutionary process. There has been a recent surge of interest in society and among researchers regarding the significance of cultivating sustainable business strategies. As companies strive to make their business models more sustainable or establish novel companies to tackle sustainability challenges, it becomes evident that there is no universally applicable paradigm for sustainable business models. As a result, companies frequently face challenges in identifying, developing, and implementing sustainable business models that are suitable for their needs. More and more businesses are incorporating sustainability into their management processes (Bocken *et al*, 2021; Kabongo, 2019).

These companies prioritize sustainability at a strategic level, meaning that they are focused on conducting business in a sustainable manner (Toma, 2006) and achieving corporate citizenship (Toma, 2008a). These projects are created by entrepreneurs that are driven to tackle the significant difficulties of sustainable development and strive for more than just simple sustainability, but for 'thrivability' (Moggi *et al*, 2022) through business practices and models (Toma *et al*, 2019) that aim to achieve the Sustainable Development Goals (Agrawal *et al*, 2022).

This study aims to answer the following questions based on previously provided information:

- What constitutes a sustainable business model?
- What techniques should a company use to accomplish this?

This research paper aims to emphasize the significance of sustainability within the larger framework of a business strategy. Additionally, it aims to clarify which methods are used to achieve this goal. The article is constructed in the following way: the first chapter provides a literature review that emphasizes the most notable contributions to this issue. The next section explains the study's methodology. The fourth section confirms the study's conclusions through illustrating a case study, while the final section summarizes the findings.

## 2. Literature review

Businesses develop value by collecting, merging, and trading the resources of stakeholders in order to build something that the market would find valuable (Toma, 2013; Marinescu *et al*, 2015). They next capture that value by minimising production costs and maximising the prices they receive. Finally, they transfer the value to those who contributed the resources (Cornescu *et al*, 2004). Business models delineate the organisational frameworks that will execute these tasks. In general, they consist of a value proposition to consumers, a strategy for generating value, and a plan for allocating profits to the organisations that generate that value (Schaltegger *et al*, 2016). Therefore, a business model can be seen as a distinct unit of study, apart from the firm and network that systematically portrays the methodology of conducting business (Zott *et al*, 2011). A framework consisting of three key components can be suggested: value proposition, which refers to the offering provided to target consumers and the fundamental approach to gaining a competitive advantage; value creation and delivery, which encompass assets, skills, enterprise organisation, and value network, thereby indicating the origins of competitive advantage; and value capture, which illustrates how the company generates income and profits (Richardson, 2008).

A significant collection of literature explores the issue of whether and to what degree business models should be altered to ensure corporate social responsibility for businesses. Corporate social responsibility sometimes lacks integration with firms' value-creating endeavours and the surrounding institutions, environments, and communities in which they operate (Kim, 2022). On the other hand, the "creating shared value" approach suggests that it is important to redefine the methods of value creation (Toma *et al*, 2018a). This involves collaboratively reducing bottlenecks and resource consumption throughout a value chain, with the goal of increasing profitability for different groups of stakeholders (Porter *et al*, 2011).

Certain companies go beyond corporate social responsibility (Toma *et al*, 2011a; Toma *et al*, 2011b; Catană *et al*, 2021) and the creation of shared value by striving to make income while concurrently creating financial, social, and/or environmental benefits (Toma *et al*, 2011b; Toma *et al*, 2012b). As a result, companies adopt innovative and sustainable business models (Tohănean *et al*, 2018; Toma *et al*, 2018b). However, it is evident that there is no universally applicable model for sustainable business. Therefore, it is challenging to locate and cultivate a business strategy that is highly compatible with the current circumstances of the company (Reim *et al*, 2021). Moreover, it is plausible to infer that certain sustainable business models provide greater challenges for organisations to cultivate compared to others. Business sustainability is becoming crucial, although there is still a lack of understanding regarding these business models and the methods to accomplish them (Laukkanen *et al*, 2014). The identification and understanding of mechanisms for experimentation and boundary bridging among stakeholders that are involved in establishing sustainable business models are yet to be determined and comprehended (Schaltegger *et al*, 2016). In summary, companies require guidance and assistance in the process of reshaping their business models to adapt or in establishing entirely new sustainable business models, as well as in effectively executing these changes. This is why they need to design and implement sound corporate strategies (Toma *et al*, 2013a; Toma *et al*, 2016a) and creative business strategies (Toma *et al*, 2013b), to think in a strategic and entrepreneurially manner (Toma *et al*, 2016b; Catană *et al*, 2020; Zainea *et al*, 2020), and to utilise a plethora of managerial techniques, such as lean management (Naruo *et al*, 2007; Marinescu *et al*, 2008), balanced scorecard (Toma *et al*, 2010) or Six Sigma (Toma, 2008b), in their activities to face the multiple challenges raised by incessant changes (Toma *et al*, 2015).

The triple bottom line theory is an early effort to describe sustainability (Elkington, 1994). It breaks down sustainability into three aspects: economic, social, and environmental. These dimensions are represented by the components of profit, people, and planet. The triple bottom line theory is widely utilised by practitioners as well as scholars as an operational basis for sustainability due to its ease of application in the daily operations of any firm (Joyce *et al*, 2016). Subsequently, suggestions are made to modify or expand the current theory in order to offer further guidance. Certain academics substitute the term 'profit' with 'prosperity' to denote the economic advantages for the company and the overall socioeconomic welfare of employees and communities (Stahl *et al*, 2020). On the other hand, some scholars suggest the quadruple bottom line theory by incorporating values (Larner *et al*, 2017), prosperity (Hamidi *et al*, 2021), or technology (Arukala *et al*, 2020) as supplementary elements to the triple bottom line hypothesis. The Millennium Development Goals and the Sustainable Development Goals define sustainability in a more comprehensive manner, advocating for a diverse set of actions to foster sustainability across several, yet interconnected, aspects. The Sustainable Development Goals expand upon the Millennium Development Goals in a comprehensive manner, encompassing sustainable measures beyond just developing countries (Van Zanten *et al*, 2018). The 2030 Agenda enhances the discourse on the concept of sustainability by suggesting a comprehensive set of goals that encompass the economic, social, environmental, and political dimensions (Sullivan *et al*, 2018).

To effectively implement the Sustainable Development Goals on a daily basis, businesses need to comprehend how they might be applied in their operations. This requires them to continually evolve their business models (Ferlito *et al*, 2022) in response to the general demand of the 2030 Agenda for governments, people, organisations, and enterprises (Van der Waal *et al*, 2020). This study adopts the definition of a sustainable business model as "a streamlined depiction of the elements, their interaction, and the connections with stakeholders that an organisation employs to create, deliver, capture, and trade sustainable value for a wide range of stakeholders" (Geissdoerfer *et al*, 2016).

Based on the literature analysis mentioned above, the authors will investigate the business model of a business that prioritises sustainability. The company's ideals align with the concepts of a sustainable business model. In the upcoming sections, the paper's authors will outline the research methodology used and briefly analyse the findings of the case study.

### **3. Research methodology**

The current study utilises qualitative research methodologies, gathering and assessing secondary material on the subject from previously published books, reports, and research articles. The writers begin by analysing the definitions of sustainability, and business models, and subsequently enumerate their fundamental components. Therefore, this approach utilised several relevant principles, including business model, sustainability, value creation, value proposition and stakeholders.

The investigation opened with an overview and discussion of the ideas, which were subsequently taken in and exemplified through the use of a case study, in order to fulfil the stated objective of this research. This paper's perspective is derived from extensive research conducted over the previous ten years by a group of distinguished scholars in the same academic discipline.

### **4. Case study and findings: MUD Jeans**

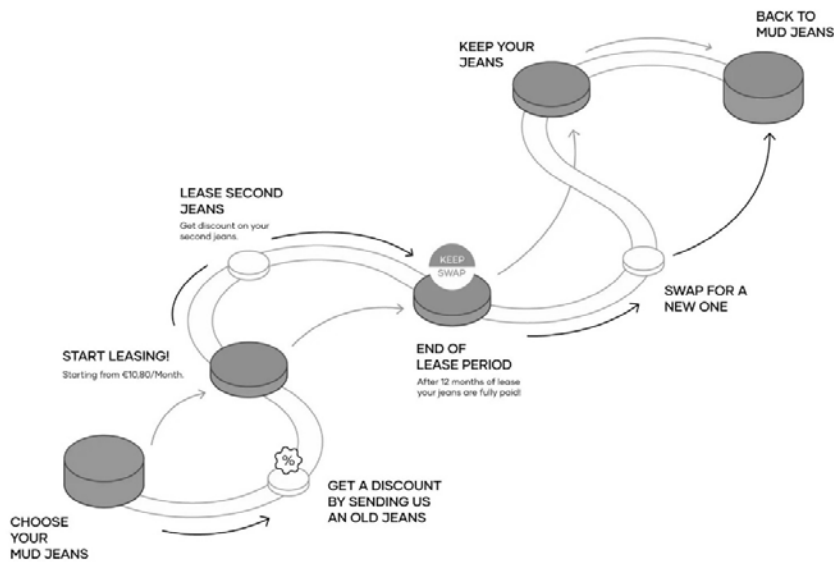
The authors selected this company based on its distinctive business model that aligns with the sustainability requirements. MUD Jeans is a Dutch firm established in 2012 by Bert van Son (Dorkenwald, 2021).

The organisation has gained immense popularity as a result of their distinctive lease programme. Their mission is to promote circular production and conscientious consumption in the fashion industry. Their approach to jeans is characterised by innovation, as they take proactive measures, maintain transparency, and promote self-sufficiency. The organisation deems it imperative to be conscientious of both the environment and individuals. They envision a future where the fashion



industry develops methods of production and consumption that do not hinder the pleasure of the environment, both for the present and future generations. Their strategy is founded upon three fundamental principles: circular economy, equitable factories, and constructive activism. By utilising closed-loop post-consumer recycled denim, they rejuvenate their jeans, providing them with a renewed beginning and prolonging their lifespan. The decision to develop this programme specifically for jeans stems from its status as one of the most environmentally detrimental articles in the fashion industry, utilising around 7,000 litres of water and chemicals. The potential benefit of recycling jeans and utilising organic cotton might be substantial, considering the annual sale of approximately 1 billion jeans. Consequently, they have established the option to lease jeans for a duration of twelve months (Figure no. 1).

Figure no. 1. How does leasing work?



Source: (MUD Jeans, n.d.)

Although the buyer pays a monthly price for 12 months and derives enjoyment from wearing the jeans, the firm retains ownership of the raw materials. Upon the completion of 12 months, ownership of the jeans is transferred to the customers and the payments cease automatically. At this juncture, the consumer has the option to retain the jeans, exchange them for a new pair without any further charges, or return them for recycling. The business seeks to optimise the utilisation of their jeans through this leasing scheme, so preventing the materials from being disposed of in landfills and instead maintaining them within their closed-loop recycling system.

According to their most recent released report to the public, the company utilises 400 gallons of water to manufacture a single pair of MUD Jeans. According to their yearly Lifecycle Analysis, they assert that their jeans conserve 72% of water by utilising recycled cotton, recycled water, and water-saving production practices. Each production of a single pair of MUD Jeans results in the emission of 3.4 kilogrammes of carbon dioxide (CO<sub>2</sub>). According to their yearly Lifecycle Analysis, they assert that their jeans save 41% of CO<sub>2</sub> emissions by utilising recycled cotton, renewable energy, and energy-saving production practices. The company implements a take-back plan to gather jeans that are composed of a minimum of 96% cotton. New denim textiles are created through collaboration with Recover and Tejidos Royo in Valencia, incorporating up to 40% of post-consumer recycled cotton. (MUD Jeans EN, n.d.)

The authors have also noted the company's 2025 objectives, which are in line with the triple bottom line theory as mentioned in the literature review above.

Regarding the product, which will generate the profit, the goal is to attain complete circularity:

- Include only denim products made from 100% recycled materials in their collection.
- Conduct a thorough examination and enhance the long-lasting quality of their denim trousers.
- Propose alternate materials to elastane for their stretch denim.

Regarding people:

- Enhance the diversity of their collection by expanding size options.
- Enhance the variety of their models throughout the website and social media platforms.
- Introduce a line of specially designed jeans tailored for individuals with disabilities who wear jeans.

Regarding the environment, which represents the planet dimension:

- Their objective is to support all of our supply chain partners in their shift towards utilising renewable energy sources.
- Utilise all second-choice clothing.
- Measure and decrease the production of all forms of waste within their network of supply chain collaborators.

Lastly, in regards to activism:

- They will attempt to broaden the reach of their monthly webinar to a more extensive audience
- Expand their Voices for Good platform globally.
- Utilise our Earth Day holiday to organise a collaborative volunteering event. (MUD Jeans EN, n.d.)

## 5. Conclusions

Overall, the objective of this research report was to highlight the need of incorporating sustainability into the broader context of a business plan. Furthermore, its objective was to explain what particular methods were employed to accomplish this objective. The authors have analysed the business model of Mud Jeans, a company that has utilised a distinctive business opportunity, as seen from the preceding section. By providing clients with the option to lease recyclable jeans, the company is actively contributing to environmental conservation by minimising water usage, lowering carbon emissions, and cutting down on production expenses. This company has exhibited a commitment to a sustainable business strategy by actively promoting preservation of the environment through education and utilising their influence and platform. Their dedication extends beyond mere monetary benefits.

Nevertheless, the study described before has specific constraints. An inherent disadvantage of this approach is its narrow focus on the business procedures of a single organisation, which serves as an almost flawless example of how this model is employed. Conducting further research would be beneficial in order to ascertain the potential outcomes that other companies could attain by employing these tactics.

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## Advantages of Industry 4.0: Case of Pashion Footwear

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### Abstract

*Industry 4.0 expands upon the advancements of the Third Industrial Revolution by integrating many innovations from the digital, tangible, and biological realms. Industry 4.0 is an all-encompassing idea that signifies the trajectory towards which manufacturing and industrial production are progressing. Several businesses are inadvertently moving towards Industry 4.0 by integrating specific components of its concepts into their operations. The article aims to emphasise several opportunities and consequences that have emerged since the inception of Industry 4.0. Moreover, it seeks to illustrate the ways in which certain companies have been adjusting to these novel circumstances. The essay is structured into various sections, including a thorough examination of existing literature, emphasising the most noteworthy contributions to this topic. The subsequent section delineates the methods utilised in the investigation. The fourth segment validates the outcomes of the study through the presentation of a case study, while the concluding section offers a concise overview of the findings.*

**Key words:** Industry 4.0, innovation, business, adaptability, technology

**J.E.L. classification:** M1

### 1. Introduction

Schwab (2016) states that the Fourth Industrial Revolution builds upon the Third Industrial Revolution by combining multiple innovations from the online, physical, and biological domains. The steam engine was invented in the First Industrial Revolution, which came before the internal combustion engine was discovered in the Second Industrial Revolution (Cornescu *et al*, 2004). The onset of the First Industrial Revolution occurred in the 1780s, facilitated by the utilisation of steam power, which led to a significant enhancement in human efficiency (Erboz, 2017).

The beginning of the Second Industrial Revolution occurred in the 1870s, marked by the advent of electrical energy and the use of mass manufacturing techniques (Marinescu *et al*, 2015). The Fourth Industrial Revolution is seen as the advent of "cyber-physical systems," which encompass novel capabilities for humans as well as machines (Toma *et al*, 2018a). Industry 4.0 signifies the integration of technology into society and our physical beings. These enhanced functionalities rely on the architecture and technology developed from the onset of the Third Industrial Revolution in the early 1970s.

The concept was based on the idea of automating industrial processes through the utilisation of data and electronics technologies. It combines a wide range of physical, online, and biological technologies in the age of globalisation (Toma, 2005). The initial three industrial revolutions established the foundation for Industry 4.0, which is not an innovative concept. The Fourth Industrial Revolution has sparked a debate regarding its potential to jeopardise employment opportunities and traditional methods of operation. The key principle of this industrial revolution is the incorporation of internet technologies into the enterprise. Industry 4.0 is a comprehensive concept that represents the direction in which manufacturing and industrial production are heading. Several organisations are currently unintentionally progressing towards Industry 4.0 by incorporating specific elements of its concepts in their operations (Nwosu *et al*, 2023).

This article aims to examine the impacts and possibilities that have arisen from the most recent Industrial Revolution. In order to achieve this, the authors commence by emphasising certain attributes of the Fourth Industrial Revolution and examining a contemporary organisation that adheres to these principles. This paper is organised according to the following structure. The following section includes a literature review, which presents a comprehensive summary of the existing literature on the issue. The third section outlines the research methods utilised in this study. The authors provide a summary of the study's findings and observations in the fourth section, focusing on the business model of a company. The final section then presents the conclusions.

## 2. Literature review

The Fourth Industrial Revolution, economic expansion, technological advancements, and innovation are marked by numerous characteristics within the context of globalisation (Toma, 2013). The mentioned concepts encompass the new social contract, social conversation, human capital industry, and corporate governance. The concept of the new social contract encompasses the integration of human capital and technology for the holistic well-being of society. It involves utilising advanced and intricate technology to achieve beneficial outcomes (Muhammad *et al.*, 2023).

The advantages of Industry 4.0 encompass enhanced profitability, heightened flexibility and agility, and enhanced production and efficiency. Upon closer examination of each individual component, it becomes evident that Industry 4.0 technology typically facilitates achieving greater output with fewer resources through enhanced productivity. It facilitates the enhancement of productivity and velocity while optimising resource allocation in a more efficient and cost-effective manner (Subramaniam *et al.*, 2009).

Another hallmark of the industrial revolution is heightened efficiency. Industry 4.0 enhances the precision of various aspects of the manufacturing process. The benefits of reduced machine downtime and increased production speed have already been discussed. Some examples of enhanced efficiency are expedited batch modifications and automated reporting. Additional business actions, such as the launch of new products, take effect (Haque *et al.*, 2004).

Additionally, it is important to consider the aspect of adaptability. An advantage of Industry 4.0 is the enhanced ability to quickly and effectively respond to changes and adjust accordingly. For example, adjusting the output to a larger or smaller scale is easier. The process of incorporating new items into the production line is streamlined, allowing for the possibility of one-time manufacturing runs and other options (Arruñada *et al.*, 2006).

Another crucial facet of the Fourth Industrial Revolution is its ability to provide an enhanced consumer experience. Industry 4.0 presents prospects for improving customer service and elevating the buying experience. The automatic track and trace features enable swift resolution of issues. Moreover, there will be a decrease in concerns related to the availability of a product, leading to an enhancement in its quality (Haller *et al.*, 2009).

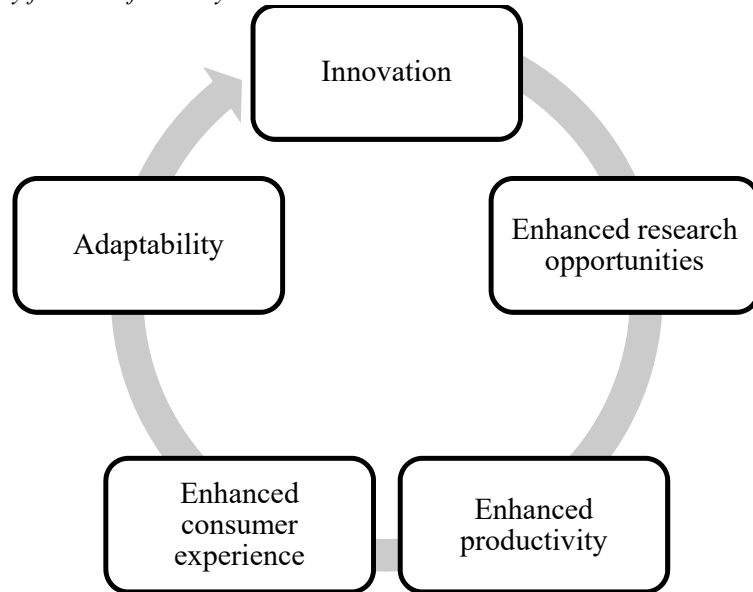
Furthermore, there are enhanced research prospects. Industry 4.0 technology enables individuals to have a deeper understanding of their supply networks, distribution systems, and the products they create (Hofmann *et al.*, 2017). This raises opportunities for innovation, such as modifying a firm technique, developing a distinctive product, and optimising a supply chain. Innovation has consistently been a key attribute of an industrial revolution, serving as the primary spark that propels its fundamental factors: the speed of transformation, breadth of influence, and organised consequences (Andrişan *et al.*, 2022).

As a result, this leads to increased profitability. This benefit of Industry 4.0 will be achieved, in part, due to the aforementioned characteristics, such as increased revenues and reduced expenses. Furthermore, the implementation of Industry 4.0 technology enables the production of items with increased profit margins, more unique designs, or both. Industry 4.0 technologies enable enterprises to maintain mass manufacturing methods while still providing customers with personalised products (Butt, 2020). In essence, successful companies which are competing in a turbulent environment (Toma *et al.*, 2015) specific to the Fourth Industrial Revolution prove to be strategic oriented (Toma *et al.*, 2013a; Toma *et al.*, 2016b), to think both strategically (Toma *et al.*, 2016a), innovatively (Tohănean *et al.*, 2018) and creatively (Toma *et al.*, 2018b), to implement green and innovative business models (Toma *et al.*, 2013b; Toma *et al.*, 2019), to have an entrepreneurial mindset (Catană

*et al.*, 2020; Zainea *et al.*, 2020), to use various methods and techniques such as Six Sigma (Toma, 2008a), marketing mix (Marinescu *et al.*, 2010a; Catană *et al.*, 2021), lean management (Naruo *et al.*, 2007; Marinescu *et al.*, 2008) or balanced scorecard (Toma *et al.*, 2010), and to behave in a socially responsible manner (Toma, 2006; Toma, 2008b; Marinescu *et al.*, 2010b)

The information described above is presented in a condensed form in Figure 1.

Figure no. 1: Key features of Industry 4.0



Source: Authors' contribution

### 3. Research methodology

The current study employs qualitative research approaches, obtaining and reviewing secondary data on the topic from previously released reports, and academic articles. The writers begin by briefly discussing the historical context of the Fourth Industrial Revolution alongside a few of its defining traits. Thus, this technique employed various pertinent elements such as adaptability, innovation, opportunities, and technology improvements.

The inquiry began with a summary and discussion of the concepts, which were afterwards implemented in and illustrated via the utilisation of a case study, so as to fulfil the stated purpose of the current study. This paper's standpoint is derived on noteworthy research undertaken over the preceding two decades by a number of eminent experts in the same scholarly subject.

### 4. Findings and case study

Through a comprehensive review of existing literature, the authors have chosen to highlight the key attributes of Industry 4.0 by analysing the business model of one particular business named Pashion Footwear. It is crucial to understand that a key aspect of this industrial revolution is the potential it offers to those who are open to experimenting with novel concepts.

Developing a fresh business model can be facilitated by embracing innovation. Pashion Footwear was founded in 2016 by Haley Pavone, a 23-year-old CEO and entrepreneur. Pavone started the firm while she was a student at Cal Poly San Luis Obispo, operating it from her dorm room. The sequence of events started with a social outing while dancing with friends, during which she suddenly had a sharp and uncomfortable sensation in her foot. The woman's feet, adorned with high-heeled shoes, started to experience pain. She followed the standard practice of removing her shoes, but unfortunately, she was pierced in her foot by her friend's heel. Eventually, she developed the first high-heeled shoe that could be fully converted (Feldman, 2019).



Haley's meticulous research has enabled her to navigate the world of business and determine the necessary requirements for designing and producing her idea. Pashion Footwear's goal is to enable ladies worldwide to personalise their shoes in accordance to their own lifestyle. The company designs exquisite and multifunctional products that effortlessly accommodate the many needs of their consumers, whether for professional or social engagements throughout the day. Their mission is around the long-standing dilemma faced by women, who have had to make a choice between elegance and comfort for many years. Pashion Footwear provides a product that eliminates the need for customers to make a decision, since the shoes have the ability to transform from a high heel to a flat shoe through the use of their advanced technology. The footwear operates by utilising their proprietary detachable Stelo™ sole support, which offers the necessary stability for walking in heels with assurance. Their heel button provides additional security while also serving as an attractive accent. The device effectively maintains a firm grip on the heels until the individual is prepared to alter or personalise them. Additionally, this product provides a high level of comfort. Pashions, as the CEO refers to her creations, are extraordinarily comfortable as both heels and flats due to their cushioned sole that effectively absorbs impact, similar to that of an athletic shoe. The adaptable sole conforms to and provides support for the foot's arch, ensuring lasting comfort whether worn as a heel or a flat. The conversion is expedited and executed with efficiency. Transitioning from heels to flats is a simple and versatile way to accommodate any situation Pashion heels undergo rigorous testing using Heeluxe's industry-leading procedures, comprising force plate examination, endurance testing, fit evaluations, and customised testing specific to their mechanisms, to determine the most efficient solution for their line of footwear. Heeluxe is a globally respected collaborator, with extensive experience working with numerous prestigious footwear manufacturers. This allows the organisation to do research and implement the most effective manufacturing techniques in order to produce its goods on a large scale at a fast pace (Pashion Footwear, 2024b).

Pashion Footwear provides an enhanced experience for customers by facilitating more direct engagement. The CEO regularly utilises social media platforms to provide information about new goods and company updates, resolve customer issues, and maintain ongoing relationships with consumers. This is another instance illustrating the additional benefits that the Fourth Industrial Revolution has bestowed onto the world of business (Pashion Footwear, 2024a).

## 5. Conclusions

In the previous section, the authors provided an example of a footwear company called Pashion Footwear to demonstrate several aspects of Industry 4.0. This company was founded based on a pioneering concept that was thoroughly researched by the current CEO, who identified a market demand for her product. She has utilised contemporary technology to conduct suitable testing and optimise production, resulting in the successful establishment of her business. One of her main strengths was her use of social media, which enabled her to swiftly adapt and immediately meet the expectations of her clients, resulting in an improved experience.

In the end, the authors have successfully illustrated a few implications and opportunities that have arisen as a result of the Fourth Industrial Revolution. To do this, the contributors have highlighted specific characteristics of the Fourth Industrial Revolution and have analysed a modern organisation that follows these principles. The primary constraint of this study is the exclusive utilisation of a single company in the aforementioned case study. Nevertheless, this is an opportunity to do future research on various organisations that are in a comparable position, with the aim of comprehending the benefits that Industry 4.0 has brought to the business realm.

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# Modelling the Economic Determinants of Unemployment Using the Multiple Linear Regression: a Case Study of Romania

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## Abstract

*Unemployment represents a negative phenomenon in almost all countries of the world. It is a complex phenomenon that has multiple causes and important economic and social-human consequences. This paper aims to analyze the correlation between the unemployment rate, respectively the number of unemployed persons and some of the influencing factors. Therefore, we identified the main influencing factors of unemployment in Romania based on an econometric model using the multiple linear regression. This model allows forecasting the future economic trends of the indicators highlighting the level of unemployment. The result showed that the growth rate of the Gross Domestic Product, the volume of foreign direct investments and the exports, as well as the inflation rate are significant factors influencing the unemployment.*

**Key words:** unemployment, economic growth, investments, exports, inflation

**J.E.L. classification:** C15, E31, F16, J64

## 1. Introduction

The unemployment represents a current phenomenon that affects the economies of all countries in different proportions. It became a problem during the industrial development, starting with the second half of the 18th century, during the periods of recession, when the industrial companies reduced their production and, as a result, released a significant number of workers who became unemployed (Țoțan, Popescu, Cristache, 2013).

In the beginning, the unemployment was considered a temporary, conjunctural phenomenon. The reality in all countries has demonstrated that the unemployment has a permanent character, so that the economists have turned their attention to it since the dawn of economics, as a science. The unemployment is a negative phenomenon present in almost all states of the world. Comprising a large part of the active population, the unemployment is illustrated by the international statistics as a macroeconomic phenomenon that requires multiple economic, political, social solutions, depending on place and time. Through the economic-social effects it generates, the unemployment has become a problem of concern for all the states of the world in recent decades. That is why the dynamics of the economic theory about unemployment, as well as the expression of some points of view, must reflect not only the nature and causes of unemployment, but also the measures and remedies for reducing its effects.

The unemployment is a negative state of the available active population, which does not find jobs, due to the disruption of the relation between the economic development, as a source of labor demand, and the evolution of the population, as a source of labor supply. Given the contemporary situation, the unemployment is considered as an imbalance of the national labor market, meaning an imbalance between the global labor demand and offer (Popescu, Gavrilă, Ciucur, 1999).

The study on the correlation between the evolution of the number of unemployed persons, respectively the unemployment rate, and the influencing factors starts from the interpretation of the data series that were recorded in the last twenty-five years, respectively in the period 1999-2023. The statistical study of the data series shows that there is a negative relation between the unemployment indicators (the number of unemployed persons and the unemployment rate) and the growth rate of

the Gross Domestic Product, respectively the volume of foreign investments and the exports. Instead, we identified a positive relation between the same unemployment indicators and the inflation rate. We established then an econometric function that highlights the evolution trend of the two indicators that characterize the unemployment in close dependence on the influencing factors.

## 2. Literature review

The issue of unemployment, its nature, size and combating has been one of the most serious problems faced by the Romanian economy in the process of transition to the market economy. The efficient use of labor resources, the size of unemployment are parameters that show how the labor market works, but also express how the national economy functions as a whole. Through its direct effects, the unemployment goes beyond the actual framework of the labor market and shapes the macroeconomic imbalances.

After 1990, the unemployment has become a permanent phenomenon in Romania, drawing the attention of political decision-makers. We know that the national economy went through an extensive restructuring process, recording a continuous decline until the beginning of the 2000s. Therefore, the lesson learned during that period urges us to understand the causes and trends of unemployment and to determine the relation between this imbalance and certain macroeconomic variables in order to create a model that could predict the level of unemployment.

Our analysis first considered the growth rate of the Gross Domestic Product. From an empirical point of view, the level of unemployment and the rate of economic growth are in a negative relation, since a healthy increase in the Gross Domestic Product determines low unemployment rates (Zhong, 2024).

The relation between these two variables was studied by the economist Arthur Okun who proposed the law that bears his name. This law provides that for every 2% decrease in the Gross Domestic Product, the unemployment increases by 1% (Okun, 1962). This over 60-year-old theory provided a reference for the governments of the world's states in establishing economic policy objectives, but it may prove to be an outdated model in the 21st century, marked by the economic and financial crisis of the first decade and the crisis generated by the pandemic coronavirus. Due to the fact that Okun's law is relatively outdated today, the economists have tried to develop new models to better explain the relation between the evolution of the Gross Domestic Product and the unemployment by expanding the variables used.

The economic growth has a positive effect on employment and the unemployment rate is influenced by the change rate of the Gross Domestic Product (Hjazeen, Seraj, Ozdeser, 2021). The economic growth should be the most important macroeconomic objective, because it increases the budget revenues through the additional collection of taxes and fees, it improves the quality of life and contributes to the increase of public and private investments that create new jobs (Valentinavičius, 2001). However, there are also studies that have not identified a relevant link between the growth of the Gross Domestic Product and the level of unemployment (Lydeka, Z., Karaliute, A., 2021).

Another factor that influences the level and dynamics of unemployment is represented by the foreign direct investments. The countries with a low level of development (but not only) have focused on measures to attract foreign investments and multinational corporations to create jobs and thus to combat unemployment. Studying the interdependencies between the flow of foreign direct investments and the unemployment rates has become of great importance for the countries interested in attracting foreign direct investments.

A series of studies argue the above statement. For example, several Turkish economists proved that there is a direct influence of foreign direct investment on employment (Bakkalci&Argin, 2013; Aktar and Öztürk, 2009; Saray, 2011). There are studies that showed the long-term effects of foreign direct investments on the level of employment (Ajaga&Nunnekamp, 2009).

The same conclusion was reached by Grahovac and Softić (2017), who analyzed the impact of foreign investments on unemployment in the countries of the Western Balkans. Also, there are studies showing that the transfer of economic agents from the property of local economic agents to the property of foreign economic agents had a significant effect in reducing unemployment (Lipsey, 2010).

There are studies that claim that the foreign direct investments have no impact in terms of employment growth (Rizvi&Nishat, 2009). The same conclusion was reached by Stamatieu&Dritsakis (2014) analyzing the statistical data for the period 1970-2012 in Greece. Simionescu&Simionescu (2017) examined the relationship between the foreign investments and the unemployment rate in the United States for the period 2000-2016, concluding that there is no short-term relation between the two variables, but that in the long term there is a strong link.

The conclusion is that the interdependencies between the foreign direct investments and the level of employment are not fully clarified, but there are enough studies that show that the foreign direct investments are inversely related to the employment rate, respectively inversely related to the unemployment rate, but this relation largely depends on the country and the analyzed period.

The exports may significantly impact the level of employment and unemployment. There are points of view that specify that the more a country exports, the higher the employment rate is in that country. However, the number of jobs created by exports varies significantly from country to country. The exports of products from certain sectors such as the natural resources, textiles and services create more jobs, while products with high added value lead to a smaller effect in terms of employment and implicitly to a significant reduction of unemployment (Johnson&Noguera, 2012). Using the input-output analysis, various authors showed the impact of exports on the level of employment and unemployment in different countries (Los, 2015; Feenstra&Sasahara, 2019): the impact of exports on the number of jobs depends on the specific conditions in each country.

The inflation-unemployment correlation has also been studied by many authors. The relation between inflation and unemployment is clearly explained through the Phillips curve, who using a series of phenomena and statistical data, highlighted an inverse relation between the inflation rate and the unemployment rate on the example of Great Britain. Thus, when inflation increases, the unemployment rate in a country decreases, because the increase in prices stimulates the economic activity, increasing employment and mitigating unemployment. Conversely, when the inflation rate decreases, the unemployment rate increases, because the economic agents are not interested in expanding their activity (Phillips, 1958). Just like Okun's law, the Phillips curve is relatively outdated today.

Many of the studies carried out later highlighted an inverse relation between the inflation rate and the unemployment rate, while others identified a positive relation. Many following studies highlighted a series of controversies related to the inflation-unemployment relation (Dixon, 1998; Nickell, 1998; Pissarides, 2013). The economic uncertainty recorded after the 70s of the last century determined many countries to create additional jobs and limit the effects and duration of the economic crises by stimulating demand through expansionary monetary or fiscal measures. On the other hand, the central banks took measures to target inflation (Svenson, 1997). The result was that the inflation rate and the unemployment rate remained low for a long period of time in many countries.

Other authors also highlighted a direct relation between the inflation rate and the unemployment rate, disputing the Phillips curve. Friedmann (1976) observed that there is a strong relation between inflation and unemployment, specifying that it is possible that a high inflation determines a high level of unemployment. Many studies validated or contradicted this theory. Palley (2012) showed that inflation is the cost for reducing unemployment. Blanchard and Gali (2008) found that an optimal policy should consider a balance between unemployment stabilization and strict inflation targeting strategies, to achieve a substantial reduction of unemployment at relatively low costs in terms of inflation.

### **3. Research methodology**

The main purpose of this paper is to analyze the unemployment evolution in Romania in close connection with the influencing factors. We examined the data for the period 1999-2023. The research data started in 1999, when the major imbalances from the period of transition to the market economy began to be mitigated, thus eliminating the uncertainty period of the first decade of transition. We can talk about a period of relative predictability, except for the global economic crisis from 2007-2011, which had a significant impact on the labor market, including the unemployment evolution. This period of 25 years is long enough to provide a complete and complex picture of the

unemployment phenomenon in Romania and the influencing factors. The main goal was to analyze which indicators have impacted the level of unemployment. We used a multiple linear regression model. The data were taken from the Eurostat database, and the calculations were made using Excel.

#### 4. Materials and methods

The research was conducted using a multiple regression model for the time series data. A general form of a linear multiple regression model is:

$$Y_t = b_0 + b_1X_{1t} + b_2X_{2t} + \dots + b_nX_{nt} + u_t$$

- $Y_t$  is the dependent variable of the model;
- $X_1, X_2, \dots, X_n$  are the independent variable of the model;
- $b_0$  is the coefficient representing the predicted value of  $Y$  when all  $X_n$  are equal to 0;
- $b_1, b_2, \dots, b_n$  are the coefficients denoting the average predicted change in  $Y$  for one unit increase in  $X_1, X_2, \dots, X_n$ ;
- $u_t$  is the error term;
- $t$  denotes the time period.

In this study, we analyzed the unemployment (*Unempl*) as a dependent variable ( $Y$ ) of the regression model. Other macroeconomic factors the model includes are: the GDP growth (*%GDP*), the foreign direct investments (*Invest*), the exports (*Exp*) and the inflation rate (*%Infl*), representing the independent variables ( $X_n$ ) of the regression model.

The regression model of this research can be presented as the following expression:

$$Unempl_t = b_0 + b_1\%GDP_t + b_2Invest_t + b_3Exp_t + b_4\%Infl_t + u_t$$

Table no. 1. Variables of the model

Variables	Variable abbreviation	Indicator
Unemployment	<i>Unempl</i>	Unemployment (persons) or Unemployment rate (% of total labor force)
GDP growth	<i>%GDP</i>	GDP growth (annual %)
Foreign direct investments	<i>Invest</i>	Foreign direct investment (million euros)
Exports	<i>Exp</i>	Exports (million euros)
Inflation	<i>%Infl</i>	Inflation rate (annual %)

Source: own determination

Based on the specialized literature and the results of our previous studies, we issued the following hypotheses:

*H1: The economic growth has a negative effect on unemployment.* This hypothesis is based especially on the results provided by Okun's law.

*H2: The level of foreign direct investment has a negative effect on unemployment.* An important number of researchers have reached this conclusion.

*H3: The exports have a negative effect on unemployment.* Some of the mentioned researchers argued this relation.

*H4: Inflation negatively affects unemployment.* This hypothesis takes into account the correlation explained by the Phillips curve.

## 5. Results

In this research, the level of unemployment and the factors influencing it were analyzed for the period 1999-2023. We made two correlations. The first correlation is between the unemployment rate and the factors influencing it and the second one between the number of unemployed persons and the same factors.

The table below shows how the unemployment rate is influenced by the changes in the economic growth rate, the foreign direct investments, the exports and the inflation rate. In Romania, during the analyzed period, the unemployment rate was not constant and fluctuated, reaching the highest values at the beginning of the interval and the lowest currently. After a constant decrease in the unemployment rate until 2008, the global economic-financial crisis also affected the Romanian economy, thus two years of increasing unemployment followed, after which it recovered almost to the pre-crisis values.

The type of model that can actually be used was identified through the graphic process. We made a scatterplot graphic that allowed us to identify the relation between the variables. Based on this representation, we considered that a linear regression model can successfully show the connection between the analyzed indicators.

Using the Data Analysis section of Excel, we reached the following results:

*Table no. 2. Summary output of the regression statistics for the unemployment rate*

<i>Regression Statistics</i>					
Multiple R	0.96700963				
R Square	0.935107625				
Adjusted R Square	0.92212915				
Standard Error	0.663523634				
Observations	25				
<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	126.8851277	31.7212819	72.05065551	1.37064E-11
Residual	20	8.805272265	0.44026361		
Total	24	135.6904			

*Source: own determination*

The data in the table above shows that the regression model is statistically relevant, with the F-statistic test value of 0.000, well below the significance threshold of 0.05. We can also note that the correlation coefficient R is 0.967, and the values of the R<sup>2</sup> (0.935) and adjusted R<sup>2</sup> (0.922) tests are very high, indicating a strong correlation between the unemployment rate and the chosen factors. All this shows us that the chosen regression model is a correct one and it can be successfully used for economic analyses.

We check if there are abnormal values that may have a negative impact on the research in the sense of changing the coefficients of the regression model.

*Table no. 3 Regression analysis of the unemployment rate*

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	7.801471363	0.449458359	17.3574953	1.58519E-13
%GDP	-0.108476667	0.04139362	-2.6206132	0.016379198
Investments	-0.153008703	0.068117587	-2.2462437	0.036142101
Exports	-0.000453221	7.51103E-06	-6.0340667	6.72232E-06
%Inflation	0.083470154	0.013044275	6.39898746	3.04746E-06

*Source: own determination*

The regression model is statistically significant, P-value is less than 0.05 for all the variables included in the model. We mention that we also tested as possible variables the indicators employed population and total population, which we excluded from the model because they proved to be insignificant from a statistical point of view.



Based on the variables resulting from the use of the computer program, we obtained the following regression model:

$$Unempl_t = 7.8014 - 0.1084\%GDP_t - 0.153Invest_t - 0.0004Exp_t + 0.0834\%Infl_t$$

We were also interested in whether the number of unemployed persons has a similar behavior to the change of the analyzed factors. The number of unemployed persons had a similar evolution in Romania during the analyzed period: a significant decrease from 1999 to 2008 given the economic growth generated by the start of Romania’s joining process to the European Union (completed by signing the adhering treaty in 2005 and the effective adhering on January 1st, 2007); there was a significant increase in the period 2009-2010, given the global economic crisis triggered in the United States in 2007 (Romania's economy was affected from the second half of 2008); in recent years, the number of unemployed persons has decreased significantly, registering the lowest values of the analyzed period.

Using the Data Analysis section of Excel, we obtained the following results:

Table no. 4. Summary output of the regression statistics for the unemployed persons

Regression Statistics					
Multiple R	0.97204958				
R Square	0.944880385				
Adjusted R Square	0.933856462				
Standard Error	60604.16095				
Observations	25				
ANOVA					
	df	SS	MS	F	Significance F
Regression	4	1.25923E+12	3.14808E+11	85.71180929	2.70476E-12
Residual	20	73457286479	3672864324		
Total	24	1.33269E+12			

Source: own determination

The data in the table above show that the regression model is statistically relevant, with the F-statistic test value of 0.000, well below the significance threshold of 0.05. We can also note that the correlation coefficient R is 0.972, and the values of the R<sup>2</sup> (0.944) and adjusted R<sup>2</sup> (0.933) tests are very high, indicating a strong correlation between the number of unemployed persons and the influencing factors. All these shows us that, as in the previous situation, the chosen regression model is correct and it can be successfully used in economic analyzes and forecasts.

We also check if there are abnormal values that may have a negative impact on the research, in the sense of changing the coefficients of the regression model.

Table no. 5 Regression analysis of the unemployment rate

	Coefficients	Standard Error	t Stat	P-value
Intercept	715711.1798	41052.11227	17.43421082	1.45896E-13
%GDP	-10220.63068	3780.763039	-2.703324851	0.013678088
Investments	-14.99788498	6.221646065	-2.410597586	0.025669304
Exports	-4.489051185	0.686034004	-6.543482044	2.23837E-06
Inflation	8466.308717	1191.423056	7.106047409	6.91178E-07

Source: own determination

This version of the regression model is also statistically significant, the P-value is less than 0.05 for all the variables included in the model. After processing the statistical data, we obtained the following version of the regression equation of the model:

$$Unempl_t = 715,711 - 10,220\%GDP_t - 14.997Invest_t - 4.489Exp_t + 8466\%Infl_t$$

The regression equations we found can be used not only to highlight the influencing factors, but also to estimate the evolution of the two indicators that characterize the level of unemployment: the unemployment rate and the number of unemployed persons, potentially representing an important element for those with attributions in the field of employment policies and unemployment combating. These results can be improved by testing other influencing factors.

## 6. Conclusions

This paper analyzes how the unemployment is affected by some macroeconomic factors, such as the Gross Domestic Product, the foreign direct investments, the exports and the inflation. These are some of the most used factors in the models identified in the scientific literature and have a strong significance from a statistical point of view.

This research analyzes the statistical data provided by Eurostat, for the period 1999-2023. The research methodology is based on the multiple linear regression model. The statistical analysis showed that there is a strong influence on the level of unemployment. The relation between the growth of the Gross Domestic Product and the level of unemployment is negative, considering that the sign of the regression coefficient is negative, which validates Okun's law. There is also a negative correlation between the unemployment and the volume of foreign direct investments and exports. Instead, there is a direct, positive relation between the level of unemployment and the inflation rate, which contradicts the hypothesis expressed by the Phillips curve. Thus, three of the four working hypotheses were validated using this model.

The correlation coefficient  $R$  is high and the values of the  $R^2$  and adjusted  $R^2$  tests are also high, which indicates a strong correlation and that the chosen model is a correct one.

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## Knowledge Administration Within Modern Business Structures

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### Abstract

*The research aims to develop a conceptual framework for analyzing the relationship of determination between the dimensions of the organization that characterize the elements of intellectual capital and each of the stages of the organization, taking into account the importance of an appropriate allocation of resources at the level of the organization in order to acquire the knowledge that the organization needs at the time when the respective knowledge is necessary to achieve its objectives. The study of establishing relationships between the dimensions that characterize an organization's intellectual capital and the stages of the knowledge acquisition process at the level of the organization involves analysis of the variety of relationships between potential organizational factors and one of the management processes. Any organization acts on the market in order to achieve its economic objectives. In recent years, the economy has moved from a resource-based approach to organization to a knowledge-based approach.*

**Key words:** SMEs, management, knowledge, economy, procurement

**J.E.L. classification:** M11

### 1. Introduction

Any organization acts on the market in order to achieve its economic objectives. In recent years, the economy has moved from the resource-based approach to the organization (RBV) to the knowledge-based approach (KBV). Thus, organizations have moved from establishing objectives based on the physical resources they have to establishing objectives based on the knowledge they have. In this context, organizations have faced a new reality: the knowledge available to an organization are intangible assets of the organization, but which create added value for the company to a greater extent than physical resources would have created, and consequently must be managed just like the other resources of the organization, but taking into account their particularities. Thus, in the modern economy, a new branch appeared and developed, along with the other branches of management, namely knowledge management. The increasing importance of this branch of management is given by the increasing value created by the resource it manages. To be manageable, knowledge must be gained inside an organization, and in the framework of knowledge management, the process of knowledge acquisition assumes a central and important function.

These concepts serve as the foundation for this essay, which proposes an analysis of the influences that the traits of the elements that make up an organization's intellectual capital have on the organizational level process of knowledge acquisition. This analysis is crucial because it enables managers to determine which aspects of intellectual capital have the greatest impact on each stage of

the organizational knowledge acquisition process. This allows them to allocate resources more effectively and acquire the knowledge that the organization needs at the time. Economic realities put organizations in the situation where they have to deal with a very large volume of information, information that can be found in the age of globalization in various organizations, in various countries, and the competitive advantage of an organization today is given by the originality of the way it is used these knowledge. Another problem that affects organizations today is that of the huge amount of information that they have to deal with. Thus, Segarra-Cipres et al (2014) note that the organization's competitive advantage lies in the organization's ability to identify valuable external knowledge and integrate it into its own innovation process; the ability of companies to acquire and transfer knowledge is fundamental in knowledge management, and organizations must develop the capabilities that allow external knowledge to be assimilated, shared and incorporated into the innovation process. Thus, the rebirth of the analysis of the field of knowledge acquisition is not a coincidence, but rather the result of the explosion of the social media field and the pressure exerted on organizations by the economic crisis. In this context, Amir et al (2015) note the need to study the acquisition of knowledge from customers.

The research problem is relevant and necessary because, over time, the organizational acquisition of knowledge has been approached in the specialized literature from various perspectives: as part of human resources management, from the perspective of knowledge's significance in the organization, through the horizon of knowledge acquisition with the aid of expert systems, but I have not found in the specialized literature an approach to the influence of knowledge acquisition on organizational performance.

We also believe that future research can be conducted starting from a different approach to the structure of the elements of intellectual capital because there is no agreement on the definition of the components of intellectual capital, implicitly, and the structure of the elements of intellectual capital is not clearly identified.

## **2. Literature review**

The most recent theories from specialized literature regard knowledge as an organization's most valuable resource, and the method by which an organization acquires knowledge is now thought to determine whether it succeeds or fails.

In the literature, the topic of organizational knowledge acquisition has been discussed from various angles, including the managers' relationships with the political and business environments, company collaborations, knowledge acquisition from outside partners within joint-venture types of organizations, the interpretable and ambiguous legislative environment, and knowledge acquisition from internal partners. Pooncharoen (2016) states that the acquisition of knowledge cannot take place independently of other aspects of cognition (perception, understanding) and influences the adoption of decisions at the level of organizations. The activity of mapping the process of knowledge acquisition has an impact on the business process and contributes to our understanding of the knowledge acquisition process. In the same vein, Lundmark & Klofsten (2014) point out an issue with the connection between knowledge development and the advantages project managers anticipate from greater creativity. According to Bosancic (2016), there are two parts to the problem of terminology understanding: the philosophical aspect, which is an Aristotelian technique of learning, and the second part, which is a knowledge-based system process. The process that guides the knowledge generating process is known as knowledge acquisition. The effectiveness of the knowledge acquisition process is directly correlated with knowledge acquisition, according to Rusly et al. (2012). According to Morady (2013), there is a clear correlation between the organization's process for acquiring information and the clarity of its objectives. Luca (2010) asserts that there is a direct link between an organization's knowledge acquisition and management practices and its marketing performance. Learning is a complex process that includes all knowledge types and ways of acquisition, claim Hoe and McShane (2010). Nemani (2010) observed that there are several ways to acquire knowledge and that any company must create a framework for doing so. This framework should be viewed as a process that may be divided into smaller, more manageable stages.

Knowledge management and intellectual capital have their roots in contemporary management schools of thought, being vital resources for competitive advantage and organizational performance. In organizations, knowledge management typically describes what firms know in their area of interest, as well as how intellectual capital stocks are managed to produce value for the firm. Therefore, intellectual capital represents the resource of knowledge management (Azmaawani and Siew, 2013). All the definitions in the specialized literature converge towards the idea that, in essence, knowledge management is based on the intellectual capital of the organization, on which all the functions of management manifest themselves, namely the functions of planning, management, coordination and control, in the conditions in which the raw material of the organization it represents its intellectual capital, with the mention that in this situation the relationship does not manifest itself in a single sense, but is a biunivocal relationship. Knowledge management and intellectual capital are considered to influence each other, and the relationships between the two constructs are of vital importance for organizational efficiency. Intellectual capital management and knowledge management could be combined to create additional value due to similarities and complementarities, and this is accomplished by matching knowledge management processes to the various components of intellectual capital. This connection exists because, when properly utilized and exploited, intellectual capital becomes the key component of competitiveness, success, and viability. However, knowledge management contributes significantly to the creation and utilization of intellectual capital (Aghamirian et al., 2015). Knowledge management focuses on the facilitation and management of knowledge-related activities and tends to create an environment that allows the growth of intellectual capital. Organizations need to understand how to set priorities and integrate objectives in managing intellectual capital with detailed management methods (Carolina et al., 2016). Knowledge management processes are meta-processes that cannot be uniformly observed as physical processes, and differ according to how they were created, their nature, how they are recorded, transmitted and how they are used, but knowledge management is not the same in two organizations. In the same socio-cultural conditions, due to the human factor that perceives differently and philosophizes differently, and which is at the center of knowledge management application (Al-Qudah and Asmahani, 2016). Intellectual capital has been defined over time in different ways, each of these definitions approaching the concept from a different perspective.

A conclusion of the definitions found in the specialized literature is that, within the organization, intellectual capital is an intangible asset, but which is the basis of the production of assets with a higher value than physical capital, although the latter is more visible in promoting company performance. Given that at the level of specialized literature we cannot discuss a consensus regarding the definition of knowledge management, we cannot consequently discuss a consensus regarding the definition of the knowledge acquisition process, nor a consensus regarding the measurement of knowledge management and implicitly the process of acquiring knowledge.

### **3. Research methodology**

The chosen sampling method was random sampling combined with sampling with a certain purpose regarding the respondent subjects from SME organizations in the NE Romania development area. The data collection was carried out in the last two months of 2022 and the first quarter of 2023, and the survey methods used were the electronic survey using the Google-Forms application, but also the survey using the paper format. The targeted organizations operate in various fields of activity: industrial, services, agricultural and commercial. Among the returned questionnaires, a number of 182 were validated, the rest (approx. 10% registering a series of errors, respectively partial completions most of the time).

#### *Structure of the sample of respondents:*

When looking at the respondents' ages, we can see that 95% of them are under 40 years old, while 5% are between 44 and 57. This is understandable and accurate given that the study focused on SMEs and that, at the level of the N-E region, out of a total of 72% SMEs whose shareholders were under 38 years old, 11% of SMEs are founded by people up to 28 years old, according to reports from the National Trade Registry Office<sup>1</sup>. In terms of education, 62% of individuals polled hold university degrees, while 36% are enrolled in master's or doctorate programs.

From the perspective of the respondents' field of activity, 71% of them work in the service field, an answer that coincides with the statistical reports available at national level<sup>2</sup>, 13% of the respondents work in the industrial field, 6% work in the commercial field, and 9% work in the field agricultural. From the perspective of the hierarchical level occupied within the organization, 36% of the respondents occupy top-manager positions, 27% occupy middle-management positions, and 36% are executive staff. This aspect is explained by the fact that most of the time, top-managers and middle-managers also carry out execution activities, but they are recommended with the official position, respectively that of managers. Among the 63% respondents with official positions of managers at the level of SMEs, 51% have less than 5 years in managerial activities, and 49% have less than 10 years of experience in management positions.

For the data analysis we used the SPSS software (Statistical Package for the Social Sciences) which offered us a wide range of statistical and analytical tools, helping us to interpret and communicate the results of the analyses.

#### 4. Findings

*1. Evaluation of the set of factors that define the organization's human capital in terms of their internal coherence. The organization's human capital is indicated by a Cronbach's Alpha factor value of 0.905. (Table no 1).*

*Table no 1. Internal consistency testing related to the set of variables characterizing the organization's human capital*

Items	Average	Mean standard deviation	Cronbac
The influence of the organization's management on the process of organizational acquisition of knowledge	4,24	,603	0,732
The influence of the skills of the organization's employees on the organizational knowledge acquisition process	4,31	,603	0,773
The influence of teamwork on the process of organizational acquisition of knowledge	4,27	,701	0,854
The influence of the responsibilities and freedom of action of the organization's employees on the organizational knowledge acquisition process	3,20	,746	0,792

*Source:* processing data obtained through SPSS program

When we examine the four variables that make up the organization's human capital, we find that the Cronbach Alpha index has high values ( $>0.650$ ), which denotes that the scales have a high degree of internal consistency. This guarantees that the results that are returned are accurate.

*2. Analysis of the internal consistency of the set of variables that characterize the structural capital of the organization. The structural capital of the organization is characterized by a Cronbach's Alpha factor value of 0.740 (Table no 2).*

*Table no 2. Internal consistency testing related to the set of variables characterizing the structural capital of the organization*

Items	Average	Mean standard deviation	Cronbac
Business ideologies of the organization's impact on the method used to acquire organizational knowledge	3,17	,929	0,775
The impact of organizational infrastructure on the process for acquiring knowledge within the organization	4,247	,5456	0,750
Organizational culture and motivators' effects on the process of acquiring organizational knowledge	4,20	,478	0,708
Standardization and formalization's effects on how an organization acquires knowledge	3,68	,646	0,771

*Source:* processing data obtained through SPSS program

Analyzing the four variables that define the organization's human capital, we observe high values of the Cronbach Alpha index ( $>0.650$ ), which indicates an internal consistency of the scales.

3. *Analysis of the internal consistency of the set of variables that characterize the relational capital of the organization. The relational capital of the organization is characterized by a Cronbach's Alpha factor value of 0.931 (Table no 3).*

*Table no 3. Testing the internal consistency related to the set of variables that characterizes the relational capital of the organization*

Items	Average	Mean standard deviation	Cronbac
The influence of the organization's brand on the organizational knowledge acquisition process	3,54	,895	0,811
The influence of network partners on the process of organizational acquisition of knowledge	3,65	,772	0,771
The influence of markets on the process of organizational acquisition of knowledge	4,02	,650	0,854

*Source:* processing data obtained through SPSS program

Analyzing the three variables that define the relational capital of the organization, we observe high values of the Cronbach Alpha index ( $>0.70$ ), which indicates an internal consistency of the scales.

4. *Evaluation of the internal consistency of the group of factors that define the stages of the knowledge acquisition process at the organizational level. The Alpha Cronbach index for the organizational knowledge acquisition process is 0.880 (Table 4).*

*Table 4. Testing for internal consistency based on the variables that define the stages of the knowledge acquisition process at the organizational level*

Items	Average	Mean standard deviation	Cronbac
There are influences that manifest themselves on the knowledge acquisition stage through the purchase of know-how	4,500	,5781	0,820
There are influences that manifest themselves on the stage of knowledge assimilation through the implementation of acquired knowledge in procedures	4,05	,561	0,702
There are influences that manifest themselves on the stage of valorizing the acquired knowledge	4,21	,479	0,764

*Source:* processing data obtained through SPSS program

The dimensions analyzed in the study show high values of the Alpha Cronbach index, and therefore the test results can be considered consistent and consistent.

5. *Analysis of the nature and intensity of the relationship between the management policy dimension that characterizes human capital as a component element of intellectual capital and the stages of the knowledge acquisition process at the level of the organization - Table no 5.*



Table 5. Hierarchy of the stages of the organizational knowledge acquisition process according to the intensity of the link with the management policies of the organization

Position	The stage of the knowledge acquisition process	Spearman coefficient value	The intensity of the influence
1.	Strategic search	0,898**	Very strong
2.	Buying know-how	0,808**	
3.	Employment of staff (experts)	0,786**	Strong
4.	Valorization of acquired knowledge	0,683**	

Source: processing data obtained through SPSS program

From the analysis of the Spearman coefficient, we find a direct and very strong influence of the organization's management policies on the strategic search stage, the value of this coefficient being 0.899\*\*, included in the range [0.8–1.0]. This means that within the organization, in the proportion of 64%, the strategic search is all the more focused and intense as the management policies of the organization are more oriented towards the process of acquiring knowledge at the level of the organization. The purchase of know-how is another stage of the organizational knowledge acquisition process on which the organization's management policies have a direct and very strong influence, with a Spearman coefficient  $r=0.809^{**}$ . This means that the acquisition of knowledge through the purchase of know-how depends directly on the management policies of the company in terms of knowledge management, in proportion of 61.5%. In the same note and in almost the same proportion ( $R^2=62\%$ ), in the acquisition of knowledge by hiring experts at the organization level, it is in a direct and strong connection with the knowledge management policy at the organization level. The valorization of acquired knowledge, the most important stage of the knowledge acquisition process at the level of the organization is only strongly influenced by the management policies of the organization in a proportion of 55%, with a Spearman coefficient of 0.684.

## 5. Conclusions

In recent years, it has been noted that society has moved from a resource-based economy to a knowledge-based economy; in this context, the leaders of the organizations must deal daily with large amounts of information, select and manage them in such a way as to quickly identify and assimilate the necessary knowledge, and adopt the most correct decisions in order to achieve the organization's objectives. Economic realities force organizations to deal with a huge amount of information that is available in the globalization era in many different organizations and countries, but the competitive advantage of an organization today is given by the creativity with which it uses this information. Another problem is the enormous amount of information that businesses today must manage. Understanding and assessing the efficacy of the management process is required in order to foresee the organization's performance because knowledge management is the cornerstone of an organization's success in a knowledge-based economy. It is crucial to evaluate the efficiency of the knowledge management systems in this situation. Since it is the major method of knowledge management and, thus, the main source of the knowledge needed to achieve the objectives of the company, a knowledge acquisition process metric must be defined.

Thus, with a confidence level of 99%, we can say that in small and medium-sized organizations in the north-eastern part of Romania, the dimensions of human capital as a component of intellectual capital directly and strongly influence all stages of the knowledge acquisition process at the level the organization, but the strongest influence is manifested on the stages of strategic search, acquisition of knowledge through the acquisition of know-how, acquisition of knowledge through the prism of bringing into the organization those experts who possess the knowledge that the organization needs and which it does not has, and a strong influence on the stage of valorization of acquired knowledge. In these conditions we can conclude that within an organization, the intensity of the organization's management policies have a strong influence on the knowledge acquisition process at the organization level.

The current state of the commercial world is a dyadic one. On the one hand, the economic and financial problems have made the corporate environment more perplexing. These frequent and quick changes also dictate how far companies advance. They must adjust to the adjustments required to

thrive in marketplaces that are becoming more and more dynamic and to deal with customers who expect new, sophisticated, individualized, and inventive products. At the same time, businesses must adapt their operations in accordance with the suppliers who, by consistently supplying novel items, drive advancement. As a result, an organization is under pressure from suppliers as well as from the perspective of its customers.

Knowledge management is an important component of organizational resource management in modern economic organizations. It focuses on the development, implementation and management of practices that promote the collection, storage, transfer and use of organizational knowledge for the benefit of increasing the effectiveness of the organization and its performance.

In the perspective of modern economic organizations, knowledge management plays an essential role in ensuring the long-term success of organizations. By developing and implementing knowledge management practices, modern economic organizations can:

- 1) To improve the decision-making process - by providing relevant, accurate and timely information, knowledge management can support the decision-making process of the modern economic organization, thus ensuring that decisions are made based on data and sound arguments.
- 2) To optimize the efficiency of the organization - by promoting an environment in which knowledge is shared and used effectively, knowledge management can increase the efficiency and productivity of the modern economic organization.
- 3) To improve collaboration and communication - by facilitating the exchange of knowledge between departments and employees, knowledge management can improve collaboration and communication in the modern economic organization, which can lead to improved interpersonal relationships and increased performance.
- 4) To promote innovation - by sharing and using knowledge within the modern economic organization, knowledge management can promote innovation and creativity in terms of products and services offered.

In conclusion, knowledge management is essential in the perspective of modern economic organizations, helping organizations to optimize their efficiency, improve decision-making, improve collaboration and communication, and promote innovation. By adopting knowledge management practices, modern business organizations can improve their performance and remain competitive in a constantly changing business environment.

*This study had implications in multiple areas of activity:*

- 1) From a managerial perspective, the research shows that the way the manager emphasizes one dimension or another of the organization's intellectual capital has strong influences on the process of organizational acquisition of knowledge, and implicitly on the costs with which the organization achieves its objectives. Also, managers can identify the intensity of influence of each of the elements of intellectual capital (human capital, structural capital, relational capital) on each of the stages of the organizational knowledge acquisition process. Managers can establish the company's policies and adjust the organization's structure and costs according to its objectives, so that they can face a very large volume of information, adopt the most correct decisions in an appropriate time.
- 2) From the academic perspective, starting from the fact that knowledge management as part of the management process contributes to the formation of the company's intellectual capital which in turn constitutes the foundation of the innovation process, it can be said that there is a need to study knowledge management as a discipline in university curricula.
- 3) The developers of economic policies, depending on the markets they want to penetrate, will be able to support one or another element of the intellectual capital structure at a given moment (eg: human capital when they want to strengthen organizations on the internal market or relational capital when they want to enter new markets).

A healthy organization today is the organization that lives with the changes and trends of the opposite direction, being obliged to improve its working methods, the way of managing resources, internal and external communication channels. In other words, a healthy organization is that organization that identifies creative solutions to internal and external pressures, so it is an intelligent organization.

The research addresses a vast field, the field of knowledge management, a field which invites in-depth analyzes and investigations. In order to achieve the objectives of the research, it was pursued strictly to its thread, which inevitably led to some limitations of the research process, such as:

- ✓ the paper's original models describe the situation of the knowledge acquisition process at the organizational level in Romania's north-eastern development region as well as the theoretical framework created to enhance the knowledge acquisition process at the level.
- ✓ organizations; in this context, it is recommended to specialize at the level of each organization and adapt to their particularities
- ✓ also, a certain circumspection in the generalized approach to the research results is required
- ✓ as a result of the size of the sample used in the research process, as well as as a result of the limits imposed by the area and geographical location of the organizations
- ✓ non-acceptance or impassiveness of some potential respondents to actively participate in the research undertaken
- ✓ the tendency of some of the participants in the study to alter truths related to aspects of the research undertaken

*Future research directions:*

Without ignoring the limits of the research, it is easy to see the need to continue and expand it, starting from the fact that the current level of this research represents a solid starting point. Among the most important future research directions are:

- the generalization of research methodologies in other types of organizations (large enterprises, public institutions, etc.)
- highlighting the effect of the knowledge acquisition process on the quality of decisions adopted by managers at the level of organizations
- the research of knowledge losses during the stages of the knowledge acquisition process at the level of the organization, losses resulting from errors in understanding the organization's objectives, identifying the knowledge necessary for the organization, decrypting the acquired knowledge, the causes of these errors and the consequences on the organization's performance.

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# Organizational Culture and Company Performance

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## Abstract

*This study aims to understand how an organization's values, norms and cultural habits influence operational efficiency, employee satisfaction and market competitiveness.*

*Among the main objectives of this study, there is the clarification of the notions of "organizational culture" and "company performance", as well as the identification of their different dimensions. Investigating how different aspects of culture contribute to the financial and operational success of the company is also another objective of this paper.*

*The paper also presents an analysis of Dufry UK's organizational culture, exemplifying how Dufry UK chooses to train its managers, based on the premise that the company's success lies in the manager's ability to organize and lead.*

*In conclusion, the paper will provide a broad perspective on how organizational culture can be an engine of performance within companies, highlighting the importance of cultural management as an essential part of business strategy.*

**Key words:** organization, efficiency, satisfaction, performance, strategy

**J.E.L. classification:** L2

## 1. Introduction

Viewed from a historical perspective, management is found to be an integrative science, which has developed mainly due to the contribution of other fields and only to a small extent through its own evolution. Thus, industrial management has developed through the decisive contribution of engineers, bureaucratic administrative management through the contribution of sociologists, human resources management through that of psychologists, decision theory through that of mathematicians and economists, knowledge management through the contribution of computer scientists, and organization management through the contribution of specialists in systems theory (Horvath et al, 2007).

At the same time, organizational culture is a group of values, norms, belief systems and behaviours that work together to the unique environment of an organization. It has an extremely important role in shaping strategies, objectives, and attitudes specific to employee behaviours, having a significant impact on the overall performance of the company.

Starting from the above, this study aims to provide an insight into how organizational culture influences company performance.

In today's dynamic global economic landscape, organizational culture has become central to determining the long-term success and sustainability of companies. Another objective of this study is to explore and highlight the complex depths of how organizational culture contributes and influences a company's performance, focusing on the subtle interconnections that shape this relationship.

In a society where adaptability and innovation are vital to survival and prosperity, understanding the cultural nuances that govern organizational behaviour and strategic decisions becomes essential.

The study will investigate how leaders of organizations can shape and adjust company culture to improve overall performance, trying to demonstrate that organizational culture is not simply a peripheral aspect of corporate management, but a central pillar that can determine the level of excellence and performance of a company.

Exploring the link between organizational culture and company performance will provide valuable insight into how organizations can successfully navigate contemporary business challenges.

## **2. Literature review: Organizational culture from concept to performance**

In the market economy, economic agents in the business sector – respectively enterprises or firms, know typical forms of organization, each of the forms corresponding to a certain economic and legal regime of operation. The choice for a form of organization rests with economic agents as entrepreneurs or owners. Of course, the subject will choose that form of organization which, in relation to the existing legal framework, appears to them as the most favourable for promoting interests in developing the respective business. (Ion et al, 2010, P273).

At theoretic level, organizational culture consists of a coherent set of values, meanings, behaviours, and organizational practices, representing the main criterion in interpreting organizational reality. Schein understood "organizational culture as a cognitive process of adaptation to the specific diversity of organizational contexts and integration within a reality (Hellriegel, Slocum, Woodman, 1992, p 503).

first typology in the organizational system is one of understanding organizational culture, of which each of us is part on an axis from "strong" cultures to "weak" cultures. Of course, on this axis there is a scene of variations, which we will talk about. Strong cultures are characterized by intense beliefs, values, and assumptions with a tendency to spread. They form substantial agreement and support from the majority of the organization's members, and therefore a strong culture ensures broad consensus on the question of "what is the organization about" and the motivation for its existence. Strong cultures demonstrate many advantages, with good coordination, financial success and supporting the organization's goals being the most important.

A controversial issue in the literature concerns the relationship between organizational culture and organizational climate. Some authors overlap them in whole or in part, while others consider them distinct (Ovidiu et al, 2001, p 290).

Analysing the subject from the point of view of the direct link to employee performance, a strong organizational culture contributes to increasing the level of employee engagement. Employees who feel valued and connected to company values are more motivated to contribute to its success. Moreover, a strong organizational culture creates a sense of community and belonging among employees. It is also well known that when people feel they are part of a group that shares common values and goals, they are more motivated to contribute to collective success.

Organizations with a strong culture clearly communicate their values and mission. This helps employees understand how their work contributes to the company's broader goals, thereby increasing their sense of purpose and job satisfaction.

It can also be added that companies with strong cultures support the professional development of their employees through training, mentoring and opportunities for advancement. This not only improves individual skills, but also demonstrates a commitment to staff growth, which can increase their loyalty. Promoting transparency and open communication also facilitates the exchange of ideas and constructive feedback between all levels of the organization. This can lead to improvements in work processes, innovation and efficient problem solving.

Feedback is the best way to participate in change both proactively and reactively. Feedback provides the tool to influence others.

Therefore, building and maintaining a strong organizational culture requires continuous and conscious efforts from company leaders. However, its benefits on employee engagement levels are substantial, leading not only to a more motivated and productive workforce, but also to improved long-term reputation.

The external perception of a company's culture can significantly damage its reputation, as a solid reputation can attract both new customers and top talent.

The link between organizational culture and company performance is clearly demonstrated through numerous studies and practical cases in the industry. Creating and maintaining a positive organizational culture requires constant effort and involvement from senior management, but the long-term benefits for company performance are undeniable. For business leaders, the key is to identify the core values of their organization and integrate them into all aspects of their daily operations.

A performance-oriented organizational culture will consider the fact that attention should be directed to employees and leaders, and leadership style has direct effects on the results of any company.

Research on power and influence shows that there are 28 skills associated with influence effectiveness. These skills fall into 4 categories: communication and reasoning, assertive, interpersonal, and interactive.

In terms of financial predictability, a culture that values stability can contribute to sound financial planning and prudent business decisions. This can help the company navigate through difficult economic times with minimized risks. Cultures that emphasize stability tend to have more expensive employee retention rates, leading to the accumulation of internal expertise and reduced costs associated with recruiting and training new employees.

Despite the obvious benefits of every aspect of the organizational culture mentioned, it is important to note that there is no one-size-fits-all solution.

The optimal mix of these elements varies depending on the industry, company size, business strategy and even the stage of development of the organization. For example, start-ups may benefit more from a flexible innovation-oriented culture, while established corporations may prioritize stability and efficiency.

To assess the impact of organizational culture on financial and operational success, companies can use various methods, including internal surveys to measure employee satisfaction, benchmarking to evaluate performance against competition, and case studies to identify industry best practices.

In conclusion, building a strong organizational culture that aligns with the company's strategic goals is essential for long-term success. By encouraging collaboration, innovation, and establishing a stable and secure environment for employees, organizations can create a sustainable competitive advantage that contributes to operational performance.

### **3. Research methodology**

This work was carried out by using qualitative research methods to provide a complete picture of how organizational culture influences performance.

An analysis of Dufry UK's internal documents was also conducted to identify the type of organisational culture adopted by the company.

The paper was prepared through a detailed analysis of specialized studies in the field, and practical examples were provided after an analysis of Dufry UK's organizational culture, analysis that was possible by conducting an interview and studying the company's documentation.

Regarding the interview, the respondent was the Duty-Free manager at one of the UK airports.

According to official Dufry's website, Dufry Company is the UK's leading travel retailer, offering a wide range of premium brands in Duty Free stores in London Heathrow, London Gatwick, London Stansted, Manchester, Birmingham, Glasgow, Edinburgh, Bristol, Exeter, Bournemouth, Southampton, Liverpool, East Midlands, Newcastle, Robin Hood, Doncaster, Sheffield, Leeds Bradford, Aberdeen, Belfast City and Eurotunnel. Dufry's main global goal is to develop its people to be the best they can be, to support Dufry's position as a leading retailer.

The company culture is based on making customers feel special through a fun and world-class shopping environment. As brand values, the study can identify Solid (consistently performing and excelling in everything it does), Global (unmatched in scope and international reach), Delivery (executing its mission to achieve solid financial performance through operational excellence) and Focus (placing the customer at the centre of everything it does).

## 4. Findings

### 4.1. The Role of Leaders in Forming Organizational Culture

After analysing the data, we conclude that the role of leaders in shaping organizational culture is crucial and multifaceted. Leaders not only guide behaviours, values, and norms in an organization, but they are also role models for employees, directly influencing organizational culture through their own actions, decisions, and communication.

Moreover, leaders are essential in establishing and communicating the vision and values of the organization. They are fundamental to organizational culture because they provide a common framework that guides employee behaviour and decisions. By exemplifying these values in their daily behaviour, leaders reinforce these principles in the organization's culture.

The behaviour of leaders serves as a model for employees, given that if leaders demonstrate integrity, respect, and openness, these qualities are likely to be reflected in employee behaviour. On the other hand, if leaders display negative behaviours, they can also be adopted by employees, leading to a toxic organizational culture.

Another important aspect of leadership is that leaders play a key role in promoting open and transparent communication within the organization. This includes not only conveying the necessary information, but also listening to employee feedback. At this level, it can be concluded that effective communication helps create a work environment based on trust and mutual respect.

Investing in employees' professional development is another way leaders can influence organizational culture. By providing opportunities for learning and growth, leaders demonstrate commitment to valuing and supporting their team members.

Leaders have a profound impact on organizational culture through personal example, the policies they implement, the way they communicate and relate to the team. Organizational culture is not formed overnight but is the result of continuous efforts of leaders to shape an environment according to the vision and values of the company. Therefore, to develop a positive and productive organizational culture, it is essential that leaders are aware of their vital role and act intentionally to shape the desired culture.

Next, the study will present the training model of Dufry managers. Dufry

Dufry proposes a model of manager training based on a good understanding of needs, celebrating success, and encouraging staff to learn, develop and grow.

Regarding the Dufry "Lead Our People" program, it includes a series of questions that managers must answer and requires identifying solutions for a good organization, as follows:

Lead Our People

- Ensure your people understand what they need to deliver:
  - Do they understand the task?
  - Do they know when they need to complete it by?
  - Do they have the skills to do it?
  - What does good look like?
- Praise good performance, manage underperformance.
  - How do I monitor performance?
  - Do I tackle difficult issues?
  - Do I say well done straight away?
  - Do I coach people to get better?
  - Do I flex my style according to the individual?
- Encourage your people to learn and grow.
  - How do I pass on my skills and Knowledge?
  - What do I do to help my people to learn new things?
  - How do I encourage my teams to learn and grow?

Think Commercially

- Understand how we make money.
  - Do you understand how we make money?
  - What information could you use?



- How will you explain this to your teams so that they understand and how will you check that understanding?
- Focus on delivering objectives while staying within budget.
  - Do you know what your budget is?
  - Do you have sign off authority?
  - How to you explain/communicate targets/budget information to your teams?
  - Watch out for waste and stop it where you can.
  - Do you know what ECP stands for?
  - What kinds of waste are generated in your area?
  - How would you challenge waste?

#### Customer Obsessed

- Lead by example in how to interact with guests
  - What does lead by example mean?
  - Think about how you interact with guests – are you setting an example?
  - Look for great examples from your colleagues/manager.
  - Do you deliver feedback to a member of your team if you saw a great/not so great example?
- Seek guest feedback on ways to improve service.
  - How do you seek/invite feedback from customers?
  - Where would it be appropriate to ask for this feedback?
  - What do you do with the feedback you receive?
  - How will you encourage your team members to seek/invite feedback from the guests?
- Help the team to understand the importance of the guest and the part they (team) play.
  - Why is the guest important?
  - What will you do to help your team to understand?

At the same time, following the interview, we identified that the Dufry learning, and leadership model is structured as follows: 70:20:10

So, 70% by Experience, through day-to day tasks, challenges, and practice

- 20% by exposure, through social learning, in person or online
- 10% by Education, through formal learning including courses.

70:20:10 describes an ideal balance between different ways of learning and developing in the workplace.

It’s not a formula for certain success to be followed precisely, but a pointer to the kind of weight to give to each area.

The 70:20:10 model says that effective learning can take place anytime, anywhere and under anyone’s guidance, and that we need a mix of methods for people to learn optimal experience, exposure, and education.

Dufry also operates under a Growth Competency Framework designed to support performance globally.

This framework was created because of collaborative work across Divisions, aligning the leadership behaviours and competency frameworks across the Group. It’s called GROWTH framework – and the aim to develop talent to support Dufry’s growth strategy. This framework is based on the following competencies, which are explained as follows:

G- global mind set: Support Dufry’s strategy and global presence through enhancing standard ways of working, seeking the overall best practices and promoting efficiency and diversity across the business.

R- Results focus: Moves tasks and assignments towards successful closure by setting ambitious goals. Goes the extra mile to meet deadlines to provide high-quality outcomes in a timely manner.

O- Ownership & Accountability: Assumes responsibility for decisions, actions, and outcomes. Shows dedication to get things done. Has the ability to foresee challenges, own them, and find the right solutions. Acts with integrity and builds trust.

W-Winning Customers: Builds and maintains effective working relationships with both internal and external customers. Maximizes personal contribution by defining and delivering outstanding service, the highest value and best experience for customers.

T- Teamwork: Works collaboratively with others to achieve company goals. Has the ability to build and maintain productive relationships with others. Communicates constructively and clearly. Keeps team members informed and treats others in a respectful and supportive way.

H- Having Impact & Being Innovative: Contributes to the company's growth by introducing best practices and innovation. Effectively communicates, influences, and drives continuous development.

The above definitions are an overview and are further detailed as behaviours relevant to different communities in the organisation:

- Executive Leaders
- Managers
- Employees
- Shop Supervisors
- Sales Associate Communities

#### **4.2. Challenges in Maintaining a Coherent Organizational Culture**

Maintaining a coherent organizational culture is a constant challenge for leaders and managers of organizations, regardless of their size or field. Organizational culture, being the sum of values, norms, language, customs, and practices shared within an organization, plays a crucial role in the long-term success and sustainability of any entity.

Modern organizations are often diverse in cultural, ethnic, generational and value orientations. Effectively integrating these differences into a unified organizational culture can be difficult, but essential to creating an inclusive and productive work environment.

Maintaining open and effective communication is essential for a strong organizational culture. Challenges arise when messages are not conveyed clearly or when they do not reach all team members, leading to misunderstandings or lack of alignment with the values and goals of the organization.

To address these challenges, it is important for leaders to be aware of the impact of their actions on organizational culture and prioritize transparent communication, inclusion, adaptability, and continuous employee development. It is also important to invest in training leaders who are aligned with the values of the organization and able to pass them on to their team.

Maintaining a coherent organizational culture requires constant efforts and long-term commitment from all members of the organization. By carefully navigating these challenges and adopting proactive and adaptive strategies, organizations can build a strong culture that supports the achievement of their strategic goals and improved employee satisfaction.

#### **5. Conclusions**

The paper clearly highlighted that there is a deep connection between organizational culture and company performance. The strongly positive culture, which promotes values such as integrity, innovation, responsibility, respect, and collaboration, helps increase employee satisfaction, improve operational efficiency, and strengthen customer loyalty.

It was emphasized that company leaders play a crucial role in shaping and transmitting organizational culture. Through personal example, open communication and management practices congruent with the values promoted, leaders significantly influence how culture manifests and perpetuates itself within the organization.

An organizational culture that encourages innovation and adaptability is essential for the long-term survival and prosperity of companies in a dynamic and competitive business environment. Cultures that support experimentation, calculated risk-taking, and learning from failure facilitate continuous innovation and adaptation to market changes.

Also, cultures that value transparency, recognition of merit and professional development contribute to increased job satisfaction, reduced staff turnover and improved overall company performance.

Finally, the focus of the study will be on providing recommendations on how companies can effectively evaluate their current culture and implement strategies aimed at improving the cultural aspects that are most closely related to financial and operational performance.

Strategies to improve organizational culture to drive performance are essential for the long-term success of any organization. Organizational culture directly influences employee motivation, satisfaction, and ultimately performance.

Proposed effective strategies that can help cultivate a performance-friendly organizational culture:

- Clear and concise explanation of the organization's vision and core values - this creates a sense of common purpose and directs behaviours towards the goals of the organization.
- Encouraging open communication between different hierarchical levels, as well as between departments - this can increase trust and reduce misunderstandings.
- Implementing a reward and recognition system that reflects individual and team contributions to the success of the organization – this can increase employee motivation and loyalty.
- Creating continuous training and professional development facilities - this not only improves skills, but also shows that the organization is concerned about increasing its staff.
- Establish a system through which employees can receive regular constructive feedback on their performance, as well as a channel through which they can provide feedback to management.

All employees should feel valued and respected regardless of their background. A diverse work environment encourages innovation and creative approaches to problems.

Giving employees more control over how they perform their tasks, as autonomy can increase job satisfaction and drive innovation.

Implementing these strategies requires time, patience, and a concerted effort from the management team. However, the positive effects on an organization's performance can be substantial, leading to an improvement in morale, an increase in productivity, and ultimately to the long-term success of the organization.

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## Characteristics of Entrepreneurial Businesses

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### Abstract

*This study examines the dynamics of entrepreneurial businesses, focusing on innovation and risk management as catalysts for economic development. Through a survey, we analyzed entrepreneurs' perceptions on creativity, opportunity identification, risk tolerance, management skills, and adaptability. Results indicate a strong recognition of creativity and innovation, with a majority considering their businesses highly innovative. Most respondents are confident in recognizing and seizing opportunities, though some acknowledge the need for improvement. Attitudes towards risk vary, with a segment willing to embrace significant risks for potential rewards. Generally, management skills are rated positively, but some see room for growth. The study highlights entrepreneurs' capability to navigate complex business landscapes, emphasizing the importance of entrepreneurial traits in promoting economic vitality.*

**Key words:** creativity, innovation, risk-taking, management skills, entrepreneurship

**J.E.L. classification:** L26, M13, O31, L53, J24

### 1. Introducere

Defining entrepreneurial business involves more than simply identifying a market opportunity and starting a new business. At its core, entrepreneurship is the art of turning an innovative idea into a successful business by exploiting available resources in a creative and efficient way. These businesses are often associated with innovation, calculated risk-taking, and a desire to bring products or services to market that meet unmet needs or improve existing offerings. The importance of entrepreneurial characteristics have their ability to stimulate the economy, create work and bring resident innovations that can have jobs and quality of life. These characteristics include: innovation, flexibility, risk-taking, customer orientation, leadership and vision. Innovation is often the cornerstone of entrepreneurial businesses, enabling them to distinguish themselves from the competition and bring revolutionary products or services to market. The evolution of entrepreneurship in recent years provides strong arguments for the role of entrepreneurial initiatives in stimulating economic growth and development, and innovation has proven to be an essential tool for entrepreneurs (Dima, 2021).

Entrepreneurial businesses have the ability to quickly adapt to market changes, which is crucial for long-term survival and prosperity in an ever-evolving business environment. Entrepreneurs are known for their willingness to take calculated risks, investing resources in new ideas with no guarantee of immediate success. Successful entrepreneurial businesses place particular emphasis on meeting the needs of the needs, customizing their offerings to suit the specific requirements of the target market. Entrepreneurship requires a clear vision and the ability to inspire and motivate a team, leading the business to achieve its goals. Entrepreneurship research typically focuses on firm-level outcomes such as growth and performance (Wiklund, 2019). Through these characteristics, entrepreneurial businesses not only support innovation and economic development, but also contribute to increasing competitiveness on the global market. They play a key role in adapting to new technological, social and economic trends, proving that entrepreneurship is a vital engine for societal progress.

## **2. Literature review**

### **2.1 Creativity**

Creativity is essential in the entrepreneurial business world, serving as the fuel for innovation and differentiation in a saturated and competitive business environment. It is the ability to think outside the box, to combine ideas and concepts in new and unexpected ways to solve problems or exploit opportunities. Within the entrepreneurial process in the creative industries lies entrepreneurial creativity and opportunity recognition, which influence the ability of entrepreneurs to create new ventures or significantly improve the position of an existing business. (Chang, 2020). In the context of management, creativity is not only manifested in the development of innovative products or services, but also in the way of approaching marketing strategies, in organizational structures, in the modeling of purchase experiences and in the optimization of internal processes. Generating creative ideas and turning them into innovations is key to competitive advantage (Acar, 2019).

A creative entrepreneur is always looking for new perspectives, dares to question the status quo and is open to experimenting with unconventional approaches. This open mindedness facilitates the identification of original solutions to complex challenges and enables rapid adaptation to market change or customer feedback. Furthermore, creativity in entrepreneurial business is not an isolated trait or reserved exclusively for founders. It must be encouraged and cultivated at all levels of the organization. Creating a culture that values creative and innovative thinking, that encourages calculated risk, and that sees failure as a learning opportunity is critical to long-term growth and success. By stimulating environmental, social and economic aspects, creativity favors the development of sustainable solutions and technologies. (Awan, 2019).

Brainstorming workshops, hackathons, rapid prototyping and continuous feedback are just a few of the ways entrepreneurial businesses can stimulate and harness creativity. In conclusion, creativity is a central pillar of entrepreneurship, vital to successfully navigating today's economic landscape. By cultivating an environment that encourages creative thinking, entrepreneurs can develop resilient businesses that are able to innovate and thrive in the face of constant change and challenge.

### **2.2 Innovation**

Innovation in the context of entrepreneurial business is not limited to creating new products or technologies, but also includes discovering new ways to approach existing markets, existing processes, and modeling different ways of doing business. The term "innovation" suggests the introduction of new ideas or talks, be it of products, production technologies or various business processes (Gouvea, 2021). It is the essence of entrepreneurship, being the driving force that allows small businesses to compete with and even surpass large corporations and stability. At the heart of entrepreneurial innovation is recognizing an opportunity where others see obstacles. Entrepreneurs beyond existing products and ways of providing services, seeking to bring added value to them. This approach can take the form of developing a new product that meets an unmet need or optimizing a process that reduces costs and improves efficiency. Entrepreneurial innovation requires courage and a willingness to take risks innovative entrepreneurship, defined as the creation of new products, services, production methods or business models, is essential to company, industry and economic growth and a key driver of societal well-being (Bradley, 2021).

Launching an innovative product or implementing a new business strategy always involves a certain degree of uncertainty. However, success achieved through innovation not only validates assumed risks, but can also change the rules of the game in a given field, setting new standards for competitors. A key element of entrepreneurial innovation is continuous market feedback. It allows for quick adjustments and iterations of products or services, ensuring that the offer remains relevant and attractive to purchase. Additionally, an organizational culture that encourages creativity, experimentation, and acceptance of failure as part of the learning process is fundamental to sustaining continuous innovation. Time spent innovating is influenced by the employee's level of harmonious passion for entrepreneurship, moderated by creative self-efficacy (Schenkel, 2019). In conclusion, innovation is the cornerstone of entrepreneurial businesses, being crucial to their long-term growth

and development. By adopting an innovative approach, entrepreneurs can create significant value by opening new markets and reshaping the industry in which they operate.

### **2.3 Opportunity orientation**

Opportunity orientation a defining characteristic of entrepreneurship, emphasizing the ability of entrepreneurs to identify and exploit market opportunities that others may overlook. This ability is not only limited to recognizing unmet needs or unexplored markets; it also involves the ability to foresee future developments, innovate and create value in ways not previously considered. Entrepreneurship theory places significant emphasis on the importance of entrepreneurs, opportunities, and entrepreneurial behaviors (Kusa, 2021).

Entrepreneurs with a strong opportunity orientation are often proactive, not reactive. They don't wait for market trends to be obvious to act, but instead take the risk of investing resources in ideas that may seem premature or even counterintuitive at the time. This proactivity is accompanied by a willingness to continuously learn and adapt, allowing them to navigate through uncertainties and quickly adjust strategies according to market feedback and technological developments. Thus, innovation and proactivity, but not risk-taking, are positively associated with firm performance (Alarifi, 2019).

Opportunity orientation also requires a deep understanding of the market and customers, which is often achieved through meticulous research and direct immersion in the context in which the business operates. These include not only identifying current needs, but also anticipating them and their future desire, which the competition has not yet addressed. An essential element of opportunity orientation is also the ability to build strong networks. Effective entrepreneurs are those who manage to develop valuable relationships with partners, investors and other entrepreneurs. These networks can not only provide critical resources and support, but also open doors to new opportunities, facilitating the exchange of ideas and fostering profitable collaborations. At its core, opportunity orientation is about seeing beyond the present and acting in a way that anticipates and shapes the market's future. It is the foundation on which successful entrepreneurial businesses are built, enabling them to grow, innovate and stay relevant in a constantly changing world.

### **2.4 Risk-taking**

Risk-taking is a fundamental aspect of entrepreneurship, reflecting the willingness to engage in initiatives that may have uncertain outcomes. An entrepreneur is the risk taker of a company (Bhaskar, 2022). Successful entrepreneurs recognize that in order to achieve remarkable achievements, they must step outside their comfort zone and explore unconventional or uncharted territory. This predisposition does not mean negligence or imprudence; rather, it involves the calculated assessment of risks and managing them in a way that maximizes the chances of success. In essence, entrepreneurial risk-taking is based on identifying high-value opportunities that come with a certain degree of uncertainty.

The decision to pursue these opportunities involved a careful evaluation of the potential gain against the potential loss. Effective entrepreneurs are those who can distinguish between risks worth taking and those that are simply dangerous or unproductive. A key aspect of risk-taking is the ability to learn from failure. In training, failures are often seen not as a sign of the end, but as valuable learning opportunities with the understanding that they will choose future ones. This mindset allows entrepreneurs to navigate through failures and use these experiences to build more resilient and adaptable businesses. Taking risks also means being prepared to invest time, resources and energy into an idea you believe in, even if success is not guaranteed. This can involve launching a new innovative product on the market, to exploring new business models or penetrating unexplored markets. As entrepreneurs progress on their journey, they develop strategies to manage risk effectively, such as diversifying their offerings, adapting quickly to change, and building strong support networks that can mitigate the impact of potential setbacks. Managing failure is also a means of strengthening competitiveness and growth, making it possible to stimulate the market in the reallocation of skills and resources to new activities (Eklund, 2020).

In conclusion, risk-taking is central to innovation and growth in entrepreneurship. The ability to assess and manage risk, along with the courage to face uncertainty, sets successful entrepreneurs apart from the rest of the business environment, propelling their initiatives toward meaningful achievement.

## **2.5 Management skills**

Management skills, especially in terms of organizing and coordinating activities within a business, are essential for any entrepreneur who wants to build and maintain a successful enterprise. These skills enable leaders to set the right direction, optimize the use of resources and ensure effective implementation of business strategies. Organization refers to the ability to structure and arrange resources, including time, labor, and capital, in a way that maximizes efficiency and effectiveness. This involves careful planning of activities, stability of clear objectives and strategic allocation of resources to achieve these objectives. Good organization requires a deep understanding of business operations and the ability to anticipate challenges and opportunities, thereby enabling rapid adaptation to change. Coordinating this process ensures that different parts of the business work together harmoniously towards common goals. This involves, both internally and externally, the use of feedback mechanisms to adjust and make effective ongoing communication. Effective coordination requires strong leadership and decision-making skills, facilitating cross-departmental collaboration and optimizing work flow. Leadership is essential in organizations to successfully foster a culture of innovation (Guzmán, 2020).

To develop and maintain effective management skills, entrepreneurs must be open to continuous learning and personal development. This can include training, mentoring and networking, as well as the adoption of new techniques and technologies that can participate in organizing and coordinating. It is also crucial to cultivate an organizational culture that values transparency, accountability and innovation. Encouraging feedback and involving employees in the decision-making process can lead to significant growth in the way activities are organized and coordinated, increasing job satisfaction and productivity. In conclusion, management skills in the field of organization and coordination are vital for the success of any business. They not only improve operational efficiency, but also create a positive work environment that promotes innovation and sustainable growth. Entrepreneurs who develop these skills will be in a better position to navigate business challenges and make the most of market opportunities.

## **2.6 Adapting to unforeseen changes and obstacles**

Adapting to unforeseen changes and obstacles is an essential skill in the business world, where market dynamics and uncertainty are constant. Companies' business models are exposed to the risks of various unpredictability in the business environment, which can make their business logic unexpectedly ineffective (Niemimaa, 2019).

Entrepreneurial resilience is not only about the ability to survive in the face of adversity, but also the ability to thrive by learning and evolving from each difficult experience. This means more than just endurance; it's about flexibility, adaptability and the long-term vision of caring for businesses to navigate through turbulence and transform positively. It is considered a very promising concept for explaining how organizations can survive and thrive in the midst of adversity or turbulence (Hillmann, 2021).

A key element of business resilience is anticipation and planning. While not all changes or obstacles can be good, building a solid business plan that includes diverse scenarios and contingency strategies can provide a stable foundation for tough times. This enables leaders to act quickly and confidently when faced with this unexpected change, minimizing disruption and ensuring operational continuity. Effective adaptation to change also requires an organizational culture that encourages innovation and accepts failure as an essential part of the learning process. Entrepreneurs and their teams must be willing to experiment, test new approaches, and quickly adjust direction when necessary. This agile mindset can turn obstacles into opportunities for growth and the development of sustainable competitive advantages. Transparent and effective communication also plays a vital role in managing change and challenges. Leaders must be open and honest with their teams, partners

and customers, setting realistic expectations and building trust. This ensures that all members of the organization are aligned and motivated to work together to overcome obstacles. Ultimately, business resilience is based on deep research of the market and the external environment. This involves continuously monitoring trends and technological changes, as well as adapting strategies to remain relevant and competitive. As an organizational concept, business model resilience describes the extent to which an organization can maintain or quickly recover its value proposition despite unexpected current or future disruptions (Radic, 2022). By taking a proactive approach to change and developing a resilient mindset, entrepreneurs can ensure that their business not only survives, but actually thrives in the face of adversity.

### 3. Research methodology

The purpose of this research is to analyze the characteristics of entrepreneurial businesses in Romania. The research method used was an online survey, through which a questionnaire on the characteristics of entrepreneurial businesses was distributed to a sample of 100 entrepreneurs in Romania. The survey took place from February 2nd to February 16th, 2024. The questionnaire was designed to gather information on various aspects of the characteristics of entrepreneurial businesses, such as creativity, innovation, opportunity orientation, risk-taking, management skills, and resilience. The questionnaire was created in Google Forms and distributed through Facebook groups for entrepreneurs and WhatsApp groups. Entrepreneurs in Romania were selected by applying a convenience sampling method. Thus, entrepreneurs received a link to the online questionnaire and were invited to complete the questionnaire voluntarily and anonymously.

After the data were collected, the analysis was conducted in Excel.

### 4. Findings

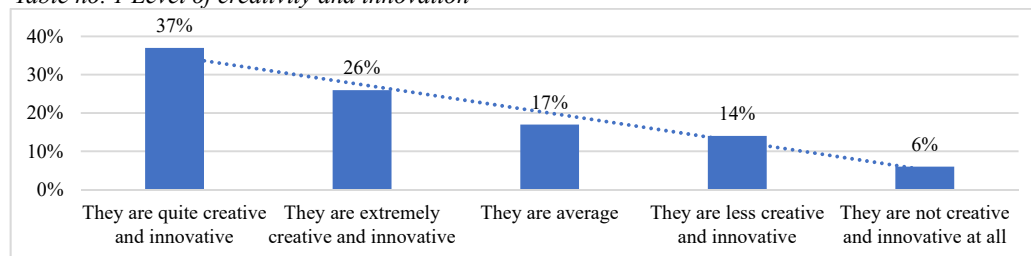
At question number 1, *how do you rate the level of creativity and innovation within your businesses*, The largest proportion of the sample, 37%, believes that the subject is "quite creative and innovative." The next largest group, representing 26%, perceives the subject as "extremely creative and innovative," suggesting a highly favorable view of the subject's creative capabilities. Together, these two categories constitute a majority, indicating a general consensus on the subject's positive creative and innovative qualities (Table 1).

In contrast, a smaller segment of the sample, 17%, regards the subject as "average" in terms of creativity and innovation. This may reflect a perception that the subject's creative outputs or innovations are not particularly distinctive from the norm.

Furthermore, 14% of respondents view the subject as "less creative and innovative," which denotes a critical perspective on the subject's creativity and innovation, suggesting that these individuals see a deficit in these areas. Lastly, a minority of 6% believe the subject to be "not creative and innovative at all," expressing the most negative judgment on the subject's creative and innovative attributes.

The trend line overlaid on the bar chart displays a clear descending pattern, reflecting a decrease in the percentage of respondents as the perceived level of creativity and innovation declines. This trend line may be interpreted as indicative of an overall positive reception of the subject's creative and innovative potential, with a tapering minority holding more critical views.

Table no. 1 Level of creativity and innovation



Source: Authors' contribution



Regarding question number 2 *how would you describe your ability to identify and take advantage of business opportunities*, the highest proportion, 35%, rate themselves as "Excellent," indicating they are always looking for opportunities. This suggests a proactive approach and a high level of confidence in their ability to spot and perhaps take advantage of opportunities (Table 2).

Following this, 24% of respondents rate their ability as "Good," implying they see opportunities regularly but perhaps not as consistently as those who answered "Excellent." Together, these two categories, "Excellent" and "Good," account for a majority, suggesting that most participants view themselves as competent in recognizing opportunities.

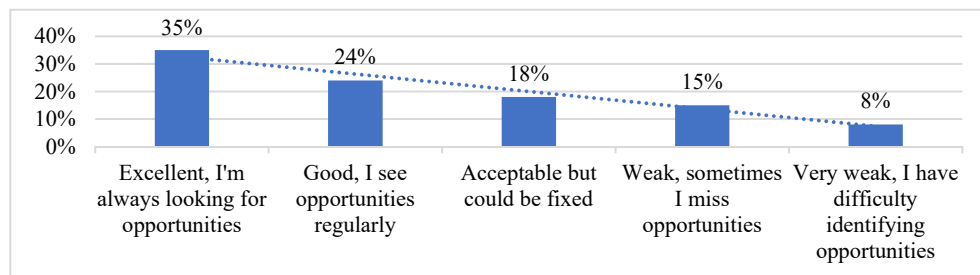
The middle ground is held by 18% of the participants who feel their ability to identify opportunities is "Acceptable but could be fixed," indicating some self-awareness of limitations and room for improvement in this skill.

On the lower end of the spectrum, 15% perceive themselves as "Weak," occasionally missing opportunities, which points to a recognition of a more significant deficiency in this ability. This self-critique implies a sporadic success in identifying opportunities.

Finally, 8% of respondents consider themselves "Very weak," having difficulty identifying opportunities, revealing a strong sense of challenge in this area.

The trend line shows a gradual decline from the largest to the smallest percentages as self-assessment ratings become less favorable. The overall distribution suggests that while a good number of individuals are confident in their ability to identify opportunities, a considerable portion acknowledges the need for improvement, and a smaller percentage experiences substantial difficulty with this skill.

Table no. 2 Ability to identify and take advantage of business opportunities



Source: Authors' contribution

To question number 3, *what comfort level in taking business risks*, the largest group of entrepreneurs, 30%, are quite confident in taking significant risks if they could lead to substantial rewards, suggesting an aggressive strategy toward business growth and opportunity exploitation (Table 3).

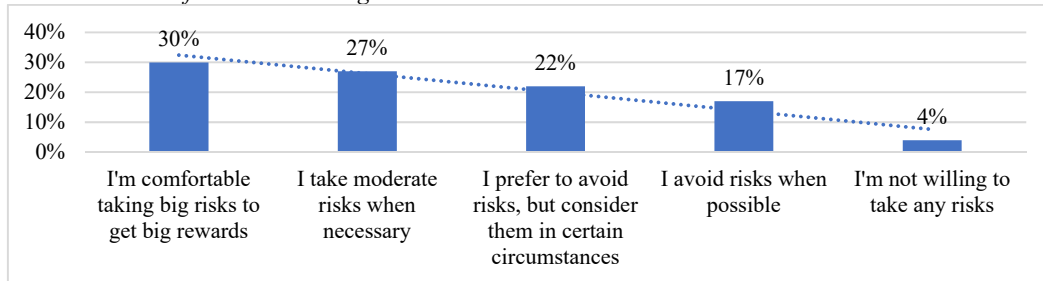
Another substantial segment, 27%, admits to taking moderate risks when they see it as necessary. These entrepreneurs might balance the potential gains against possible losses, indicating a strategic approach to risk.

A smaller yet notable portion, 22%, is generally risk-averse but remains open to taking risks under specific conditions. This group likely evaluates risks on a case-by-case basis, potentially being more cautious in their decision-making process.

There are 17% who tend to avoid risks where possible, indicating a preference for safer, more predictable business paths. This group might prioritize operational stability and consistent growth over the volatile potential of high-risk opportunities.

Finally, a minority of 4% of entrepreneurs are not inclined to take risks at all, suggesting either a very conservative approach to business or perhaps operating in industries where stability is key, and risk is minimized wherever possible.

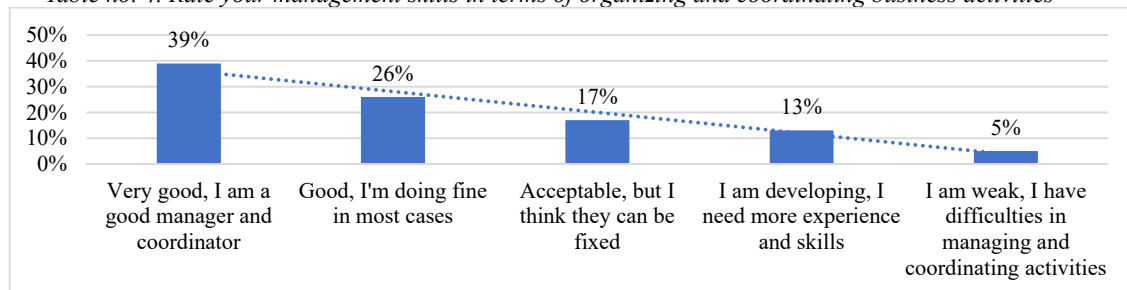
Table no. 3. Comfort level in taking business risks



Source: Authors' contribution

The entrepreneurs' answers to the question number 4, *how do you rate your management skills in terms of organizing and coordinating business activities*, the largest group, accounting for 39% of respondents, rates themselves as excellent in managerial and coordination roles. Another 26% feel they are performing well, generally managing competently in most scenarios. Meanwhile, 17% deem their skills to be acceptable, yet see room for improvement. A smaller proportion, 13%, recognize that they are in a developmental phase, identifying a need for further experience and skill enhancement. At the lower end, 5% of the individuals consider themselves to be struggling with managing and coordinating activities, signaling significant challenges in these areas. This distribution indicates a self-perceived proficiency in the majority of respondents, with a recognition of the need for professional development among a notable minority (Table 4).

Table no. 4. Rate your management skills in terms of organizing and coordinating business activities



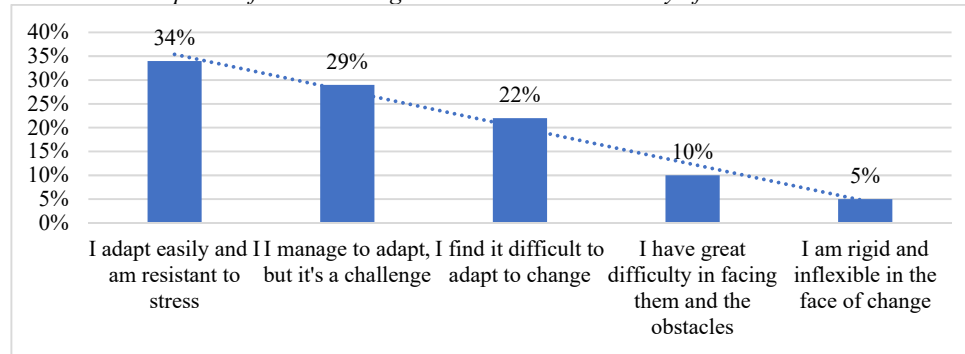
Source: Authors' contribution

To question number 5, *how you adapt to unforeseen changes and obstacles in the way of the business*, 34% of the respondents feel that they "adapt easily and are resistant to stress," indicating a high level of resilience and flexibility. This suggests that a significant portion of the workforce can maintain productivity despite unforeseen challenges, which is crucial for business continuity. Close to this, 29% of participants indicate that they "manage to adapt, but it's a challenge," acknowledging some degree of stress or difficulty in adapting, yet they are generally successful in overcoming it.

The next category, representing 22% of the sample, comprises individuals who "find it difficult to adapt to change." This data point signals a considerable segment that may require additional support during transitions, highlighting the importance of change management strategies within organizations. Those who report "great difficulty in facing them and the obstacles" make up 10%, suggesting that a smaller yet significant minority may struggle considerably with adaptability, which could impact their performance during times of change.

Lastly, 5% describe themselves as "rigid and inflexible in the face of change," representing the smallest group. This inflexibility could be detrimental to both the individuals and the organization, particularly in dynamic business environments where change is constant (Table 5).

Table no. 5. Adapt to unforeseen changes and obstacles in the way of the business



Source: Authors' contribution

## 5. Discussion

Analyzing the answers obtained to the questionnaire on the characteristics of entrepreneurial businesses, it can be found that most respondents demonstrate a strong inclination towards creativity, innovation and proactivity in identifying business opportunities. Creativity and innovation are greatly influenced by the team and the organizational climate in which individuals are embedded (West, 2023). A significant percentage of 37% believe that they are highly creative and innovative, while 35% rate themselves as having excellent skills in identifying and exploiting opportunities. Firms with a high entrepreneurial orientation can identify and exploit new opportunities as well as enjoy superior performance (Anwar, 2022). In addition, about 30% of respondents are comfortable with taking on high risks in order to achieve commensurate rewards. Taking risks is a clear growth path to improve the financial performance of businesses (Games, 2019).

Management ability is also rated positively, with 39% of participants rating their organizational and coordination skills as very good. Leadership skills are of crucial importance in every organization as they largely determine its success (Kwiotkowska, 2021). Regarding adaptability to changes and obstacles, 34% of respondents say they adapt easily and are resilient in the face of stress. Risk management strategies are vital to anticipate and mitigate potential obstacles (Ebirim, 2024). These data underline a general tendency of entrepreneurs to exhibit a set of skills and attitudes essential for success in today's business environment, characterized by dynamism and uncertainty.

## 6. Conclusions

Based on the data collected and analyzed from the questionnaire distributed to entrepreneurs in Romania, we can draw several important conclusions about the characteristics of entrepreneurial businesses in this region. The responses highlight a general trend towards creativity and innovation, indicating that entrepreneurs value and implement new and improved ideas to maintain and develop their businesses.

The orientation towards opportunities is another prominent aspect observed in the entrepreneurs' responses, with many demonstrating an excellent ability to identify and take advantage of available business opportunities, which is crucial in a constantly changing economic environment. This ability to see and act on opportunities is closely linked to the long-term success of their businesses.

Risk-taking, a key element in entrepreneurship, was also addressed, with a significant number of entrepreneurs indicating that they are willing to take calculable risks for potential rewards. This demonstrates an inclination towards innovation and growth, even in the face of uncertainty.

Management skills, especially regarding the organization and coordination of business activities, were largely rated positively, suggesting that entrepreneurs possess the necessary competencies to efficiently manage resources and teams to achieve business objectives.

Regarding adaptability to unforeseen changes and encountered obstacles, the responses indicate a high level of resilience among entrepreneurs. This ability to adapt and navigate through challenges is essential for the long-term survival and prosperity of businesses in a dynamic and often unpredictable economic environment.

In conclusion, Romanian entrepreneurs demonstrate a strong combination of creativity, innovation, opportunity orientation, risk-taking, management skills, and resilience. These characteristics are fundamental to entrepreneurial success and suggest that the entrepreneurial environment in Romania is vibrant and capable of adapting and thriving in the face of challenges. This research underscores the ongoing importance of supporting and encouraging the development of entrepreneurial skills to ensure economic growth and innovation in the region.

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# Health Tourism Industry: Segmentation, Differentiation and Communication

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## Abstract

*The research examines the dynamism of health tourism, with an emphasis on the contribution of segmentation, differentiation, and communication of entrepreneurs. It highlights the convergence of health tourism entrepreneurs' behavior into the best opportunities to gain profit and create a brand in the healthcare market. Organizational culture, worldwide trends and changes, and an open mind for a collaborative relationship entrepreneur-employer are significant driving forces in this field. The necessity for deliberate support in listening to customers' voices is a goal of market researchers in health tourism acknowledgment.*

**Key words:** health tourism, segmentation, differentiation, entrepreneur, leadership, communication  
**J.E.L. classification:** I12, J17, L26, L53, M31, Z32

## 1. Introduction

Entrepreneurs operating in the health tourism market aim to satisfy the modern consumer, adapting their marketing strategies to any external stimulus. Consumers of healthcare services have the highest expectations from entrepreneurs in the health and tourism sector, treating the health tourism package as a product that can be purchased online from any store, demanding transparency, loyalty, and displayed costs. The limit to fully providing this information through digital marketing channels is given by the individuality of the tourist health package, namely its personalization. This article shows the importance of marketing segmentation variables to create an alternative business strategy, the bridge between segmentation of the market, differentiation of products/ services, and communication between employees, company to customers/ patients, communication channels available for reviews or consumption of tourism product/ service.

## 2. Literature review

Segmentation market, as a concept, was first time explained as a collection of smaller, more similar markets viewed as a marketing strategy (Smith, 1956). Market segmentation is an opportunity in marketing management and consists of dividing total demand into segments with the same characteristics, to explain and predict consumer behavior as market stimuli (Tynan, A. C., Drayton, J., 1987). The complexity of tourism as a market product impels the segmentation of tourists into appropriate groups by various variables: trip activities, tourism destination, duration of stay, standard of health unit care, etc. (Dolnicar, S., Grun, B., Leisch, F., 2018); age, gender, lifestyle (Jauhari, 2017). It is the first stage of targeting marketing (market segmentation, marketing targeting, and product positioning) with measurable, accessible, and substantial results (Camilleri, 2018). Information and communication technologies improve consumer empowerment and the marketing strategy cost is down considerably. The literature precise how segmentation techniques and variables help hospitals, healthcare marketers, and researchers to discover, innovate, and develop medical products and services (MacLennan, J., MacKenzie, D., 2000); to analyze every opportunity of the market, to create an ideal service/ product ID depending by patients perceptions and cultural competence of healthcare (Johnson, R. L., Saha, S., Arbelaez, J. J., Beach, M. C., Cooper, L. A., 2004).

The tourism health package is a result of entrepreneurial collaboration, innovation, and multidisciplinary co-creation aims, on the one hand, to satisfy the needs of customers/consumers and, on the other hand, to generate earnings for each market player. Changes in technology, legislation, and consumer expectations, determine entrepreneurs to adapt the management policy and evaluate the potential of their employees by different market variables (Ormanovic, S., Ciric, A., Talovic, M., Alic, H., Jeleskovik, E., Causevik, D., 2017).

In the healthcare industry, what is measured is the patient/tourist experience, explained by what happens during consumption and how it happens, how choice, purchase, and the entire consumption process takes place, all from the consumer's perspective (Friedel, A.L., Siegel, S., Kirstein, C.F., Gerigk, M., Bingel, U., Diehl, A., Steidle, O., Hauptelthofer, S., Andermahr, B., Chmielewski, W., Kreitschmann-Andermahr, I., 2023).

The specialized literature considers that the consumer's / patient's experience is given by his evaluation of the cost paid for the purchased product, actually measuring its value, which is transposed differently from one consumer to another: quality, staff, time spent, personalization of services, empathy, etc. (Marzorati, C., Pravettoni, G., 2017).

The World Health Organization considers the satisfaction of the tourist/patient as a result of the cumulation of the stages taken from purchase to actual consumption, a multidisciplinary team includes experts, researchers, doctors, and other entrepreneurs, as a strong segmentation variable (Zhang, Y., Coello, P.A., Brožek, J. et al, 2017).

The specialized literature shows the link between the behavior of the health tourist and his motivation, his intention to travel for medical procedures or recovery or beauty treatments, the experience of talking about the perceived value of the tourist package and recommending the circuit to family and friends (Gan, T., Zheng, J., Li, W., Li, J., Shen, J., 2023). The routine of activities in nature, walks, and the joy of the moment bring satisfaction from stressful days during the occupational, busy period, and reducing stress or even removing generates typical consumer behavior characterized by the concept *slow tourism* (Schumann, 2017). Escape motivation and cost motivation encompass the motivation that pushes the tourist to choose health tourism manifesting the intention to travel (Gan, T., Zheng, J., Li, W., Li, J., Shen, J., 2023). Consumer perception is vital for any organization, so analyzing positive or negative reviews as a result of the consumer process, given the digitization of information content, is one of the activities that can determine the performance of a product or service (Chatterjee, S., Goyal, D., Prakash, A., Sharma, J., 2021). A recent study shows the attributes of medical hotels in choosing accommodation locations for international tourists, offering their comfort in response to the tourist's motivation (Lee, J., Kim, J.J., 2023). For example, in addition to basic hospitality services such as valet parking, concierge, and airport shuttle room service, patients can receive postoperative services and care such as dressings, medical supervision, special diets, and physical therapy in a comfortable hotel atmosphere (Chaulagain, S., Jahromi, M.F., Hua, N., Wnag, Y., 2023).

Differentiation is the creation of entrepreneurs to develop health tourism products/ services to retain customers different from competitors based on various factors (price, quality, consumption process), to attract and obtain a unique position in the market, mission of Social Entrepreneurship Organisation (SEO) (Lückenbach, F., Baumgarth, C., Schmidt, H. J., Henseler, J., Wright, L. T., 2019). The highest level of differentiation is shown in marketing management/ organization culture (Kiaos, 2023), internationalization degree, and knowledge integration (Azari, M. J., Aspelund, A., Eide, A. E., Wright, L. T., 2020). In business research differentiation is shown in index content validity, technology diversification, diversity properties, and variable data used for marketing research (Kim, K., Hwang, J., Jung, S., Kim, E., Ardito, L., 2019).

Marketing communication is a full concept for the foundation of other concept series: positioning, client message, word/electronic-of-mouth message (Chattergee, S., Kulkarni, P., 2021), is a benefit segmentation approach and a premise for marketing segmentation (Russell, 1985), is a puzzle piece of cost segmentation strategy (Cahill, 2006). Segmentation criteria describe correctly customer segments, to create diverse health tourism products/ services advertised and promoted by the most effective communication channel (Dolnicar, S., Grun, B., Leisch, F., 2018). Communication is a key variable for interpersonal intelligence near motivation, persuasion, team aims, collaboration, and cooperation (Jauhari, 2017). Communication in digital healthcare is an opportunity to increase entrepreneurial efficacy (Kotler, Ph., Bowen, J.T., Baloglu, S., 2022)

(Kotler, Ph., Bowen, H., Makens, J.C., Baloglu, S., 2017), and promote entrepreneurship by practitioners and policymakers (Anwar, A., Zafar, A.U., Papa, A., Pham, T.T.T., Apostolidis, C., 2024). Marketing communication is a mix of tools and techniques used by an entrepreneur to communicate their market value to clients and attract customers/ patients, including differentiation of products, advertising, events, public relationships, sales policies, and internal marketing (Kotler, Ph., Stevens, R.J., Shalowitz, J., 2021).

### 3. Research methodology

The article is a descriptive analysis of the literature about marketing strategies applied in the health tourism industry, the lines between marketing segmentation, differentiation of tourism products/services, and marketing communication, and how these concepts influence entrepreneurial management to innovate healthcare products/ services, branding process and generate highlights.

### 4. Findings

#### 4.1. Segmentation variables

The structuring of the health tourism market is due to global influences of diversification of services, innovation in the health system, and advanced technologies that require investment funds and entail financial and human capital investments through their implementation, the success of an organization is determined by a correct market segmentation through consumer behavioral analysis, by continuously monitoring behavior changes through research, by benchmarking competitors and establishing the right marketing strategies (Akbar, M. B., Garnelo-Gomez, I., Ndupu, L., Barnes, E., Foster, C., 2022).

*Tabel no. 1 Segmentation variables*

Segmentation of the health tourism market			
Segmentation variables		Segmentation profile	
Wellness indicators	Psycho-graphic profile	Behavior	Demographic profile
Destination characteristics	Motivation; psychological factors; healthcare attitude.	Lifestyle; type of consumers; frequency of healthcare service.	Founds for healthcare
Benefits and trust in quality			
Type of services			
Service distribution			

*Source:* (Torkzadeh, L., Jalilian, H., Zolfagharian, H., Torkzadeh, H., Bakshi, M., Khodayari-Zarnaq, R., 2021)

Each entrepreneur is a member behavioral group with the same marketing goals and market strategies. Identified variables are segmentation factors of the health tourism industry (Morrison, A., Rimmington, M., Williams, C., 2006):

*Table no. 2 Health tourism market segmentation variables*

Category	Characteristics
determination	the tenacity and decision-making power, discipline, persistence in solving problems, and elimination of personal sacrifice
leadership	the individual decision about high-quality standards, but not perfectionism; team organizing and spirit of creativity for it; treating others about their expectations; sharing feedback with all participants, building trust; continuous learning and persuasion
obsessive opportunity	pieces of knowledge and skills to identify the consumer's needs; the trend of the health tourism industry; and obsession with novelty products and services, turning needs into an opportunity
tolerance of risk, ambiguous and uncertain conflict situations	risk analysis and risk sharing in decision-making; analysis of risk forecasts; resolution of conflict situations in decision-making; ability to reduce stress and role responsibility



creativity, personal resilience, and ability to adapt	non-conventional behavior with multilateral thinking, without making hasty decisions; the ability to develop concepts based on principles, and not on the decisions of others.
motivation for excellence	setting realistic, long-term performance objectives pursued through policies and strategies implemented at the team level, macroeconomic orientation, with the division of tasks between team members in a motivational spirit capitalizing on the skills of each member.

*Source:* (Morrison, A., Rimmington, M., Williams, C., 2006)

The identification of market segmentation variables shall also entail the evaluation of this segmentation by analysing the following criteria (Torkzadeh, L., Jalilian, H., Zolfagharian, H., Torkzadeh, H., Bakshi, M., Khodayari-Zarnaq, R., 2021):

- the size of the market and its potential: investments and resources allocated will be reflected in the profit recorded in the next period
- segment stability: a market segment should qualify as relatively stable
- accessibility: each identified segment must be targeted and targeted through distinctive strategies aimed at improving its quality of life
- action: the implementation strategy must be easily implementable
- compatibility: identifying the consumer's needs in the organizational culture and marketing strategies of the service provider

#### 4.2. Differentiation in the health tourism industry

Differentiation in the health tourism industry fulfills the tourism product distribution system, creating a clear view, for a short time, in the mind of the consumer, helped by the communication system (Morrison, A., Rimmington, M., Williams, C., 2006). The specialized literature supports the theory of adapting the tourist product to the consumer's behavior, based on continuous changes in other sectors of activity, and the differentiation of a product according to market segmentation is the result of entrepreneurial creation (GrandViewResearch, 2021) (GrandViewResearch, 2023).

*Table no. 3 Differentiation practices*

Nr.	Differentiation practices	Characteristics
1	specialization in a particular medical field	specialization in cancer surgery of the esophagus at the University Hospital of Cluj
2	specialization in specific wellness treatments	specializing in effective procedures that find your certainty in scientific reports
3	create a modern tourism package	the tourism package must offer comprehensive services and convincing information on consumption
4	personalization of services	the tourist package must provide complex services and convincing information regarding consumption; the integrated services offer distance consumption, monitoring, and response techniques to the consumption of purchased services, adapting the package of tourist services at the individual level, using BIO / natural products in the consumption process of the tourist package, obtaining positive reviews viewed as a recommendation
5	promoting a trained team with a minimum of experience	communicating a professional experience through a minimum of activity, number of consumers
6	specialization for a certain/nonconformist category of consumers	specialization of a Kyiv hospital in orthopedic surgeries for cardiac patients
7	inclusion in the team of a high-class expert in the field of activity	the experience of a name within the team gives confidence to customers
8	medical activity based on a business model	offering a personalized tariff to consumers for the entire package of services: accommodation, meals, medication, imaging, laboratory tests

9	differentiation based on geographical, and cultural criteria	specialization for certain categories of tourists who speak only their native language, who are of color, who need assistance with entry or stay formalities in the country of destination
10	differentiating services assisted by an exclusive team whose work is not present elsewhere	exclusive partnerships for specific treatments
11	differentiation based on the level/category/nomenclature of customers served	the promotion of the consumer package to a certain market segment will be done with the agreement of the customers who determined the differentiation phenomenon
12	differentiation from the competition by displaying a notorious recommendation	promoting a notorious review encouraging increased customer interest
13	specialization in services that highlight the inactive human condition	specialization in surgery for people who have lost locomotor function
14	differentiating activity as opposed to competitive activity	taking risks pushes services ahead of competitors

*Source:* Adapted after (Hamdan, 2017) (McKinsey&Company, 2024) (MercuryAdvisoryGroup, 2021) (Mueller, H., Kaufmann, E., 2001)

The differentiation of entrepreneurial activity is viewed in consumer behavior, by using techniques and means of communication characteristic of the market segment to which it is addressed (Morrison, A., Rimmington, M., Williams, C., 2006). Taking into account the quality of the consumer in health tourism (patient in medical tourism, client/patient in wellness and spa tourism) (Gilligan, C., Lowe, R., 2016), communication is the means of creating the consumer-entrepreneur, entrepreneur-entrepreneur collaborative relationship. The most important questions for entrepreneurs are: how well does the communication technique work within the department/ between departments/ from management to departments; does the information reach the recipient; what are the obstacles that hinder the flow of information; what communication problems exist in the process of creating, supplying, consuming the tourist package within the entrepreneurial team (Nabi, 2021).

#### 4.3. Communication marketing through segmentation and differentiation in the health tourism industry

*Table no. 4 Communication Strategy Plan*

Target audience	Determine objectives	Design communication	Select channels to send message
Manage conclusions	Measure results	Media mix	Budget

*Source:* Author's contribution

*Tabel no. 5 Communications Aspects through Segmentation and Differentiation*

Corporate communication aspects	Team activities and productivity are a result of communication management; choosing communication channels for the level of the employee; appreciating and involving by communication strategies the employees to innovate a diverse offer of product/ services is a key to market success; content and emotional voice are an opportunity to create a cooperation team and increase productivity.
Consumer communication aspects	Clients pay attention addressed by the entrepreneurial team; important and expensive for one is nothing and cheaper for someone else; communication means the assumption of persuasion and competitiveness; the transmission of the message will show the entrepreneurial objectives; online and offline presence on the market is viewed as profit and looser for competitors.

*Source:* Adapted after (Parsons, 2013), (Huete-Alcocer, 2017), (Sousa, B.M., Alves. G.M., 2019), (Vukotic, M., Tinaj, S., 2020)

## 5. Conclusions

The global health tourism business growth has dramatically increased competition among nations to take market share. The proper market segmentation and selection of target segments are keys to this industry's success. There are several methods for segmenting the market, and each has positive and negative aspects. The thesis that tourism products should be tailored to consumer behavior is supported by specialized literature. This theory is based on ongoing changes in other industries, and it holds that product differentiation based on differentiation in the market is the result of entrepreneurial invention. Every answer to a correct question is an opportunity to take a target position for the same group of customers with the same needs and expectations. Relationship entrepreneur-customers face marketing strategies published to clients with simple, personalized words. Marketing researchers report faced the entrepreneurial interest for free available data on the online market, correct communication strategies into adapted groups of customers, and differentiation of communication messages for each small market of the healthcare tourism industry.

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# The Implications of Marketing Strategies in Promoting Sustainability in the Beauty Industry

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## Abstract

*Adopting sustainable marketing strategies in the beauty industry can bring significant benefits to brands and consumers, not only can it help protect the environment and promote social responsibility. Through consumer education and innovation, the beauty industry can play an important role in the transition to a more sustainable future. Promoting sustainability in the beauty industry through marketing strategies has significant implications for companies, consumers and the environment. The purpose of this paper is to highlight the influence of sustainable marketing strategies on purchasing behavior and brand image. In order to highlight the perception of influences, a qualitative research of social media messages was carried out with the help of the FSQCA software. Brands that promote sustainability are perceived as ethical and responsible, which can attract a wider and more dedicated audience, in a saturated market, sustainability can be an important differentiator, helping them stand out from the competition.*

**Key words:** strategic marketing, sustainability, beauty industry, social media, influencers

**J.E.L. classification:** M31, M37, M21

## 1. Introduction

Traditional marketing tactics have undergone serious changes with the advent of the internet and social media. The need to communicate with consumers in a non-intrusive way has led companies to turn to opinion leaders. Although Influencer Marketing took off not so long ago, it was able to conquer specialists by its popularity and effectiveness. The Internet and e-commerce are exceptional opportunities that should be included in marketing strategies, because online presence allows direct contact with a huge number of new consumers and reduces the cost of promoting products (Arora & Sahu, 2014). In the 21st century, a firm that is not present online is practically non-existent.

With the emergence and development of the Internet and social networks so impressive, the biggest companies and brands in the beauty industry, such as *is Lauder*, *L'Oréal* and many others have integrated into the new media direction and created blogs and accounts on the most popular platforms to promote products and get feedback. Thus, social networks have become a vital component of the contemporary marketing mix, which provides the possibility of direct dialogue with existing and prospective customers through B2C and the opportunity to influence their purchasing decisions. Analytical tools such as *Google Adwords*, *Ahrefs* and others allow generating a measurable result of online campaigns, the possibility to evaluate and record their successes and take feedback.

Many of the studies demonstrate the importance of social networks in the decision to purchase, for example, the agency *ODM Group* published the results of its efforts in this area, claiming that 74% of consumers rely on social networks to make a purchase decision. People prefer to express

their opinion on Facebook - 86%, followed by Twitter - 65%, blogs and review sites - 55%, videos - 50%. Companies use consumer reviews in 80% of their sales and merchandising decisions.

## 2. Literature review

The term *Inbound Marketing* was coined by *Brian Halligan*, the founder and CEO of *HubSpot*, a sales and marketing application company. It represents a new branch of marketing, which assumes that consumers alone access the company's blogs or websites, due to their attractiveness. It involves creating easy-to-navigate pages with interesting and useful content, high-quality images and video, with the help of search engine optimization (SEO). Thus, consumers are no longer "bombarded" with a large amount of information and evaded from what is interesting to them. You no longer need to fight for every new customer, but just create interesting things that will bring them to you by themselves.

According to the model, Inbound Marketing includes three crucial elements, also representing three stages of consumer conquest: attract, engage and delight (Berger & Milkman, 2012). Once consumers are attracted to the content of the page or profile, the company must form that *consumer engagement*, i.e. captivate them through conversation and information tools, such as chats, bots, mail, etc., so that in the third stage it delights them with various offers, viral content, information transmitted at the right time to the right person, building a relationship based on credibility and trust. Satisfied consumers will return to buy again or spread positive messages through *word of mouth*, widening the consumer network by introducing other prospects.

Recent studies demonstrate the importance of Inbound Marketing as a contemporary concept and its success. According to *Demand Metric's 2018* study, *Inbound Marketing* costs 62% less than traditional marketing and generates 3x more leads. Research conducted by *HubSpot* revealed that 75% of companies using *inbound marketing* claim that their strategy is effective, 33% of inbound marketers and 31% of outbound marketers believe that outbound marketing is a waste of time and resources. The main indicators of this type of marketing, according to *Strauss J.* and *Frost R.*, are the time spent on the site, the number of subscribers, fans, comments, likes and shares, rating and many others. All this, again, can be easily obtained through online analytical tools and based on the results, the future marketing strategy can be outlined. Creating engaging content, optimizing search engines, implementing promotional and information campaigns on social networks together form the recipe for 21st century marketing (Volberda et al., 2023).

Effective promotion of a product involves selecting the right influencer according to specific criteria. To find out these criteria, I analyzed part of the academic literature and I will present some models, which were created by specialists to describe the phenomenon of opinion leaders in promotion and integrated into a complex model (Veldhuis et al., 2024).

The model of source attractiveness, introduced by *McGuire* in 1985, is based on 4 key factors, through which the influencer will be able to produce the desired effect of the campaign. These factors are familiarity, meaning the audience's knowledge of the source and the colloquial language used, sympathy, meaning affection for the source based on their behavior or appearance, similarity between the source and the audience, and finally attraction (Seiler & Kucza, 2017). Another model that is of particular importance in dealing with this topic is the Source Credibility Model, created and introduced by *Ohanian* in 1990. It indicates that the influencer's success depends on his credibility, which in turn is influenced by expertise factors (knowledge of the domain and product/service) and that the opinion is trustworthy (Bakhshi et al., 2014). The TEARS model, created by *Shimp* in 2003, also includes the factors of trust and attractiveness. Trust depends on how worthy the source is and what expertise it has, and the attractiveness factor includes physical attractiveness, similarity, and respect. The same author also creates the NO TEARS model, introducing, in addition to the two main factors, the factors of cost and how suitable the influencer is with the audience or the brand they are promoting. The FRED principle, introduced by *Dyson* and *Turco*, is based on the selection and evaluation of the influencer according to familiarity, relevance, esteem and differentiation, an element by which the influencer attracted the attention of hundreds of other influencers. *Till* and *Busler* also study celebrities in promotion and advertising, creating *the Match-Up Hypothesis*, arguing that the influencer and the product must complement

and match each other. The Q-Rating, a popular indicator in the USA, involves the calculation of a rating depending on the familiarity and popularity of the influencer (Solomon et al., 2022).

All these models were analyzed by *Gupta R.*, *Kishor N.* and *Verma D.* and integrated into a complex model of analysis of the opinion leader, celebrity or influencer, called the Pater Model, represented in table 1.1. It was created so that the brand can choose the right influencer and is based on a multidimensional scale (et al., 2017) with which various attributes are analyzed to arrive at the decision to initiate a partnership with the influencer in question or not. As the main attributes and criteria were chosen: attractiveness, trust, expertise, popularity and relevance (Groesz et al., 2002). This will be the model used in the practical part of the work and based on it a case study of an influencer will be made.

### 3. Research methodology

For a broader analysis of the ambassadors of the L'Oréal Paris brand , we resorted to researching the analytical indicators of their Instagram profiles. Among the main indicators are:

- mentions, i.e. how many times a username has been mentioned by other users;
- interactions, the user's communication with his audience, similar to customer engagement;
- feeling, meaning the emotion that the posted content arouses, being negative or positive and presented in the form of a report;
- the number of subscribers (followers) proves the popularity of the profile, if they are obtained "organically", i.e. without investing in fake followers;
- influence, or "reach" in English, means the sphere of action of the profile, the total number of people who saw the content on a profile, including through share and advertisement, the most important indicator in this analysis.

The hypothesis is that a large number of subscribers does not guarantee and is not enough for a large influence, sometimes niche influencers have a larger sphere of influence than top bloggers with millions of subscribers. In order to analyze the situation and create a formula of maximum influence, we resorted to a comparative-qualitative analysis using the fuzzy set method. Fuzzy logic is a superset of Boolean logic, which does not only provide answers such as "yes" or "no", "true" or "false", but allows the inclusion of an answer with values between "absolutely true" and "absolutely false", these values being part of the interval [0, 1]. Fuzzy logic was defined by *Lotfi Zadeh*, a professor at the University of California at Berkeley in 1965. Considering the small number of variables and that the concept of "influence" is not defined by a specific formula, but depends on several indicators and their degree, this analysis cannot be done through SPSS, but through a program intended for certain fuzzy sets that work with a small number of variables - FSQCA (Seraphin et al., 2016). Several indicators will be chosen as causal conditions, and one - as a result of the combination of conditions. After the formation and analysis of multiple causal configurations, i.e. the combination of causal conditions and the results of each combination (implying the rule that different combinations can generate the same result, and causal conditions can have different results depending on the context) an XY graph will be generated in which all cases will be presented, together with consistency and coverage indicators. After that, a truth table will be generated from which the program will show us all the solutions and the complex solution with the highest consistency will be chosen.

**Data processing.** To obtain the indicators for monitoring the activity on social networks, we used the Brand 24 platform by entering the Instagram username of each individual influencer in the search bar, thus generating the indicators for the last month, represented in table 1. In the case given, the variables mentions, interactions, sentiment, and subscribers will be causal conditions, and influence will be the result of combining the conditions. The research model can be written by a function:  $\text{Influence} = f(\text{mentions, interactions, sentiment, subscribers})$ .



Table no. 1. Indicators of Instagram profiles of L'Oréal Paris influencers for 21.03.2024 – 21.04.2024

Instagram username	Causal conditions				Result
	CLAIMS	Interactions	Feeling	Followers	Influence
Inthefrow	419	98 107	24:1	850 415	3 009 568
ling.kt	188	73 586	126:1	1 409 739	5 409 041
modelrecommends	106	506	23:1	173 998	263 751
thepatriciabright	67	4 904	22:0	1 020 112	114 761
lydiaemillen	248	16 862	13:1	759 269	3 063 555
emilycanham	246	85 986	12:1	639 987	3 762 020
kaushal	188	39 169	16:1	868 414	1 045 253
threat	46	760	22:0	628 492	88 036

Source: <https://brand24.com/> , accessed on 22.04.2024

We can see that there is no correlation between the number of subscribers and influence, in the case of *thepatriciabright* profile, the number of subscribers (1,020,112) is much higher than the influence index (114,761). At the same time, mentions and interactions have low values compared to other influencers, which could also cause a low influence index value. FSQCA will help us determine the formula for maximum influence, which cannot be deduced by simple data analysis.

Once the values of the necessary indicators have been recorded, calibration of all variables can be done, a vital step for the program to understand and be able to analyze the information entered. According to the theory, the continuous fuzzy set involves entering values from 1 to 0, 1 meaning "completely included", 0.5 - "neither", and 0 - "completely excluded." That interval will be divided into 8 smaller, equal intervals, which will represent the influencer's score and his position from 1 to 8 according to the value of the indicators. Thus, the score 1 will mean " included ", from 0.875 to 0.625 "more included than excluded", 0.5 - "neither included nor excluded", 0.375 - 0.25 "more excluded than included", and 0.125 - "almost excluded".

Table no. 2 Calibration scale

The score	The position
1	1
0.875	2
0.75	3
0.625	4
0.5	5
0.375	6
0.25	7
0.125	8

Source: Authors' processing

Thus, the values of table 2 will be replaced by the score depending on the position. By arranging the value of an indicator in ascending order, we can determine the position from 1 to 8 of the influencers according to that indicator and we can replace the position with the score values (table 3).

Table no. 3 Positions of influencers according to the value of the indicators

Instagram username	Causal conditions				Result
	CLAIMS	Interactions	Feeling	Followers	Influence
Inthefrow	1	1	4	4	4
ling.kt	4/5	3	3	1	1
modelrecommends	6	7	5	8	6
thepatriciabright	7	6	1/2	2	7
lydiaemillen	2	5	7	5	3
emilycanham	3	2	8	6	2
kaushal	4/5	4	6	3	5
threat	8	8	1/2	7	8

Source: Authors' processing

If there are 2 equal indicator values, as in the case of the "mentions" column, these influencers share positions 4 and 5. To determine the score, we add 0.625 (position 4) to 0.5 (position 5) and divide by 2, resulting in 0.5625 (position between 4 and 5). The same is repeated for the "feeling" column, for positions between 1 and 2 the average score of 0.9375 will be given. We replace the score value in the table with positions, resulting in the variables and the index that we can enter in the program (table 4).

Table no. 4 Data calibration result

Instagram username	Causal conditions				Result
	CLAIMS	Interactions	Feeling	Followers	Influence
Inthefrow	1	1	0.625	0.625	0.625
ling.kt	0.5625	0.75	0.75	1	1
modelrecommends	0.375	0.25	0.5	0.125	0.375
thepatriciabright	0.25	0.375	0.9375	0.875	0.25
lydiaemillen	0.875	0.5	0.25	0.5	0.75
emilycanham	0.75	0.875	0.125	0.375	0.875
kaushal	0.5625	0.625	0.375	0.75	0.5
threat	0.125	0.125	0.9375	0.25	0.125

Source: Authors' processing

Data can be entered into FSQCA and a new variable can be generated by using the "fuzzyand" function, which will calculate a value of the sets of causal conditions embedded in the conceptual model. Thanks to the new variable, it will be possible to plot sets. Thus, the new variable **MISA = fuzzyand (mentions, interactions, feeling, subscribers)**, and the final result generated is represented in figure 1.

Figure no. 1 Variables and their values in FSQCA

The screenshot shows a software window titled "FS/QCA Data Sheet" with a menu bar (File, Variables, Cases, Analyze, Graphs) and a data table. The table has 8 rows (Case 1-8) and 7 columns (mentuni, interactiuni, sentiment, abonati, influenta, misa). The values in the table are as follows:

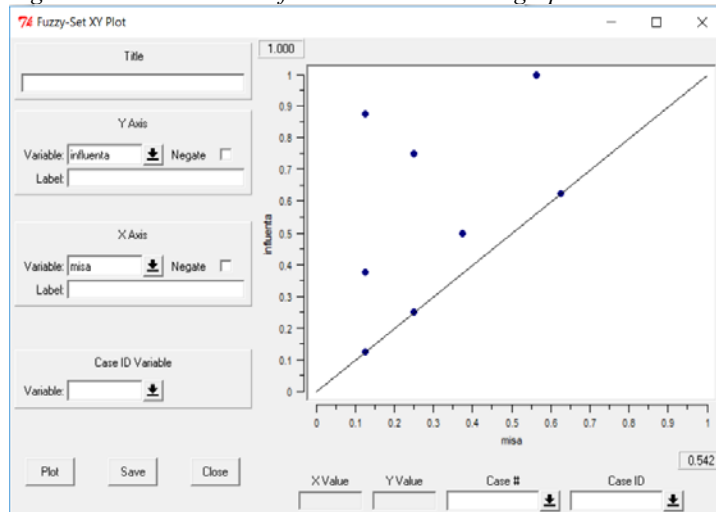
Case	mentuni	interactiuni	sentiment	abonati	influenta	misa
1	1	1	0.625	0.625	0.625	0.625
2	0.5625	0.75	0.75	1	1	0.5625
3	0.375	0.25	0.5	0.125	0.375	0.125
4	0.25	0.375	0.9375	0.875	0.25	0.25
5	0.875	0.5	0.25	0.5	0.75	0.25
6	0.75	0.875	0.125	0.375	0.875	0.125
7	0.5625	0.625	0.375	0.75	0.5	0.375
8	0.125	0.125	0.9375	0.25	0.125	0.125

Source: Authors' processing

#### 4. Findings

The first analysis aims to generate consistency and coverage scores by placing the cases on the axis. The program does it automatically through the command Graphs -> Fuzzy -> XY Plot. As a result, we observe from figure 2. that the causal conditions are sufficient for the result, 5 out of 8 cases being positioned above the right of the graph, and 3 representing an exception and being positioned right on the right. The lower right box represents the degree of consistency of  $Y \leq X$  which proves that Y is a subset of X, and the upper left value represents the consistency of  $X \leq Y$ , which is the degree that X is a subset of Y. Analyzing the generated results of the program, we deduce that consistency = 1.000, and coverage = 0.542. High consistency proves that causal combinations lead to the chosen outcome and model e validated, and 54.2% represents the percentage of cases in which the causal conditions lead to a defined result.

Figure no. 2 Distribution of the 8 cases on the XY graph



Source: Authors' processing

We can continue its analysis by generating the truth table, which helps to examine separately the combinations of causal conditions and the results obtained by them (figure 3).

Figure no. 3 The truth table related to the research model

mentiuni	interactiuni	sentiment	abonati	number	influenta	raw consist.	PRI consist.	SYM consist.
1	1	0	0	1	1	1.000000	1.000000	1.000000
1	1	1	1	2	1	1.000000	1.000000	1.000000
1	1	0	1	1	1	0.972973	0.923077	1.000000
0	0	1	1	1	0	0.733333	0.333333	0.333333
0	0	1	0	1	0	0.600000	0.000000	0.000000

Source: Authors' processing

The program deleted all but possible cases, and the influence value 1 occurs in 3 cases. Among the 5 combinations, the one with the highest consistency and the result score higher than the causal conditions must be chosen. For this, we access the standard analyzes and obtain the complex solutions proposed by the program, represented in figure 4.

Figure no. 4 Complex solution of the research model

```

Algorithm: Quine-McCluskey
True: 1

--- COMPLEX SOLUTION ---
frequency cutoff: 1.000000
consistency cutoff: 0.972973

          raw    unique
          coverage coverage consistency
          -----
mentiuni*interactiuni*~sentiment 0.611111 0.111111 0.977778
mentiuni*interactiuni*abonati    0.680556 0.180556 0.980000
solution coverage: 0.791667
solution consistency: 0.982759
    
```

Source: Authors' processing

The solution with the maximum likelihood (0.9800) is: mentions\*interactions\*subscribers, where \* indicates "and".

In conclusion, the model in which the indicators mention, interaction, sentiment and subscribers are the causal conditions of influence has been validated by the program. The consistency and coverage values are greater than 0.5, representing good results, and most cases are located above the XY line, proving that these 4 causal conditions are sufficient to generate the influence result. The truth table discovered 5 possible combinations of the 4 causal conditions and the result, and the complex solution with the highest consistency turned out to be: mentions\*interactions\*subscribers. By this, we mean that the sentiment variable in combination with the other 3 causal variables has no significant influence on the result, and the influence of the analyzed Instagram profiles depends on the number of mentions, interactions and subscribers. This validates the hypothesis that not only the number of subscribers matters, but also the influencer's interaction with them, as well as how often the user's name is mentioned in other people's posts. Thus, in order to have a larger sphere of influence, the influencer must not only count on a large number of followers, but also engage in direct dialogues with them in the comments, arouse interest in being mentioned by other users. The practice of increasing the number of subscribers by investing in fake profiles or automatically subscribing other people has proven to be ineffective in influencer marketing and can easily be seen in the number of likes and comments. If out of 1,000,000 subscribers, not even 10% see the posts and do not react, then investing in such profiles to promote products is not profitable.

## 5. Conclusions

The opinion of influencers has been shown to be useful in the stages of information and analysis of alternatives, especially to decide which brand and which product will be bought. The main characteristics of influencers for the audience turned out to be the expertise, trust and relevance of the products to the influencer's field of activity, taken from the Pater Model. Between the message and the presentation, most chose the message as more important, although the percentage difference was not large. This proves that message processing takes place consciously and relies more on the central route, described in elaboration likelihood theory. The post of a brand proved to be more influential than the post of an unknown influencer, but the difference in votes is not large. Respondents' self-confidence is average and not strongly influenced by the amount of time spent online. The hypothesis that the concern for one's own body resulting from following influencers depends on the gender of the respondent was validated. Older age also means more self-confidence, the tendency to copy and change one's ideals of beauty being weaker than in youth. This study could provide a lot of important information to companies and influencers so that they know how to make a successful campaign or find explanations for failures and to young people, who should understand the negative influence of media and the Internet and carefully choose the models on which follows them. Influencer referrals derived from the study can help increase audience interest and increase credibility.

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# Evaluating the Direct Influences Exerted by Strategic Practices in Human Resource Management on the Quality of Public Service Delivery

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## Abstract

*In a constantly changing world where the demand for high-quality public services is increasing, we investigate the crucial role of strategic practices in human resource management (HRM) in ensuring efficient and effective delivery of these services to the community. This paper examines the direct influences of strategic HRM practices on the quality of public service delivery using structural equation modeling. By integrating HR theories and public service management, we have developed a conceptual model that highlights the connections between strategic HRM practices and organizational performance in delivering public services. The results of the analysis reveal significant and positive influences of strategic HRM practices on the quality of public service delivery. Specifically, the implementation of employee-oriented HR practices, such as rigorous recruitment and selection, skills development, and employee involvement, has a significant impact on the quality of public services. These findings underscore the importance of investing in human resources and strategic HR management in the public sector to improve the efficiency and effectiveness of services provided to citizens.*

**Key words:** human resource management, public services, strategic practices, structural equation modeling

**J.E.L. classification:** H83, J24

## 1. Introduction

In the contemporary era, where societies face complex and dynamic challenges, the efficiency and effectiveness of public services have become increasingly crucial for the well-being and progress of communities. Globalization accelerated technological changes, and the pressure to do more with less has emphasized the need for efficient resource management and the delivery of high-quality public services. In this context, there is a particular emphasis on identifying and understanding the factors that contribute to the quality of service delivery, as it can have a direct impact on citizen satisfaction and sustainable social and economic development. One of these critical factors is human resource management (HRM), which plays a fundamental role in shaping organizational performance and, consequently, the quality of public services. Through the implementation of effective HRM practices, managers in the public sector can attract, develop, and retain talented personnel, improve employee engagement and productivity, and promote a culture of excellence and innovation, all of which contribute to the delivery of more efficient, transparent, and community-oriented public services. Thus, HRM becomes a central element in efforts to improve organizational performance and the quality of public services, and a deep understanding of the relationship between HRM practices and organizational outcomes becomes essential for the efficient management of public institutions in a complex and ever-changing environment.

This paper focuses on evaluating the direct influences exerted by strategic practices in human resource management on the quality of public service delivery. In this regard, we aim to investigate the essential connections between HRM strategies and organizational performance regarding the provision of public services. By analyzing and understanding these connections, we seek to contribute to the development of a comprehensive perspective on how human resource management can influence and enhance the quality of public services for the benefit of communities and citizens. The paper provides a systematic and coherent presentation of the relationship between strategic practices in human resource management and the quality of public services. Through the exploration of relevant literature and detailing of the research methodology, the aim is to understand and highlight the impact of HRM practices on organizational performance in delivering public services. This structure is intended to ensure coherence and clarity, contributing to a deep understanding and full utilization of the research results.

## **2. Theoretical background**

In recent decades, research in the fields of human resources and public management has highlighted a significant increase in interest regarding the influence of strategic human resource practices on the quality of public services. Various authors have analyzed this complex relationship and emphasized the importance of implementing effective human resource management practices in public sector organizations.

Chung-Jen Chen et al. (2018) conducted a comprehensive study to evaluate the impact of human resource management practices on performance within governmental organizations in Taiwan. They investigated various aspects of HRM, focusing mainly on recruitment and selection practices, as well as employee development. Their results demonstrated that these practices significantly influence organizational effectiveness and the quality of public services provided. Their study provides a deep understanding of how HRM strategies can contribute to improving organizational performance and the quality of public services, offering valuable guidance for practitioners and managers in the public sector.

Chung-Jen Chen et al. (2018) conducted a comprehensive study to evaluate the impact of human resource management practices on performance within governmental organizations in Taiwan. They adopted a multidimensional approach, investigating not only recruitment and selection practices but also aspects such as employee training and development, performance management, and rewards. By analyzing data collected from a series of governmental organizations, their study highlighted that HRM practices significantly influence organizational effectiveness and the quality of public services provided. Furthermore, it was found that a strategic and integrated approach to HRM, which includes a wide range of coherent practices and policies, has a more substantial positive impact on organizational performance compared to isolated practices. Their results not only confirm the importance of effective human resource management in the public sector but also emphasize the need to adapt these practices to the specificities of governmental organizations to maximize their impact on the quality of public services. This research offers a deeper and more detailed understanding of the vital link between HRM practices and organizational performance in the public sector, thus providing a valuable framework for the development and implementation of effective HRM practices in governmental organizations.

In contrast, the studies by Perry and Wise (2020) highlighted specific challenges faced by human resource management in the public sector, revealing that bureaucratic rigidity and financial constraints are significant obstacles to implementing effective HRM practices and, consequently, improving the quality of public services. Bureaucratic rigidity may hinder the processes of staff recruitment and promotion, affecting the flexibility and capacity of organizations to respond to changes in their external and internal environments. Additionally, financial constraints may limit the resources available for investments in human resource development and for the implementation of effective HRM policies and programs. This can lead to underutilization of employee potential and, consequently, to a decrease in the quality of services provided. In light of these challenges, managers in the public sector need to adopt innovative approaches and develop flexible strategies for human resource management so as to overcome existing constraints and maximize the efficiency and effectiveness of their organizations in delivering public services.

Previous research underscores the importance of strategic human resource management in the public sector and its impact on the quality of services provided. However, there are still challenges and specific aspects that require special attention in future research to understand better the complex relationship between strategic HRM practices and organizational performance in the public sector.

### **3. Research methodology**

For this research, we selected a representative sample of organizations from the public sector operating in a variety of fields, such as local administration, public health, education, and social services. The sample was chosen to reflect the diversity of public organizations and to ensure adequate representation of different contexts and characteristics. Data were collected using structured questionnaires. The questionnaires were distributed to employees at various hierarchical levels of the selected organizations, with a focus on departments or teams directly involved in delivering public services.

To assess strategic human resource management practices, a questionnaire based on hypotheses was developed and administered to employees of public institutions in Olt County. The questionnaire consists of 32 items comprising seven primary variables, each of which is detailed by secondary variables (questionnaire items) as follows: socio-demographic variables (6 items); recruitment and selection of human resources (B8a-B10a); employee training and development (C11a-C14a); performance management (D15a-D19a); work environment (E20a-E23a).

A questionnaire was developed and administered to beneficiaries of public services provided by the selected public institutions in Olt County to evaluate the quality of services provided by public institutions. The questionnaire consists of 14 items comprising seven primary variables, each of which is detailed by secondary variables (questionnaire items) as follows: socio-demographic variables (B1b-B3b); quality of public services (B4b); tangible elements (B5b-B7b); assurance (B8b); reliability (B9b, B10b); responsiveness (B11b, B12b); empathy (B13b, B14b).

The collected data were analyzed using structural equation modeling (SEM). SEM allows for the examination of complex relationships between multiple variables and the identification of latent models that explain the relationships between them. Various researchers also use it.

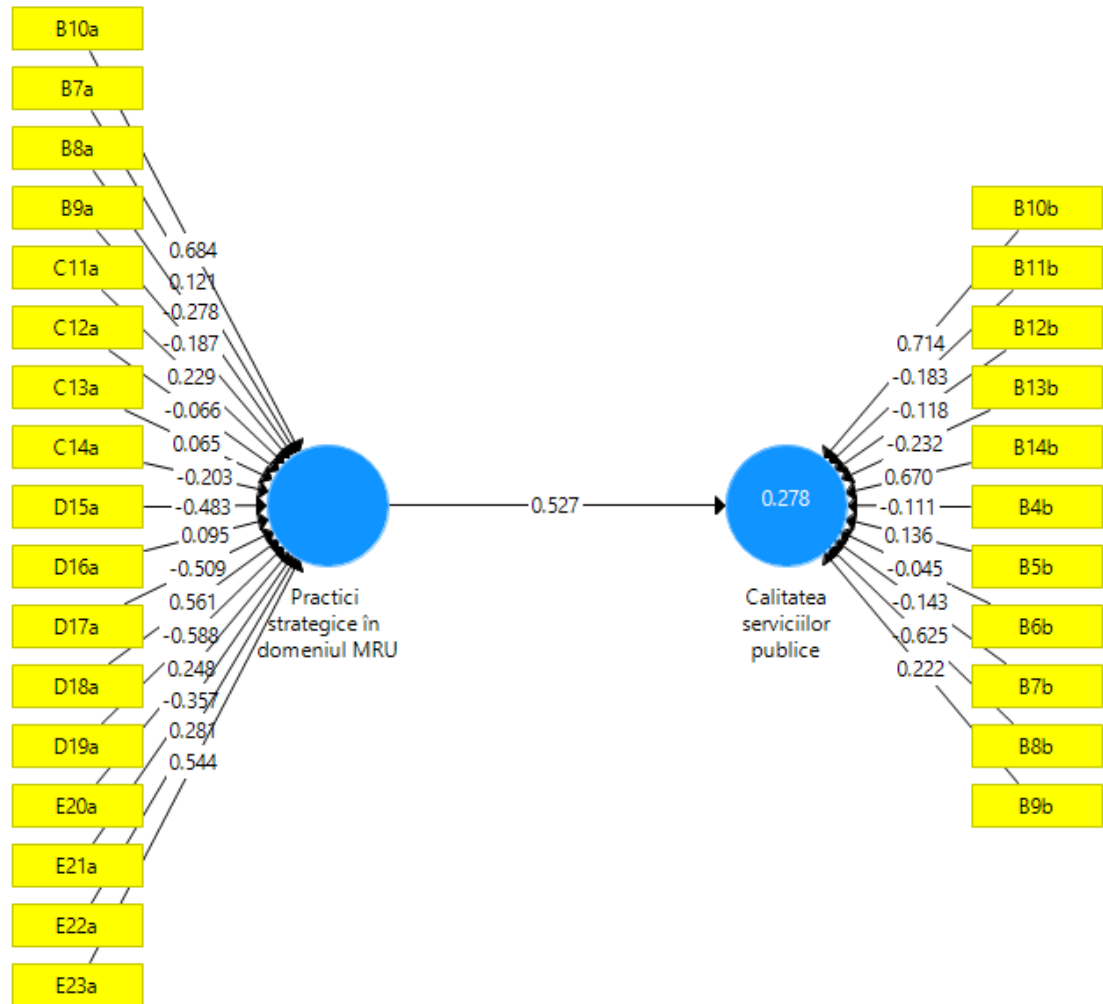
The research hypothesis proposed was that strategic practices in human resource management exert a significant favorable influence on the quality of public services. To validate our hypothesis, we used SEM to test the relationship between strategic HRM practices and the quality of public services while controlling for other relevant variables, such as organizational and contextual characteristics.

### **4. Results and discussions**

To test the research hypothesis, we used structural equation modeling (SEM). The SEM model used is of the PLS (partial least squares) formative type. Latent variables are represented by strategic practices in human resource management and the quality of public services. Each of these latent variables (endogenous) is characterized by observable variables (exogenous) represented by questionnaire items. The empirical model resulting from testing hypothesis IP4 is presented in Figure No. 1.



Figure no. 1. Empirical model of the direct relationships between strategic practices in human resource management and the quality of public services.



Source: Developed based on data collected using SmartPLS v3.0

For a formative model, the validity of the model is given by the analysis of multicollinearity. VIF (Variance Inflation Factor) is a measure used in SEM models to assess the degree of collinearity or intercorrelation between independent variables. VIF is calculated for each independent variable, taking into account its relationship with the other independent variables in the SEM model. When independent variables are strongly correlated with each other, VIF increases, signaling a collinearity problem. A higher VIF indicates stronger collinearity and suggests that the independent variable may share redundant information with other independent variables in the model. A VIF of 1 indicates no collinearity, while a VIF greater than 5-10 may indicate significant collinearity (Hair et al., 2017). For the given model, the multicollinearity indicators (Variance Inflation Factor) are presented in Table No. 1.

Table no. 1. Multicollinearity within the model of direct relationships between strategic practices in human resource management and the quality of public services.

Strategic practices in human resource management	VIF	Quality of public services	VIF
B7a	3.886	B4b	2.229
B8a	3.608	B5b	1.939
B9a	2.917	B6b	1.786
B10a	2.230	B7b	1.605
C11a	2.617	B8b	1.557
C12a	2.789	B9b	1.807
C13a	2.169	B10b	2.587
C14a	1.914	B11b	1.816
D15a	2.580	B12b	2.189
D16a	2.403	B13b	1.508
D17a	2.869	B14b	1.948
D18a	2.958		
D19a	1.706		
E20a	1.938		
E21a	2.055		
E22a	2.159		
E23a	2.149		

Source: Developed based on data collected using SmartPLS v3.0

The indicators characterizing the adequacy of the model fit fall within the recommended values (Hair et al., 2017). SRMR (Standardized Root Mean Square Residual) registers values below 0.8 (0.073), while NFI (Normed Fit Index) has a value of 0.951, exceeding the acceptable threshold of 0.9 (Table no. 2).

Table no. 2. Model fit indicators of the direct relationships between strategic practices in human resource management and the quality of public services.

	Saturated Model
SRMR	0.045
d_ ULS	0.809
d_ G	0.193
Chi-Square	190.480
NFI	0.942

Source: Developed based on data collected using SmartPLS v3.0

Table no. 3 presents the influences exerted by the latent variables of organizational culture and governmental policies on the strategic practices in human resource management.

*Table no. 3. Path coefficients of the model depicting the direct relationships between strategic practices in human resource management and the quality of public services.*

	Path coefficient	Sample Mean	Standard Deviation	T Statistics	P Values
Strategic practices in human resource management -> Quality of public services	0.527	0.162	0.642	2.821	0.012

*Source:* Developed based on data collected using SmartPLS v3.0

Based on all these findings and considerations, it can be said that IP4 is validated. From Table 4.15, it can be observed that the latent variable of strategic practices in human resource management exerts a significant favorable influence ( $C > 0.5$ ;  $p < 0.05$ ) on the quality of public services. This finding underscores the importance of implementing and maintaining effective strategic practices within public institutions' human resource management. The fact that these practices have a significant influence on the quality of public services highlights the crucial role of human resources in delivering efficient and high-quality services to their beneficiaries. This research, highlighting the significant positive influence of strategic practices on service quality, indicates a certain degree of alignment between human resource management and the goals of public institutions (Beattie and Waterhouse, 2022). The research results suggest that, within public institutions, effective human resource management can be a crucial component in improving the quality of public services provided. Implementing and maintaining appropriate strategic practices in this area could represent a crucial aspect of organizational strategies aimed at increasing efficiency and beneficiary satisfaction (Vărzaru and Vărzaru, 2013a, 2013).

## 5. Conclusions

In light of the research conducted, the conclusions of this study highlight the importance of strategic practices in the field of human resource management (HRM) in the quality of public service delivery. The results of the SEM analysis have confirmed the initial hypothesis, demonstrating that strategic HRM practices exert a positive and significant influence on the quality of public service delivery. Specifically, it has been found that recruitment and selection practices, training and development, and performance management have significantly contributed to improving organizational performance and the quality of public services.

Employee engagement and satisfaction are critical factors in ensuring the quality of public services. Data analysis revealed that employee engagement and satisfaction play a crucial role in the delivery process of high-quality public services. Organizations that have successfully implemented effective HRM practices have shown a higher tendency to have engaged and motivated employees, leading to an improvement in the quality of services provided.

Organizational and cultural context influences the implementation of HRM practices and the quality of public services. Although HRM practices have been identified as having a positive impact on the quality of public services, the analysis has shown that the organizational and cultural context can influence how these practices are implemented and employees' perceptions of them. Organizations need to consider these aspects and adapt HRM practices to their specific context in order to maximize their impact on the quality of public services.

Overall, these conclusions underline the importance of effective human resource management in ensuring the quality of public services and highlight the continued need for investment in the development and implementation of effective HRM practices in public sector organizations. By adopting a strategic and employee-oriented approach, organizations can significantly improve the performance and effectiveness of public services, thereby contributing to citizen satisfaction and the achievement of their social and economic objectives.

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# Assessing the Direct Influences Exerted by Organizational Culture and Government Policies on Strategic Human Resource Practices

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## Abstract

*In today's dynamic business environment, where organizations strive to remain competitive and adaptable, understanding the intricate interplay between organizational culture and government policies has become increasingly imperative for effectively managing human resources and devising strategic initiatives. This paper employs Structural Equation Modeling (SEM) to investigate the complex interaction between organizational culture and government policies, focusing on their direct influences on strategic human resource practices. In today's business environment, where organizations strive to remain competitive and adaptable, understanding this complex interplay has become increasingly imperative for effectively managing human resources and devising strategic initiatives. Through SEM analysis, we aim to highlight how organizational culture, government policies, and strategic HRM practices shape and mutually influence each other, shedding light on the dynamics of this relationship and offering an understanding of both theory and practice.*

**Key words:** Organizational culture, government policies, strategic human resource practices, structural equation modeling

**J.E.L. classification:** H83, J24

## 1. Introduction

In today's business environment, where organizations strive to remain competitive and adaptable, understanding the intricate interplay between organizational culture and government policies has become increasingly imperative for effectively managing human resources and devising strategic initiatives. Organizational culture, comprising shared values, beliefs, and norms within an organization, plays a crucial role in shaping employee behavior, attitudes, and performance. Similarly, government policies and regulations concerning labor, employment, and workplace practices set the legal framework within which organizations operate, influencing recruitment, training, compensation, and other HR practices (Vărzaru and Vărzaru, 2013a, 2013b).

However, despite recognition of the individual importance of organizational culture and government policies in shaping HR practices, there exists a notable gap in research regarding how these two factors interact and directly influence strategic HRM practices (Wilkinson, 2022). While numerous studies have examined the impact of either organizational culture or government policies on HRM independently, limited attention has been paid to understanding their combined effects and the mechanisms through which they intersect to shape strategic HRM decisions (Young, 2021).

In this context, our article investigates this interaction using Structural Equation Modeling (SEM), a robust analytical framework for evaluating the complex relationships between key variables. By integrating perspectives from organizational behavior, HR management, and public policy, we seek to provide a comprehensive understanding of how organizational culture and government policies directly influence strategic HRM practices. Specifically, we focus on variables such as organizational culture, government policies, and strategic HRM practices, aiming to elucidate how these factors shape and mutually influence each other within the organizational context.

Through our research, we aim to address this gap in the literature and contribute to a deeper understanding of the dynamics between organizational culture, government policies, and strategic HRM practices. By uncovering the mechanisms through which these factors interact, we hope to provide valuable insights for both academia and practitioners, informing strategic decision-making and HRM practices in contemporary organizations.

## 2. Theoretical background

Organizational culture and government policies are two significant determinants that shape the landscape of strategic HRM practices within organizations. Understanding their contributions and how they intersect is crucial for developing effective HRM strategies and ensuring organizational success.

Organizational culture, defined as the shared values, beliefs, and norms that guide behavior within an organization, has long been recognized as a critical factor influencing HRM practices. Schein (1985) emphasizes the role of organizational culture in shaping employee behavior and decision-making processes, highlighting its impact on recruitment, performance management, and organizational performance (Vărzaru and Vărzaru, 2015b; Vărzaru and Vărzaru, 2016). Similarly, Hofstede (1980) identifies dimensions of organizational culture, such as power distance and uncertainty avoidance, which influence HRM practices across different cultural contexts.

Numerous studies have demonstrated the link between organizational culture and strategic HRM practices. For example, Denison and Mishra (1995) found that organizations with strong cultures characterized by adaptability and employee involvement were more likely to adopt innovative HRM practices. Similarly, O'Reilly et al. (1991) showed that organizations with a strong culture of customer service tend to prioritize HR practices that enhance employee satisfaction and customer orientation.

Government policies and regulations play a significant role in shaping HRM practices by setting legal requirements and standards for employment relations. The impact of government policies on HRM has been widely studied, with researchers examining various aspects such as labor laws, minimum wage regulations, and employment protection legislation.

Becker and Huselid (1998) argue that government policies can both constrain and enable strategic HR practices. While regulations such as minimum wage laws and anti-discrimination statutes impose compliance requirements on organizations, they also create opportunities for differentiation and competitive advantage through strategic HR initiatives. Moreover, scholars have highlighted the importance of government policies in shaping HRM practices related to diversity and inclusion (Kalev et al., 2006) and employee rights (Guest, 1997).

While organizational culture and government policies have been studied extensively in isolation, there is a growing recognition of the need to understand their intersection and combined effects on strategic HRM practices. Scholars have increasingly emphasized the importance of considering both factors simultaneously, as they interact and mutually influence organizational behavior and HRM outcomes (Bocean, 2007, 2008, 2009).

For example, Jackson et al. (2014) argue that organizational culture moderates the impact of government policies on HRM outcomes. They suggest that organizations with strong cultures are better equipped to navigate and respond to regulatory changes effectively (Vărzaru et al., 2013; Vărzaru and Vărzaru, 2015a). Such organizations may have well-established values, norms, and practices that guide decision-making and behavior, enabling them to adapt their HRM strategies in alignment with evolving legal requirements. In contrast, organizations with weaker or less coherent cultures may struggle to interpret and implement government policies, leading to inconsistencies in HRM practices and compliance issues (Vărzaru and Vărzaru, 2015b; Vărzaru and Vărzaru, 2016).

Moreover, organizations with strong cultures may leverage government policies as opportunities for competitive advantage. By aligning HRM practices with organizational values and norms, these organizations can differentiate themselves in the labor market and attract and retain top talent. For instance, policies promoting diversity and inclusion may be embraced and integrated into the organizational culture, leading to a more diverse and engaged workforce.

Conversely, government policies can also shape organizational culture by setting norms and

expectations for acceptable practices (Denhardt et al., 2019). For example, labor laws mandating fair treatment of employees may reinforce values of fairness and equity within organizations, influencing HRM practices such as performance management and compensation. Similarly, regulations promoting work-life balance may encourage the adoption of policies and programs that support employee well-being and flexibility, contributing to a positive organizational culture (Bocean, 2007).

Overall, the interaction between organizational culture and government policies has significant implications for strategic HRM practices. By understanding how these factors intersect and influence each other, organizations can develop HRM strategies that are not only compliant with legal requirements but also aligned with their values, goals, and competitive strategies. This recognition underscores the importance of considering both organizational culture and government policies in the design and implementation of HRM practices, ensuring their effectiveness and sustainability in today's complex business environment (Denhardt et al., 2019).

Organizational culture and government policies are critical determinants that shape strategic HRM practices within organizations. While existing research has provided valuable insights into their individual effects, more studies are needed to understand their combined influences and the mechanisms through which they interact. By exploring this intersection, scholars can contribute to a deeper understanding of how organizations navigate the complexities of regulatory environments while fostering cultures that support strategic HRM objectives.

### **3. Research methodology**

To assess the strategic human resource management practices, a questionnaire based on hypotheses was developed and administered to employees of public institutions in Olt County. The questionnaire consists of 32 items comprising seven primary variables, each of which is detailed by secondary variables (questionnaire items) as follows: socio-demographic variables (6 items); recruitment and selection of human resources (B7a-B10a); employee training and development (C11a-C14a); performance management (D15a-D19a); work environment (E20a-E23a); organizational culture (F25a-F29a); government policies (G30a-G32a).

A purposive sampling technique was utilized to select participants from public institutions in Olt County, ensuring representation across different organizational levels and departments. The questionnaire was administered electronically or in paper format, depending on participant preference, to ensure maximum participation and data integrity.

Quantitative data collected through the questionnaire were analyzed using descriptive statistics to summarize participant demographics and frequency distributions of responses. Structural Equation Modeling (SEM) was then employed to examine the relationships between organizational culture, government policies, and strategic HR practices. SEM allows for the estimation of both the measurement model (relationships between observed and latent variables) and the structural model (relationships between latent variables), providing insights into the direct influences exerted by organizational culture and government policies on strategic HR practices. Also, other authors have successfully used SEM to determine the relationships between heterogeneous variables (Bocean et al., 2021, 2023; Nicolescu and Vărzaru, 2020; Vărzaru et al., 2022; Vărzaru, 2022a, 2022b).

The hypothesis of this study posits that organizational culture and government policies significantly influence strategic practices in human resource management (HRM).

Organizational culture, characterized by shared values, beliefs, and norms within an organization, shapes employee behaviors, attitudes, and decision-making processes. A solid organizational culture fosters alignment with strategic objectives and influences the adoption and implementation of HRM practices that support organizational goals. Thus, it is hypothesized that variations in organizational culture will correspond to differences in strategic HRM practices across organizations.

Similarly, government policies and regulations concerning labor, employment, and workplace practices create a regulatory framework within which organizations operate. These policies influence HRM practices by imposing legal requirements, shaping employee rights and protections, and setting standards for employment relations. Consequently, it is hypothesized that variations in government policies will impact the strategic HRM practices adopted by organizations as they seek to comply with regulatory requirements and leverage policy opportunities for competitive advantage.

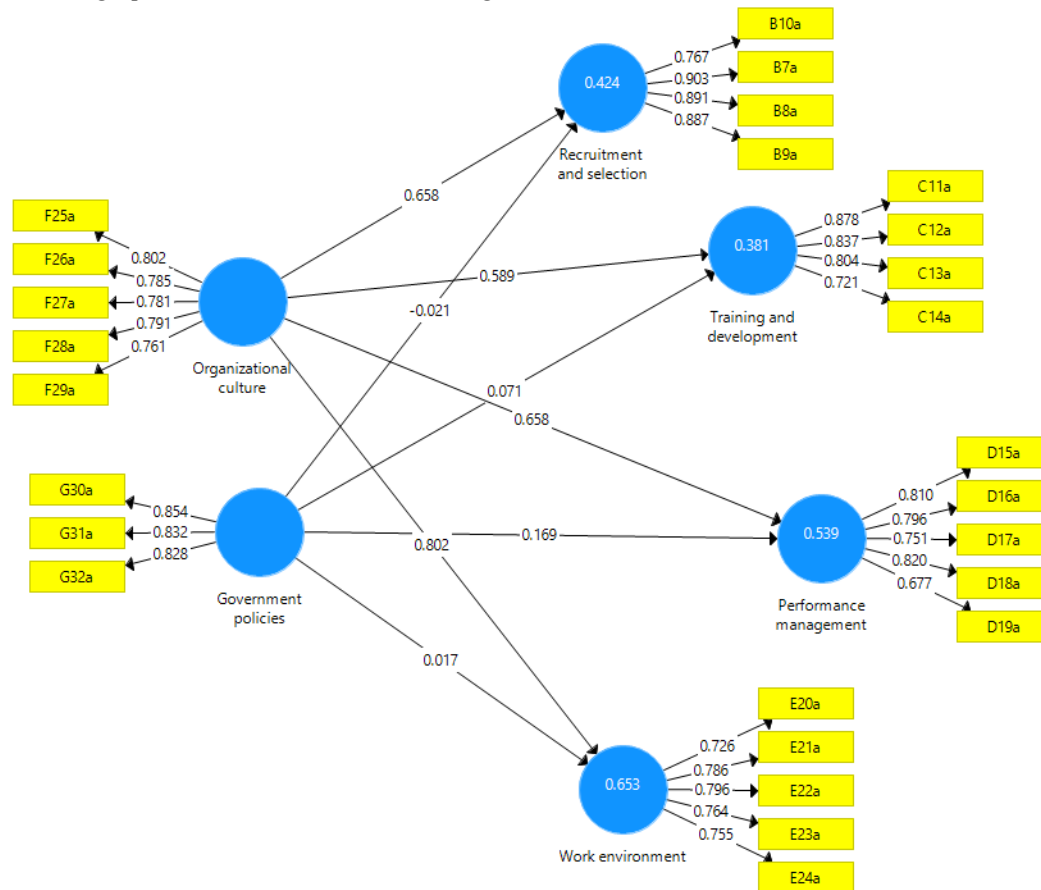
### **4. Results and discussions**



To test the research hypothesis, we utilized artificial neural networks, which are individually established between variables defining organizational culture and government policies, variables characterizing strategic practices in human resource management, and structural equation modeling (SEM).

The SEM model used is of the reflective type with Partial Least Squares (PLS). The latent variables are represented by employee recruitment and selection, employee training and development, performance management, work environment, organizational culture, and government policies. Each of these latent variables (endogenous) is characterized by observable variables (exogenous) represented by questionnaire items. The resulting empirical model from testing the hypothesis is illustrated in Figure No. 1.

Figure no. 1. Empirical model of the relationships between organizational culture, government policies, and strategic practices in human resource management.



Source: Developed based on data collected using SmartPLS v3.0

The loadings of the exogenous variables exceed the recommended value of 0.7, with only one exception (D19). Upon studying the reliability and validity indicators, it can be observed that all latent variables exhibit excellent reliability and validity (Table no. 1).

Table no. 1. Reliability and validity of the model of relationships between organizational culture,

*government policies, and strategic practices in human resource management.*

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Organizational culture	0.844	0.846	0.889	0.615
Training and development	0.831	0.863	0.885	0.660
Performance management	0.831	0.842	0.880	0.597
Work environment	0.824	0.825	0.876	0.587
Government policies	0.795	0.818	0.876	0.703
Recruitment and selection	0.885	0.894	0.921	0.746

*Source:* Developed based on data collected using SmartPLS v3.0

Discriminant validity using the Fornell-Larcker criterion shows that the model is not valid, and modifications are required (Table no. 2). The Fornell-Larcker criterion is used to ensure that latent variables in a structural model are genuinely distinct and measure different concepts (Hair et al., 2017).

*Table no. 2. Discriminant validity of the model of relationships between organizational culture, government policies, and strategic practices in human resource management.*

	Organizational culture	Training and development	Performance management	Work environment	Government policies	Recruitment and selection
Organizational culture	0.784					
Training and development	0.614	0.812				
Performance management	0.717	0.735	0.772			
Work environment	0.808	0.660	0.726	0.766		
Government policies	0.348	0.276	0.398	0.296	0.838	
Recruitment and selection	0.650	0.597	0.667	0.659	0.208	0.864

*Source:* Developed based on data collected using SmartPLS v3.0

Furthermore, the indicators characterizing the adequacy of the model (model fit) show that further modifications are necessary to increase its validity and reliability. SRMR (Standardized Root Mean Square Residual) records values above 0.08, and NFI (Normed Fit Index) has a value of 0.8, which is below the acceptable value of 0.9 (Table no. 3).

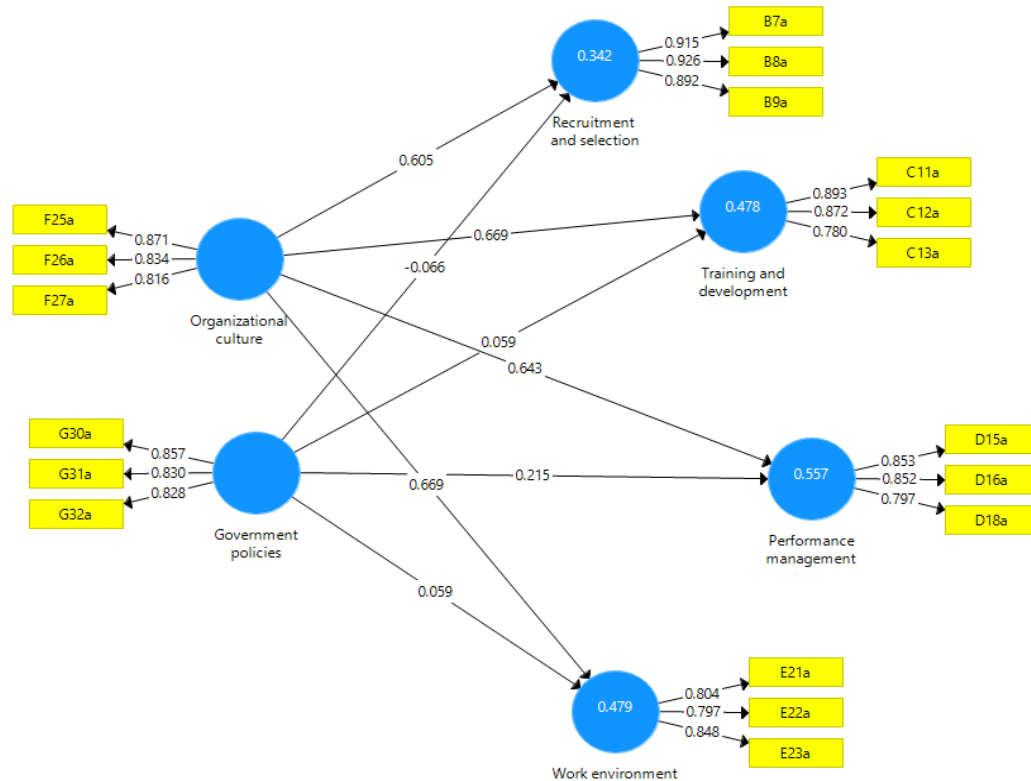
*Table no. 3. Indicators of the adequacy of the model of relationships between organizational culture, government policies, and strategic practices in the field of human resource management.*

	Saturated model
SRMR	0.089
d_ ULS	2,752
d_ G	0.937
Chi-Square	1065.659
NFI	0.800

*Source:* Developed based on data collected using SmartPLS v3.0

To increase the reliability and validity of the model, we eliminated the exogenous variables with the lowest loadings. The resulting modified model is presented in Figure no. 2.

Figure no. 2. Modified empirical model of the relationships between organizational culture, government policies, and strategic practices in the field of human resource management.



Source: Developed based on data collected using SmartPLS v3.0

Upon studying the reliability and validity indicators of the modified model, it can be noted that all latent variables also exhibit excellent reliability and validity (Table no. 4). The AVE (Average Variance Extracted) indicator is a measure of the convergent validity of a latent construct. It is calculated as the average of the squared loadings' variances of the indicators on the latent factor, divided by the sum of the variances and covariances of the indicators (Hair et al., 2017). This indicator is higher for all latent variables of the modified model, except for government policies, where the AVE remains stagnant.

Table no. 4. Reliability and validity of the modified model of the relationships between organizational culture, government policies, and strategic practices in the field of human resource management.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Organizational culture	0.793	0.799	0.878	0.707
Training and development	0.808	0.828	0.886	0.722
Performance management	0.783	0.790	0.873	0.696
Work environment	0.751	0.762	0.857	0.667
Government policies	0.795	0.817	0.877	0.703
Recruitment and selection	0.898	0.899	0.936	0.830

Source: Developed based on data collected using SmartPLS v3.0

Discriminant validity using the Fornell-Larcker criterion, however, shows that the modified model is valid (Table no. 5). All values below the main diagonal are smaller than the values on this diagonal, both row-wise and column-wise.

*Table no. 5. Discriminant validity of the modified model of the relationships between organizational culture, government policies, and strategic practices in the field of human resource management.*

	Organizational culture	Training and development	Performance management	Work environment	Government policies	Recruitment and selection
Organizational culture	0.841					
Training and development	0.690	0.850				
Performance management	0.719	0.737	0.835			
Work environment	0.690	0.615	0.667	0.817		
Government policies	0.352	0.295	0.442	0.295	0.838	
Recruitment and selection	0.582	0.591	0.613	0.614	0.147	0.911

Source: Developed based on data collected using SmartPLS v3.0

The indicators characterizing the adequacy of the model (model fit) fall within the recommended values (Hair et al., 2017). SRMR (Standardized Root Mean Square Residual) records values below 0.8 (0.073), and NFI (Normed Fit Index) has a value of 0.951, which is above the acceptable value of 0.9 (Table no. 6).

*Table no. 6. Indicators of the adequacy of the modified model of the relationships between organizational culture, government policies, and strategic practices in the field of human resource management.*

	Saturated Model
SRMR	0.073
d_ ULS	0.912
d_ G	0.448
Chi-Square	545.275
NFI	0.911

Source: Developed based on data collected using SmartPLS v3.0

Table no. 7 presents the influences exerted by the latent variables of organizational culture and government policies on strategic practices in the field of human resource management.

*Table no. 7. Path coefficients of the modified model of the relationships between organizational culture, government policies, and strategic practices in the field of human resource management.*

	Path coefficient (C)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Organizational culture -> Training and development	0.669	0.667	0.057	11.805	0.000
Organizational culture -> Performance management	0.643	0.644	0.061	10.571	0.000
Organizational culture -> Work environment	0.669	0.672	0.044	15.338	0.000
Organizational culture -> Recruitment and selection	0.605	0.604	0.056	10.712	0.000
Government policies -> Training and development	0.059	0.063	0.067	0.874	0.383

Government policies -> Performance management	0.215	0.217	0.060	3.595	0.000
Government policies -> Work environment	0.059	0.056	0.058	1.024	0.306
Government policies -> Recruitment and selection	-0.066	-0.064	0.070	0.940	0.348

Source: Developed based on data collected using SmartPLS v3.0

Based on all these findings and considerations, we can say that the hypothesis is partially validated. From Table 3.52, it can be observed that the latent variable organizational culture exerts significant positive influences ( $C > 0.6$ ;  $p < 0.001$ ) on all strategic practices in the field of human resource management. When organizational culture is well-defined and promotes values such as transparency, continuous improvement, and respect for stakeholders, a significant correspondence is observed with the adoption of efficient human resource management practices (Young, 2021).

On the other hand, the latent variable government policies exert a significant positive influence only on performance management ( $C > 0.6$ ;  $p < 0.001$ ) among the strategic practices in the field of human resource management. Government policies, such as objective-based evaluation and transparent criteria, feedback and solutions for activity improvement, fairness, and equity in the salary system, have a more pronounced impact on employee performance management compared to other aspects of human resource management (Denhardt et al., 2019).

## 5. Conclusions

The study revealed a strong and direct influence of organizational culture on strategic HR practices. Organizations with cohesive and well-defined cultures were found to exhibit more aligned and effective HRM strategies, emphasizing the importance of culture in shaping HR practices. Additionally, government policies were also found to exert a significant influence on strategic HR practices, particularly in areas such as recruitment, training, and performance management. Organizations demonstrated a need to adapt their HRM strategies in response to regulatory changes and compliance requirements.

Furthermore, the study highlighted the interplay between organizational culture and government policies, with organizational culture moderating the impact of policy changes on HRM outcomes. Organizations with solid cultures were better able to navigate regulatory changes and leverage them for competitive advantage. These findings have important implications for HR practitioners and organizational leaders. Recognizing the influence of both organizational culture and government policies, organizations can develop HRM strategies that are not only compliant with legal requirements but also aligned with their values and goals.

While this study provides valuable insights, further research is needed to explore additional factors that may influence the relationship between organizational culture, government policies, and strategic HR practices. Longitudinal studies and comparative analyses across different industries and regions could provide a deeper understanding of these dynamics.

In conclusion, this study underscores the importance of considering both organizational culture and government policies in shaping strategic HR practices. By understanding the complex interplay between these factors, organizations can develop HRM strategies that drive organizational success and competitive advantage in today's dynamic business environment.

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# The Sustainable Value Creation Diamond: The Resource-Based Theory Approach

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## Abstract

*The Sustainable Value Creation Diamond is a metaphorical model for leaders in any firm aiming to create sustainable value. The paper's purpose is to further develop earlier original work done by the author initially focused on farms, making it now applicable to all types of firms. It builds on the Resource-Based Theory of the firm broadening the model's use to the management of a wide spectrum of organizations. The importance of “Time” in “Value Creation” is recognized through the construct of “Time to Value Capture”. The diamond metaphor's source domain meaning is that of lasting and sought after value. It is an original graphical model and a powerful illustration of the core claims of the model. The model could be used as a blueprint in the decisional process of an organization as well as an educational tool to illustrate the synergies in the existent literature on firms' performance.*

**Key words:** value creation, ESG, resource-based theory, metaphorical thinking

**J.E.L. classification :** D21, D70, D81, M1

## 1. Introduction

Value creation literature is extraordinarily rich, including an extensive number of books and articles, and it is treated from remarkably diverse points of view (Markovits, 2022). Definitions of value have been a constant concern in academic works and might go back all the way to Aristotle (Yar Hamidi, 2019).

The aim of management in a company or firm is to create value (Kraaijenbrink & Spender, 2011; Yar Hamidi, 2019). For the viability of a firm, the long-term value creation is essential (Goedhart & Koller, 2020, Bowman & Ambrosini, 2007). Decision-making is the essence of management, and it is usually built on two pillars: first, the process of generating alternatives of how to solve problems and, second, choosing among the generated options (Drucker, 1974), therefore decision making in a firm should also have the aim of value creation (Spetzler et al., 2016).

Amit and Zott (2001) in their study of e-businesses found four potential sources of value creation: *efficiency, complementarities, lock-in, and novelty*. Digital transformation of businesses is deemed to be a powerful way to create value (Markovits, 2022), especially when focused on the value chain categories proposed by Porter (Porter, 1985, p. 37): firm infrastructure, procurement, inbound logistics, operations, outbound logistics, marketing & sales, service, human resources management and technology development.

In their analysis of the interviews of ten influential global CEOs Pinzaru et al (Pinzaru et al., 2019) highlight that digital transformation of businesses should consider both the technological and the human sides of the transformation. Furthermore, value capturing from digital transformations is considered more desirable when these transformations generate a more socially responsible and greener outcome.



## 2. Literature review

The most recent opinions about value creation for all the stakeholders in farms, as agricultural firms, are related to implementing Agriculture 4.0 practices. The general expectation is that adopting the Agriculture 4.0 practices create value chain efficiencies, augments animal welfare, significantly reduces environmental impact through reduced usage of chemicals, enhances productivity and will increase food security. (Abbasi et al., 2022 ; Latino et al., 2021; Dayioglu & Turker, 2021; Saiz-Rubio & Rovira-Mas, 2020; Klerkx et al., 2019 ; Trendov et al., 2019).

In farms, value creation through Agriculture 4.0 is likely to be more complicated to deliver than in the case of Industry 4.0 firms because value creation mechanisms in agriculture are exposed to stochastic events (weather dependency). Farms also tend to have a lower degree of labor division and specialization than industrial organizations and the occurrence of heuristics in the management process tends to be more frequent. Finally, the mobility of the production facility also has a diminishing effect on the value created. (Braun et al., 2018; Zambon et al., 2019).

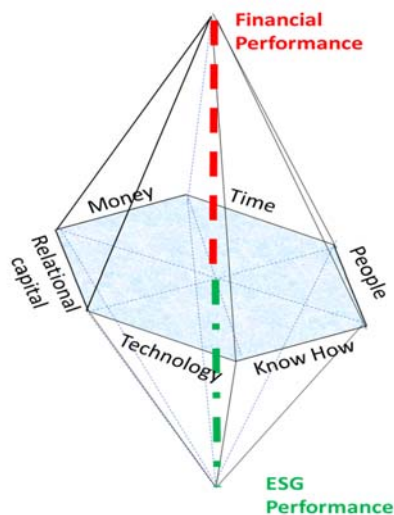
Amit & Zott (Amit & Zott, 2012) proposed the construction of “business model” as a proper place to assess value creation in a firm. In their definition, the business model “depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities.” They also affirm that a firm’s business model is an “important locus of innovation and a crucial source of value creation for the firm and its suppliers, partners, and customers” (Amit & Zott, 2001, p.493).

Osterwalder and Pigneur (Osterwalder & Pigneur, 2010) are prolific proponents the concept of business model taking it to a different level of understanding and usage through the creation of an entire toolbox comprising the business model canvas (Osterwalder & Pigneur, 2010) and value proposition canvas (Osterwalder et al., 2015) to aid practitioners to create value and build strong and lasting companies resilient in face of potential disruptions (Osterwalder et al., 2020).

Kaplan and Norton’s (Kaplan & Norton, 1996, 2004) balanced scorecard and strategy maps fundamentally changed the means to measure and illustrate the company’s strategy to create value while in more recent developments recognize the importance of non-financial value creation (Kaplan & McMillan, 2021).

The initial *Value Creation Diamond* (Markovits, 2023) proposed an illustration of the resources used in a farm and the two types of results the farm as an enterprise could and should deliver: financial performance (i.e. revenue, profit, and positive cash flow) and ESG (Environmental, Social and Governance) performance (i.e. reduced environmental impact, sustainable usage of land and water, rural social development by means of upskilling and even retention of youth in the rural communities):

Figure no. 1 The Value Creation Diamond



Source: (Markovits, 2023)

It has already recognized the importance of considering financial and non-financial goals in the managerial decision-making process. It also suggested the interdependence of the resources used in the farm-enterprise while building on the existent literature on strategy (Bratianu, 2022; Bratianu & Lefter, 2011; Bratianu & Murakawa, 2004; Porter, 1985) and strategy measurement and operationalization (Kaplan & Norton, 1996, 2004; Kaplan & McMillan, 2021). This result came with a strong impulse to explore the possibility of extrapolating it to other types of enterprises, thus making the object of the present paper.

While moving beyond the realm of the field crop farms into the broader domain of firms in any industry, it is useful to also look at some recent economic theorists. In a 2020 World Economic Forum address (Stiglitz, 2020), while warning against possible „greenwashing” Joseph Stiglitz advocates the importance of considering the Environmental, Social, and Governance (ESG) performance in the way companies operate. Joseph Stiglitz's economic theories (Stiglitz, 2019) and ESG thinking share a common thread in recognizing the limitations of traditional economic models that focus solely on financial metrics.

There are several ways in which Stiglitz's theories intersect with the ESG principles:

*Table no. 1 Stiglitz's theories and ESG thinking convergence*

	<b>Stiglitz's Theories</b>	<b>ESG thinking</b>
<b>Social and Environmental Externalities</b>	Argued that markets often fail to account for social and environmental externalities, such as pollution or inequality, which can have wide-ranging impacts on society.	Stresses the need to incorporate social and environmental considerations into business and investment decisions.
<b>Inclusive Growth</b>	Was a proponent of policies promoting inclusive economic growth, arguing that the benefits of economic development should be shared more equitably.	Emphasize the importance of creating value not just for shareholders but for all stakeholders, including employees, communities, and the environment.
<b>Corporate Social Responsibility</b>	Emphasized inclusive growth and equitable distribution	Advocate for businesses to go beyond profit maximization and take into account their social and environmental impacts.
<b>Governance and Accountability</b>	Called for a more nuanced and inclusive approach to governance, businesses to be accountable to a broader set of stakeholders.	Emphasizes the importance of strong corporate governance, transparency, and accountability

*Source:* Author's adaptation

Stiglitz's emphasis on considering the social and environmental dimensions of economic development aligns with the principles of sustainable development embedded in ESG. Both Stiglitz's work and the ESG perspective advocate for a company's decision-making to include social and environmental objectives, promoting sustainable and inclusive development. Both perspectives recognize the importance of long-term sustainability, addressing social challenges, and preserving the environment for future generations. Stiglitz's ideas strengthen the foundational framework for the Value Creation Diamond's considering the broader impacts of any economic activities.

### 3. Research methodology

This paper reviews the relevant literature in the fields of decision making, knowledge dynamics and digital agricultural decision-making systems. It is inspired by earlier work done on digitally assisted balanced decision-making in agricultural farms. It builds on and reconciles that work with currently known and used value creation models (Osterwalder & Pigneur, 2010, Osterwalder et al. 2015, 2020) as well as it relies on the Resource-Based Theory of the firm (Wernerfelt, 1984, 1995,

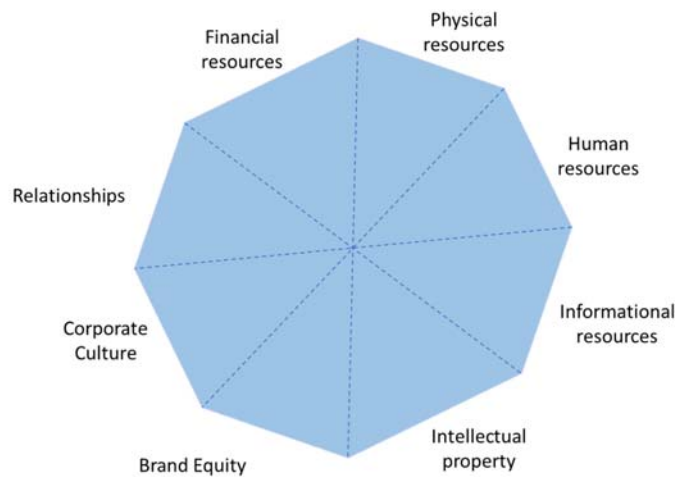
Schoemaker & Amit,1993, Barney, 1986, 1991, Grant,1991, Peteraf, 1993, Teece et al.,1997) in order to make the model applicable to the management of a broad spectrum of organizations.

Similar to its earlier version of the Value Creation Diamond (Markovits, 2023) the knowledge metaphor construction method (Bratianu & Bejinaru, 2019) was kept to draw on the known (the source) domains of the “hexagon surface”, “pyramid” and its “height” as well as the “diamond” to the target domains of “effort”, “performance” and “value creation”. The diamond metaphor was kept for its source domain meanings of lasting and sought after value, shaped through a conscientious effort of chiseling each face and inspired by the adjoined pyramid representation.

#### 4. Results and discussion

In order to broaden the scope of the firms for which it could apply, The Polygon of Resources used in the Value Creation Diamond (Markovits, 2023) was updated to reflect more prominently the views of the Resource-Based Theory of the firm (Wernerfelt,1984, 1995, Amit & Schoemaker 1993, Barney, 1986, 1991, Grant,1991, Peteraf, 1993) using the constructs of tangible (i.e. financial, physical and human resources) vs intangible assets (Teece et al.,1997) (i.e. intellectual property, informational sources, brand equity, corporate culture and relationships). This is a richer set of assets allowing to also account for non-tangible resources that could be under-represented in the average field crop farms (e.g., brand equity, corporate culture, intellectual property):

Figure no. 2 The revised Polygon of Resources



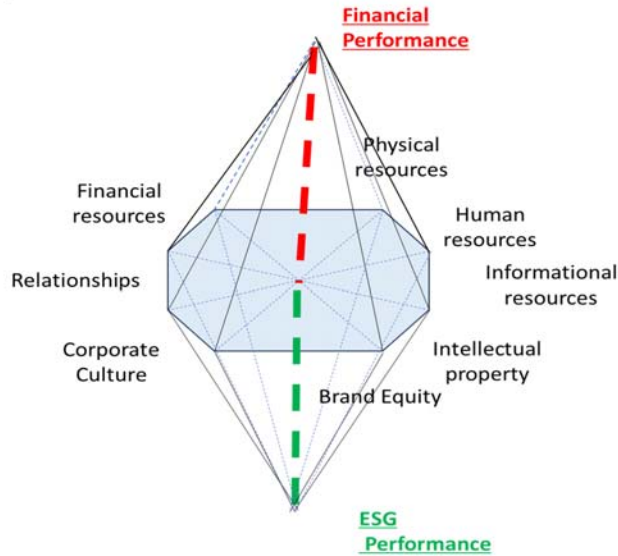
Source: Author’s own conceptual representation

The value created will be a function of all the resource types available and used by a generic firm:

$$\text{Value Created} = F(\text{financial, physical, human, intellectual property, information, brand equity, corporate culture, relationships})$$

With this revision of the Polygon of Resources and keeping the two types of value created (Financial performance and ESG performance) the new Value Creation Diamond becomes:

Figure no. 3 The revised Value Creation Diamond



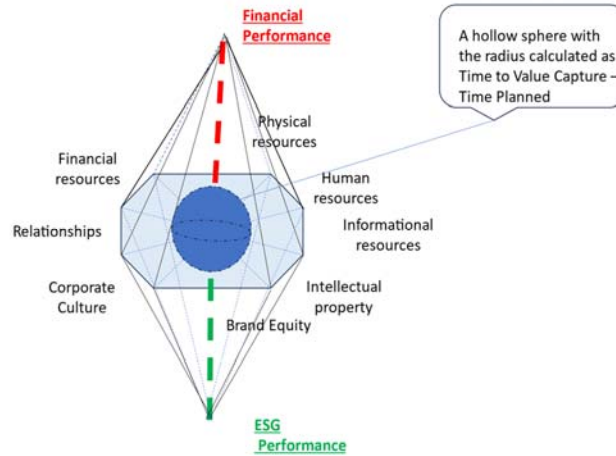
Source: Author’s own conceptual representation

In the earlier version of the *Value Creation Diamond* (Markovits, 2023) the “Time” as a resource had a very prominent role, being in the Polygon of Resources. This was due to the importance the “Time” resource plays in the project management theory and practice (Van Wyngard et al.,2012). While socializing the model at several academic conferences and inspired again by project management literature I found a new way to account for the importance of time. The inspiration came from Brent Flyvbjerg’s unique analysis of more than 16000 projects in more than twenty fields of activity done in 136 countries on all continents (Flyvbjerg & Gardner, 2023). He found that 99.5% of the projects do not achieve simultaneously their full objectives within the agreed timeframe and within budget while 8,5% could be finished on time and on budget but without achieving full objectives. Also 47.5% of the projects were completed within budget while a staggering 91.5% of projects were late, and thus late in delivering the projected benefits. This paper proposes that this new time, the time till a project delivers its expected benefits to be called *Time to Value Capture*. In line with Flyvbjerg’s learnings, the shorter the execution time, i.e., the Time to Value Capture, the more likely that the project could finish on time, within budget and on scope. He sees this time as a window of opportunity that while still open, could allow for disturbances even “black swans” to affect the delivery of the project and its expected value. The equation of created value would have to reflect the value extracted due to delays. The below formula proposes the way to account for the newly created value both financial and ESG and the value subtracted by the delay:

$$\text{Value created} = \text{Financial Performance} + \text{ESG Performance} - (\text{Time to Value Capture} - \text{Time Planned}) \times (\text{Financial Performance} + \text{ESG Performance})$$

$$VC = FP + ESGP - (TVC - TP) \times (FP + ESG)$$

Figure no. 5 The complete new Sustainable Value Creation Diamond



Source: Author's proposal

## 5. Conclusions

Farms are a model of enterprise where financial performance and environmental impact make obvious the need to adopt a sustainable way to generate value. With rural development in play, it shapes the need for the value creation outcomes to achieve also other goals beyond financial performance, pointing to the gamut of the ESG objectives. Their example is a strong springboard to extrapolate this way of thinking to other types of firms. The revised Value Creation Model through its Resource-Based Theory of the Firm approach is giving an answer to this need. Introducing the Time to Value Capture construct, the model gains practical relevance as it factors in the importance of delivering the projected value in time and within budget. The model could be used by both practitioners and educators in their current activity as a blueprint in the decisional process of an organization as well as an educational tool to illustrate the need for performance synergies in sustainable firms.

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## Quality Strategies and Sustainability Measures in Romanian Spa Tourism

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### Abstract

*Balneary tourism represents an essential segment of the economy and the tourism sector, addressing essential requirements for maintaining health and well-being. Implementing quality strategies and sustainability measures is essential for thriving in a competitive environment and securing customer loyalty. This paper aims to identify the most relevant quality strategies and sustainability measures applied within the Romanian spa tourism market and their impact on attracting and retaining tourists. The research’s findings emphasize the critical role of quality and sustainability in boosting Romanian spa tourism’s competitiveness and attracting and retaining tourists. Spa tourism in Romania is valued for its therapeutic benefits, environmental quality, and year-round services, with recent economic growth leading to modernization. Quality strategies like ISO 9001:2015 certification, quality differentiation, and new technologies are crucial, though not widely recognized. Sustainability measures, such as efficient resource use, are increasingly necessary to consumers, enhancing the competitiveness of Romanian spa tourism.*

**Key words:** balneary tourism, quality strategies, spa tourism, sustainability measures, Romania

**J.E.L. classification:** L83, Q56, M31

### 1. Introduction

Balneary tourism is an important segment of the economy in general and tourism, in particular, in the context of the need to meet certain requirements related to maintaining people’s health and well-being. This form of tourism can only work with the existence of therapeutic natural resources and the conditions offered by spa resorts.

Competition in the tourism market is observed in practice through the level of tourism services offered. This is why the issue of service quality has become increasingly important. From a conceptual and operational point of view, the quality of touristic services refers to aspects such as the perceived quality of the services, the role of normative expectations taken as determinants or components of perceived quality, as well as the relationship between perceived quality and customer satisfaction.

Quality has become a key variable of competitiveness, impacting the main indicators of tourism and business profitability such as the number of overnight stays, average stay, employment rate, average daily room rates, average daily room income available and occupied, etc. (Simancas Cruz et al, 2018, p.70).

Implementing quality strategies and sustainability measures in the market of tourism services is a basic condition to cope in a competitive environment and to convince customers and them preserve.

This paper aims to identify the most relevant quality strategies and sustainability measures applied to the Romanian spa tourism market and their role in attracting and retaining tourists.



To achieve this, the work is organized as follows: presentation of the specialized literature on quality and sustainability, description of research methodology, and presentation of the most relevant results. The conclusions and implications of the study are then presented.

## **2. Literature review**

Quality of service refers to users evaluating some services to see if they meet expectations at the desired level (Taylan Dortyol et al., 2014, p. 473). This is also linked to customer loyalty. The quality of experience in tourism and hospitality is related to consumers' perceived value, satisfaction, and behavioral intentions (Shyju et al, 2021, p.26).

Some authors believe that the research on the quality of tourism services can be classified into seven thematic groups regarding tourist satisfaction, sustainable problems in tourism, the value of the quality of customer service, the quality of restaurant services, the quality of the services, perceived quality of tourist services by customers, quality assessment of tourist services and influence of quality of services on customer behavior (Park et al, 2019, p.15).

Quality service can be achieved by competent human resources supported by adequate infrastructure or facilities capable of delivering positive values. In tourism, quality is created by providing outstanding services in terms of hospitality, courtesy, efficient accommodation, food, and recreation facilities (Rahmiati et al, 2020, p.961).

Considering the customer orientation, some authors like Kosar et al. (p.36) appreciate quality as a market category aimed at creating and producing tangible products and services at the level at which their properties ensure compliance with the application's requirements. The quality approach covers the entire organization and includes all processes on which customer satisfaction depends. This holistic approach to quality in the organization's context is called generic "Quality Management."

Sustainable development is defined as a process that meets the needs of present generations without jeopardizing the ability of future ones to meet their own needs. Decision makers and practitioners must consider in the planning and management of organizations and destinations aspects regarding the complexity of the area, the social perspectives (such as the quality of life and the satisfaction of tourists), as well as the ecological (such as water quality and climate change), economic, marketing (respectively the quality of services and the image of destinations), the medical, the differences in culture and relevance of information technologies and social networks (Garrigos-Simon et al, 2019, p.4).

The literature acknowledges that sustainability and how to approach responsibility in tourism production and consumption can be differentiating factors in positioning destinations in tourist markets. The transformation towards a sustainable tourism model begins with implementing a comprehensive tourism management policy to ensure the sustainable development of the destination (Lopez-Sanchez et al, 2013, p.57).

Tourism development must consider the current and future economic, social, and environmental impacts and the needs of visitors, industry, the environment, and host communities. These factors help to identify sustainable management strategies in tourism, which should promote the optimal use of resources (McLoughlin et al, 2018, p.79).

Considering the environmental, social, and cultural effects of tourism activities, some authors appreciate that new educational approaches are needed to change the contemplative vision of tourists and tour operators into one of awareness of their power and responsibilities in cogeneration of an experience of sustainable tourism (Galuppo et al, 2020, p.10).

## **3. Research methodology**

The paper's main objective is to determine the most relevant colour quality strategies and sustainability measures applied to the balneary tourism market in Romania and the role they play in attracting and keeping tourists loyal.

The methodology used in this paper combined exploratory analysis with quantitative marketing research.

The exploratory analysis aimed to identify quality strategies applied in spa tourism in Romania in recent years. To this end, the internal publications and the websites of the accommodation units from the spa resorts in Romania, annual reports, industry analysis, and reference materials were studied.

Quantitative research aimed to determine Romanian consumers' opinions, perceptions, and attitudes regarding quality strategies and sustainability measures applied to the Romanian spa tourism market.

The specific objectives were:

- O1 - Determining respondents' perceptions and opinions on spa tourism in Romania;
- O2 - Identifying the main quality strategies adopted in spa tourism in Romania;
- O3 - Identifying respondents' opinions on the sustainability measures adopted in spa tourism in Romania.

The respondents to this questionnaire are from different backgrounds and age groups, with different professional and educational backgrounds (Table 1). Regarding gender distribution, the sample had the following structure: 58.15% female and 41.85% male.

*Tabel no. 1 Sample structure*

Age	18-24 years	25- 34 years	35-44 years	45-65 years	Over 65 years
	19.5%	22.1%	18.3%	22%	18.1%
Gender	Female			Male	
	58.15%			41.85%	
Studies	Gymnasium	Highschool	Post secondary school	University studies	Post university studies
	0%	45.44%	10.27%	33,29%	11%
Occupation	Student	Unemployed	Employee	Entrepreneur	Pensioner
	10.5%	1.1%	59.54%	8%	20,86%

*Source:* Authors' own research

The CAWI (Computer Assisted Web Interviewing) technique was used for data collection. This technique involves displaying the questionnaire on a web page, and respondents fill in the responses directly in the browser. The research was carried out between 01-21 April 2024. The data was collected based on a questionnaire containing 28 questions answered by 724 people. The questionnaire has two parts: the first part includes questions regarding spa tourism and quality strategies and sustainability measures used in this field, and the second part includes eight questions identifying respondents (age, gender, income category, residence).

#### 4. Findings

Next, the study's primary results will be presented and structured according to each objective.

- ***Objective 1 – Determining respondents' perceptions and opinions on spa tourism in Romania***

Balneary tourism is an important segment of the economy in general and tourism, in particular, in the context of the need to meet essential requirements related to maintaining people's health and well-being. Romania is among the European countries with a significant balneary fund, and the spa activity is known as an authentic tradition.

During the 1990s, spa tourism experienced a strong crisis, driven mainly by the degradation of the technical-material base of the spa resorts and the low level of investments in this sector.

The Romanian balneary tourism potential is characterized by the presence of several groups of therapeutic substances, such as mineral and thermo mineral waters, therapeutic sludges, salines, mofetil and solfataras gases, salt lakes, and others. These therapeutic substances are recommended

for the effective treatment of several types of conditions, such as respiratory, dermatological conditions, allergies, rheumatic and posttraumatic conditions, diseases of the central and peripheral nervous system, gynaecological diseases, diseases of the cardiovascular system, digestive system, kidney disease, hepatobiliary, nutrition and others.

Romania has the potential to develop quality spa tourism with the about 8,500 mineral and thermal springs it owns. The economic growth that was registered in Romania after 2000 materialized in a return of the Romanian spa tourism offer and a trend of modernizing hotels and related treatment bases (Asociația Română de Balneologie [Romanian Balneology Association], 2019).

The tourist products offered by the spa resorts focus mainly on treatment, medical care, and care during the convalescence period, but some of the resorts also offer wellness packages. Tourists who benefit from tickets offered through the state social insurance system represent a significant percentage of the clients of the spa resorts. The spa resorts in Romania are the main tourist assets due to the quality of the springs, the location of these resorts, the historical heritage, the tradition of spending holidays in spas, and the current international trend of promoting spa and wellness tourism.

Most respondents (72%) see spa tourism in a narrow sense, only as treatment tourism for people with certain conditions or over a certain age (+60 years). Consumers select spa resorts based on environmental factors, such as air or water quality.

Most of the respondents (88%) consider spa tourism an advantageous alternative to classic holidays because it offers the possibility to be realized throughout the year because its specificity is not influenced by atmospheric conditions, which is an important advantage in the provision of these services.

• ***Objective 2 – Identifying the main quality strategies adopted in spa tourism in Romania***

Romania is one of the wealthiest countries in Europe in terms of the balneary resource, holding about one-third of Europe’s mineral and thermal springs. The contribution of Romanian researchers to the level of knowledge in the spa field has allowed us to highlight the potential of natural therapeutic factors.

The prolonged transition period, the economic conjuncture, the poor management, and the lack of investments have generated the degradation of the material base in the spa resorts, both from the perspective of obsolete and morally obsolete equipment from the treatment bases and from the perspective of protection and research of natural cure factors, which have also suffered degradation. The economic growth recorded after 2000 was reflected in the trend of modernization of hotel and treatment structures. Currently, there are 33 spa resorts in Romania (Ministerul Antreprenoriatului și Turismului [Ministry of Entrepreneurship and Tourism, 2022).

Implementing adequate quality strategies by entrepreneurs in the field revived spa tourism in Romania.

Most respondents (88%) do not know much about certification and quality standards, although a quality strategy often adopted in spa tourism is the ***certification strategy***.

An example in this regard is given by the Society of Spa Treatment and Recovery of Work Capacity” TBRCM” SA Bucharest, which has several work sites in the country (such as the Amara Balneary Treatment Society, Covasna, Geoagiu Băi, Moneasa, and, Olănești, etc.) The company is certified for healthcare activities (bale treatments) and hotel, restaurant, and bar services. It has implemented and maintains a quality management system according to the requirements of SR EN ISO 9001:2015 standard, which means that the organization has adopted the certification strategy, which, respectively for the implementation of the procedures required by the quality standards (S.C. TBRCM S.A., 2021).

Another spa tourism example is S.C. Turism Felix S.A. in Băile Felix, which adopted a quality certification strategy by implementing the ISO 9001:2015 standard throughout the company (S.C. Turism Felix S.A., 2021).

International Hotel 4\*, the most luxurious hotel owned by S.C. Turism Felix S.A., is designed as a modern centre for spas, relaxation, and conferences. Renowned for its therapy programs, the hotel’s Wellness & SPA and treatment centre ideally uses the curative properties of water, thus continuing the millennial tradition of thermal baths.

Instead, research has shown that a large proportion of respondents appreciate the quality differentiation strategy (83%) and the strategy of implementing the latest technologies (67%). Perla Hotel, located in the spa resort of Slănic Moldova, has successfully implemented both quality strategies.

Thus, the quality differentiation strategy is based on the knowledge of the forms of manifestation and the level of achievement of the quality characteristics of products or services. Perla Hotel offers its clients a wide range of services, including medical recovery, physiotherapy, salt therapy, crenotherapy, Tecar therapy, access to a swimming pool, wet and dry saunas, facial therapies, and various wellness, beauty, and spa services. This comprehensive strategy allows the company to capitalize on its research and development potential and employ different technologies. It also helps it conquer new markets and offer services of a higher quality relative to the competition.

Perla Hotel successfully adopted the strategy of implementing the latest technologies. It has modern physiotherapy and recovery equipment, such as the BTL-6000 Super Inductive System, a non-invasive therapeutic device used in SIS therapy.

- **Objective 3 – Identifying respondents’ opinions on the sustainability measures adopted in spa tourism in Romania.**

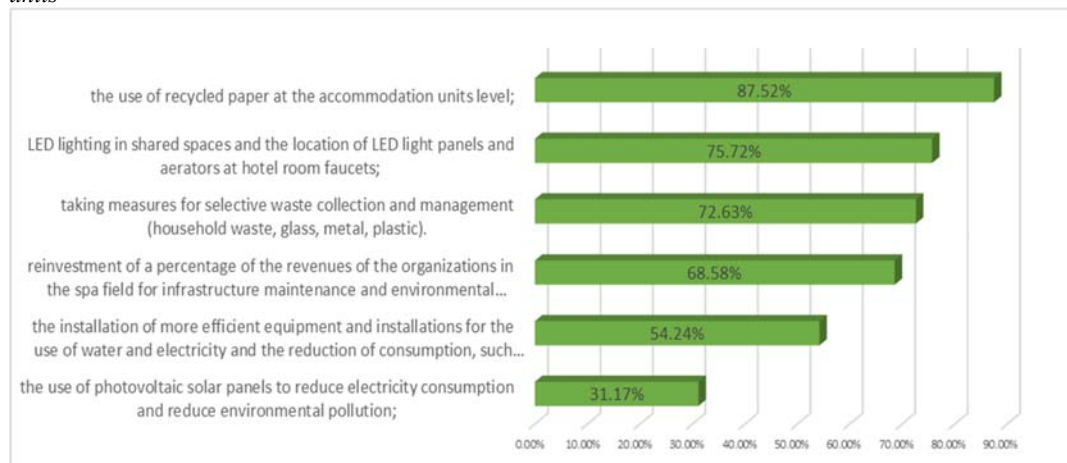
International or intergovernmental organisations such as the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO) have promoted sustainable tourism as the ideal ”balance” between economic viability, the environmental responsibility and socio-cultural prosperity.

Moreover, at the European Union level, this principle of ”balanced coherence” for tourism management was followed as an ideal process for protecting natural resources, promoting cultural identity, increasing competitiveness, and improving the local economy, particularly of less developed destinations (Gkoumas, 2019, p.2).

The sustainable development of spa tourism is a continuous process that requires the active participation of all relevant stakeholders, constant monitoring of impacts, and the introduction of necessary preventive and/or corrective measures, as appropriate. Sustainable tourism can help maintain a high level of tourist satisfaction, ensure a significant experience for tourists, raise awareness of sustainability issues, and promote sustainable tourism practices (UNWTO 2019).

The research showed (Figure 1) that most of the respondents (58.56%) have shown openness to sustainability issues and have stated that they consider environmental issues such as reducing the amount of waste, reducing water and energy consumption, and protecting the environment when choosing an accommodation unit.

Figure no. 1. The most well-known sustainability measures that were implemented in accommodation units



Source: Authors’ own research

The research showed that the most well-known sustainability measures that were implemented in accommodation units in spas are:

- the use of recycled paper at the accommodation units level;
- LED lighting in shared spaces and the location of LED light panels and aerators at hotel room faucets;
- taking measures for selective waste collection and management (household waste, glass, metal, plastic);
- reinvestment of a percentage of the revenues of the organizations in the spa field for infrastructure maintenance and environmental conservation by contributing to forestation measures, spatial planning measures in the spa area, etc.;
- the installation of more efficient equipment and installations for the use of water and electricity and the reduction of consumption, such as economic bulbs and lighting sensors;
- the use of photovoltaic solar panels to reduce electricity consumption and reduce environmental pollution.

These initiatives not only minimize environmental impact but also position these establishments as leaders in ecological responsibility, thereby attracting environmentally conscious customers and setting industry standards for sustainable tourism.

## 5. Conclusions

From the analysis of the presented data, it turns out that spa tourism is an important component of the economy, with complex influences at the national level and at the level of local economies, which deserve to be developed. Balneary tourism can also contribute to the development other economic sectors, which have developed due to the tourist flows of the spa resorts (Drăghici et al, 2015, p.1576). From the point of view of the contribution of this sector to the local economy, SPA tourism can represent a viable development trend in areas with tourist resources (Drăghici et al, 2016, p.387).

The tourism industry can cause significant environmental damage through air pollution, loss of natural habitat, soil erosion, etc. Another negative impact of tourism on the environment is represented by the energy consumption in tourism activities, such as catering, accommodation, and transport, which leads to higher CO<sub>2</sub> emissions. Both ways of environmental degradation pose a threat to the environment and sustainable development, and the violation of ecological balance is being observed with time. Uncontrolled use of the environment for tourism leads to its destruction and the natural environment will not be ensured for future generations.

Eliminating the harmful effects of tourism on the environment, protecting nature, and future tourism development are important challenges for specialists. According to the United Nations Environment Programme (UNEP), environmental degradation can be reduced, and sustainability can be achieved through the installation of new environmentally efficient technologies and the establishment of environmental management schemes, requiring direct investment and financial assistance (Mikavilov et al, 2019, p.19390).

The research has limitations due to the non-representative sampling method used. Therefore, the sample was not randomly selected and cannot be statistically validated. As a result, the findings cannot be generalized to the entire population under investigation. However, the authors consider the work valuable and believe it contributes academically to the field of study. It also provides a foundation for future research on this topic.

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## Exploring Sustainable Growth Via Socio-Economic Perspectives

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### Abstract

*Industries in developed countries consume natural resources at a staggering rate. The sustainability of their economic and industrial expansion is highly questionable. Experts argue that the current rate of resource-intensive production in these nations is unsustainable and contributes to the depletion of resources in other countries, as well as significant environmental harm. There is a growing chorus of criticism regarding this excessive use of natural resources in developed regions. Research indicates that each industry possesses unique characteristics, necessitating tailored labor policies. These policies are crucial for integrating social and human capital into the broader goal of sustainable economic development globally.*

**Key words:** sustainable development, industry, tourism, agriculture, infrastructure

**J.E.L. classification:** M11

### 1. Introduction

In the modern global landscape marked by rapid technological advances and innovation, adapting to ongoing changes is crucial for maintaining worldwide communication. Hence, fostering innovation, building resilient infrastructure, and supporting industrialization are key pillars for a sustainable society. These interconnected elements are fundamental in promoting economic growth and overall well-being, emphasizing the development of infrastructure that is quality-assured, reliable, secure, and sustainable. However, developing nations face challenges in fully tapping into this potential due to limited investments in scientific research and innovation. Additionally, the recent health crisis has significantly hindered some countries' capacities for adaptation and resilience in our fast-paced world.

To address these issues, Sustainable Development Goal 8 focuses on fostering inclusive industrialization, boosting global productivity, and enhancing scientific research (Barros et al., 2015). In Romania's case, substantial improvements are necessary, as it ranks lowest on the European Innovation Scoreboard, primarily due to its weak competitiveness, as highlighted by the European Commission. Consequently, creating an environment that nurtures innovative initiatives is essential. Unfortunately, Romanian entrepreneurs often lack adequate financial support, limiting their marketing capabilities. Moreover, Romania is at the bottom of the EU list for research and development investment, consistently investing less than 0.5% of its GDP, which is nearly seven times lower than the leading country. The prolonged and profound impact of these factors has resulted in a significant scientific diaspora from Romania, the largest within the EU, with a noticeable presence overseas. After the economic downturn post-1989 and the deindustrialization that followed, discussing sustainable development might seem out of place. Yet, it's crucial to halt the economic and industrial decline, revitalize industries, and ensure development aligns with sustainability criteria.

Achieving this requires stopping the fall in industrial production and stabilizing production volumes. Romania must find and implement the necessary conditions to fully utilize the nation's potential and stimulate structural changes that align with market economy standards. From this period of economic downturn, it's possible to argue for sustainable industrial development by adhering to international treaties Romania is part of, such as those aiming to control the Earth's greenhouse effect, prevent ozone layer deterioration, and manage transboundary pollution and large water basins.

Aligning Romanian legislation with EU standards through association with the European Union includes adopting an action plan related to the Fifth Environmental Action Program. This program aims to integrate environmental protection across various sectors like agriculture, transport, energy, industry, and tourism, and to improve the enforcement and implementation of environmental laws. Priority areas include climate change control, ozone layer protection, acid rain control, water resources management, waste management, noise protection, and the preservation of nature and biodiversity.

The privatization of industrial enterprises offers an opportunity to assess environmental damages and develop remedies (Linton et al., 2007). Organic markets present opportunities for agricultural products, technologies for cleaner manufacturing processes, and products with lower pollutant potential. The National Strategy for Sustainable Development in Romania recognizes that the country's geological resources, identified for over 120 substances, provide a competitive advantage for industrial development and sustainable growth. The potential of hydro power, which currently constitutes about 40% of Romania's usable technical potential and provides over a third of its electricity, highlights the benefits of sustainable development, including renewable resources and pollution reduction. This necessitates a reconsideration of investment policies in this area to reduce material and energy intensity and promote the recycling and reuse of materials.

The central question in our research is whether sustainable industrial development affects Romania's main economic sectors, aiming to analyze its influence and the correlations with these sectors.

The paper is structured into several chapters, including an introduction to the scientific framework, a literature review of sustainable development approaches, a methodology using SPSS software to calculate the Spearman rho correlation coefficient, results and discussions on how sustainable development impacts Romania's main economic fields, and conclusions on the significance of sustainable development at macro and microeconomic levels and strategic planning for sustainability.

## **2. Literature review**

Sustainability is now the crucial doctrine dictating the trajectory of economic development, requiring that progress occurs within ecological limits, recognizing the interdependence of human societies, the biosphere, and the physical and chemical laws that govern it (Taticchi et al., 2012). Environmental protection and economic development, once seen as opposing forces, are now understood to be deeply interconnected. As articulated by Manea in 1997, sustainable development forms the foundation of a new philosophical framework where principles of future orientation, equity, global environmental policy, and biodiversity are central to decision-making. This doctrine of sustainability manifests differently across various disciplines:

1. Biology views sustainability as akin to protecting biodiversity, emphasizing the preservation of natural capital for future generations.
2. Economics treats the environment as a form of natural capital. It highlights how traditional market environments fail to safeguard natural resources.
3. Sociology examines the impacts of resource use decisions on daily life and societal structures.
4. Urban Planning sees sustainability as a strategy for urban revitalization, balancing development with environmental conservation.
5. Environmental Ethics promotes the conservation and sustainable use of natural resources, urging a moral imperative to acknowledge and respect our bonds with nature.



Sustainable management of a resource, as defined by Bartles et al in 2019, requires not exceeding its capacity for recovery, using the example of fishing in a way that respects fish reproductive cycles to ensure sustainability for future generations. When resource use surpasses sustainable thresholds, significant depletions occur, causing both ecological and economic damage (Stiglitz, 2008).

In the neoliberal perspective, the environment is seen as capital, with the sustainability of air, water, and soil dependent on their preservation or renewal. Assigning economic value to natural capital allows for measuring development outcomes relative to sustainable use, although this approach faces challenges in valuing resources for future generations whose consumption patterns are yet unknown (Halldorsson and Kovacs, 2010). The popular approach promotes local production and trade to meet community needs, often contrasting with large-scale urban and industrial development models. However, this approach can create tensions when local resource use must be balanced with integration into the global economy (Blokdyk, 2020). The interventionist approach, influenced by international frameworks like the Brundtland Commission, emphasizes the role of international cooperation and environmental treaties, although it also faces challenges from industrialized countries that may dominate these agreements (Libert, 2017).

The need for sustainability is supported by economic, social, and ecological rationales (Patel, 2017). These three categories, initially seen as independent, began to be recognized as interdependent from the 1980s, emphasizing a holistic approach.

- The *economic approach* focuses on maximizing income while preserving natural, human, and economic capital (Cheo and Tapiwa, 2021).

- The *ecological approach* supports the stability of both natural and human-made biological systems, aiming to provide future generations with as many opportunities as possible, part of global biodiversity conservation (Goff, 2016).

- The *socio-cultural approach* aims to maintain the stability of social and cultural systems to ensure equity across and within generations by preserving cultural diversity and promoting a plurality of ideas (Keitsch and Vermeulen, 2020).

This multi-faceted interaction among economic, political, cultural, and social spheres with nature and human populations underlines the complex nature of sustainable development. By enhancing education, healthcare, and social services, sustainable development strategies aim to reconcile conflicts and focus on human development, placing human rights at the center of governance and policy-making.

### 3. Research methodology

The purpose of this article is to explore the correlation between sustainable industrial development and the main economic sectors in Romania. It specifically examines how such development influences the agricultural, tourism, and infrastructural fields.

Agriculture (D1) aims for sustainable development by:

- ✓ Establishing adequate credit and financing systems for rural areas, along with necessary infrastructure.
- ✓ Enhancing the training of the labor force engaged in agriculture.
- ✓ Supporting the growth of high-performance production units.
- ✓ Expanding agricultural consulting services.

Tourism (D2) seeks sustainable growth through:

- ✓ Providing technical assistance and consultancy for initiating specific projects.
- ✓ Enhancing and diversifying services offered.
- ✓ Increasing the promotion of tourism offerings.
- ✓ Improving training for the local population in tourism-related areas.
- ✓ Modernizing infrastructure to attract more tourists.

Infrastructure (D3) focuses on:

- ✓ Improving access to road and railway networks for the local population.
- ✓ Expanding and modernizing communication infrastructure.
- ✓ Extending natural gas supplies.
- ✓ Implementing sewage networks.

The research objectives include:

1. Analyzing industrial development advantages such as installation premiums, facilities for industrial units meeting local demands, and workforce training.
2. Examining each sector potentially influenced by industrial development.
3. Identifying connections between industrial development and the primary economic fields.

Based on literature studies and personal observations, the following hypotheses have been proposed:

H1: There is a significant positive relationship between sustainable industrial development and the agricultural sector.

H2: There is a significant positive relationship between sustainable industrial development and the tourism sector.

H3: There is a significant positive relationship between sustainable industrial development and the infrastructure sector.

H4: Agriculture and tourism mutually influence each other.

The research plan involved:

Step 1: Establishing a research community of managers in Romania who recognize sustainable development.

Step 2: Identifying the survey unit, represented by managers of Romanian companies within industry, agriculture, tourism, and infrastructure sectors.

Step 3: Developing a questionnaire as the basis of the article, which gathered the managers' opinions through a mix of open, closed, and control questions, including dichotomous, open-ended, and choice-based questions. A total of 723 valid questionnaires were collected, allowing the use of various statistical techniques for data analysis. The questionnaire featured sections on demographic characteristics, and elements defining sustainable industrial development across the discussed sectors.

Step 4: Using simple random sampling for participant selection, based on availability and accessibility.

Step 5: Conducting an exploratory quantitative analysis between November 2023 and February 2024. The questionnaire completion took approximately 20 minutes per participant.

The data collected were processed using the Statistical Package for the Social Sciences (SPSS), which facilitated the calculation of the Spearman rho Correlation Coefficient to determine the relationships between sustainable industrial development and the main economic sectors.

#### 4. Findings

To confirm the objectives, we employed the widely used and highly effective Spearman rho correlation coefficient, utilizing the specialized statistical research software SPSS (see Table no 1).

Table no 1. Spearman rho correlation coefficient values

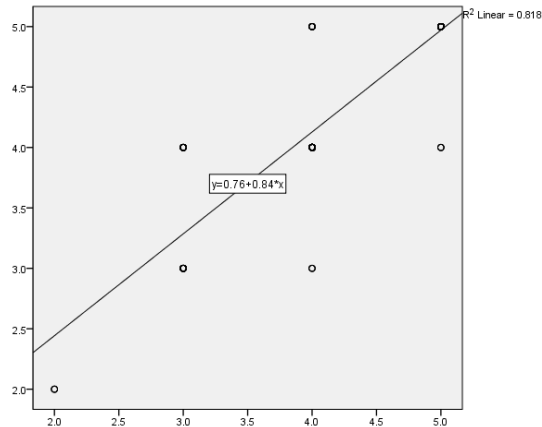
		Correlations			
Spearman's rho		Sustainable industrial development	D1.Agricultural field	D2.The tourist field	D3.Infrastructure domain
Sustainable industrial development	correlation coefficient	1.000	.921**	.837**	.823**
D1.Agricultural field	correlation coefficient	.921**	1.000	.800**	.784**
D2.The tourist field	correlation coefficient	.837**	.800**	1.000	.895**
D3.Infrastructure domain	correlation coefficient	.823**	.784**	.895**	1.000

Source: processing data obtained through SPSS program

Following the analysis of the Spearman rho correlation coefficient we can observe the following correlations:

1. There is a very high significant positive relationship between *Sustainable industrial development* and *D1.Agricultural field* ( $\rho = 0.92$ ,  $df = 723$ ,  $p < 0.001$ ). From the scatter plot (Figure no.1) it can be seen that the point spread is relatively limited, which indicates a strong correlation ( $R^2 = 0.81$ ). The slope of the scattering of the results is relatively straight, indicating a linear rather than a curvilinear relationship. - **Hypothesis 1 is thus validated**

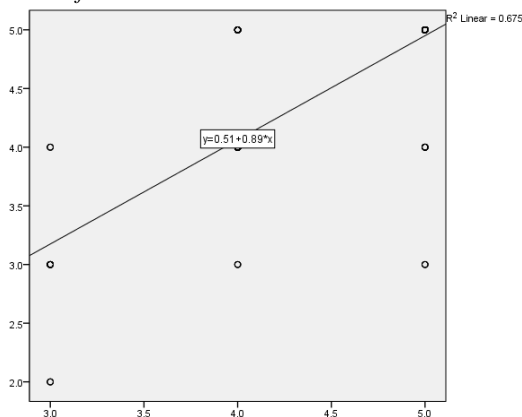
Figure no. 1 Dispersion diagram: the correlation between Sustainable industrial development and D1.Agricultural field



Source: processing data obtained through SPSS program

2. It can be seen from Table no. 1, that there is a very significant significant positive relationship between *Sustainable industrial development* and *D2.The tourist field* ( $\rho = 0.83$ ,  $df = 723$ ,  $p < 0.001$ ). The scatter plot (Figure no. 2) reveals that the point spread is relatively limited, which indicates a strong correlation ( $R^2 = 0.67$ ). The slope of the scattering of the results is relatively straight, indicating a linear rather than a curvilinear relationship. We can say that **Hypothesis 2 is fully validated**.

Figure no. 2 Dispersion diagram: the correlation between Sustainable industrial development and D2.The tourist field

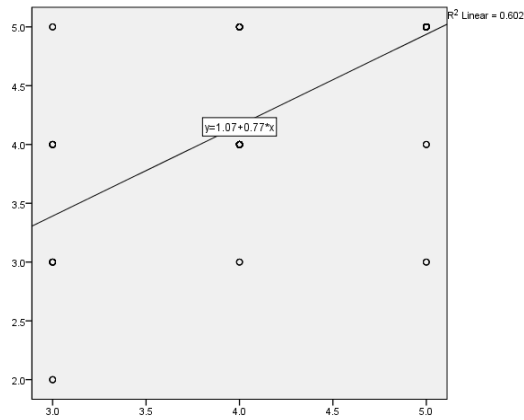


Source: processing data obtained through SPSS program

3. There is a very significant positive relationship between *Sustainable industrial development* and *D3.Infrastructure domain* ( $\rho = 0.82$ ,  $df = 723$ ,  $p < 0.001$ ). From Figure no. 3, the scatter plot reveals that the point spread is relatively limited, which indicates a strong correlation. The slope of the

scattering of the results is relatively straight, indicating a linear rather than a curvilinear relationship. We can conclude that **Hypothesis 3 is also validated.**

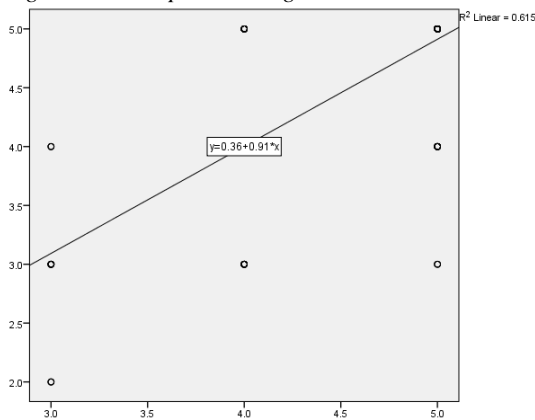
Figure no. 3 Dispersion diagram: between Sustainable industrial development and D3.Infrastructure domain



Source: processing data obtained through SPSS program

4. Analyzing *D1.Agricultural field* and *D2.The tourist field* results in a very significant positive relationship ( $\rho = 0.80$ ,  $df = 723$ ,  $p < 0.001$ ). The scatter plot (Figure no. 4) reveals that the point spread is relatively limited, which indicates a strong correlation ( $R^2 = 0.61$ ). The slope of the scattering of the results is relatively straight, indicating a linear rather than a curvilinear relationship. Thus **Hypothesis 4 is also validated.**

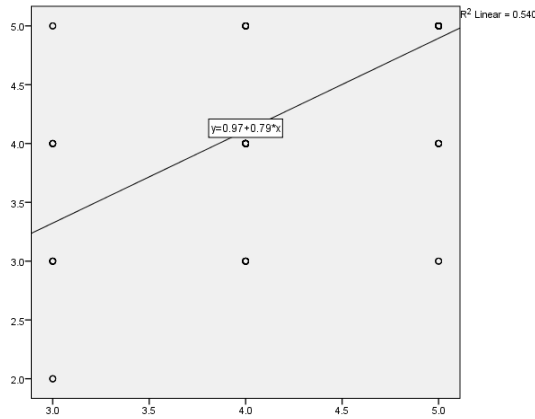
Figure no. 4 Dispersion diagram: the correlation between *D1.Agricultural field* and *D2.The tourist field*



Source: processing data obtained through SPSS program

5. There is a very significant positive relationship between *D1.Agricultural field* and *D3.Infrastructure domain* ( $\rho = 0.84$ ,  $df = 723$ ,  $p < 0.001$ ). The scatter plot reveals that the point spread is relatively limited, which indicates a moderate to strong correlation ( $R^2 = 0.54$ ) - Figure no. 5 The slope of the scattering of the results is a relatively straight line, indicating a linear rather than a curvilinear relationship.

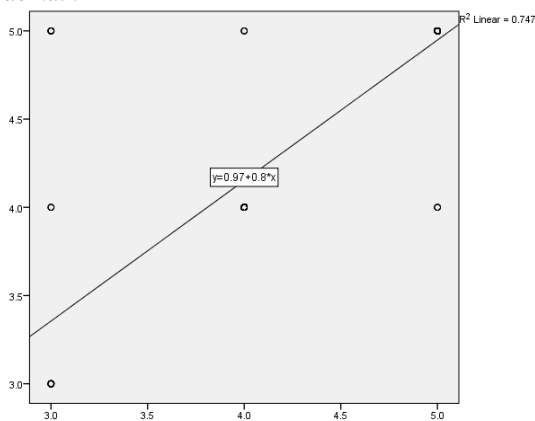
Figure no. 5 Dispersion diagram: D1.Agricultural field and D3.Infrastructure domain



Source: processing data obtained through SPSS program

6. There is a very high significant positive relationship ( $\rho = 0.89$ ,  $df = 723$ ,  $p < 0.001$ ) and between D2.The tourist field and D3.Infrastructure domain (Table no. 1). The scatter plot (Figure no. 6) reveals that the point spread is relatively limited, which indicates a moderate to strong correlation ( $R^2 = 0.74$ ). The slope of the scattering of the results is relatively straight, indicating a linear relationship rather than a curvilinear one.

Figure no. 6 Dispersion diagram: the correlation between D2.The tourist field and D3.Infrastructure domain



Source: processing data obtained through SPSS program

Industry, innovation, and infrastructure are critically important sectors, widely recognized at the national level. Sustainable industry development must therefore consider several key factors:

1. Upgrading and expanding high-quality, dependable, and robust infrastructure to support economic growth and enhance human welfare, ensuring wide and fair access for all.
2. Making industries more sustainable by improving their resource efficiency.
3. Focusing on boosting the digital economy and investments in the most lucrative segments of the value chain; enhancing scientific research, upgrading technological capabilities in industrial sectors, promoting innovation, and significantly growing the research and development workforce.

Amidst the economic downturn triggered by the COVID-19 pandemic, increased investments in infrastructure, sustainable industry, and research are even more critical to stimulate innovation across all sectors. Romania's rich natural environment, abundant in resources with great potential for renewable energy and enhanced resource efficiency, faces challenges from natural and human-induced pressures which impact biodiversity and ecosystems. A key priority is bolstering environmental protection and transitioning towards sustainable practices in agriculture, forestry, and rural settings overall. This includes initiatives for climate change mitigation and adapting to its effects, with environmental sustainability and climate response as overarching objectives.

Sustainable tourism development must align with national and regional economic and social plans. Efforts should focus on economic objectives like revenue growth, activity diversification and integration, and strategic development control and empowerment. Socially, the aims include reducing poverty and income inequality, safeguarding indigenous socio-cultural assets, and fostering local community engagement and participation. Ecologically, efforts should concentrate on protecting ecosystem functions and promoting the conservation and sustainable use of biodiversity. In formulating sustainable development policies, it's crucial to assess both the positive and negative economic impacts of tourism. A detailed examination of the adverse effects is essential to identify measures that can mitigate these impacts and enhance the benefits of developing this sector.

## 5. Conclusions

The findings of this study underscore the critical role of sustainable development in Romania, impacting both macroeconomic and microeconomic levels, and highlight the necessity of strategically planning, organizing, and managing sustainability initiatives. These initiatives should consider not just immediate impacts but also medium and long-term outcomes. In Romania, embracing sustainable development is not just an option among many but is seen as the only responsible method to plan for future development that aligns with national interests and international cooperation standards. Integrating Romania's national development goals with Western experiences concerning quality of life and future generations' well-being is crucial. The strategy for sustainable development in Romania should address specific concerns, including the design and implementation of systems to enhance professional and managerial training in accordance with global technological advancements, managing the migration of skilled specialists, and retraining excess workforce, particularly for developing specialized service sectors.

Key priorities for Romania to build a resilient infrastructure and promote sustainable industrialization include:

- ✓ Creating an environment that encourages private sector initiatives;
- ✓ Improving support services for entrepreneurial activities;
- ✓ Enhancing the capacity of public institutions to commercialize innovations;
- ✓ Advancing inclusive and sustainable industrialization;
- ✓ Financing significant infrastructure development projects;
- ✓ Acknowledging the social impacts of scientific, technological, and economic activities;
- ✓ Elevating the role of science in society.

Essential criteria for achieving sustainable development should involve:

- ✓ Reevaluating economic growth to ensure a more equitable resource distribution and focusing on the quality of outputs;
- ✓ Addressing essential human needs such as employment, food, energy, water, housing, and healthcare to eradicate poverty;
- ✓ Managing population growth to maintain it at sustainable levels;
- ✓ Conserving and enhancing natural resources, maintaining ecosystem diversity, and monitoring the economic activities' environmental impact;
- ✓ Redirecting technologies and managing associated risks;
- ✓ Decentralizing governance to increase participation in decision-making and standardizing environmental and international development decisions.

The management of natural resources in Romania aims to maintain ecological balance, preserve and enhance natural assets, ensure better living and working conditions for present and future generations, and protect the environment through rational resource use and pollution prevention. For the sustainable development of the industry, it involves:

- ✓ Promoting economically viable electrical technologies;
- ✓ Utilizing heat pumps to leverage secondary energy resources;
- ✓ Expanding process automation and monitoring.

Sustainable industrial development in Romania should also include a social aspect that integrates smoothly into the societal evolution. National industry human resource policies should strive to balance active and passive labor market policies and enhance the legislative framework. In essence, sustainable development is indispensable for maintaining long-term economic growth. Key solutions

for supporting sustainable industry development in Romania revolve around labor and human resources, such as:

- ✓ Fostering community and entrepreneurial spirit;
- ✓ Continuously upskilling and reskilling the workforce;
- ✓ Encouraging youth engagement in rural-specific activities;
- ✓ Enhancing public awareness of community challenges and opportunities offered by community programs;
- ✓ Designing organized frameworks for community consultation and project participation;
- ✓ Establishing frameworks for partnerships and supporting local initiatives;
- ✓ Developing and modernizing infrastructure to stabilize specialized personnel in rural areas and improve living standards;
- ✓ Expanding consultancy and support services across various sectors.

Despite initial progress and existing legislation aligned with international standards, and the increasing presence of environmental protection in media discourse, the journey from theory to practice remains long and challenging. However, steadfast efforts are expected to yield results in the foreseeable future. Future research could explore the moderating factors between sustainable industrial development and corporate social responsibility (CSR), providing valuable insights into their interplay.

The study's limitations are noted, including a relatively narrow time frame for research that often spans decades, a focus more on interpreting than on applying findings, and the straightforward realization of inductive research methodologies.

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# Mapping the Evolution of Book Influencers: A Bibliometric Journey

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## Abstract

*As the literary landscape of the 21<sup>st</sup> century has changed its marketing approach over the years, the bookstagram phenomenon has implemented the most effective means of promotion, namely influencers. Therefore, bookstagrammers are powerful pillars in terms of developing influencer marketing on Instagram. Hence, this paper investigates the nature of book influencers in the literature based on keywords found in the Web of Science online database. Accordingly, a quantitative research encompassing 167 studies viewed through the VOSviewer tool in the form of bibliometric maps is noted. Thus, the study aims to better understand the landscape of book influencers, starting from the analysis of keywords found and, implicitly, the links that are created between them. Moreover, any influencer’s digital action affects the consumers and also increases their trust. This paper provides relevant insights on bookstagrammers, as well as laying the groundwork for future research on the evolution and impact in modern readers’ lives.*

**Key words:** book influencer, bookstagrammer, bookstagram, social media influencer, influencer marketing

**J.E.L. classification:** M30, M31, M37, M39

## 1. Introduction

Every day we are faced with more and more changes in web technologies and, with them, new ways in which the Internet is perceived by consumers. Therefore, to keep up with the speed at which product promotion in the virtual environment is taking shape, both companies and marketers are adhering to up-to-date techniques. In other words, we recall different perspectives on implementing elements of influencing consumer behavior, where we discuss influencer marketing.

Although this strategy adopted by brands is a novelty in the field, more and more individuals are opting to create a safe space for potential and current consumers. More importantly, they are embracing this way of promoting products and services in the digital environment with a desire to rethink and transform old strategies into opportunities for the 21<sup>st</sup> century market. Hence, forced by the conditions of everyday life, namely the uncontrollable development of the Internet and, with it, of existing social media platforms, companies are turning to influencers.

## 2. Theoretical background

As social networks evolve and introduce more and more tools to integrate communication between individuals, it can be argued that they can be seen as the most popular way for brands to connect with potential consumers. Thus, digital marketing and, more specifically, influencer marketing is intensifying, becoming an important characteristic that brings out the work of social media campaigns (Nadanyiova, *et al*, 2020, p.109; Jin, *et al*, 2019, p.568, Appel, *et al*, 2019, p.5). In terms of understanding this form of promotion, created and sustained by the constant changes in the demands and needs of virtual customers, we present influencers as individuals who hold a certain



intangible power in terms of influencing users' decision to purchase a certain product or service (Sugiarto, *et al*, 2022, p.685; Leparoux, *et al*, 2019, p.435). As such, they represent individuals perceived by the target audience as being similar to them and are not necessarily considered celebrities in order to be popular, but on the contrary, they are popular because they are part of the audience and stand out through a quantity of additional information (Dimitrieska & Efremova, 2021, p.111).

Essentially, the influencer is a consumer who manages to remove the barrier that has arisen from a lack of trust in the digital activities of brands and lays the foundation for an authentic relationship with their followers, since they are also considered a member of their followers (Dimitrieska & Efremova, 2021, p.110; Grin, 2020, p.5). Moreover, these content creators can take the form of any individual online, regardless of their location, and mark a connection with consumers based on providing information for free and by default, through authentic, experience-based answers to the target audience's questions (Geysler, 2023; Novotná, *et al*, 2021, p.4).

Throughout economic and technological change, the marketing of products and services has undergone various changes to pattern itself to the demands of 21<sup>st</sup> century consumers. Thus, this study aims to introduce influencers into the marketing strategies of brands in the online environment and, with this, to characterize them in relation to the target domain – books (Sugiarto, *et al*, 2022, p.678).

In a society where digital has taken over the majority of the activities a consumer undertakes, the methods of influencing them are continually evolving and, by extension, transforming according to market demands. Specifically, in order to ensure good communication between individuals and businesses and, moreover, to reach a point where potential customers' decisions depend entirely on digital content, companies are adhering to new means by which to ensure a good approach to the economic process (Leparoux, *et al*, 2019, p.436).

### **3. Research methodology**

Alongside this, the present paper will approach a quantitative method that will call for identifying and exploring aspects of book influences present in modern virtual spaces. Namely, the aim is to measure the presence of the aforementioned phenomenon in the literature and, implicitly, the in-depth understanding of its concepts through a bibliometric analysis. In addition, the research succeeds in incorporating new perspectives of the growing trend, marking future trends in the book influencers academic literature.

As bookstagrammers rely on highlighting visuals as a pillar in their success, the tool chosen for the research – VOSviewer 1.6.20, manages to use visual maps for the purpose of analysis. Therefore, the bibliographic data entered will be examined through interactive maps, graphs and clusters accessible in the online program. On account of that, from the software tool's wide range of functions, we focused on keyword co-occurrence analysis, where the clusters analyzed in terms of existing themes and the most cited academic works are created (van Eck & Waltman, 2017). To that end, we visualized the bibliographic data so that we could extract prominent topics as well as future research directions of the field.

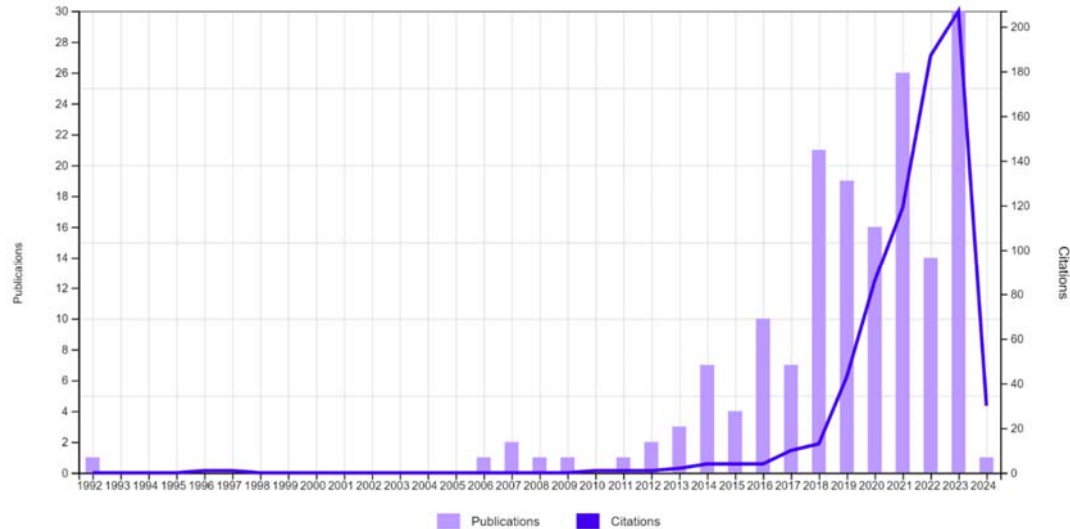
In order for this analysis to take place, we created the database for the keyword “book influencer” with the help of the Web of Science database. So, the data used in the present paper was retrieved on 5<sup>th</sup> of March 2024, including a total of 167 academic papers filtered by relevance, as it is shown in the Web of Science online platform. Further on, the format used for downloading the database was .RIS, a configuration accepted by the VOSviewer program.

### **4. Findings**

With the advent of social media and, by extension, the embrace of digital shaping of the everyday, as well as the publishing industry, fundamental changes in the way readers interact with books are evident. Therefore, we recall the introduction of new platforms for discussion, recommendations and, implicitly, product promotions, at a time when book influencers are considered increasingly important in influencing literary trends.

In other words, the figure no. 1 illustrates, by different years, the number of publications published with the aim of discussing and researching these book-loving micro-celebrities. Thus, although the first article on our topic appears in 1992, there is no notable activity until 2011-2014, a significant period also for the emergence of bookstagram communities in the digital environment (Piazza, 2017). Thus, we highlight a relatively gradual increase in the involvement of researchers in the relationship created between an influencer and the literary field until 2021, where the number of publications explodes and reaches a peak so far of 21 such studies.

Figure no. 1 Publications for the articles with the keyword “book influencer” shown by year



Source: Web of Science online platform

At the same time, the trend towards digitization and adherence to increasingly online activities remain in the coming years, with 32 academic papers in 2023. Without doubt, this represents the most prosperous year in terms of studies found in the academic literature and also marks a bridge for future research. As of the date that this research is being conducted, 5<sup>th</sup> March 2024, there are 4 publications in the field in 2024.

Moreover, we can also observe a correlation between the activity recorded over the above-mentioned period and the years with a significant digital load. In other words, publications on book influencers started to appear shortly after the launch of the social media platform Facebook, namely 2004, and are also an important building block in the construction of this field (Hall, 2024). Also, the frequency of scholarly papers restarted in 2010, a decisive moment in the launch of the social media platform Instagram and continues to grow to this day (Eldridge, 2024).

In terms of the number of citations, the activity starts slowly in the period 2010-2012, but remains steady in terms of growth, with more and more citations being added to the literature each year. In particular, the attention towards book influencers is increasing since more and more researchers are interested and eager to keep the information as up-to-date as possible. In 2023, the current benchmark, there are 212 citations.

In order to understand to a greater extent the current research around book influencers, we will visually explore through VOSviewer the keyword networks formed in this subdomain by mapping the main themes. In particular, this approach succeeds in highlighting both the academic importance of the analyzed keyword and explaining the role it plays in today's literary ecosystem.

It should be noted that there were keywords incorporated in the database that do not meet the necessary conditions for analysis, among which we mention the membership of the clusters created, but also the relevance to the topic we want to explore. Thus, we excluded occurrences such as “cardiovascular-disease”, “justice”, “united-states”, and “activist dubbing” in order to subtract from the existing clusters the themes relevant to the bookstagram phenomenon and book influencers.





In terms of the results gathered throughout the research, they highlight the effect that the digital activity of book influencers has on online consumers. In particular, there is a strong link between the actions taken and the level of trust bookstagrammer followers have in the recommendations of the influencer. Thus, the reading habits of contemporary readers are shaped in tandem with the trends present in social media and, moreover, can change depending on what the book influencer suggests.

As the literature presents the ability of influencers to influence potential consumers, we mark the ideas created through the cluster analysis present in the research, namely, the ability to change behaviors and also, the availability of the digital. In other words, readers may adopt new perceptions or change their literary choices based on the recommendations and opinions that book influencers distribute online. Hence, the higher the degree of trust in the communities in which that information is promoted, the more a consumer will choose content that is more authentic and that he or she considers in relation to his or her values.

Also, the actual environment in which this information exchange takes place, i.e. the virtual ecosystem designed by social media, is a crucial point in a book influencer's approach. In this manner, both the tools used and the characteristics of digital create a space for discovering books and learning new things about literature. Accordingly, it also highlights the potential of book marketing through the primary use of these book influencers. As such, they have the resources to create closer connections with potential buyers on a whole new level than traditional marketing. Above all, direct and honest interaction underlines the successes that book influencers gain from promoting books on social media platforms.

Given the data collected and the themes identified, we can also point out that the prominence of keywords situates the main components of a book influencer as closely related to each other, starting from the social media impact the influencer masters. More importantly, the present research highlights future research perspectives on the ecosystem created around a modern book influencer and also proposes possible studies on the actual strategies implemented in order to shape long-term reading habits.

A limitation that weighs most heavily in this paper is the total number of articles integrated into the analysis. Thus, it has been diminished due to the incompatibility of scanning and understanding non-English scientific papers. In this sense, although a number of relevant insights have been identified, it is possible that valuable insights extracted from non-English sources are lost. Also, in addition to the language barrier present, articles not accessible online were excluded from the database.

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## QR Code Menus: Exploring the Role of QR Codes in Enhancing Operational Efficiency and Customer Engagement in Restaurants and Cafes

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### Abstract

*Many of the industries need to adopt digital technologies to improve the overall activity. The hospitality industry is no exception, one of the means which enables the businesses to enhance their services and the interaction with customers is the use of QR codes. The purpose of the article was to explore the effects of the QR codes adoption in the activities of restaurants and cafes, emphasizing its important role in improving operational processes. The research performed among various restaurant and cafes owners, using semi-structured interviews, investigated how the QR codes were integrated in the day-to-day activity and the perceived impact. Furthermore, it explored the benefits, challenges and the plans for using this technology. The results provided a detailed analysis on how the QR codes were integrated, offering useful insights on how digital tools are improving businesses and the relationship with the customers.*

**Key words:** QR codes, hospitality industry, digital menus, restaurants, cafes

**J.E.L. classification:** M31, L81, L83, L86

### 1. Introduction

The hospitality industry, particularly within the HORECA sector (Hotels, Restaurants, Cafes), has significantly transformed by integrating QR codes. The widespread adoption of QR codes has been driven by the demand for efficient, contactless interactions, a need that has grown increasingly important during the COVID-19 pandemic. Numerous services, such as digital menus, self-service ordering, payment processing, and gathering customer feedback, are made possible by QR codes. By using QR codes businesses were able to reduce physical contact, simplify procedures, and improve customer support. QR codes have revolutionized the hospitality industry's functions, creating a safer and more convenient experience for customers and staff (Ozturkcan et al, 2023, p.1).

The hospitality sector saw a dramatic digital transformation as a result of the COVID-19 pandemic. Minimal physical contact was mandated by health guidelines, and businesses needed to use QR codes to continue operating while adhering to safety regulations. QR codes have been used for contactless menus, allowing customers to view options on their mobile devices without touching physical menus.

According to Gursoy et al. (2020, p.528), QR code menus emerged as the most frequently utilized option in restaurants during COVID-19. These digital menus have continued to be popular even in the post-pandemic era. Restaurants were a part of the service industry adapting to the COVID-19 pandemic by changing business practices and physical spaces. Some of these adjustments involved reducing the number of customers allowed in the restaurant, using digital menus, providing more outdoor dining options, and offering contactless payment methods (Taylor, 2020, p.7). Iskender et al. (2022, p.1) researched restaurant customers' behavioural intentions using QR code menus during the pandemic. Trialability and hygiene, two contextual factors that are frequently disregarded in

conventional technology acceptance models, were included in their study. When it came to forecasting customers' behavioural intentions, their model performed better than the conventional models.

Among other industries, the hospitality industry has seen an increase in technology use as a consequence of the COVID-19 pandemic. The primary driver of this adoption was the need to adapt to new safety standards, maintain operational continuity, and meet changing consumer preferences, all within the constraints imposed by the pandemic (Ameen et al, 2021).

The purpose of this study is to investigate how QR code technology is being adopted and used in the hospitality sector. The primary focus was on how customer interactions and the effectiveness of service in cafes and restaurants have been affected by QR code menus.

The paper is structured as follows: an introduction to digital technologies, specifically QR codes, in the hospitality sector and a detailed description of the research methodology. Then twenty café and restaurant owners' in-depth interviews were examined, where they talk about why they adopted QR codes, the advantages they've noticed, and the challenges they've faced. The paper ends with a discussion on how these findings could impact the hospitality industry.

## **2. Literature review**

### **2.1 QR codes**

A QR Code (Quick Response Code) is a two-dimensional matrix barcode created by a Japanese company, Denso Wave. This barcode format can encode information in both horizontal and vertical directions. Initially developed to track vehicle parts during the manufacturing process in the automotive industry, QR codes have a much larger storage capacity than traditional barcodes (Mishra et al, 2017, p.17).

According to Davies et al. (2023, p.1131), a Quick Response (QR) code is a two-dimensional barcode that consists of a square grid of black and white pixels. It can be scanned by digital devices, such as smartphones or cameras, to retrieve encoded information, such as a website URL, contact details, or payment information. QR codes became popular during COVID-19, and they are likely to continue being used because they're so handy for things like marketing, tickets, and paying without touching anything.

QR codes aren't just for factories anymore. Now they are very important for talking to people online and getting customers interested in products or services. This evolution was spurred by the widespread adoption of smartphones, allowing consumers to access digital content linked through QR codes instantly. QR codes are being utilized by numerous number of industries to improve customer experience. For example, shops use them on product packages to provide more information or special deals, making it easier to shop online and in-store simultaneously; museums use QR codes to give visitors cool tours and information about exhibits, making trips more educational and interesting.

### **2.2 QR codes in hospitality**

Companies nowadays feel pressured to use technology to make things better. With technology growing fast and the economy focusing more on knowledge, it's no surprise. Customers now have access to more information than ever before, thanks to technology. They use this information to help them decide what to buy.

Albăstroiu et al. (2015, p.564) note that QR codes provide instant access to a range of data via mobile devices, including website URLs, email addresses, phone numbers, and geographical coordinates.

Nowadays, QR codes are considered a smart choice for hotels looking to improve their sustainability. By simply putting QR codes around, like in the lobby, rooms, and public spots, hotels offer guests a convenient experience. QR codes mean less need for printed materials and let guests quickly see things like menus and room service options. This makes QR codes effective for promoting sustainability in the hospitality industry while improving the overall guest experience (Touch Menu App, 2023).



QR codes have been a staple in the hospitality industry for a considerable time. QR codes are now commonly used in hotels, restaurants, and cafes. Initially, they were primarily used to access digital content quickly. Nowadays, QR codes are used for several purposes in the hospitality industry. These codes not only streamline menu access, room selection, and payment transactions but also play a pivotal role in improving the overall customer experience and optimizing business operations (Finedine Menu, 2023).

### 2.3 QR codes in menus

The dining experience in table-service restaurants has been revolutionised by QR codes. With the help of these codes, customers can place their meal orders and make payments without interacting with servers. The table number is contained in the QR code, which makes it easier for servers to deliver food to the right table. Throughout the pandemic, businesses have promptly adopted QR code menus as a modern trend, placing the safety of their patrons at the forefront. A QR code menu empowers customers to access a digital menu directly on their smartphones with a mere scan. The best part is that virtually all mobile devices can scan QR codes, enabling patrons to swiftly point their devices at the QR code and be instantly directed to a contactless menu, ensuring a secure dining experience (Can, 2021, p.211).

Restaurant menus are crucial to a restaurant's success because they serve as a marketing tool to present its offerings to customers (Dennis, 2023). The restaurant industry is labour-intensive and complex, and it must continually adapt to changing trends to remain competitive and avoid stagnation (Can, 2021, p.216). QR-coded menus are a modern alternative to traditional printed menus.

QR code applications play a vital role in restaurants. They provide a mobile marketing platform for customers to access menu information and additional marketing communications. This approach is particularly beneficial for food and beverage establishments, as setting up and managing QR codes is more accessible and cost-effective than traditional printed menus (Kiliç et al, 2023, p.1059).

Restaurants increasingly adopt QR codes to offer guests a more convenient and contactless dining experience. These codes can be placed at the entrance or on tables, allowing customers to scan and access an online menu or be redirected to an online ordering platform or app. Doing so allows them to easily place orders and make payments independently without interacting with a cashier or server. Moreover, QR codes can also provide links to daily or weekly specials that might not be listed on standard printed menus. Restaurants can now easily keep their customers updated on their menu offerings without the hassle of printing new copies all the time. QR codes offer restaurants a practical and innovative solution to improve customers' experience, save costs, and increase efficiency (Modern Restaurant Management, 2020).

Restaurants can make dining a better customer experience and smoother for operations with QR codes. Restaurants that go digital can learn more about their customers' preferences and tailor their dining experiences for them.

### 2.4 QR codes menus advantages

The use of QR codes has significantly increased due to the recent pandemic. In order to prevent customers from touching surfaces and to facilitate secure transactions and communication, hotels and restaurants started to utilize QR codes. In response to the rising demand for touchless interactions from customers, these changes were implemented. While paper menus have made a comeback, the use of QR codes has continued even after the pandemic. QR codes are still used today because they are adaptable and practical in various areas (DXglobal, 2023). For restaurants and cafes, using QR codes in menus has been really helpful for business owners, especially during the pandemic. This shows how valuable and current they are even after all these years. Customers were now able to interact more easily and safely.

Here are the primary benefits noted from the perspective of restaurant and cafe owners:

- *Enhanced customer safety*  
QR codes have become essential for minimizing physical contact by replacing traditional paper menus with digital alternatives.

- *Long-term financial benefits*  
Adopting QR code menus is a strategic move that can lead to substantial cost savings over time. With digital menus, updating menu items is quick and easy, without the need for frequent reprinting. Significant cost savings and increased business flexibility may result from this.
- *Operational efficiency*  
QR codes streamline the ordering process. Customers can scan the code, view the menu, and sometimes even place an order without waiting for a server. This efficiency not only speeds up the service but also reduces the workload on staff, allowing them to focus on enhancing customer service elsewhere (Lingaros, 2023).
- *Data collection and analytics*  
Digital menus linked to QR codes allow restaurant owners to collect valuable data on customer preferences and ordering patterns. With the use of this data, menu options, price policies, and marketing campaigns can all be better tailored to the needs of the target audience.
- *Environmental benefits*  
QR codes contribute to an establishment’s sustainability efforts by reducing the need for paper-based menus. Digital menus decrease the amount of waste produced, aligning with the growing consumer preference for environmentally responsible businesses (Iskender et al, 2023, p. 595).
- *Improved customer experience*  
QR code menus often enhance the dining experience by integrating features such as dish recommendations, ingredient sourcing information, and interactive elements like video preparation of meals. These features can help educate customers about their food and create a more engaging dining experience (Touch Menu App, 2023).
- *Flexibility and agility*  
The ability to quickly change menu items, prices, or descriptions based on inventory levels, special promotions, or customer feedback provides agility that is difficult to achieve with printed menus. This adaptability can be particularly valuable in responding to changes in supply chain availability or special events (Mildred et al, 2023, p.75).

In the hospitality industry, QR codes have been a considerable improvement. With the help of this technology, professionals can increase operational effectiveness, succeed in a market that is continuously changing, and more effectively adjust to the constantly evolving requirements of their guests. It’s not just a technological trend but a decision that can lead to long-term success in the competitive world of hospitality.

### **3. Research methodology**

To carry out the research a detailed methodology was used, involving in-depth interviews which gathered the restaurant and cafes owners’ perceptions and experiences about the adoption and use of QR codes. In-depth interviews are a qualitative research method commonly used to gather comprehensive information from a specific group of participants. These interviews use open-ended questions to promote a conversational and exploratory communication style (Boyce et al, 2006, p.3). This technique is used to explore the interviewed persons attitudes and viewpoints on a specific topic.

The purpose of the investigation on how the QR codes are integrated and used in the current activity of restaurants and cafes, was to provide a profound understanding of the impact this technology has in the HORECA sector.

The semi-structured interview process follows a multi-stage design:

#### **1. Planning the research and selecting participants.**

The first stage comprised in defining the scope and objectives of the research, focusing mainly in how QR codes are used in the daily activity and regarding customer interactions. It involves researching a carefully selected group of 20 restaurant and cafe owners from Brasov, Romania, chosen to represent a diverse range of businesses within the HORECA sector, encompassing various types and sizes.

## 2. Interview guide creation

The interview guide, a key tool in this study, is meticulously crafted to elicit rich, detailed participant narratives. A predefined set of interview questions steered the conversations, although participants were encouraged to express their views freely in their own words. The advantages, disadvantages and implications of QR codes were covered during the interview.

## 3. Conducting the interviews

Semi-structured in-depth interviews were carried out on the Zoom platform during January 2024. During the data collection process, the researchers followed ethical guidelines to ensure informed consent, protect the privacy and confidentiality of the data, and manage the data responsibly.

## 4. Data collection and analysis

A thorough data analysis was undertaken. All notes and answers recorded during the interviews were subjected to a thorough review and refinement process. All the data obtained was carefully arranged in order to reflect the goals and inquiries of the study and make it easier to draw insightful conclusions.

## 5. Interpretation

This step was crucial as it allowed for presenting the main findings based on the insights gained from the data. The process allowed the reach of the objectives and provided important answers at the research questions.

Here are the objectives of the current research:

### *O1: Implementation and motivation*

This objective aims to document the reasons behind adopting QR code technology in business operations. It aims to find out the start point of QR code implementation and identify the main reasons of this integration.

### *O2: Usage in operations*

This objective thoroughly examines the use of QR codes in daily business operations.

### *O3: Benefits and challenges*

This objective evaluates the dual aspects of benefits gained and challenges faced from using QR codes.

### *O4: Customer response and experience impact*

This objective assesses how customers have reacted to the implementation of QR codes and how these reactions translate into changes in customer experience.

### *O5: Future directions*

Finding out whether companies intend to use QR codes in the same way or in different ways, as well as the rationale behind these choices, is the main goal.

Based on these objectives the entire research project could be finished.

## 4. Findings

To ensure logical presentation and alignment with study objectives, we have organized the main findings by each objective.

### *O1: Implementation and motivation*

Restaurant and cafe owners reported implementing QR codes at the beginning of the COVID-19 pandemic in response to health guidelines and customer safety concerns.

Most respondents indicated their primary motivation was to minimize physical contact to ensure customer and staff safety. Beyond the immediate health benefits, many owners recognized the potential of QR codes to sustain operations amidst restrictions on physical interactions. Many owners decided to use QR codes after seeing how well they worked in other industries and within the hospitality industry. Using QR codes was essential for some businesses to continue operating during lockdowns and social distancing orders. They noticed the operational benefits and how readily customers accepted the technology.

Numerous respondents said the efficacy and versatility of QR codes were the main deciding factors in their selection of resources because they felt these tools would meet their immediate needs and complement their long-term business plans. The decision to implement QR code technology was predominantly a tactical response to unprecedented external pressures. However, for the majority of respondents, it also marked a significant strategic shift within the sector; businesses were not merely

reacting to short-term challenges but were also proactively seizing an opportunity to innovate and enhance their resilience against future disruptions.

Many business owners have started using QR codes to provide a blend of traditional and digital services.

#### *O2: Usage in operations*

Respondents reported employing QR codes across various applications within their operations. Most respondents have integrated these codes primarily to access digital menus, facilitate contactless ordering, and execute seamless payment transactions. Numerous participants have reported that incorporating QR codes into their incentive schemes has enhanced customer involvement and retention percentages. Moreover, a few businesses have effectively utilized QR codes for their promotional activities.

On the operational side, most owners utilize QR codes for efficient inventory management. By scanning a code, staff can instantly update inventory data or trigger supply orders, integrating real-time data flow into their systems. Furthermore, a lot of business owners recognise how useful QR codes are for getting fast feedback from clients. This feedback mechanism is often structured to provide insights shortly after dining, allowing for swift operational or menu adjustments based on customer satisfaction metrics.

According to the majority of respondents, QR codes improve service delivery responsiveness and streamline management tasks.

#### *O3: Benefits and challenges*

Many restaurant and cafe owners reported significant benefits from implementing QR codes, primarily citing increased operational efficiency as a significant advantage. Faster order processing and shorter customer wait times were examples of this efficiency in action. Additionally, a substantial reduction in costs associated with printing and updating paper menus was highlighted, along with enhanced customer safety through minimized physical contact. On the other hand, several challenges were also noted. The most common issue mentioned by many respondents was initial customer resistance, especially among older demographics who needed to be more accustomed to digital technology. One of the other challenges was the sporadic requirement for technical support, like resolving software problems or guaranteeing that every customer had a device that could read the QR codes.

The majority of owners discovered that encouraging employees to use QR codes and being proactive in communicating with them helped allay some of these worries, thereby empowering both staff and clients.

Furthermore, addressing the technical challenges associated with QR code implementation required some establishments to invest in staff training and occasionally in technical support to ensure a seamless customer experience.

The overall sentiment among most respondents is that while adopting QR codes involves an upfront adjustment and ongoing management of technology, the long-term benefits - such as cost savings, improved efficiency, and enhanced safety - significantly outweigh the initial challenges.

#### *O4: Customer response and experience impact*

According to most restaurant and cafe owners, customer feedback on QR codes has been overwhelmingly positive. Many customers have expressed satisfaction with the efficiency and speed of service facilitated by QR code menus, appreciating the immediate access to menus and the ability to place orders directly from their smartphones. The improved interactive elements of digital menus - like thorough dish descriptions, photos, and occasionally even videos - have greatly improved the eating experience. Nevertheless, there has been a noticeable preference for traditional paper menus among some customer base segments, particularly older customers, who find digital menus less accessible or more challenging to navigate.

QR technology adoption has improved consumers' experiences in cafes or restaurants. The predominantly positive feedback from customers suggests that QR codes align well with contemporary expectations for convenience and efficiency in dining experiences.

The importance of adopting a hybrid strategy - maintaining both traditional menu options and menus enhanced with QR codes - is highlighted by this client feedback. With a strategy like this, businesses can effectively serve all customers, regardless of their technological proficiency and preferences.

#### *O5: Future directions*

Unanimously, the restaurant and cafe owners indicated their plans to continue using QR codes and expand their capabilities within their establishments. Nowadays, restaurant and cafe owners are using advanced technologies like augmented reality (AR) in order to create interactive menus and virtual food presentations. Coupled with this, there's a strong interest in utilizing data analytics from QR code usage to tailor marketing strategies and menu offerings more precisely based on customer behaviour and preferences. QR codes are seen not just as a temporary measure but as a versatile tool that will evolve alongside their businesses and the broader industry.

According to the findings QR codes are more than just a pandemic response. QR codes are seen as a key component in the hospitality industry. Initially adopted for contactless interactions, their use has expanded to improve service efficiency and reduce operational costs. Despite initial resistance and technological learning curves, the industry has embraced QR codes enthusiastically. Looking forward, innovations like augmented reality and targeted data analytics are poised to further enhance customer engagement.

### **5. Conclusions**

Since their invention, QR codes have come a long way. QR codes have become popular, being used in all sorts of commercial tracking and mobile tagging applications. QR codes can display text, open web pages, add contact details to a user's device, connect to a wireless network, or even compose emails and text messages. As of 2024, QR codes have become an integral part of our daily lives, serving as a quick and efficient way to access information and connect with others (Wikipedia, 2024).

The hospitality industry undergoes accelerated transformation which is enabled by innovations in the digital field, such as QR codes. Originally adopted to meet the demand for safer, contactless services during the pandemic, QR codes have become crucial for modernizing restaurant and cafe operations. The possibility to have access to the menu as soon as you sit down at the table, to be able to view the dishes you order and even to benefit from certain discounts following the use of QR codes, are just some of the main advantages that these codes offer.

The frequent use of QR codes in the hospitality industry opens a path to an interactive and precise business practice. Owners are now looking towards future enhancements such as augmented reality in menus and more precisely targeted marketing through data analysis, showing a commitment to leveraging technology to meet changing consumer demands. The switch to digital solutions, like QR codes, is not without its difficulties, though. However, despite all the challenges, the industry has embraced QR code technology.

The future of the hospitality sector could be greatly influenced by QR codes. It is essential for the sector to adopt these digital technologies in order to boost customer satisfaction and keep up with the evolving market. It is also advantageous to do so. In an increasingly digital world - where QR codes are leading the way - the hospitality industry can maintain its competitiveness and satisfy customer demands by continuously adopting and integrating new technologies.

The qualitative technique used in the research constitutes one of the limitations, as the results cannot be extrapolated at general population level. The information discovered offers an overview of the use of QR codes which can be helpful especially for those who want to use QR codes in their activity, this can be a starting point.

This paper highlights the importance of adapting to technology and focusing on customer needs. It examines how consumer preferences, operational requirements, and technological advancements shape the future of the hospitality industry. The paper specifically looks at the role of QR codes in revolutionizing hospitality operations and improving customer interactions. It provides important insights for businesses aiming to succeed in the digital age.

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# Erasmus+ Program Impact on Higher Education Change Management

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## Abstract

*This article investigates the impact of Erasmus+ programs on higher education institutions with the support of the employees working within the Erasmus+ program across European universities. Employing both quantitative and qualitative methods, the research explores participant roles, challenges, and recommendations. Key findings include challenges identified including bureaucratic hurdles and issues with student engagement. Recommendations emphasize digitalization and language proficiency enhancements. Despite limitations, this study provides valuable insights that can contribute to the improvement of Erasmus+ initiatives and institutional practices.*

**Key words:** Erasmus+, higher education, change management, European Union

**J.E.L. classification:** A20, I23, M12

## 1. Introduction

In higher education, where tradition and innovation intersect (Mauduit & Gual Soler, 2020), the integration of transformative practices often encounters resistance from entrenched systems and conventional methods. Taking into consideration these challenges, the Erasmus+ program might be a beacon of change, fostering international collaboration and mobility between institutions across Europe and beyond. Although the program is primarily designed to promote academic exchange, its influence can extend beyond student mobility and cultural enrichment to the best practices exchange on different identified problems in higher education. This article aims to identify the impact of Erasmus+ mobilities on the landscape of change management in higher education.

## 2. Literature review

Change management plays a crucial role in facilitating successful transformations within higher education institutions. Although faced with challenges such as deadlocked processes and outdated systems, change management serves as a bridge to guide people through transitions and ensure that change is implemented smoothly, effectively and with positive outcomes. By emphasizing improved communication, a structured approach, stakeholder engagement and reducing disruption, change management acts as a compass that guides institutions through the maze of transformation, ultimately enabling them to navigate change and leverage it for growth and excellence. (Prosci, n.d.)

The Erasmus program, originally launched by the European Union in 1987 to promote cooperation between universities and higher education institutions across Europe, has evolved into a broader framework known as "Erasmus+". This expanded program includes various programs for transnational cooperation and mobility in the fields of education, training, youth and sport within Europe and beyond. Over the years, millions of people have participated in Erasmus+, including staff, students, young people and learners of all ages. Between 2014 and 2023, over 15 million people will participate (European Commission, n.d.).

The Erasmus+ Programme Guide comprises three main actions: (1) Key Action 1: Mobility Projects, Youth Participation, DiscoverEU, Staff Mobility in Sport and Virtual Exchanges. (2) Key Action 2: Partnerships for cooperation, excellence and innovation, capacity building and European sport events. (3) Key Action 3: European Youth Together and Jean Monnet Actions. Some actions are implemented through specific calls for proposals managed directly by the European Commission or the Executive Agency (European Commission, n.d.).

In its second phase, which runs from 2021 to 2027, the Erasmus+ program focuses on four key priorities. First, it aims to provide support for the green transition by aligning its initiatives with environmental sustainability objectives. Secondly, the program addresses the challenges and opportunities of digital transformation and ensures that participants are equipped with the relevant skills and knowledge. In addition, Erasmus+ focuses on social inclusion and diversity initiatives to create an environment that values differences and ensures equal opportunities for all. Finally, the program aims to strengthen democratic engagement and civic participation, empowering individuals to actively contribute to society and uphold shared values (European Commission, n.d.).

### **3. Research methodology**

The methodology adopted for this research aimed to provide insides into various aspects related to Erasmus+ programs and their impact on higher education institutions. Through a structured approach, the research sought to meet the research objectives.

Research objectives:

- 1) Profile the individuals participating in Erasmus+ programs across higher education institutions.
- 2) Examine the diverse roles held by participants within the framework of Erasmus+ programs.
- 3) Identify the contributions and suggestions that could enhance the effectiveness and efficiency of Erasmus+ programs.
- 4) Evaluate the influence of Erasmus+ programs on the development and improvement of higher education institutions.
- 5) Identify and explore the challenges encountered by individuals engaged in Erasmus+ activities.
- 6) Collect the recommendations aimed at enhancing institutional practices and procedures related to Erasmus+ programs.
- 7) Assess if the current resources and support are enough for the successful implementation of Erasmus+ program activities.
- 8) Investigate the levels of communication and engagement among participants involved in Erasmus+ programs.

Utilizing a combination of quantitative and qualitative research approaches, the survey had closed questions and open-ended questions, this methodology facilitated a thorough exploration of participants' perspectives, experiences, and suggestions. By employing diverse data sources and analytical tools, the research aimed to offer comprehensive insights that could inform future strategies and policies concerning Erasmus+ programs and their integration within higher education institutions.

The data was collected through an online survey distributed to employees involved in Erasmus+ programs in different higher education institutions from across Europe. The survey included questions on demographic information (age, gender, education level, HEI affiliation), role within Erasmus+ programs, the level of interaction between employees involved in the Erasmus+ and students, contributions to program improvement, challenges faced, suggestions for improvement, and perceptions of institutional support and resources.

### **4. Findings**

The findings section of this article presents the analysis of various aspects related to Erasmus+ programs and their impact on higher education institutions. The research delved into demographics, participant roles, challenges faced, recommendations for improvement, and the overarching relationship between Erasmus+ initiatives and institutional enhancement efforts.



#### 4.1. Demographic results

The research population comprises 69 employees actively participating in Erasmus+ programs at higher education institutions in different European countries. The demographic profile of the participants reflects a wide range of age, gender, educational background and institutional affiliation, providing a comprehensive perspective on the topic.

*Table no. 1 Age distribution*

Age	Number	Percentage
18-24 years old	0	0
25-34 years old	9	13,24
35-44 years old	26	38,24
45-55 years old	24	35,29
55 years or older	10	14,71
Prefer not to say	0	0

*Source:* Primary data gathered by authors

The majority of participants are between 35 and 44 years old and makeup 38.24% of the population. This suggests that people in this age group are actively participating in Erasmus+ programs.

The higher percentage of female participants (73.91%) compared to male participants (26.09%) may reflect general trends in the gender composition of staff in higher education institutions or the particular interest and commitment of women in international mobility initiatives.

*Table no. 2 Educational Background*

Studies	Number	Percentage
Bachelor's Degree	9	13,04
Master's Degree	42	60,87
Ph.D. or higher	15	21,74
Prefer not to say	1	1,45
Other	2	2,90

*Source:* Primary data gathered by authors

The prevalence of participants with a Master's degree (60.87%) indicates a higher level of education among participants in Erasmus+ programs. This could indicate that people with advanced degrees are more likely to be involved in the internationalization efforts of their institutions.

*Table no. 3 Institutional Affiliation*

Country	Institution (as mentioned in questionnaire)	Answers
Netherlands	Windesheim University of Applied Sciences, Windesheim UAS, Zwolle, Saxion University of Applied Sciences	3
France	UCO, Université Catholique de l'Ouest, EM Normandie Business School, Université Grenoble Alpes, Grenoble Alpes University, University of Lille, Université de Bretagne Occidentale, University of La Rochelle, Lyon 1	14
Lithuania	Kauno kolegija	1
Poland	Bialystok University of Technology, Maritime University of Szczecin, University of Lodz, University of Maria Curie-Skłodowska, University of Bialystok, Warsaw University of Life Sciences, Lazarski University, Humanitas University	9
Portugal	Maia University	1
Spain	University of La Laguna, Universidad Catolica de Valencia, University of Oviedo, University of Granada, Universitat de Girona, UCO Spain, UNIVERSITY OF OVIEDO, University of La Rochelle	9
Italy	Univerisy of Pavia, Università di Foggia, University of Modena and Reggio Emilia, università della calabria, LA Sapienza, Roma, Università degli Studi di Bari Aldo Moro	8
Germany	Jade University, Hochschule Bremen, University of Wuerzburg	3

Croatia	Faculty of Economics and Business in Rijeka, University in Osijek, University of Rijeka (multiple mentions), University of Rijeka, Faculty of Civil Engineering, University of Rijeka, Faculty of Tourism and Hospitality Management Opatija, University Department of Professional studies, Split	10
Bulgaria	University of Veliko Tarnovo, D. A. Tsenov Academy of Economics	2
Serbia	University of Kragujevac	1
Belgium	HEL	1
Greece	University of Macedonai	1
Latvia	ISMA University of Applied Sciences, Riga Technical University	2
Romania	Alexandru Ioan Cuza University of Iasi	2
Finland	University of Turku	1

Source: Primary data gathered by authors

#### 4.2. Role related to Erasmus+ programs

The distribution of participants across different countries and institutions illustrates the multinational nature of Erasmus+ programs and their impact on higher education worldwide.

Table no. 4 Position Related to Erasmus+ Programs

#	Position related to the Erasmus+ programs	No.
1	Head of Erasmus International Office	7
2	Erasmus+ Coordinator	25
3	Erasmus+ Officer	15
4	Outgoings Advisor	1
5	Mobility team leader	1
6	Programme director	1
7	Office work	1
8	Assistant Professor	2
9	Erasmus+ administrative coordinator	3
10	Vicedean for international relations	2
11	Manager Incoming Students	1
12	International projects manager	4
13	Student mobility manager	1
14	Erasmus Agreement Coordinator (Many Programs)	3
15	Mobility Assistant of a school	1
16	Referent for Incoming Students	1

Source: Primary data gathered by authors

The diversity of roles held by the participants underlines the interdisciplinary nature of Erasmus+ initiatives within higher education institutions. From administrative positions to academic positions, the variety of roles reflects the multi-faceted approach to managing international mobility programs.

Understanding the dynamics between staff and participants in Erasmus+ programs is crucial for assessing the effectiveness and impact of such initiatives on higher education institutions. This research looks at different aspects of Erasmus+ mobility experiences, including the role of staff in supporting students and professors during their participation.

Table no. 5 How close work the Erasmus+ employees to the students

	Number	Percentage
Very close	59	85,51
Moderately close	8	11,59
Minimally	2	2,90
Not at all	0	0,00

Source: Primary data gathered by authors

The majority of respondents (85.51%) stated that they work very closely with students and professors involved in Erasmus+ programs. This high level of engagement suggests that staff play an essential role in facilitating and supporting participants' mobility experiences. Close collaboration between staff and program participants is likely to increase the effectiveness of Erasmus+ initiatives by providing students and professors with the necessary guidance, support and resources during their mobility experience. These findings highlight the important role of staff in promoting successful Erasmus+ mobility experiences and in facilitating meaningful internationalization efforts in higher education institutions.

### 4.3. Contributions and suggestions

As institutions adapt to the changing higher education landscape, addressing the proactive role of staff in Erasmus+ programmes and wider university or faculty activities becomes necessary. By assessing whether staff have made suggestions to improve Erasmus+ activities specifically, wider university or faculty activities, or both, this research seeks to understand the extent of staff involvement in promoting improvements in their academic environment. Such findings can shed light on the extent of staff engagement and the potential impact of their contributions on programme effectiveness and overall institutional development.

Table no. 6 Employees implication in the change management process

	Number	Percentage
Yes, I made suggestions for both.	32	46,38
Yes, I have only made suggestions related to the Erasmus+ program activity.	8	11,59
Yes, I have only made suggestions to the general activity of my university/faculty.	7	10,14
No, I haven't made any suggestions at all	22	31,88

Source: Primary data gathered by authors

The results indicate a strong commitment among respondents (46.38%) to proposing improvements for both Erasmus+ program activities and general faculty functions, underscoring a holistic approach to staff involvement. A notable proportion (31.88%) did not offer suggestions. Some respondents focused solely on Erasmus+ activities (11.59%) or general faculty concerns (10.14%), showcasing diverse interests among staff.

Respondents have provided suggestions that could enhance various facets of Erasmus+ program activities and broader university or faculty initiatives. The suggestions put forth by respondents offer a nuanced understanding of the challenges and opportunities within Erasmus+ programs and institutional frameworks. The suggestions provided are:

- ✚ **Promotion and Awareness:** Respondents emphasize the importance of promoting Erasmus+ opportunities across diverse stakeholder groups, from students to university leadership. Strategies include one-on-one meetings, information sessions, and the development of policy documents to ensure comprehensive awareness and understanding of available opportunities.
- ✚ **Simplification and Improvement of Procedures:** Efforts are directed toward simplifying administrative processes both within home institutions and at the national agency level. Suggestions focus on streamlining paperwork, easing enrolment procedures for Erasmus students, and enhancing the application process through improved databases and accessible information.
- ✚ **Coordination and Management:** Respondents highlight the need for better coordination to support both incoming and outgoing students. This involves organizing student management activities, welcome days, and ensuring smooth mobility experiences through close collaboration within Erasmus programs.
- ✚ **Quality Enhancement:** Suggestions aim to enhance the quality of Erasmus+ experiences through improved documentation speed, better preparation of information for students, and effective communication channels. Additionally, proposals target the refinement of selection processes for academic and administrative staff, internal Erasmus procedures, and workload

management.

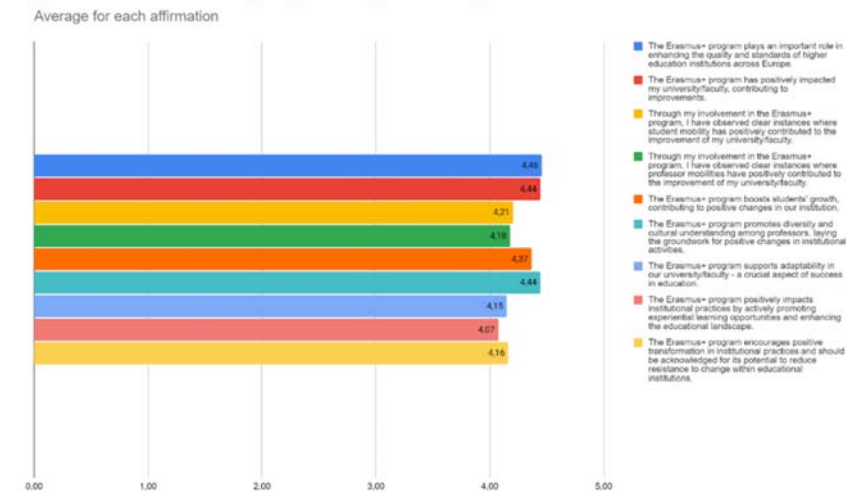
- ✚ **Partnerships and Networking:** Respondents actively seek to expand partnerships with new universities and companies to enrich the Erasmus+ experience. This includes participating in network development, creating new agreements, and facilitating mobility opportunities for students and teaching staff.
- ✚ **Innovation and Digitalization:** Embracing digital solutions is seen as pivotal for enhancing efficiency and accessibility. Suggestions include digitalizing processes such as application submissions, acceptance letters, and transcript exchanges to streamline operations and reduce paperwork.
- ✚ **Feedback and Advocacy:** Respondents advocate for better funding opportunities and procedural improvements within Erasmus programs. They actively engage in providing feedback to Erasmus offices, suggesting modifications to program structures, and advocating for changes to benefit both students and faculty.
- ✚ **Community Engagement:** Initiatives focus on engaging the wider community through events like International Week and expanding English-language course offerings to attract more international students and foster greater cultural exchange.

Overall, the suggested measures indicate the willingness to maximize the quality and outcome of the Erasmus+ program from a long-term perspective.

#### 4.4. Erasmus+ program impact on higher education institutions

Respondents were asked to express their level of agreement with a series of statements, each highlighting different aspects of the program's influence on institutional quality, student and professor mobility, diversity promotion, adaptability, and transformative potential.

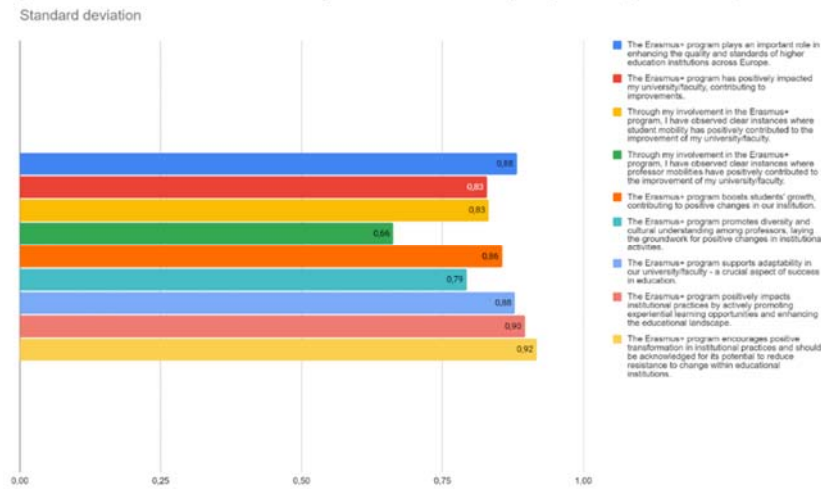
Figure no. 1 Erasmus+ program impact on higher education institutions



Source: Primary data gathered by authors

The average for each statement indicates a high agreement with the Erasmus+ program impacts higher education institutions in a positive way. Furthermore, the high average of all the statements shows that the Erasmus+ program is considered to be very beneficial overall, as it leads to positive changes within higher education institutions, promotes diversity and inclusion, and allows for transformative practices in education to take place.

Figure no. 2 Standard deviation for the Erasmus+ program impact on higher education institutions



Source: Primary data gathered by authors

The standard deviations across the statements generally indicate a consistent level of agreement among respondents regarding the positive impacts of the Erasmus+ program on higher education institutions. With standard deviations ranging from 0.66 to 0.92, there is relatively little variability in opinions among participants. This consistency suggests that respondents perceive the Erasmus+ program as playing a crucial role in enhancing the quality and standards of higher education institutions across Europe. They also believe that the program has significantly contributed to improvements within their own universities or faculties, both through student and professor mobilities. Furthermore, respondents agree that the Erasmus+ program fosters diversity and cultural understanding among professors, promoting positive changes in institutional activities. They also acknowledge its role in supporting adaptability within their institutions, which is seen as essential for success in education.

#### 4.5. Challenges faced

The survey results provide valuable insights into the experiences, perceptions, and challenges faced by employees involved in Erasmus+ programs within higher education institutions. These findings are important because they offer a deeper understanding of the effectiveness of Erasmus+ initiatives, identify areas for improvement, and explore opportunities for enhancing the overall experience for students, professors, and staff participating in these programs. The majority of respondents have encountered challenges or obstacles in their work related to Erasmus+ programs. This suggests that various difficulties appear while Erasmus + program employees do their jobs. Understanding and addressing these challenges are crucial to increasing the effectiveness and impact of Erasmus+ programs in higher education. The respondents were asked to briefly describe the challenges or obstacles that they are facing and the results are as follows:

- ✚ **Challenges in Perception and Implementation:** The perception of Erasmus+ and internationalization as additional tasks rather than integral components of roles poses a significant challenge for many lecturers and staff. Implementation issues persist with new technological tools, compounded by the need to manage multiple budgets within universities. Increasing responsibilities accompany rising student participation rates, adding pressure to existing workflows. Digitalization remains a significant challenge, with issues ranging from difficulties in signing bilateral agreements to accommodation shortages for incoming students.
- ✚ **Student Engagement and Support:** Post-COVID, there has been a decline in student willingness to participate in semester/year abroad programs. Challenges such as low Erasmus grants and issues with online platforms hinder student and staff engagement. Ensuring students understand the academic rigour of Erasmus programs and addressing financial constraints for economically disadvantaged students are key challenges. Some view Erasmus+ mobility as a

summer leisure activity rather than an academic pursuit.

- ✚ **Administrative and Bureaucratic Challenges:** System malfunctions, unclear directives, and heavy bureaucracy hamper administrative efficiency. Inadequacies in platforms like MOVEON for Learning Agreements and ERASMUS Agreements compound administrative challenges. The proliferation of paperwork and lack of harmonization in procedures contribute to administrative burdens.
- ✚ **Inter-Institutional Coordination and Communication:** Incompatibility between systems across universities complicates coordination efforts. Welcoming Erasmus students requires meticulous planning due to organizational complexities and resource constraints. Evolving student attitudes towards personalized programs necessitate increasingly stringent regulations.
- ✚ **Language and Communication Challenges:** Linguistic differences and bureaucratic paperwork present significant hurdles. Issues with students' English proficiency and the functionality of Erasmus Without Paper impede communication. Technical challenges with the new EWP system require adaptation.
- ✚ **Policy and Regulatory Challenges:** Interpretation variations in Erasmus rules among National Agencies and administrative differences among partners contribute to regulatory complexities. Changes in program regulations, including grant rates and green travel policies, pose challenges for program management. The introduction of Erasmus Without Paper and new program regulations has impacted the program's image due to unrealistic requirements.
- ✚ **Community Engagement and Mindset Change:** Encouraging community involvement and fostering a positive mindset towards internationalization are ongoing challenges.
- ✚ **Information and Technology Challenges:** Issues with platforms like the Beneficiary Module and the need to stay updated with news present daily challenges.

#### 4.6. Recommendations for Institutional Enhancement

The participants were asked if they shared their experiences and insights gained from their engagement with Erasmus+ programs by offering recommendations for institutional enhancement. Among respondents, 34.78% indicated having specific recommendations for overall institutional enhancement based on their experiences with Erasmus+ programs. This suggests a noteworthy subset of participants who have identified areas for improvement or innovation within their institutions, potentially drawing from insights gained through their involvement in Erasmus + initiatives. The diverse array of recommendations put forth by the respondents has the potential to inform strategic planning and decision-making processes within higher education institutions, facilitating continuous improvement and advancement. However, it's also notable that a significant portion (65.22%) did not provide specific recommendations, indicating a potential gap in institutional feedback mechanisms or varying levels of engagement with the Erasmus+ program among respondents. The recommendations made by respondents are the following:

- ✚ **Digitalization and Administrative Streamlining:** Implement comprehensive digitalization measures to minimize paperwork and streamline processes, including interinstitutional agreements, learning agreements, teaching agreements, and transcripts of records. Simplify procedures to facilitate smoother operations and enhance efficiency within Erasmus+ programs.
- ✚ **Language and Communication Enhancement:** Encourage language learning, particularly English, among students and staff. Increase the availability of courses taught in English and ensure a greater number of teaching staff are proficient in languages beyond their mother tongue.
- ✚ **Policy and Regulatory Refinement:** Ensure that universities honour all subjects agreed upon in Learning Agreements, with flexibility in subject selection to accommodate diverse student needs. Advocate for harmonization of measures and procedures across institutions to streamline administrative processes and facilitate student exchanges.
- ✚ **Community Engagement and Cultural Shift:** Foster a culture of internationalization within the entire academic community, promoting awareness and engagement with Erasmus+ programs. Encourage faculty participation in Erasmus+ initiatives to enrich the academic experience and promote global perspectives.

- ✚ **Financial Support and Accessibility:** Revise financial support mechanisms to consider students' financial situations in addition to the cost of living in host countries. Simplify administrative procedures and prioritize student accessibility to Erasmus+ mobility opportunities, ensuring equitable access for all students.
- ✚ **Inter-Institutional Collaboration and Communication:** Explore alternative platforms for administering Learning Agreements and facilitating institutional collaborations. Foster holistic cooperation across various units within institutions to ensure comprehensive support for Erasmus+ programs and initiatives.

#### 4.7. Impact of resources and support

To find out if there is a special need for something in the day-to-day activity respondents were asked if they think specific support or resources could enhance the positive impact of the Erasmus+ program on your institution's improvement efforts. A notable divide exists regarding the perceived need for additional support or resources to amplify the positive impact of the Erasmus+ program on institutional improvement endeavours. While a significant portion (50.72%) advocates for the need for specific resources or support to augment the program's efficacy, a slightly smaller cohort (49.28%) maintains that such support or resources may not be necessary. This dichotomy underscores the complexity of optimizing the Erasmus+ program's influence within educational institutions and highlights the importance of tailored approaches to address diverse institutional needs and priorities. The respondents were also asked to briefly describe the support or resources that could enhance the positive impact of the Erasmus+ program over the institution's improvement efforts, and the results are:

- ✚ **Improving Digitalization and Systems:** Enhancing accessibility through improved digitalization processes, particularly via Erasmus Without Paper (EWP) and institutional systems, to streamline Erasmus+ operations for students and staff. Establishing a centralized database of national grade conversion systems to facilitate easy access for universities, aiding in the development of standardized grade conversion protocols for students abroad. Advocating for larger scholarships to alleviate financial constraints and make Erasmus programs more financially viable for participants. Suggesting the introduction of regulations at the ministry level to elevate the status of ERASMUS projects and exchanges to the same level as scientific projects. Calling for additional resources and personnel to manage Erasmus+ activities effectively, including dedicated Erasmus coordinators at department and faculty levels.
- ✚ **Involvement of Stakeholders and Authorities:** Emphasizing the need for increased involvement and commitment from professors, teachers, department directors, and administrative staff to drive the success of Erasmus+ initiatives. Seeking support from governmental bodies, boards, deans, students, and administrative personnel to bolster the Erasmus program's impact and reach.
- ✚ **Challenges with Current Systems and Processes:** Identifying challenges such as limited budgets, complex administrative procedures, and curricular disparities, which hinder the smooth functioning of Erasmus+ activities. Urging the European Commission to enforce stricter digitalization measures on universities to overcome reluctance and expedite the transition to digital systems. Highlighting the need for simplified work procedures, merit-based beneficiary selection, and language proficiency enhancements among teaching staff.
- ✚ **Calls for Improvement and Action:** Expressing a widespread sentiment among respondents regarding the need for specific support and resources to enhance the positive impact of the Erasmus+ program. Advocating for the creation of an Erasmus transcript to standardize evaluation systems across universities and streamline academic credit transfers. Acknowledging the challenges faced in daily professional life and emphasizing the importance of administrative support and recognition in driving improvements within the Erasmus+ framework.

#### 4.8. Communication and engagement

To explore the extent to which participants have refrained from sharing improvement ideas with their university or faculty within the context of their experiences with the Erasmus+ program we asked the respondents if they ever avoided sharing ideas of improvement with their university or faculty, from their experience because you thought nobody would pay attention or listen. The responses reveal varied attitudes towards sharing improvement ideas within institutional settings. The majority of participants (71.01%) indicated that they have not avoided sharing improvement ideas, suggesting a generally positive environment within their university or faculty for idea exchange and collaboration. This finding underscores a culture of receptivity to diverse perspectives and suggestions for enhancing educational experiences. Approximately a quarter of respondents (26.09%) admitted to avoiding sharing improvement ideas because they believed their suggestions would go unnoticed or receive little attention from their university or faculty. This sentiment reflects a potential gap in communication channels or a lack of responsiveness within institutional structures.

Participants were also invited to share additional insights regarding their engagement within the Erasmus+ program within institutions. The responses encompass a range of themes and sentiments, providing valuable insights into various aspects of the Erasmus+ program and its impact on institutional improvement:

- ✚ **Perceptions of Bureaucracy and Institutional Processes:** Some respondents highlighted challenges related to bureaucratic processes within national and EU institutions, expressing a desire for more streamlined procedures and direct support channels. Additionally, there were suggestions to reframe the perception of Erasmus+ as a means to enhance international visibility and attract tuition-paying international students.
- ✚ **Personal Commitment and Involvement:** Several participants expressed a strong personal commitment to fostering international collaboration and integrating Erasmus+ outcomes into the educational process of their universities. They emphasized the transformative value of Erasmus+ experiences for personal and professional growth, underscoring its importance for all students.
- ✚ **Desired Improvements and Suggestions:** Recommendations for enhancing the Erasmus+ program included advocating for European University alliances to facilitate institutional changes, advocating for dedicated staffing and support resources within departments or faculties, and the creation of accessible information hotlines for direct assistance and guidance.
- ✚ **General Comments and Feedback:** Respondents emphasized the significance of the Erasmus+ program in promoting European integration, fostering a sense of European citizenship, and contributing to the collective advancement of higher education. Some expressed eagerness to contribute further to the program and congratulated its ongoing efforts.

#### 5. Conclusions

In conclusion, the research findings provide valuable insights into the demographic characteristics, roles, contributions, challenges, and recommendations related to Erasmus+ programs within higher education institutions. The demographic analysis reveals a diverse participant base in terms of age, gender, educational background, and institutional affiliation, highlighting the inclusive nature of Erasmus+ programs and their appeal across various segments of the academic community. Participants hold diverse roles within Erasmus+ initiatives, underscoring the interdisciplinary nature of these programs and the collaborative efforts required for their successful implementation 85,51% of them working very closely with the Erasmus students. The contributions and suggestions provided by participants demonstrate their proactive engagement and commitment to enhancing the effectiveness and efficiency of Erasmus+ programs, with recommendations ranging from digitalization and administrative streamlining to community engagement and cultural shift. Despite the positive impact of Erasmus+ programs on institutional development, student and professor mobility, diversity promotion, and transformative potential, respondents also face various challenges. These include bureaucratic hurdles, administrative complexities, communication barriers, and issues with student engagement and support. To address these challenges and enhance institutional practices, respondents offer a range of recommendations, including digitalization of processes, language and communication enhancement, policy and regulatory refinement, community



engagement, financial support and accessibility, inter-institutional collaboration, and resource allocation. While the majority of respondents express a positive environment for idea exchange and collaboration within their institutions, some acknowledge challenges related to bureaucracy and institutional processes, personal commitment and involvement, and desired improvements.

Overall, the research findings underscore the importance of continuous improvement and innovation within Erasmus+ programs and higher education institutions to maximize their impact on student and staff mobility, institutional development, and European integration. By addressing the identified challenges and implementing the recommended enhancements, institutions can further enhance the effectiveness and efficiency of Erasmus+ initiatives, fostering a more inclusive, collaborative, and transformative educational environment.

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## Qualitative Analysis of Change Management Models

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### Abstract

*According to one of the definitions of the word, change aims to adapt or replace one thing or state with another. When we refer to organizations, the change process evolved once with the economy and technology. The need to understand how the change can be implemented without causing harm and to obtain the target results leads to the appearance of the models of organizational change. Some models are simple and explain how the change is made; some are more complex considering more factors that influence the outcomes of the change process. This article aims to find the level of similitude between the organizational change models. After the study of the literature, the following models of organizational change were identified: The Lewin three-step model, Kotter eight-step, Nadler and Tushman congruence model, Carnall change management model, Burke-Litwin model, The ADKAR model, McKinsey 7S model, Nudge theory, Bullock and Batten planned change, Gleicher the change formula.*

**Key words:** change management, change management models

**J.E.L. classification:** L21, M10, M20

### 1. Introduction

Once with the evolution of the economy and technology the organizations, whether private or public, evolved too and had to adapt to survive. In the article “Only the strongest hive will survive” written by Angela Chuang in 2019 the author describes how “hive management” involves a strategy and the use of a few bee workers to work to ensure that they will be ready and survive the winter. The queen bee manages the entire activity and under her supervision and guidance, the hive will become a prosperous one and will survive the hard times. (Chuang, 2019) Just like a bee hive, the employees from organizations have to work together with their managers to ensure that they are ready for the changes and that they will survive the hard times. Managers have the “tool” of change management models that can be used to help them ensure that the organization led by them can adapt to future unknown situations. Change management has always come to package with multiple factors, depending on how the organization adapts. In the article “Influence of change management on modern organizational efficiency” the authors Ugo Chuks Okolie and Ndubuisi Jude Memeh concluded that some elements that determine successful change management in organizations should be included in a strategy plan for executing change and are related to communicating change plans for employee buy-in, strategic change agents, implementation costs, and maintenance of change instruments (Okolie & Memeh, 2022). It’s important to be informed and the current times allow us fast access to information and multiple open databases have solutions presented by researchers from all domains.

## 2. Literature review

In the literature, numerous theoretical papers and research theses have approached the change management models topic over the years. At the first search on the open-source Google Scholar after typing “change management models” the number of results was enormous 6780000, a large number of books and articles that it would take more than a lifetime to study to obtain the perfect image and to give credit to those authors that with their work improved the literature and helped everyone to understand easily and be prepared for the challenges that come to once with the change. In the book “Making sense of change management: A complete guide to the models, tools and techniques of organizational change” the authors present a multitude of change management models and how they influence and can be used for different situations. The book quotes the authors Whelan-Berry and Gordon (2000) whose research presents a multi-level analysis and concludes that existing models of organizational change mainly focus on actions to take rather than explaining or predicting the change process itself. While most models recognize, either implicitly or explicitly, the group-level and individual-level change processes, they typically do not detail these processes. To truly understand how organizational change is implemented, we need to closely examine the changes at both the group and individual levels. This means analyzing how the overarching vision and desired outcomes of organizational change are translated and implemented into the specific meanings, frameworks, and behaviors of groups and individuals.(Cameron & Green, 2019).

After the study of the literature, the following change management models were mostly mentioned: The Lewin three-step model (Cummings, et al., 2016), Kotter eight-steps (Calder, 2013), Nadler and Tushman congruence model (Sabir, 2018), Carnall change management model (AlManei, et al., 2018), Burke-Litwin model (Olivier, 2018), The ADKAR model (Hiatt, 2006), McKinsey 7S model (Channon & Caldart, 2015), Nudge theory (Ebert & Freibichler, 2017), Bullock and Batten planned change (Rosenbaum, et al., 2018), Gleicher the change formula (Cady, et al., 2014). The table underneath presents models that are a theory, a formula or models that have steps, phases, assumptions, factors, characteristics or barriers.

Table no. 1 Models of Organizational Change

Model	The model steps, phases, assumptions, factors, characteristics or barriers			
Gleicher the change formula	$C = (ABD) > X$ ; C = Change, A = Level of dissatisfaction with the status quo, B = Clear or understood the desired state, D = Practical first steps toward a desired state, X = “Cost” of changing			
Nudge theory	Nudges are simple, mild cues that don't need workers to drastically alter their methods of operation. Digital tools and big data can be helpful, even though it's difficult for businesses to gauge how well these nudges and new regulations are working. It won't be long until businesses can determine which nudges are most effective for each employee by continuously collecting and evaluating data. This implies that they may design more customized cues and guidelines to fit the needs of every worker (Ebert & Freibichler, 2017).			
Burke-Litwin model	Transformational Factors (external environment, leadership, mission and strategy, organizational culture)		Transactional Factors ( management practices, structure, system, work unit climate, task requirements, individual skills/abilities, individual needs, and values, motivation)	
The Lewin three-step model	Unfreeze		Change	Refreeze
Bullock and Batten planned change	Exploring	Planning	Action	Integration

Nadler and Tushman congruence model	Organizations are open social systems within a larger environment.	Organizations are dynamic entities (i.e., change is possible and occurs).	Organizational behavior occurs at the individual, group, and systems levels.	Interactions occur between the individual, group, and systems levels of organizational behavior.				
Carnall change management model	Denial stage	Defense stage	Discarding stage	Adaptation stage	Internalization phase			
The ADKAR model	Awareness	Desire	Knowledge	Ability	Reinforcement			
McKinsey 7S model	Strategy	Structure	System	Style	Staff	Skill	Shared values	
Kotter eight-steps	Establish a sense of urgency	Create a powerful guiding coalition	Create a vision and a strategy	Communicate the change vision	Empower broad-based action.	Create short-term wins.	Consolidate gains and produce more change.	Anchor new approaches in the culture.

Source: (Cummings, et al., 2016), (Calder, 2013), (Sabir, 2018), (AlManei, et al., 2018), (Olivier, 2018), *The ADKAR model* (Hiatt, 2006), (Channon & Caldart, 2015), (Ebert & Freibichler, 2017), (Rosenbaum, et al., 2018), (Cady, et al., 2014)

The models presented in the table are the ones that were identified in the literature that was studied so far and for sure others weren't included. Multiple articles study each model's particularities and evolution over the years, this article didn't include the presentation of each model in extenso since they are available in open source databases and can be accessed only after a few clicks. It's easy to notice the differences or the similitude in the presented model's approach and how they point out the essential steps, phases, barriers, or characteristics that need to be taken into consideration by those who want to implement successful changes in their organizations.

### 3. Research methodology

This research employs a literature review and qualitative analysis to examine various organizational change models. A search was conducted on open-source databases, to identify relevant articles and books on organizational change models. Keywords such as "change management models" were used, resulting in an extensive collection of literature. The primary focus was on well-documented and widely recognized models, such as Lewin's three-step model, Kotter's eight-step model, Nadler and Tushman's congruence model, among others.

Selected literature was reviewed to extract information on each change model, including its steps, phases, assumptions, factors, characteristics, and barriers. Key models were identified based on frequency and depth of discussion in the literature. NVivo software was used to analyze the textual data. Word clouds, item clustering by word similarity, coding of text, and sentiment analysis were generated to visualize and interpret the data. The analysis focused on identifying common themes, similarities, and differences among the models.

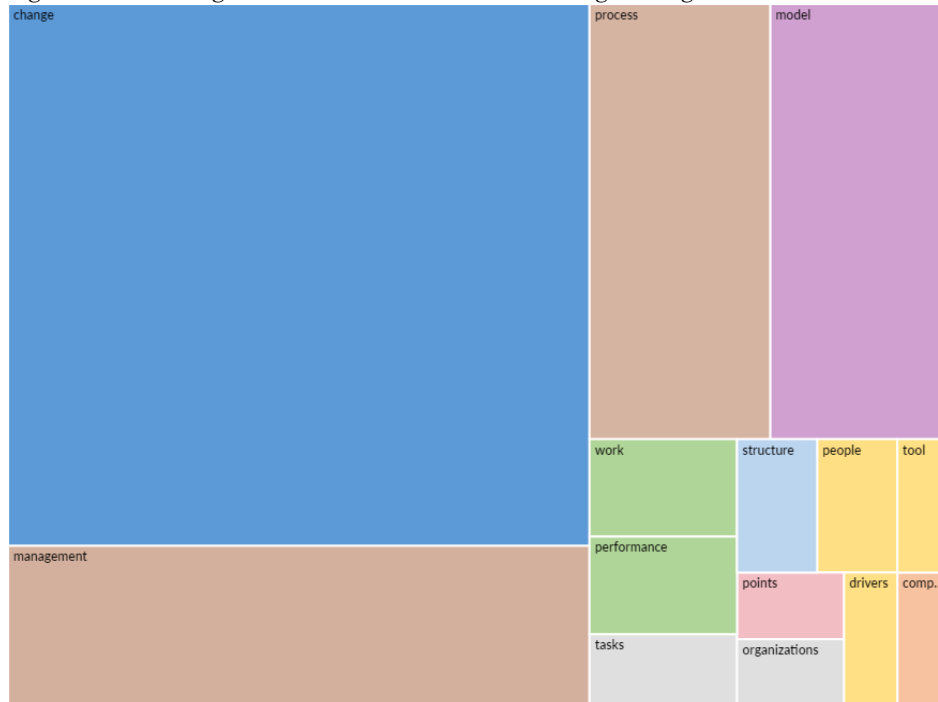
### 4. Findings

This research offers a thorough analysis of word frequency, similarity grouping, coding patterns, and sentiment analysis using NVivo software for qualitative data analysis. The resulting visual representations provide information about the main ideas, connections between models, and general feelings associated with each model in the literature.



The similarity between different change management models based on the literature review data before coding is presented in the figure above. The results indicate that there are two pairs of nodes (1) the Lewin three-step model and Kotter eight steps model and (2) the McKinsey 7S Model and the Nadler and Tushman congruence model. This indicates that from the literature review analyzed on the change management models two pairs of nodes have a very strong connection.

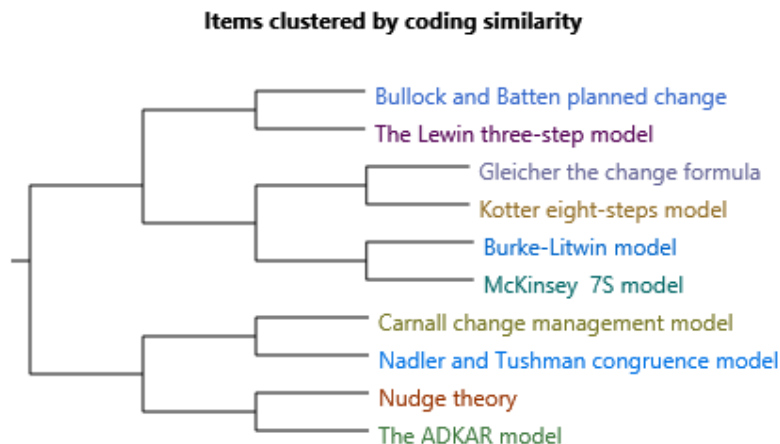
Figure no. 3. Codes generated in NVivo based on the change management models



Source: Generated by authors with NVivo

Figure 3 presents the codes generated during the NVivo analysis. Coding involves categorizing text into meaningful groups, which helps in organizing and interpreting qualitative data. The codes likely represent different aspects of change management models, such as "implementation steps," "barriers," "success factors," and "outcomes." This figure provides a structured overview of the key elements identified in the literature, highlighting the diverse components that make up various change management models.

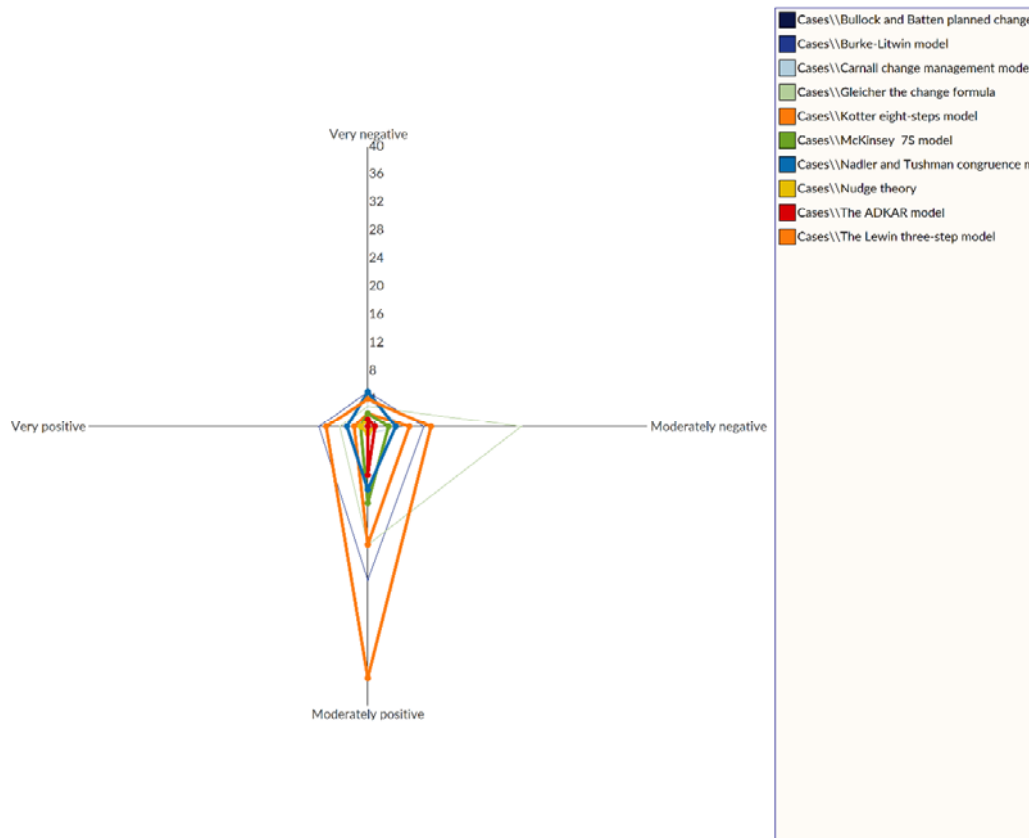
Figure no. 4. Items clustered by coding similarity generated in NVivo based on the change management models



Source: Generated by authors with NVivo

The similarity between different change management models based on the literature review data after coding is presented in the figure above. The results indicate that there are five pairs of nodes (1) Bullock and Batten planned change and the Lewin three-step model, (2) Gleicher the change formula and Kotter eight-steps model, (3) Burke Litwin model and McKinsey 7S model, (4) Carnall and Tushman congruence model and Nadler and Tushman congruence model and (5) Nudge theory and the ADKAR model. This indicates that from the literature review analyzed on the change management models five pairs of nodes have a very strong connection.

Figure no. 4. Autocode Sentiment Results generated in NVivo based on the change management models



Source: Generated by authors with NVivo

This radar chart above presents the sentiment analysis, conducted using the NVivo autocode sentiment tool that categorizes sentiments into four distinct classes: very positive, moderately positive, moderately negative, and very negative. The majority of models are clustered around the moderately positive spectrum. This indicates a generally balanced perception with a tendency towards positive sentiment presented in the literature review analyzed. Lewin's Three-Step Model (orange) stands out for its higher moderately positive sentiment, which can suggest a broad acceptance and effectiveness in certain scenarios.

## 5. Conclusions

This research examines various organizational change models through a literature review and qualitative analysis. The findings highlight several key insights related to word frequency and central themes, similarity and connection among models and sentiment analysis.

The word cloud analysis revealed that terms like "employees," "process," "culture," and "structure" are most frequently mentioned in the literature. This underscores their critical role in change management models. Additional key terms such as "vision," "skills," "knowledge," "leadership," "strategy," "needs," "performance," "support," "resistance," and "individual" are also

prominently featured, indicating their importance in the discourse on change management.

The pre-coding similarity analysis identified strong connections between specific models: Lewin's Three-Step Model & Kotter's Eight-Step Model and McKinsey 7S Model & Nadler and Tushman's Congruence Model. Post-coding analysis revealed additional strong connections, forming five pairs of closely related models. This suggests that despite their unique approaches, many models share underlying principles and components.

The sentiment analysis shows a generally balanced perception with a tendency towards moderately positive sentiments for most models. Lewin's Three-Step Model is particularly noted for its higher moderately positive sentiment, which can suggest acceptance and perceived effectiveness.

Overall, this research enhances the understanding of organizational change models by identifying common themes, similarities, and differences. The analysis underscores the importance of core elements such as employee engagement, cultural adaptation, and strategic leadership in successful change management. The insights gained from this research can guide practitioners in selecting and implementing the most appropriate change management models for their specific needs, ultimately facilitating more effective organizational transformations.

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# Practices of Strategic Management For Romania's Small and Medium Enterprises in The Digital Age

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## Abstract

*The article discusses the strategic management of SMEs within the digital era's context, focusing on helping these enterprises stay competitive in a rapidly changing global market, influenced by digital innovation. It underscores the importance of adopting new strategic thinking methods to ensure SMEs' viability worldwide. The theoretical segment reviews existing knowledge, citing strategies and strategic management within the digital era's dynamics. The research gathers critical information on the business environment shaped by digital advancements, necessary for understanding emerging trends, technologies, and global market shifts. The study pinpoints new challenges faced by SMEs and offers insights and solutions for these issues. A significant contribution of this research in strategic management for SMEs during the digital age is the creation and refinement of new strategic thinking models and techniques. This innovative research provides conceptual frameworks and practical tools tailored to meet the unique challenges of the digital landscape.*

**Key words:** economy, SMEs, management, digital technologies

**J.E.L. classification:** M11

## 1. Introduction

Strategic management is an ongoing process that involves evaluating and overseeing both the company and its activities, as well as assessing competitors to set goals and strategies to outperform both current and future rivals. This strategy is then reassessed periodically, at the end of each quarter or year, to plan its implementation and make any necessary adjustments based on new developments in the economic, social, financial, or political landscapes. In the digital era, new business models are emerging as SMEs address critical questions about customer identity, values, and how to deliver value efficiently. Key elements of information and communication technology such as mobile internet, the automation of knowledge work, the internet of things, and cloud computing are poised to significantly transform businesses and the global economy. The evolution of the internet, known as the "World Wide Web" in practice and literature, progresses through stages labeled as Web 1.0, Web 2.0, Web 3.0, and recently, Web 4.0, highlighting its transformative impact.

Despite recognizing digital technology as a transformative force, Romanian SMEs generally lack long-term strategic planning. Here, the political-legislative environment notably drives the need for strategy reevaluation and adaptation. Investments in network infrastructure and digital services are encouraged, with public-private partnerships playing a crucial role in promoting the rapid growth of the global digital economy. Evaluating managerial practices within Small and Medium-sized Enterprises (SMEs) is a complex endeavor fraught with several unique challenges that underscore the diverse nature of this business sector. One of the primary difficulties lies in the application of general management practices across varied business contexts. SMEs operate in a wide array of

industries, each with its own set of regulatory, market, and technological conditions. This diversity makes it hard to establish a one-size-fits-all approach to management that is equally effective across all SMEs. What works for a technology start-up in an urban setting might not be suitable for a small family-owned manufacturing plant in a rural area.

Moreover, the structure and scale of SMEs significantly influence the applicability of formal management procedures. These procedures, which are often designed with larger organizations in mind, typically require resources—both in terms of human capital and financial investment—that smaller businesses might not possess. For instance, rigorous data analysis and formal reporting structures that are standard in larger firms can be overly burdensome for a small enterprise, where many roles may be fulfilled by a single person.

## 2. Literature review

Numerous authors specializing in management have long been fascinated by the concept of strategy. The term "strategy" etymologically derives from the Greek words "stratos" (army), "strata" (array), and "argos" (leadership) (Betz, 2020). Although the concept of strategy has existed for over 2500 years, it only began to gain prominence in the 1960s, a period marked by economic recovery following two major global conflicts, during which business environments underwent significant changes, prompting organizations to adopt more strategic responses (Ebben and Johnson, 2005). This response to environmental shifts increasingly took on a strategic nature, with strategy becoming a core component of the economic system (Geofrey et al., 2014).

The academic literature on strategy and strategic management is diverse, reflecting a variety of perspectives shaped by different mentalities among specialists in the field. Strategic management was first formally recognized as a discipline in 1973 by Ansoff, and its approaches are notably diverse (Reves et al., 2012). It is viewed as a contemporary management form that anticipates environmental changes, assesses internal potential with minimal subjectivity, and dynamically manages changes necessitated by the need to align activities with the influence of both internal and external factors, ensuring the sustainability and viability of organizations.

Currently, strategic management is understood in various ways but generally involves a complex process that aids in implementing strategies to ensure the longevity of organizational initiatives, considering the interaction of structural and cultural factors; the ability to harmoniously coordinate both external and internal environmental elements to achieve organizational objectives; a modern management philosophy linking strategy with corporate initiatives; the setting of long-term performance goals through detailed action plans based on the intensity of environmental factors; and the development of strategies that help achieve organizational goals (Iansiti and Lakhani, 2014).

Despite the diverse conceptual approaches, there is a consensus that strategic management is an advanced form of management, anticipating environmental changes and non-subjectively evaluating internal capabilities to effectively manage necessary changes. It requires accurately identifying the organization's current and desired future position, analyzing and projecting the impact of various factors on organizational behavior within the technology-market framework, identifying stakeholder goals, and enhancing organizational capabilities to achieve all set objectives (Chesbrough, 2003).

SMEs, often seen as vital engines of economic growth, are defined variably worldwide but are primarily categorized based on employee numbers, business volume, total assets, and organizational independence. SMEs play crucial roles in the economy by creating jobs, fostering middle-class formation, enhancing market competition, supplying goods and services, utilizing local resources, providing economic resilience, serving as a foundation for future large enterprises, and prioritizing innovation in management and technology. They are highly adaptable to the socio-economic conditions of their respective regions (Baum and Locke, 2004).

The traditional coping strategies may no longer be effective in the future, and society must explore different scenarios to mitigate the disruptions and imbalances caused by the information technology era, now evolving into the digital age (Iansiti and Lakhani, 2014). The digital age brings profound changes affecting organizations directly or indirectly through competitive dynamics, customer behaviors, data usage, sources of innovation, and new business model creation (Edmondson, 2011).

Finally, the performance of organizations, reflecting strategic decisions and achieved performance levels, is partly influenced by organizational culture (Berglund and Sandström, 2013). Strategic management should consider forming alliances and cooperative efforts as alternative management forms, especially when organizations have histories of collaboration, whether related to risk or trust (Amit and Schoemaker, 1993).

### 3. Research methodology

The applied research was conducted from November 2023 to April 2024 and involved the following phases:

Stage 1: Two questionnaires were distributed via email, physical methods, and crowdsourcing. The objectives of this stage were to gain a thorough understanding of:

- a) the variance in digital tool adoption between SMEs and larger enterprises;
- b) how well Romanian SMEs have adapted to new strategic management concepts and advancements in digital technology.

Stage 2: This involved the descriptive and econometric analysis of the data collected from the responses to the questionnaires. The questionnaires aimed to deeply explore:

- ✓ the differences in the adoption rates of digital tools between SMEs and larger companies.
- ✓ the main challenges faced by organizations, particularly SMEs, in adopting digital technologies.
- ✓ the perceived benefits of digital technology adoption across organizations, with a focus on SMEs.
- ✓ the level of knowledge that decision-makers possess regarding digital implementation in organizations generally, and in SMEs specifically.

The methodology employed included proportional quotas for county-level distribution and a stratified-optimal model for allocation by sector. A total of 643 respondents completed the questionnaire, including 598 from micro, small, and medium-sized enterprises across Romania, segmented by industry sector such as information and communications, tourism, industry, construction, trade, transportation, and services, based on the stratified-optimal model. The analysis of the questionnaire responses involved several statistical and econometric techniques. Initially, descriptive statistics were used to identify the characteristics of the respondents and to compare different homogeneous groups. In the second phase of the analysis, for deriving statistical conclusions, tools like analysis of variance, correlation, and linear regression were utilized, employing ANOVA and SPSS for Windows 16.0 software.

### 4. Findings

The findings, which detailed the usage of fundamental ICT elements among Romanian SMEs categorized by size, were summarized in Table no 1.

*Table no 1. The use of the basic elements of ICT according to the size of SMEs in Romania*

<b>Using the basics of ICT</b>	<b>Microenterprises</b>	<b>Small businesses</b>	<b>Medium enterprises</b>
<i>Internet</i>	70,81%	91,47%	89,39%
<i>Computere (PC)</i>	74,03%	87,60%	89,39%
<i>E-mail</i>	65,15%	82,95%	89,39%
<i>The SME's own website</i>	22,64%	50,39%	59,09%
<i>Online sales/purchases</i>	12,21%	24,03%	30,30%
<i>Intranet</i>	18,53%	1,55%	0,00%
<i>We do NOT use any of the above</i>	2,11%	6,98%	22,73%

*Source:* developed by the authors based on the collected data

The utilization of the internet among small and medium-sized enterprises (SMEs) in Romania is more prevalent compared to microbusinesses, as indicated by the data in Table no 1. Specifically, 91.47% of small businesses and 89.39% of medium-sized businesses use the internet, compared to 70.81% for microbusinesses. Similarly, the ownership of computers is higher in small (87.6%) and medium-sized businesses (89.39%) than in microbusinesses (74.03%). The use of email follows a

similar trend, with 82.95% for small businesses and 89.39% for medium-sized businesses, significantly higher than the 65.15% observed in microbusinesses. Furthermore, having their own website is more common among small (50.39%) and medium-sized businesses (59.09%) than among microbusinesses, where only 22.64% have a website. Online commerce (both sales and purchases) also shows higher percentages among small (24.03%) and medium-sized businesses (30.3%), compared to just 12.21% for microbusinesses. Interestingly, micro-enterprises show a distinct advantage in the use of intranet, with 18.53% utilizing this technology compared to a mere 1.55% in small businesses and none in medium-sized businesses. However, a concerning finding is that 22.73% of medium-sized businesses do not use any modern technological tools, a stark contrast to 6.98% of small enterprises and only 2.11% of micro-enterprises. This lack of technology adoption could potentially have a deeply unfavorable impact on the operations of medium-sized enterprises.

Additionally, the national-level use of basic ICT elements across different sectors of activity for SMEs in Romania is detailed in Table 2.

*Table no. 2. The use of the basic elements of ICT according to the branch of activity of SMEs in Romania*

<b>Using the basics of ICT</b>	<b>Industry</b>	<b>Construction</b>	<b>Trade</b>	<b>Transport</b>	<b>Tourism</b>	<b>Services</b>
<i>Internet</i>	79,25%	79,12%	66,22%	76,74%	96,67%	76,51%
<i>Computere (PC)</i>	82,57%	76,92%	69,68%	79,07%	93,33%	78,10%
<i>E-mail</i>	73,44%	79,12%	61,97%	72,09%	83,33%	68,25%
<i>The SME's own website</i>	35,27%	21,98%	22,34%	27,91%	53,33%	28,89%
<i>Online sales/purchases</i>	17,01%	15,38%	10,90%	11,63%	36,67%	15,56%
<i>Intranet</i>	11,62%	7,69%	23,40%	11,63%	3,33%	12,70%
<i>We do NOT use any of the above</i>	2,11%	2,20%	1,60%	9,30%	6,67%	4,44%

*Source:* developed by the authors based on the collected data

The insights derived from the data in Table no 2 allow us to draw the following conclusions:

- High Utilization in Tourism, Hospitality, and Leisure: SMEs in the tourism sector lead in digital adoption, with notable percentages in internet usage (96.67%), which is significantly higher compared to industries such as manufacturing (79.25%), construction (79.12%), transport (76.74%), and services (76.51%). Similarly, computer usage in tourism is highest at 93.33%, compared with 82.57% in industry, 79.07% in transport, 78.1% in services, and 76.92% in construction. Email usage and the presence of an organization's own website also show the highest figures in the tourism sector, 83.33% and 53.33% respectively, far surpassing other sectors such as industry, services, commerce, and construction.

- Online Sales/Purchases: While digital technology is pervasive, online sales and purchases represent a smaller fraction of digital usage across all sectors. Tourism again shows the highest adoption with 36.67%, followed by industry (17.01%), services (15.56%), construction (15.38%), and trade (10.9%), the latter surprisingly low given the sector's nature.

- Perceived Uselessness of Digital Tools: There are still perceptions of digital tools being unnecessary within certain sectors. For instance, 1.6% of SMEs in trade, 2.11% in industry, 2.2% in construction, 4.44% in services, and 6.67% in tourism view digital tools as nonessential. Transport SMEs exhibit the highest rate of perceived uselessness at 9.3%.

Finally, to further elucidate the impact of digital adoption, we analyzed the correlation between the intensity of digital usage and the performance of Romanian SMEs, as depicted in Table no 3. This analysis aims to understand better how digital integration influences operational success across different sectors.

Table no 3. Correlation between the intensity of use of the basic elements of ICT and the performances of SMEs

Using the basics of ICT	Much better	Better	Identical	Weaker	Much weaker
<i>Internet</i>	85,19%	79,83%	76,13%	71,23%	45,31%
<i>Computere (PC)</i>	92,59%	77,25%	78,30%	74,89%	57,81%
<i>E-mail</i>	92,59%	75,11%	68,35%	70,78%	31,25%
<i>The SME's own website</i>	37,04%	35,19%	27,31%	26,48%	10,94%
<i>Online sales/purchases</i>	29,63%	21,03%	13,38%	12,33%	4,69%
<i>Intranet</i>	0,00%	8,15%	13,56%	23,29%	37,50%
<i>We do NOT use any of the above</i>	7,41%	6,44%	3,07%	3,65%	1,58%

Source: developed by the authors based on the collected data

Based on the synthesized data in Table 3, we drew the following conclusions:

- General Usage Patterns: A significant proportion of SMEs report using digital tools extensively: 78.3% utilize computers, 76.13% access the Internet, 68.35% use email, 27.31% have their own website, and just over 13% use intranets and engage in online commerce (13.56% and 13.38%, respectively). This data indicates a substantial engagement with digital technologies, though the relatively low figures for websites and online commerce suggest some areas still face challenges in digital adoption.

- Effectiveness of Digital Tools: Despite varying degrees of usage, the impact of digital tools on SME performance is generally positive, except for intranets where no significant improvement was reported (0% reported "much better results"). High percentages of respondents reported considerable improvements due to the use of computers and email (92.59%), the Internet (85.19%), and the organization's own website (37.04%), indicating that these tools are effective in enhancing business operations.

- Analytical Approach: To ascertain the causal relationships between organizational strategy and external environmental assessment, tools such as SPSS for Windows 16.0 and ANOVA were employed. Regression analysis was used to explore the potential link between the frequency of strategy reevaluation and adaptation and the frequency of evaluating the external environment.

- Variables for Analysis: Eight independent variables were established for the analysis, focusing on the frequency of evaluation in various domains:

1. Competitors
2. Customers
3. Suppliers
4. Workforce
5. Political-legislative environment
6. Economic environment
7. Socio-cultural environment
8. Technological environment

- Outcome of Analysis: The independent variable was the frequency of strategy adaptation and reevaluation at the organizational level. The results of this regression analysis are detailed in subsequent tables (Tables 4, 5, and 6), showing how each variable interacts with strategic management practices and influences organizational outcomes.

This comprehensive approach underscores the interplay between digital tool utilization and strategic management, highlighting the critical role of consistent environmental evaluation in shaping effective business strategies for SMEs.

Table no 4. Summary of the model b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.218 <sup>a</sup>	.047	.028	1.032	.047	2.465	9	445	.009	1.993

a. the independent (constant) variables are considered the frequencies with which they are evaluated: the technological environment; workforce; customers; socio-cultural environment; suppliers; competitors; the economic environment; the international environment; the political-legislative environment  
b. Dependent variable: the frequency of re-evaluation and adaptation of the organizational strategy

Source: developed by the authors based on the collected data

Table no 5. ANOVA<sup>a</sup>

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	23.619	9	2.624	2.465	.009 <sup>b</sup>
Residual	473.687	445	1.064		
Total	497.305	454			

a. Dependent variable: the frequency of re-evaluation and adaptation of the organizational strategy;  
b. the independent (constant) variables are considered the frequencies with which they are evaluated: the technological environment; workforce; customers; socio-cultural environment; suppliers; competitors; the economic environment; the international environment; the political-legislative environment

Source: developed by the authors based on the collected data

Table no 6. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero order	Partial	Part
(Constant)	1.965	.131		15.019	.000			
Evaluation of the competition	-.092	.067	-.081	-1.365	.173	.007	-.065	-.063
Evaluation of clients and consumers	-.032	.078	-.024	-.409	.683	.041	-.019	-.019
Evaluation of suppliers	.121	.064	.104	1.883	.060	.104	.089	.087
Evaluation of the labor force	-.005	.057	.000	.001	.999	.070	.000	.000
Evaluation of the political-legal environment	.171	.052	.222	3.288	.001	.159	.154	.152
Evaluation of the economic environment	-.103	.067	-.099	-1.526	.128	.051	-.072	-.071
Assessment of the technological environment	.105	.062	.097	1.678	.094	.107	.079	.078

Source: developed by the authors based on the collected data

The regression analysis summarized in Tables no 4, no 5, and no 6 demonstrates a statistically significant relationship between the set of predictive indicators and the criterion variable, with an F-value of 2.565 and a p-value less than 0.05. The coefficient of determination ( $R^2$ ) is 4.7%, indicating that the predictive indicators account for 4.7% of the variance in the criterion variable. The multiple correlation coefficient ( $R$ ) is 0.218, suggesting a low intensity of correlation between how frequently Romanian SMEs evaluate their external environment and how often they adapt and reevaluate their organizational strategies. Notably, the evaluation frequency of the political-legislative environment stands out among the predictor variables, showing a significant statistical contribution. With a Beta value of 0.222 and a p-value less than 0.05, this variable alone accounts for 2.3% of the variance in the frequency of strategy adaptation and reevaluation. This analysis indicates that Romanian SMEs that conduct more frequent evaluations of the business environment, particularly the political-legislative aspects, tend to revise and adapt their strategies more often. This suggests a strong link between external environment awareness and strategic responsiveness, emphasizing the importance of staying attuned to changes in the political and legislative landscape for effective strategic management.

## 5. Conclusions

The SME sector, recognized as a primary job creator locally, regionally, and globally, has grown in importance not only in Romania but across Europe and the world, significantly influencing the rise in gross domestic product (GDP). Moreover, SMEs are crucial to the sustained increase in exports and national investment levels, thereby fostering economic and social growth, contributing to the sustainable development of their operating regions. Regardless of the economic approach—whether general or specific, or the complexity of the indicators used (unidimensional or multidimensional)—SMEs consistently exert positive effects on the overall economic system's functionality. Managerial practices within SMEs serve as a vital link between management and administrative capabilities, performance levels, and overall growth. Despite the established correlation between the frequent evaluation of external organizational environment elements and the reevaluation and adaptation of strategies, the most impactful predictor, as perceived by respondents, relates to the evaluation of the highly unpredictable political-legislative environment. In this light, it appears that Romanian SMEs adjust or formulate their strategies primarily in response to changes in regulatory requirements.

In Romania, the predominant sector for SMEs is commerce, with about 42% of Romanian SMEs engaged in trade, significantly above the EU average of 30%. This is a positive indication of the sectoral structure in the context of new policies aimed at revitalizing the industry at the European level. Moreover, Romania has a higher proportion of SMEs in the manufacturing industry than the EU average—11.9% compared to 9.6%, placing Romania among the few European countries that have surpassed pre-crisis industrial production levels. Notably, it ranks second in Europe, after the Czech Republic, in the industrial sector's contribution to creating added value.

There are approximately 51,000 active SMEs in Romania, making up 9% of all SMEs in the country, and they contribute 24.5% of the national added value. However, the business climate shows signs of instability, reflected by a decline in new entrepreneurial initiatives and the exit of some economic agents from the Romanian market.

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# Complexities of I.T. Project Management

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## Abstract

*As the global business landscape grows increasingly intricate, the necessity for interdisciplinary teams has become essential, transforming the work environment significantly. These transformations have escalated the demand for sophisticated IT projects, necessitating advanced and comprehensive project management approaches. IT project management involves the utilization of specific knowledge, skills, tools, and techniques to meet the defined objectives, goals, and requirements of an IT project, particularly concerning time, costs, quality, and performance parameters. These elements—time, cost, quality, and performance—act as constraints within IT project management. To gain as many competitive edges as possible and to produce suitable competitive responses, an organization must be proficient in modern IT project management techniques. The research study primarily seeks to analyze the key challenges that may arise in IT projects and, secondly, to identify the causes of these issues.*

**Key words:** IT projects, organization, planning, control, management

**J.E.L. classification:** M11

## 1. Introduction

As technology continues to advance, increasingly more companies across various sectors are integrating computers and software tools into the management and development of diverse projects. An IT project represents a time-bound investment aimed at achieving specific objectives. It is defined by its unique, one-time nature with a distinct start and finish, designed to meet specific goals while adhering to established parameters regarding costs, deadlines, and quality. Typically, IT projects involve new products or adapted existing procedures. Executing an IT project is a complex, enduring endeavor that demands substantial material, human, and time resources. This process is akin to achieving an investment goal, drawing clear parallels between the two. Like investment goals, which require a detailed implementation and monitoring plan focusing on cost, schedule, and quality, IT projects demand a similar approach. An IT project encompasses a series of interrelated activities (how?), aims for a successful conclusion (what?), addresses a recognized need (why?), involves various participants (who?), and is managed by a project manager with the goal to balance cost, timeline, and product quality (how much?, when?).

The main objective of project planning is to achieve these projects within predefined deadlines and budgets, which is challenging and prone to obstacles. Some of these challenges are foreseeable and can be mitigated with experience from past projects, while others are unexpected and require the project manager's skill to navigate and resolve. In this scenario, a project manager must possess the ability to identify the best strategies to avoid and overcome hurdles and implement corrective measures to address any deficiencies. Experience has shown that without detailed planning, complex projects are not feasible because accurately estimating the costs and timelines for the involved activities requires thorough preparation from the outset. Without this initial planning, one might wonder how it would be possible to predict final deadlines, assess whether the project met its timelines, or determine if it stayed within budget. How would one estimate the required workforce, both in number and skill level?

The answer to these challenges lies in developing a comprehensive plan from the start. While problems may arise at various stages of a project, they typically stem from insufficient planning. During the execution and deployment of IT projects, continuous collaboration between the project manager and the client's decision-makers is essential. This partnership should establish the project's conditions and development plan. Prior to detailing the timeline of team activities, the IT project manager must ascertain critical information, such as (Snedaker and McCrie, 2019):

- ✓ the overall budget for the IT project.
- ✓ the desired timeline for the project's completion and implementation.
- ✓ the projected implementation date.
- ✓ the available staff.
- ✓ the hardware and software currently at the client's site and its compatibility with the project requirements.
- ✓ who will handle system maintenance post-launch?
- ✓ who will oversee the project's implementation on behalf of the client?
- ✓ the key individuals from the client side involved in the project.

Having clear answers to these questions is crucial for effective IT project planning. Ignoring these details or lacking satisfactory responses can jeopardize the development and foundation of the project plan. Additionally, establishing a methodology for planning, monitoring, and reporting is considered a prerequisite. Commonly, only the initial phases of an IT project are detailed, with later stages such as design, programming, and testing merely outlined. Hence, software project development not only requires meeting the above criteria but also involves selecting the project team and manager based on their professional competencies. A project is organized and exists throughout the product or service development cycle until its completion, marked by the start of a warranty period for external clients. Once planning prerequisites are identified, the project manager undertakes detailed planning, which involves understanding the activities, determining their logical sequence within each stage, and setting timelines. Below is an example of how project activities might be grouped and sequenced in stages.

In conclusion, the process of realizing a project starts by defining requirements and concludes with the delivery of an operational program. This encompasses the software development cycle, which consists of overlapping phases and defined activities within those phases, producing specific outputs and establishing dependencies among phases. The primary aim of this research is to pinpoint the challenges that arise throughout the lifespan of IT projects and to identify their underlying causes.

## **2. Literature review**

As the landscape of technology, information management, and communication continues to transform, IT projects are becoming more integral to the foundational operations of various organizational structures. This shift is prevalent not only in private companies but also within public institutions and non-governmental organizations, marking a significant evolution in operational strategies across multiple sectors (Avornicului and Avornicului, 2006). The influence of IT project management is vast, with estimates suggesting that up to half of all operations in large corporations are now influenced or directly governed by principles derived from IT project management (Airinei, 2007). This pivotal role is a testament to the critical importance of technology in optimizing organizational efficiency, ensuring compliance, enhancing decision-making capabilities, and driving strategic initiatives. The wide applicability of IT projects across these sectors indicates not only the versatility of IT project management as a practice but also underscores its importance as a critical component of modern organizational infrastructure (Rusu, 2001). As organizations continue to evolve and technology becomes even more embedded in daily operations, the role of IT project management is expected to expand, pushing the boundaries of what can be achieved through the innovative use of technology. This progression suggests a future where IT project management could become the linchpin in the operational strategies of not just large corporations but organizations of all sizes across the globe (Buchmann, 2014).

IT projects are typically defined as tasks with distinct characteristics. They are precisely planned, coordinated, and managed to meet specific deadlines, utilize designated resources, and manage associated costs. From an organizational theory perspective, IT projects can be seen as temporary

structures established to execute specific, time-bound business processes. They are characterized by unique objectives, constructions, and processes tailored to the needs of the project. The novelty of the objectives and tasks in IT projects often correlates with higher risks. A common issue across organizations is the inadequate implementation of established IT project management methodologies, leading to various project dysfunctions such as delays, unsuitable technical solutions, unmet objectives, or underutilization of implemented systems. These dysfunctions significantly impact organizational efficiency and performance (Oprean and Abdel, 2019). IT project management is a relatively modern practice within organizational frameworks, gaining prominence over recent decades. This management style equips organizations with robust tools to enhance their planning, execution, and oversight capabilities, optimizing the use of human and other resources to achieve strategic objectives.

The challenges of IT project management vary depending on the sector in which they are implemented (Snedaker, 2016):

- ✓ in the corporate sector, particularly in industries like infrastructure, telecommunications, construction, and entertainment, IT projects play a crucial role.
- ✓ in non-profit organizations, IT projects are essential in fields such as education, health, and environmental protection.

The increasing complexity of project-related issues and the rapid growth in the number of organizations that are project-oriented have led to greater professionalization in this field. IT projects can be classified into two main types: external and internal. *External IT projects* often begin with a request for quotation from a client, which may be formalized through a detailed specification or may sometimes be a verbal request. *Internal IT projects*, on the other hand, usually start with an internal decision made by the marketing department and approved by management, often leading to the development of a new program or an updated version of an existing one (Lehmann, 2018).

Once the project specifications are set, the technical director, or a delegated offer developer, organizes the project into a series of fundamental tasks. These tasks are detailed as thoroughly as possible and categorized into phases, stages, or batches to outline a specific development process tailored to the project (Andone, 2006). The offer developer also reviews the project requirements and specifications provided by the client or from related documentation, and identifies the processes involved in the project. The effort required for each task, as well as for overall project management, is estimated using a project estimation guide. This estimation process includes breaking down the effort into different processes and stages. Typically, the tasks associated with the project are organized into a Gantt chart and a PERT chart to help manage and visualize the project's timeline and dependencies (Wheeler, 2011).

In cases where the workload to achieve a significant organizational goal is too vast to be managed within a single IT project, the organization might undertake a program comprising several interconnected IT projects. This program is designed as a series of activities that collectively aim to achieve broader organizational missions and objectives, utilizing an integrated approach.

### 3. Research methodology

The study aimed to uncover issues that arise during the lifecycle of IT projects and to identify the causes behind these problems. The research involved 250 managers from Romania, representing four different sectors: medical, research, production, and industries. The study was conducted between December 2023 and March 2024, utilizing a questionnaire distributed via email. The simplicity of the sample size was intentional to facilitate analysis.

The questionnaire was designed to evaluate how well the components of IT project management methodology are applied in practice, rather than to assess the respondents' theoretical knowledge. The components covered in the questionnaire included:

1. Organizing IT projects;
2. Planning of IT projects;
3. Control of IT projects;
4. Management of quality;
5. Management of changes;
6. Management of configuration.

The research utilized the maximum global utility method to address complex socio-economic decision-making challenges. This method is particularly beneficial for multi-criteria decision processes, where various factors must be weighed to arrive at a decision that best meets the objectives of a project or policy. The essence of the maximum global utility method lies in its ability to systematically utilize an extensive information base and apply it to simulate rational decision-making. By integrating quantitative data and qualitative assessments, this method enhances the decision-making process, making it both rigorous and replicable. It enables decision-makers to consider a broad spectrum of variables and criteria, integrating them into a unified framework that emphasizes objective, data-driven outcomes. This approach is grounded in the principle of maximizing utility, which, in the context of the study, refers to achieving the highest possible value or benefit from the choices available. To do this, the method calculates the total utility for each decision option by considering the weighted sum of all relevant criteria. Each criterion is assigned a weight based on its importance, and these weights help prioritize the factors that are most critical to the decision-making process. Although the specific steps of the global utility method were not detailed in the provided text, the method typically involves several key stages:

*1. Identification of criteria:* determining the set of criteria that will influence the decision. These criteria could include cost, efficiency, effectiveness, impact, and sustainability, among others.

*2. Weight assignment:* assigning weights to each criterion based on their relative importance to the overall objective. This step often involves stakeholder input to ensure that the weights reflect the priorities and values of those impacted by the decision.

*3. Utility scoring:* scoring each option against the identified criteria. This can involve both quantitative measures and qualitative assessments, converted into a uniform scale (usually 0 to 1 or 0 to 100).

*4. Calculation of global utility:* multiplying the scores by the weights for each criterion and summing these to get an overall utility score for each option.

*5. Decision making:* comparing the total utility scores of all options and selecting the one with the highest score as the optimal decision.

By using this method, the study not only promotes a structured and transparent decision-making process but also facilitates the simulation of various scenarios to foresee and evaluate the outcomes of different choices. This capability to model decision impacts makes the maximum global utility method a powerful tool in strategic planning and policy formulation, providing a robust foundation for making informed and rational decisions in complex socio-economic environments.

#### **4. Findings**

The research study focuses on examining the primary challenges encountered during the implementation of IT projects. The analysis categorizes these challenges into five distinct problem areas that IT project managers frequently face:

*P1 - Problems in the organization of projects:*

*P2 - Problems in project planning:*

*P3 - Problems in project control:*

*P4 - Problems in quality management:*

*P5 - Problems in change and configuration management:*

Table no. 1 in the study provides an informational foundation, detailing the significance attributed to managing each of these problem areas.

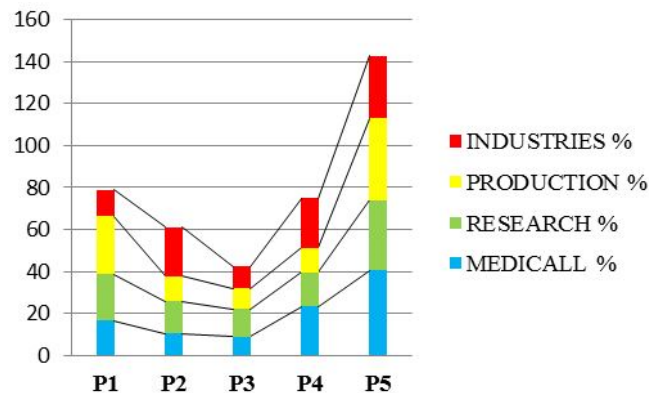
Table no 1. Share of issues that may influence IT projects

CATEGORIES OF PROBLEMS	FIELD OF ACTIVITY			
	MEDICAL % (v1)	RESEARCH % (v2)	PRODUCTION % (v3)	INDUSTRIES % (v4)
P1 (c1)	16.45	22.35	27.5	12.5
P2 (c2)	10.55	15.15	11.9	23.61
P3 (c3)	8.9	13.25	9.8	10.54
P4 (c4)	23.45	16	11.82	23.55
P5 (c5)	40.65	33.25	38.98	29.8

Source: developed by the author

The findings of the study reveal that IT project management prioritizes addressing P5 - Problems identified in the management of changes and configurations as the most critical area. Conversely, P3 - Problems identified in project control is considered the least critical area, as indicated in Figure no. 1 of the study.

Figure no. 1. The importance of the problems in each field of activity



Source: developed by the author

The execution of the calculation algorithm implied:  
Step 1 – building the unit matrix with the elements  $x_{ij}$  figure no. 2.

Figure no. 1. Unit matrix

$$\begin{bmatrix} 0.26 & 0.66 & 1.00 & 0.00 \\ 1.00 & 0.65 & 0.90 & 0.00 \\ 0.00 & 1.00 & 0.21 & 0.38 \\ 0.99 & 0.36 & 0.00 & 1.00 \\ 0.00 & 0.68 & 0.15 & 1.00 \end{bmatrix}$$

Source: developed by the author

Step 2 – Calculating the global utilities for each organization (Table no. 2):

Table no 2. Results of the global utilities calculation

GLOBAL UTILITY	RESULT
INDUSTRY	2.25
RESEARCH	3.34
PRODUCTION	2.26
MEDICAL	2.38

Source: developed by the author

Step 3 of the analysis involved utilizing Table no. 2 to calculate the global utilities for various organizations across different fields. The results showed that the organization in the research field achieved the highest global utility. This indicates that the research organization most effectively recognized and prioritized the importance of issues that could negatively impact IT project implementation. Consequently, this approach helps in mitigating the risks that lead to project failures, whether in not meeting the intended objectives or not adhering to set constraints.

The types of problems identified across different aspects of IT project management are detailed as follows:

*P1 - Problems in the organization of projects:*

- ✓ Unclear reporting lines for the project manager during the project.
- ✓ Inadequate training of the project coordinator from the beneficiary side to monitor and evaluate project management.
- ✓ Limited capacity of the organization or project manager to handle complex project implementations.
- ✓ Non-utilization of the products by the end users.
- ✓ Resistance or non-acceptance of the products by the users.
- ✓ Lack of interest or availability from the beneficiary's side towards project development.

*P2 - Problems in project planning:*

- ✓ Incomplete or incorrect identification of project dependencies.
- ✓ Unrealistic time estimates for stage activities.
- ✓ Inadequate resource allocation.
- ✓ Delays due to unavailable resources when needed.

*P3 - Problems in project control:*

- ✓ Issues during project development not identified or resolved timely or effectively.
- ✓ The beneficiary is often unaware of the actual project status or existing problems.
- ✓ Lack of effective institutional control by the project coordinator from the beneficiary side.
- ✓ Ambiguities in the defined services or documents and their specifications in contracts.
- ✓ Vague responsibilities and interdependencies between parties.
- ✓ Lack of clarity in acceptance procedures for deliverables.
- ✓ Undefined or poorly documented testing and acceptance procedures.
- ✓ Unclear responsibilities for monitoring and reporting progress.
- ✓ Conflicts in contract documents prioritization.
- ✓ Disagreements arising from differing interpretations of deliverable requirements or delivery methods by the supplier.

*P4 - Problems in quality management:*

- ✓ Non-compliance of deliverables with the established quality standards.
- ✓ Testing processes failing to detect all non-conformities.
- ✓ Deliverables being unusable due to major dysfunctions immediately after operation commencement.
- ✓ The supplier's inability to ensure and control quality throughout the project.

*P5 - Problems in change and configuration management:*

- ✓ Changes in the beneficiary's requirements during the project, with the supplier unable to respond effectively.
- ✓ Failure to integrate some subsystems or components into the final system due to changes.
- ✓ Delays and unapproved costs resulting from changes to the deliverable specifications.
- ✓ Delivery of non-functional or unusable products.

These issues across different problem categories each define specific areas of concern that directly influence the success or failure of IT projects. Identifying and addressing these problems early in the project lifecycle is crucial for achieving project objectives and maintaining project constraints.

## 5. Conclusions

IT projects frequently encounter delays and budget overruns, often due to shifting requirements from clients. A recent research study has identified multiple causes leading to the failure of IT projects, categorized under several key areas:

C1 - Causes in project organization:

1. Lack of a project steering committee established before the project starts.
2. Project coordinators often selected from the IT department without consideration of their project management skills and experience.
3. No formal nomination of the project team members with clearly defined roles and responsibilities.
4. Benefiting departments not always actively involved in project development or represented in the project management committee.
5. Inefficient tools for presenting and addressing project issues, hindering timely decision-making.
6. Suppliers not required to outline their project management methodology in their technical proposals.

C2 - Causes in project planning:

1. Planning processes often overlook crucial elements.
2. Lack of specific methods or tools in planning.
3. Inadequate detailed planning at the beginning stages when necessary information is available.

C3 - Causes in project control:

1. Contracts lacking sufficient detail for effective project control.
2. Suppliers' offers missing critical details about responsibilities, dependencies, testing, and acceptance methods.
3. Party responsibilities for monitoring and reporting progress are not well-defined in specifications.
4. Absence of contractual clauses specifying the interpretation order of contract documents.
5. Ineffective use of control modalities and tools by the project coordinator.

C4 - Causes in quality management:

1. Misunderstanding of quality standards in IT projects by both beneficiaries and suppliers.
2. Quality criteria for deliverables not consistently specified.
3. Lack of clear or known quality criteria applicable to various types of deliverables.
4. Specifications do not require suppliers to demonstrate how they will ensure deliverable quality.
5. Suppliers often do not detail how they will control the quality of project deliverables in their technical offers, frequently only citing ISO certification.
6. Neglect or non-application of criteria for testing and accepting deliverables within IT projects.

C5 - Causes in change and configuration management:

1. While most acknowledge the need for a documented change control procedure, it's often unknown or unused.
2. Lack of awareness about which components of the IT project are subject to change management.
3. Undefined authority for approving changes within the project.
4. Insufficient knowledge of the benefits and risks associated with different change implementation approaches.

The study concludes that many IT project failures stem from insufficient planning, which cannot be effectively performed without a clear and consistent definition of phases, tasks, and activities, along with a method for evaluating tasks and deadlines. Cost estimations are crucial and should be conducted at least once before the project starts and periodically throughout its progression. The accuracy of these estimations improves over time and depends significantly on the project management methodologies employed, the practices and competencies of the teams, and the leadership and monitoring style of the project management. A precise evaluation, aligned with activity planning and using a robust methodology, is essential for ensuring project success and is typically more accurate for immediate upcoming stages, with only a global estimate for later stages.

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## The Use of Artificial Intelligence in Trade Activities

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### Abstract

*The present work starts from the finding that Artificial Intelligence (AI) is increasingly influencing our lives. The integration of artificial intelligence (AI) in the economic field has experienced an extremely rapid transformation, in the trade activity being obviously visible from production and logistics, to financial services and customer relations.*

*Since predictions show that, by the beginning of the next decade, the transition to Artificial Intelligence could become a major engine of global prosperity, in this context, the paper aims to highlight the conceptual framework, the advantages, but also the risks associated with the integration. of AI technologies in trading companies, considering that many traders and investors are adopting this technology to improve their trading strategies.*

**Key words:** artificial intelligence, trade, strategies, development

**J.E.L. classification:** F43, M15, O24, O33, N70

### 1. Introduction

The use of Artificial Intelligence (AI) has become a reality these days. And being still a new technology, new uses always appear, to which the economic and social environment must adapt. (Bolos, 2023)

Artificial intelligence has multiple applications in the economy, from the possibility of increasing efficiency or making decisions on a more solid basis of information to better experiences for end users or consumers. (<https://corpquants.ro/inteligenta-artificiala-in-economie/>)

The integration of AI in the economic field has experienced an unprecedented evolution, with an impact on economic activity, from production and logistics to financial services and customer relations; with a wide variety of applications, is considered disruptive and revolutionary.

The integration of this opportunity in the economic activities brings with it, along with numerous benefits, which we will analyze further in the paper, also a series of associated risks. That is why the creation and development of a solid ethical and legal framework, investments in cyber security and workforce adaptation strategies become of utmost importance. The existence of associated ethical and social challenges thus requires the involvement of interested parties from different sectors of activity to ensure that the transformations brought by the new technology make a real and positive contribution to economic progress. (Marcu, 2024)

Moreover, the ability of AI technology to effectively analyses the collected data and use to forecast future actions in real time with the use of sophisticated algorithms contributes in the growth of productivity. (Dhapte, 2024)

Artificial intelligence is a business imperative, but there is work that companies need to do to

capitalize on a transition to private AI. And any way, incorporating AI successfully means reimagining the organization. ([https://www.techtarget.com/searchenterpriseai/PrivateAI/Private-AI-Demystified?utm\\_source=google&int=off&pre=off&utm\\_medium=cpc&utm\\_term=GAW&utm\\_content=sy\\_lp07022024GOOGOTHR\\_GsidsEAI\\_Equinix\\_Embed\\_IO212308\\_LI2785126&utm\\_campaign=Equinix\\_Embed\\_sEAI\\_US&Offer=sy\\_lp07022024GOOGOTHR\\_GsidsEAI\\_Equinix\\_Embed\\_IO212308\\_LI2785126&gad\\_source=1&gclid=CjwKCAjwkJm0BhBxEiwAwT1AXJ3knkuEIXonozxg7WTOk7Hxxk7hxEQvVWfLNSLoKyxPRwzglWslJhoC2gsQAvD\\_BwE](https://www.techtarget.com/searchenterpriseai/PrivateAI/Private-AI-Demystified?utm_source=google&int=off&pre=off&utm_medium=cpc&utm_term=GAW&utm_content=sy_lp07022024GOOGOTHR_GsidsEAI_Equinix_Embed_IO212308_LI2785126&utm_campaign=Equinix_Embed_sEAI_US&Offer=sy_lp07022024GOOGOTHR_GsidsEAI_Equinix_Embed_IO212308_LI2785126&gad_source=1&gclid=CjwKCAjwkJm0BhBxEiwAwT1AXJ3knkuEIXonozxg7WTOk7Hxxk7hxEQvVWfLNSLoKyxPRwzglWslJhoC2gsQAvD_BwE))

The use of artificial intelligence in trading has gained ground in trading activities due to its ability to analyze large amounts of data with increased speed and accuracy, thus allowing finding solutions and making decisions much faster than using previous technical means.

AI has permitted trading companies to automate their trading strategies, allowing them to take advantage of market opportunities. (<https://www.nasdaq.com/articles/ai-trading-what-is-ai-trading-how-its-used-in-stock-trading>)

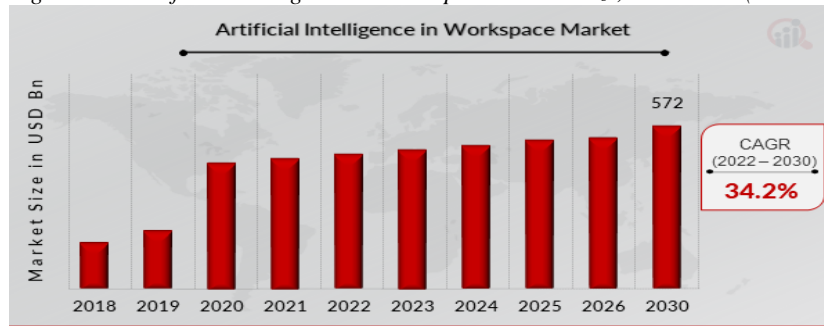
Retail trade is one of the fields in which the technology of AI technologies is constantly growing, as well as other new technologies of automation with a significant impact.

## 2. Theoretical background

In the last recent period of time, AI technology is rapidly expanding beyond the boundaries of the industrial field and territorial barriers. Thus, there is already a wide application in fields such as commerce or human resources management. (Dhapte, 2024)

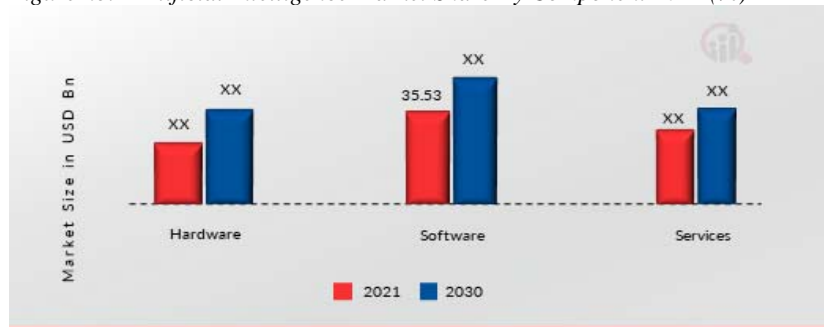
The name artificial intelligence comes from the fact that, to a large extent, its characteristics are equivalent to human behavior. AI is system software that introduces decision-making, action, and various other intelligences into a machine. which will then have to imitate human behavior and by analyzing the available data generate solutions to the problems in question. Recent studies show that artificial intelligence (AI) is on a rapid growth trend for the near future in the market share of business environments in very diverse fields, including commerce, as shown in the figures below: (Dhapte, 2024)

Figure no.1 Artificial Intelligence in Workspace Market Size, 2022-2030 (USD Billion)



Source: (Dhapte, 2024)

Figure no.2 Artificial Intelligence Market Share By Component 2024 (%)



Source: (Dhapte, 2024)

In terms of the use of AI in commercial activities, the intensification of efforts to find solutions to better understand and predict consumer behaviors and offer higher quality experiences have been driven by the development of e-commerce and the unprecedented growth of customer databases. As a result, retailers who use data effectively can secure a competitive advantage. (Anica-Popa, et al., 2021)

Incorporating AI successfully means reimagining the organization. But in order to benefit to the maximum from the potential of artificial intelligence, companies must substantially modify their own organizational structure, so that the new technology occupies a central place, in relation to all components. In recent years, this entrepreneurial attitude has gained a certain consensus among managers and especially among those who carry out their activity in the trade area. (Bala et.al, 2024)

Although AI is still a developing technology, many countries use it to develop their trade activity, both domestically and internationally. Certainly, joining the WTO can allow member countries to make better use of AI technology to support the development of international trade. Since the relationship between patent applications for different AI-related technologies and international trade is complex and constantly changing, each country should adopt and develop those types of technologies that are suitable for their income categories and at the same time beneficial to their commercial activities. (Lai, 2024)

### **3. Research methodology**

This work aims to highlight the conceptual framework, the advantages, but also the risks associated with the integration of AI technologies in companies operating in the field of trade activity, starting from the finding that Artificial Intelligence (AI) is increasingly influencing our lives. The purpose of this study is to identify the main aspects related to the implementation of specific artificial intelligence technologies in commerce, but also the associated advantages and risks for the IT systems of companies operating in this sector. The research is of a qualitative type and was based on documentation, after which the materials were selected that, following the study, identified the mentioned elements and also those that can generate competitive advantages for the companies that carry out trade activity.

### **4. Findings**

AI technology has gained popularity in recent years, with many traders and investors adopting it with the precise purpose to enhance their trading strategies. Success is due to benefits that could be obtained, especially to identify opportunities not possible always to be used with traditional trading methods; and it is an emerging technology that has had also an impact on traditional international trade theories.

The new technology thus became a new component of the factors of production. Countries that have research and development capabilities and means thus have a competitive advantage in high-tech industries. Through the increased data processing and forecasting capabilities of AI technology, they will be more competitive in the international trade market and the cooperation between countries become closer. (Lai, 2024)

#### **4.1. AI trading**

Speaking about the global economy, a new concept, AI trading, also known as algorithmic trading, has gained popularity in recent years, many traders and investors adopted this technology to enhance their trading strategies. AI trading is the use of artificial intelligence (AI) in the trading process in order to collect and process market information, obtain investment ideas, build portfolios, and enables traders to make informed decisions, reduce risks and make transactions more secure. (<https://www.nasdaq.com/articles/ai-trading-what-is-ai-trading-how-its-used-in-stock-trading>)

Within AI trading we can identify algorithmic trading strategies which are sets of rules and instructions that guide a computer program to execute transactions automatically. They are designed to help traders take decisions based on market data and other factors. Among these could be mentioned:

- *Quantitative Analysis*: a popular approach to algorithmic trading that involves regression analysis to identify patterns and trends. Traders can use this technique to develop strategies that identify correlations between various market factors;

- *High-Frequency Trading (HFT)*: which relies on sophisticated algorithms and high-speed data networks to take advantage of small price movements in the market and resulting in expected high transaction volumes quickly and efficiently;

- *Arbitrage Strategies*: which involve taking advantage of price differences between two or more markets. Statistical arbitrage is a popular strategy that involves identifying assets that are mispriced and trading which one could then profit by taking advantage of market inefficiencies and other opportunities;

In support of these strategies the approach known like machine learning produced a huge change in trading systems that allowed traders to analyze large amounts of data in real time. The methods of effective realization are mainly predictive models, sentiment analysis and reinforcement learning. (<https://www.nasdaq.com/articles/ai-trading-what-is-ai-trading-how-its-used-in-stock-trading>)

In the economic field, there are many frequently used means of artificial intelligence with good results in obtaining effective answers, both in terms of decision-making and for the experience offered to users. Among the most popular can be listed: chat-bots, personalized recommendations, data analysis and economic forecasts, virtual assistants for financial management, supply chain optimization, automation of repetitive processes, fraud detection and security, dynamic pricing, marketing automation or route and transport optimization. (<https://corpquants.ro/inteligena-artificiala-in-economie/>)

#### 4.2. AI in retail

Retail trade is one of the areas where the use of AI is constantly growing. To secure a competitive advantage by adopting new technologies, retailers should consider three basic elements: consumer experience, cost reduction, increase the number of business and efficiency. (Anica-Popa, et al., 2021)

AI technologies have the ability to help retailers strengthen their sales strategy while using even existing store facilities. Thus, AI applications can detect correlations between variables such as promotional prices, display location, product range expansion, store sales and profitability, brand change, etc.

They can also be used, based on survey-based indicators, to identify purchase intentions or positive evaluations, to stimulate customer loyalty. Semantic recognition technologies or so-called "chatbots", very popular today, offer non-stop and have the advantage of reducing contacts. H&M or Lidl are examples of retail companies that use chatbots to align consumer experiences in online and offline environments. Voice recognition technologies involve the use of virtual assistants, capable of performing various tasks, or visual recognition technologies in which they are able to perform various tasks are increasingly common in retail activity.

An important aspect of the introduction of AI in retail is cost reduction. This contributes to the identification of target consumer groups with lower costs, the reduction of costs per wage because the labor force involving the human factor is reduced and the optimization of stocks. (Anica-Popa, et al., 2021)

In support of traders' decisions, along with AI, the concept of Emotional Intelligence (EI) should be mentioned. This implies the existence of a social skill, namely empathy, understanding the feelings of others. That is why EI requires the formation of cooperation, conflict resolution and negotiation skills, which thus become formidable tools for traders. (Goleman, 2006)

Like any new element, the use of artificial intelligence in retail also involves a series of challenges and risks, related to problems associated with AI technologies, the increase of total operational costs if the systems are not well managed, difficulties in communicating with customers generated by the level of understanding technical or confidentiality or ethical aspects.

### 4.3. Challenges of AI in commerce

By the beginning of the next decade, the shift to Artificial Intelligence could become a major driver of global prosperity. In June 2023, a study on the economic potential of generative AI, which can create new content, and its potential applications in almost all aspects of human activity and economic, estimated that this technology could add more than \$4 trillion annually to the global economy. (<https://punctuldefierbere.ro/inteligenta-artificiala-va-provoca-o-revolutie-economica-poate-ia-sa-relanseze-productivitatea/>)

The real challenge of AI seems to be related to productivity and its most recent emergence, the generative variant, has the potential to produce a decisive increase in productivity and economic development at a time when the world economy urgently needs it. Recent research shows that the reorganization of work flow in many workplaces would help support innovations that use AI to increase human productivity. (<https://punctuldefierbere.ro/inteligenta-artificiala-va-provoca-o-revolutie-economica-poate-ia-sa-relanseze-productivitatea/>)

Along with the opportunities generated by AI, such as cost reductions or new possibilities in public services, the consolidation of democracy, increased security and safety or applications in the military field, there is also a series of dangers and potential risks. In this sense, we can mention the reduced or excessive use of AI, responsibility for the damages caused, decisions influenced by socio-demographic data, the impact on jobs, distortion of competition, safety risks, imbalances regarding access to information, etc.

(<https://www.europarl.europa.eu/topics/ro/article/20200918STO87404/inteligenta-artificiala-oportunitati-si-pericole>)

It contributes also to the automation of production processes and has a significant positive impact on activities in agriculture or the service sector, especially tourism and transport. (Marcu, 2024)

Many enterprises are considering a proprietary AI solution, which becomes a more powerful and secure option as companies experiment with how AI can drive their business. Moving their data securely to the cloud and other sources, with full control and ownership, becomes a priority. ([https://www.techtarget.com/searchenterpriseai/PrivateAI/Private-AI-Demystified?utm\\_source=google&int=off&pre=off&utm\\_medium=cpc&utm\\_term=GAW&utm\\_content=sy\\_lp07022024GOOGOTHR\\_GsidsEAI\\_Equinix\\_Embed\\_IO212308\\_LI2785126&utm\\_campaign=Equinix\\_Embed\\_sEAI\\_US&Offer=sy\\_lp07022024GOOGOTHR\\_GsidsEAI\\_Equinix\\_Embed\\_IO212308\\_LI2785126&gad\\_source=1&gclid=CjwKCAjwkJm0BhBxEiwAwT1AXJ3knkuEIXonozXg7WTOKbHxxk7hxEQvVWfLNSLoKyxPRwzglWslJhoC2gsQAvD\\_BwE](https://www.techtarget.com/searchenterpriseai/PrivateAI/Private-AI-Demystified?utm_source=google&int=off&pre=off&utm_medium=cpc&utm_term=GAW&utm_content=sy_lp07022024GOOGOTHR_GsidsEAI_Equinix_Embed_IO212308_LI2785126&utm_campaign=Equinix_Embed_sEAI_US&Offer=sy_lp07022024GOOGOTHR_GsidsEAI_Equinix_Embed_IO212308_LI2785126&gad_source=1&gclid=CjwKCAjwkJm0BhBxEiwAwT1AXJ3knkuEIXonozXg7WTOKbHxxk7hxEQvVWfLNSLoKyxPRwzglWslJhoC2gsQAvD_BwE))

There are also challenges related to legal considerations when using AI in trading. Traders must comply with regulations related to data privacy, algorithmic trading and market manipulation. Also, traders should use AI predictions as a tool to inform their trading decisions, rather than relying solely on them, which are not always very accurate, being influenced by factors such as the quality of the data used, the complexity of the algorithms and market conditions. (<https://www.nasdaq.com/articles/ai-trading-what-is-ai-trading-how-its-used-in-stock-trading>)

In this context, some specialists in the field have some recommendations to follow when implementing AI technology. Thus, first, it is important to understand the current capabilities of generative AI. These problems require correct, concise and consistent answers, something that AI is currently not fully capable of achieving. Second, in a business context, it is essential to understand an interlocutor's intent beyond current generative AI models and enriching them with experience in the form of business-relevant aspects. Third, businesses can realize the full value of AI if top managers drive AI adoption and collaboration across the organization. For the potential of AI to be used to the maximum, companies must rethink their organizational structures. (Bala et.al, 2024)

## 5. Conclusions

The aspects reported in this paper represent a selective presentation to highlight how artificial intelligence can be applied in the economy, in particular the field of trade activities, to improve efficiency, make more informed decisions and provide better experiences to users and customers.

The direction to be followed is obviously the promotion of knowledge and the adaptation of various AI techniques and applications in accordance with the experience gained by specialists, respecting business ethics values, in order to offer quality solutions adapted to the specific needs of each activity for which specific implementations are desired.

The results of the research consist of highlighting the practical benefits and risks identified in connection with the use of AI in companies in the field of commerce.

Therefore, in order to ensure the maximum potential of AI in the service of economies, major changes are needed in the political framework, but also to change the mentality towards Artificial Intelligence. In fact, AI technologies must be seen as tools that can support development without undermining human potential and inventiveness.

Achieving the greatest potential benefits of AI will require a two-pronged approach. On the one hand, to the extent possible, preventing the misuse or harmful effects of technology. On the other hand, promoting the uses of artificial intelligence that bring benefits and stimulate the economy, encouraging the applications that increase productivity the most.

Investments in digital infrastructure and a digitally competent workforce thus become essential for emerging markets and developing economies. We are in the era of AI, technology that we must use to our advantage.

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## Prioritizing Research in University Strategies: Dilemmas and Perspectives

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### Abstract

*Universities play a crucial role in scientific research by promoting innovation, advancing knowledge, and nurturing future scientific experts and performers. The activities conducted within universities cover a wide spectrum, but strategies prioritize key elements. Crafting these strategies is particularly complex in this field, requiring the involvement of a large number of stakeholders, among which academic and research staff stand out in importance. The paper presents the perceptions of academic staff at the "Grigore T. Popa" University of Medicine and Pharmacy in Iași (UMF Iași) regarding the main axes of university strategy development. Essential aspects are addressed, such as the weighting of academic activities, funding procedures, and incentives provided to encourage and support scientific research activities, the objectives of scientific research strategy, and how research activities are integrated into the university's strategy.*

**Key words:** research; strategy; research funding; prioritization

**J.E.L. classification:** I23, O32.

### 1. Introduction

Universities are places where knowledge is produced, discoveries are verified and complemented, and intellectual capital is developed (Boulton & Lucas, 2008, p. 3). Although they may be oriented towards cutting-edge research and contribute to major discoveries in various fields, they cannot neglect the training of specialists and the connection with the community – this integrated approach requires a strategic vision. While development project-type initiatives may have greater visibility (Manolescu, 2005, p. 5), strategies ensure the necessary coherence for long-term orientation.

Universities are essential in leading teaching, learning, research, and technology. They provide educational pathways, professional training for high-level jobs, and education for personal development. The role of universities is crucial for all sectors from a social and legal standpoint. Universities can help their graduates by providing the new knowledge and skills necessary to face the challenges of sustainable societal development, by raising public awareness, and by providing preliminary actions for informed decision-making.

European universities have long been centers of knowledge creation, innovation, and community engagement, with multiple criteria contributing to their top positions in international rankings (Medeleanu *et al.*, 2020, p. 62). During economic crises, these institutions play an essential role in offering solutions and encouraging socio-economic resilience (Talmaciu *et al.*, 2023, p. 353).



Currently, universities are no longer seen only as institutions engaged in providing knowledge to new generations, but are now seen as institutions that have a broader impact on society and economies at local and national levels.

## **2. Theoretical background**

### **2.1. The role of universities in scientific research**

Universities play a crucial role in scientific research by promoting innovation, advancing knowledge, and training future scientific leaders. They serve as foundational points for cutting-edge research, contributing to major discoveries in various fields through competitively won, carefully selected, and high-performance-oriented projects (Toma *et al.*, 2013).

Research universities are particularly important in offering research-oriented programs and creating the foundation for significant advancements in fields such as health, medicine, communications, economics, and national security (Associations of American Universities, 2024). These institutions not only conduct research but also educate students to become scientific leaders and innovators, ensuring the continuity of scientific progress (Associations of American Universities, 2024).

Additionally, organizations like the League of European Research Universities (LERU) advocate for the promotion of basic research in European research universities, highlighting the importance of frontier research in stimulating innovation and societal progress. Through publications and policy development, LERU and similar networks aim to improve understanding among policymakers, opinion leaders, and the public about the critical role of research-intensive universities in promoting knowledge and shaping the future (LERU, 2024).

Universities, especially research universities (Toma, 2010, p. 403), are essential in promoting scientific research, stimulating economic growth, and maintaining global competitiveness through their contributions to innovation, education, and the dissemination of knowledge.

### **2.2. The scientific research strategy of a university**

The scientific research strategy of a university encompasses various key elements aimed at enhancing research potential, reputation, and impact. This involves setting priorities, coordinating activities, and efficiently managing resources (Gălea, 2021) to achieve high-quality research outcomes.

There are several common components found in university research strategies (Georgian American University, 2024; Université Côte d'Azur, 2024; Sapientia University of Cluj-Napoca, 2021; The Open University, 2019):

- setting research priorities: universities focus on determining priorities and strategies for scientific research activities to align with internal and external challenges.
- creating synergies: research strategies aim to create synergies between research teams, explore interdisciplinary fields, and maintain excellence in academic areas.
- addressing major challenges: universities conduct research to tackle significant challenges in science and society, covering a wide range of objectives and methodologies.
- open science initiatives: embracing open science practices to provide access to scientific knowledge, promote scientific culture, and engage the general public.
- promoting scientific integrity: ensuring adherence to scientific ethics and integrity within research activities is a crucial aspect of university research strategies.
- human resource development: strategies focus on developing human resources involved in research, providing support for conference participation, grants, and enhancing scientific performance bonuses.
- promoting talent: engaging students in research through activities such as student scientific conferences to develop human resources and promote a research culture.

- collaboration and innovation: encouraging collaboration with internal and external partners, implementing advanced scientometric practices, and fostering innovation within research activities.
- consistency and coherence: ensuring consistency between the research perspective and the methodology used, whether based on primary or secondary data, to maintain coherence in the research strategy.

A university's scientific research strategy is a comprehensive plan that aims to enhance research potential, address societal challenges, promote open scientific practices, uphold scientific integrity, develop human resources, and stimulate collaboration and innovation within the research community (Toma *et al.*, 2016, p. 415; Apostoiaie *et al.*, 2019, p. 200).

Within universities, more than in other organizations, key individuals can become agents of change (Percic *et al.*, 2021, p. 230), but consulting all employees on strategic aspects is the foundation for developing highly feasible plans.

### 3. Methodological approach

Next, we will present the perceptions of the academic staff from the "Grigore T. Popa" University of Medicine and Pharmacy in Iași (UMF Iași) regarding teaching activities, scientific research activities, the proportions of activities conducted by academic staff, funding procedures, and incentives offered to encourage and support scientific research, the objectives of the scientific research strategy, and how research activities are integrated into the university's strategy. The main tool used is a questionnaire with predefined and open-ended responses, answered by 74 faculty members conducting research within the university.

The results obtained as part of a broader research, whose partial results have been previously published (Toma *et al.*, 2023), are utilized.

At UMF Iași, research and education are integrated activities that support each other, having equal value. UMF Iași aims to provide its students with excellent and distinctive education, as a direct result of the proximity, integration, and dissemination of extensive and high-quality research activities. The curriculum and teaching methodology are influenced by research and are developed and delivered by excellent professors and scientists.

UMF Iași offers a rich array of postgraduate courses and postgraduate research training, providing opportunities for professional development in key areas of research and development, as well as initiation into new advanced technologies, with the goal of adequately preparing graduates for effective integration into the labor market. The activities carried out by the academic staff at the university mainly consist of teaching and scientific research activities, along with other activities within the academic community.

The overall objective of the scientific research activities of UMF "Grigore T. Popa" in Iași is to enhance performance in scientific research by integrating UMF "Grigore T. Popa" in Iași into the European scientific research space (UMF, 2024, p. 151).

The long-term strategic objectives of the scientific research activities at UMF "Grigore T. Popa" in Iași are as follows (UMF, 2018, p. 2.):

- Ensuring and improving access to bibliographic resources provided to researchers by the university;
- Creating multidisciplinary research hubs by identifying/ attracting/ training researchers;
- Ensuring and perfecting human resources for excellent scientific research, development, and innovation;
- Increasing the national and international visibility of the university's research activities;
- Intensifying collaborations in scientific research, knowledge transfer, technology transfer, and innovation with public and private partners, both national and international.

#### 4. Findings and discussion

The respondents who participated in the survey attributed a weight to each component of the activities carried out at the university. In response to the question "What do you consider should be the weight of the various activities carried out by the university's academic staff?" regarding the structure of university activities by components, 68 out of the 74 interviewed persons responded, resulting in 6 missing responses.

On average, according to the respondents, teaching activities should represent approximately half of the activities carried out by the academic staff (51.62%), while research activities should hold a weight of about 35% (35.06%). Other activities within the academic community should account for approximately 13% (12.79%) of the academic staff's activities (Table 1).

Table no. 1. Descriptive statistical indicators of the distribution of the weight of activities carried out by academic staff

What do you consider should be the weight of the teaching activities carried out by the university's academic staff?	Min.	Max.	Mean	Median	75th Percentile	Mode	Coefficient of Variation
Teaching Activities	20%	80%	51.62%	50%	60%	50%	29.3%
Scientific Research Activities	4%	70%	35.06%	32.5%	40%	30%	37.7%
Other Activities in the Academic Community	0%	30%	12.79%	10%	20%	10%	58.6%

Source: authors' contribution

Additionally, 75% of respondents believe that the share of teaching activities should be at most 60%, the share of research activities should be at most 40%, and other activities in the academic community should be at most 20%. Half of the academic staff considers that scientific research activities should account for at most 32.5% of the total activities carried out at the university, with the most frequently mentioned proportion being 30%.

In response to the question "Which of the following objectives do you consider important for the research strategy of the university where you work?" regarding the structure of university activities by components, all 74 respondents participated. In the respondents' opinion, the top three objectives of the research strategy at their university are (Table 2):

- Improving research infrastructure (86.1% of respondents)
- Developing partnerships (with national/international, public/ private partners) (76.4% of respondents)
- Increasing the performance of human resources involved in research (70.8%).

Table no. 2. Ranking of the research strategy objectives perceived as important by researchers at UMF Iași

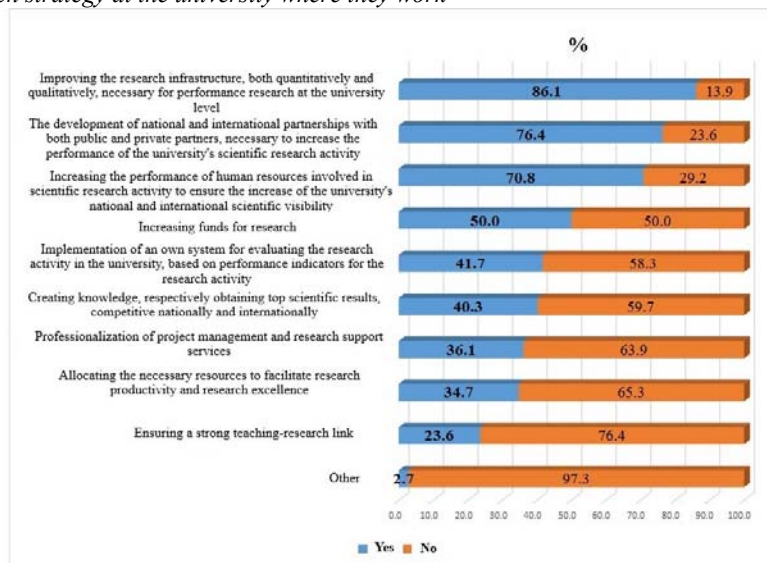
Objectives	Yes	No
Improving the research infrastructure, both quantitatively and qualitatively, necessary for high-performance research at the university level	86.1%	13.9%
Developing national and international partnerships with both public and private partners, necessary for enhancing the performance of the university's scientific research activities	76.4%	23.6%
Increasing the performance of human resources involved in scientific research activities to ensure the enhancement of the university's national and international scientific visibility	70.8%	29.2%
Increasing research funding	50.0%	50.0%
Implementing a proprietary system for evaluating research activities at the university, based on performance indicators for research activities	41.7%	58.3%
Creating knowledge, that is, achieving top-level scientific results that are competitive nationally and internationally	40.3%	59.7%
Professionalizing project management services and supporting research activities	36.1%	63.9%

Allocating necessary resources to facilitate research productivity and excellence	34.7%	65.3%
Ensuring a strong teaching-research link	23.6%	76.4%
Other	2.7%	97.3%

Source: authors' contribution

The three main objectives identified by respondents are subordinated to enhancing the performance of scientific research activities and increasing the university's visibility both nationally and internationally. It is noteworthy that increasing research funding holds a significant place in the university's research strategy, with half of the respondents considering it a fundamental objective of the university's research strategy. Respondents also highlighted other objectives of the university's research strategy, namely the organization of a research structure. Table 2 and Figure 1 present the distribution of respondents according to their opinions on the main objectives of the research strategy at the university where they work.

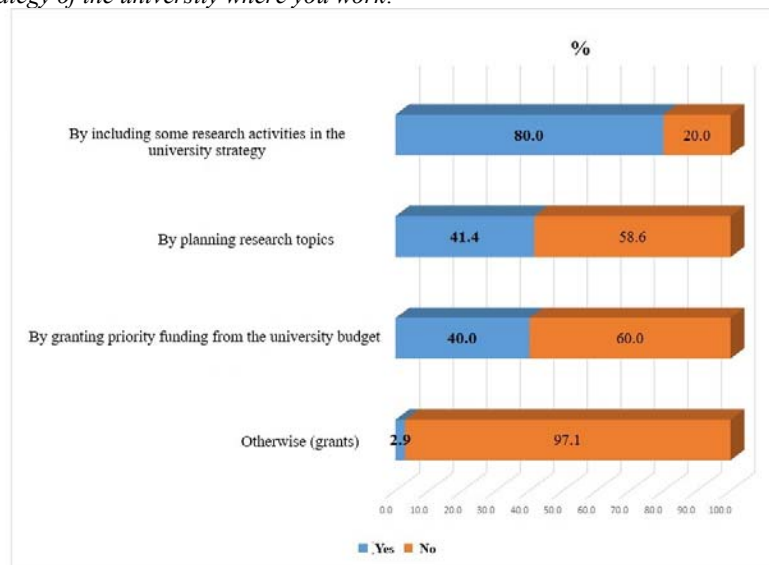
Figure no. 1. Distribution of respondents based on their opinions regarding the main objectives of the research strategy at the university where they work



Source: authors' contribution

The majority of researchers at UMF Iași recognize the general objectives of scientific research activities, while also identifying an additional objective that the highest proportion of respondents (86.1%) perceive as important compared to other objectives. This objective is: Improving the research infrastructure, both quantitatively and qualitatively, necessary for high-performance research at the university level. In response to the question "How is research activity integrated into the strategy of the university where you work?" all 74 respondents participated. The proportions of respondents based on their opinions regarding the ways of integrating research activities into the university's strategy are graphically represented in Figure 2.

Figure no. 2. Distribution of Yes/ No responses to the question - How is research activity integrated into the strategy of the university where you work?



Source: authors' contribution

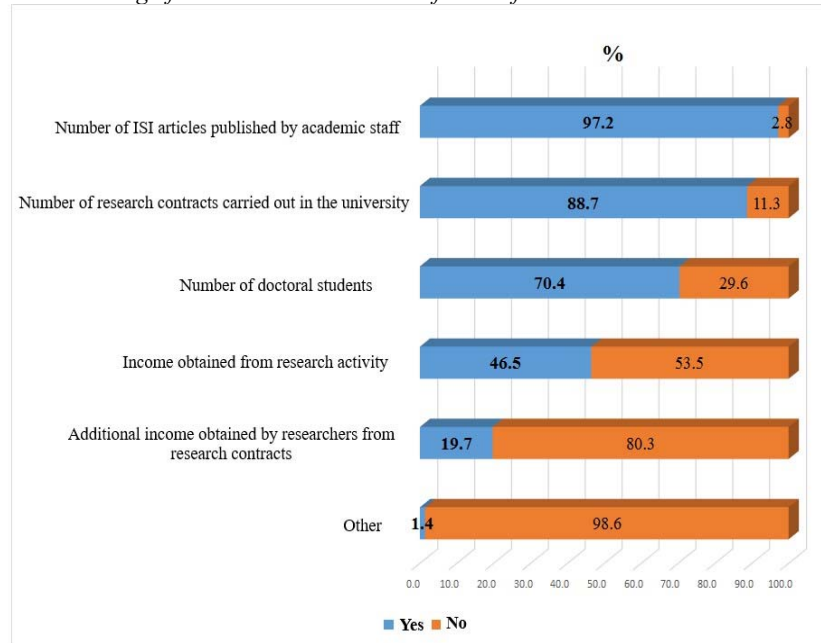
The methods of integrating research activities into the university strategy are multiple, with the priority, according to the interviewed persons, being the inclusion of research activities in the university strategy (80% of respondents chose this option).

An additional method of integrating research activities suggested by respondents is university-funded research grants. Additionally, in the opinion of the interviewed persons, it is a priority to develop a research strategy that is integrable into the university's strategy. The research strategy should be developed gradually and participatively; otherwise, significant management problems may arise. The university's strategy is strengthened based on characteristic elements of university scientific research. In response to the question "What characteristic elements of university scientific research are mentioned in the strategy of the university where you work?" all 74 respondents participated. According to the interviewed academic staff, the main elements mentioned in the university strategy refer to the following indicators (Figure 3):

- The number of ISI articles published by academic staff (97.2% of respondents);
- The number of research contracts conducted within the university (88.7% of respondents);
- The number of doctoral students (70.4% of respondents).

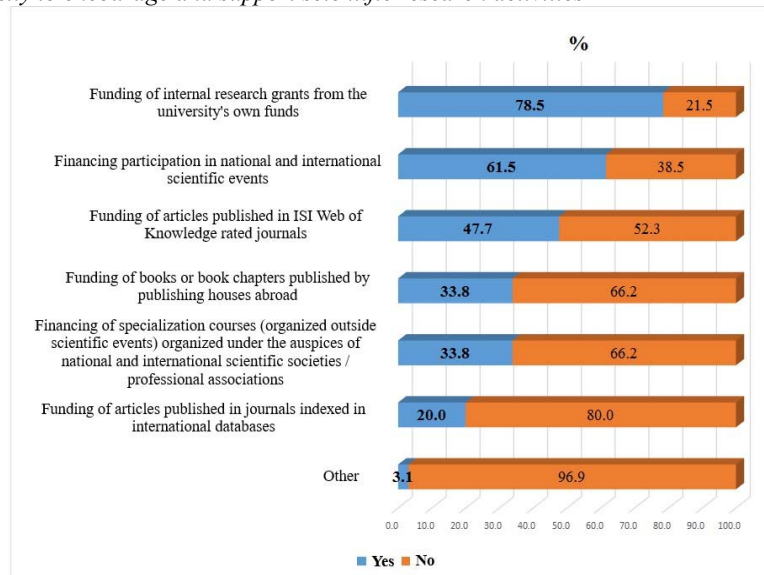
The distribution of responses to the question "What are the funding procedures used by your university to encourage and support scientific research activities?" is presented in Figure 4. In terms of funding procedures, the vast majority (78.5% of respondents) of the interviewed academic staff consider that UMF Iași uses internal research grant funding from the university's own funds to encourage and support scientific research activities. Additionally, 61.5% of respondents mentioned funding for participation in national and international scientific events as a means of encouraging and supporting scientific research used by the university where they work. Only about one-third (33.8%) of respondents believe that UMF Iași encourages scientific research activities by funding specialized courses organized under the aegis of national and international scientific societies or professional associations.

Figure no. 3. Ranking of characteristic elements of scientific research included in the university strategy



Source: authors' contribution

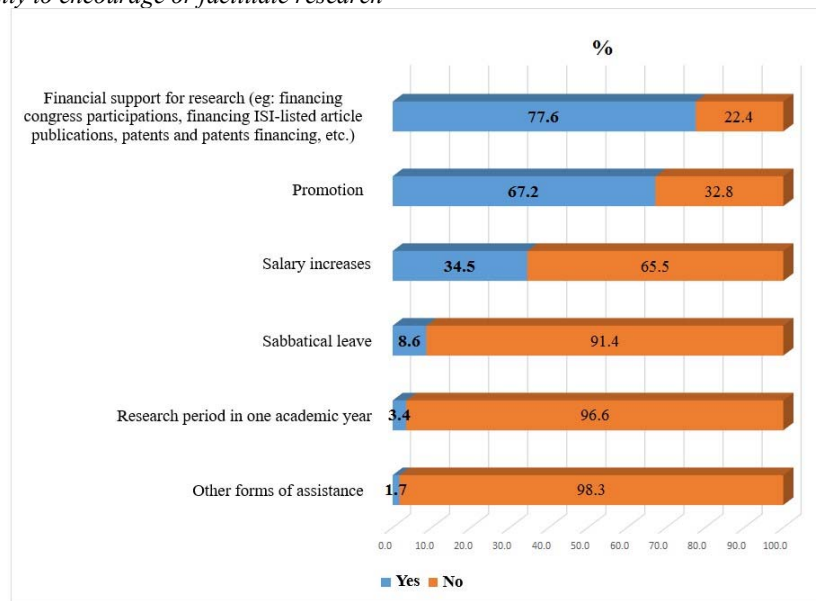
Figure no. 4. Distribution of respondents according to opinions on the funding procedures used by the university to encourage and support scientific research activities



Source: authors' contribution

An essential aspect of supporting university scientific research is the assistance or incentives provided by the university to stimulate research. Figure 5 presents the distribution of respondents according to opinions on the assistance/incentives offered by the university to encourage or facilitate research. Out of the 74 interviewees, only 58 responded to the question "What assistance or incentives does the university where you work offer to encourage or facilitate research?" from the survey questionnaire.

Figure no. 5. Distribution of respondents according to opinions on the assistance/incentives offered by the university to encourage or facilitate research



Source: authors' contribution

77.6% of respondents mention financial support for research, manifested in funding for conference participation, publication of ISI-rated articles, obtaining patents, etc., as a means of facilitating research at UMF Iași. Additionally, a significant proportion of respondents (67.2%) believe that universities encourage researchers to conduct research activities by recognizing and appreciating them in promotion competitions. Only just over a third (34.5%) of the responding researchers believe that the university offers salary increases to encourage or facilitate research activities.

## 5. Conclusions

At UMF Iași, research and education are integrated activities that support each other and hold equal value. On average, according to respondents, teaching activities should represent approximately half of the academic staff's work (51.62%), while research activities should account for about 35% (35.06%). Other activities in the academic community should represent approximately 13% (12.79%) of academic staff's work.

The study shows that the majority of researchers at UMF Iași recognize the general objectives of scientific research proposed by the university, namely: improving performance in scientific research by integrating UMF Iași into the European space of scientific research and identifying and securing funding resources for UMF Iași research projects.

Researchers also identify an additional objective for which the highest proportion of respondents perceive it as important (86.1%) compared to other objectives. This is: Improving research infrastructure, both quantitatively and qualitatively, necessary for high-performance research at the university level.

The methods of integrating research activities into the university strategy are multiple, with the inclusion of research activities in the university's strategy being a priority according to the interviewed individuals (80% of respondents chose this response).

The most important characteristic elements of university scientific research mentioned in the university's strategy are: the number of ISI articles published by academic staff (97.2% of respondents); the number of research contracts conducted within the university (88.7% of respondents); and the number of doctoral students (70.4% of respondents).

To encourage and support scientific research activities, UMF Iași uses internal research grant funding from the university's own funds (78.5% of respondents); funding for participation in national and international scientific events (61.5% of respondents).

To encourage or facilitate research activities, UMF Iași provides financial support through funding for conference participation, publication of ISI-rated articles, obtaining patents, and patents (77.6% of respondents). The research strategy of a university is a comprehensive plan that aims to enhance research potential, address societal challenges, promote open scientific practices, support scientific integrity, develop human resources, and stimulate collaboration and innovation within the research community.

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# The Largest Global Retailers in the COVID-19 Pandemic Period 2020-2021

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## Abstract

*During its existence, the retail industry underwent profound transformations. Over the past three decades the retail industry has incorporated new technologies, namely Artificial Intelligence, Internet of Things and Big Data Analytics. All these advancements deeply intensified competition in global retailing. The COVID-19 pandemic had a significant impact on the businesses of global retailers. The purpose of the paper is to present and briefly analyse the evolution of the largest global retailers in terms of their retail revenues in the COVID-19 pandemic period 2020-2021. In this respect, a qualitative research method was used. The results of the paper show that global retailers are dominating the retail industry. They obtained impressive retail revenues even during the COVID-pandemic period 2020-2021. Walmart, the American giant, was by far the largest global retailer in that period.*

**Key words:** global retailers, global retailing, retail revenues, retail industry, COVID-19 pandemic

**J.E.L. classification:** F23, M00, M16

## 1. Introduction

During its existence, the retail industry underwent profound transformations. The First Industrial Revolution from the late eighteenth century led to the appearance of steam engines and the rapid expansion of mechanization in numerous domains of activity. An increasing number of factories started to produce and the manufacturing of goods boosted. However, retail was dominated by small merchants with their mom-and-pop stores (e.g., grocery stores) where mostly independent family-owned businesses sold general merchandise (Smyyth LLC, 2011).

The Second Industrial Revolution from the mid-nineteenth century witnessed the emergence of electrification and the gradual transition to mass production (Cornescu *et al*, 2004). The spread of urbanization, the development of various means of transportation and the diffusion of the electric lighting imposed a superior organization of the retail industry and new forms of distribution. Thus, the first department stores, retail establishments that provided a variety of products to customers in their specialized commercial areas and announced the future consumer society, were established in Europe (e.g., Bon Marché, Harrods, Whiteleys), Japan (e.g., Mitsukoshi) and the United States of America (USA) (e.g., Macy’s, Sears). The economy of scale penetrated not only the production sector but also the distribution sector (Toma, 2013). Due to their significant growth of doing business, the department stores established chains of distribution across the countries in which they operated. Other retailers, such as the American Montgomery Ward, began selling their merchandise through mail-order catalogues as „new techniques for national marketing emerged in tandem with the mass-produced products they promoted” (Strasser, 1989, p. 6).

After the end of the Second World War, the majority of people was confronted with the lack of products and services worldwide. However, the postbelic recovery was rather rapid and many capitalist countries transformed themselves in welfare societies. As modern retail continued to develop, supermarkets and hypermarkets steadily became predominant all over the world. The significant growth of automobiles favoured the expansion of shopping malls, located mainly in the suburbs of the cities. The 1960s witnessed the opening of the big box stores in the USA (e.g.,

Walmart, Target, Kmart) that offered lower price merchandise and higher product variety (Hausman and Leibtag, 2005). The creation and expansion of Internet led to the emergence and development of e-commerce. Over the past three decades the retail industry has incorporated new technologies, namely Artificial Intelligence, Internet of Things and Big Data Analytics, specific to the Fourth Industrial Revolution (Tohănean *et al*, 2018; Toma *et al*, 2018a). All these advancements deeply intensified competition in global retailing.

The purpose of the paper is to present and briefly analyse the evolution of the largest global retailers in terms of their retail revenues in the COVID-19 pandemic period 2020-2021. The paper is structured as follows: the second section exhibits the literature review. The research methodology is illustrated in the third section of the paper. The fourth section of the paper presents the findings. The conclusions are displayed at the end of the paper.

## 2. Literature review

Since its emergence, modern retailing has followed a spectacular evolution. In its beginnings, the mom-and-pop stores (e.g., pharmacies, bookstores) were spreading very rapidly all over the countries. A mom-and-pope store represent „a small, family-owned, or independent business” (Bloomenthal, 2023, p. 1).

Later, the department stores became the first superior organization of modern retailing. They paved the way for the future shopping centers. The department store was defined as „a holding company for its departments” (Filene, 1937, p. 167) and characterized by several elements such as a central location, many departments under the same roof, buying and selling for cash and impressive volume of businesses (Resseguie, 1965). Especially in the USA, the department stores located in big cities (e.g., New York, Chicago) influenced more and more the life of the Americans through their generous and diversified supply. A plethora of factors contributed to their business success as follows:

- culture of continuous innovation,
- sophisticated merchandising techniques,
- eclectic assortment,
- catalogue store,
- price awareness,
- continuity of management and/or ownership,
- pleasant shopping experience,
- promotional techniques,
- inventory control procedures,
- customer services,
- credit policies etc. (Briggs, 1960; Young, 1966; Willans, 1996).

After the end of the Second World War, the appearance and rise of the shopping malls and big-box retail format changed the retail landscape. The malls provided customers the possibility to make purchasing from numerous and various merchants gathered in one location, moving from one store to another in the same place. A mall is defined as „a very large building or buildings containing a lot of stores and often restaurants, and usually with space around it outside for parking” (Cambridge Dictionary, 2024, p. 1).

On its turn, a big box retailer is „a retail store that occupies an enormous amount of physical space and offers a variety of products to its customers” (Hayes, 2021, p. 1) and, in mos cases, is part of a chain of stores (e.g., Walmart, Best Buy). A big box occuppies vast physical spaces and sells a general/specific line of merchandise. It is characterized by:

- a wide assortment of products,
- caring selection of quality merchandise,
- low prices,
- close inventory management,
- relatively rapid inventory turnover,
- one-stop-shopping experience for consumers etc. (Haltiwanger *et al*, 2009; Ailawadi *et al*, 2018; Esrar *et al*, 2023).

Supercenters (e.g., Super Target) and warehouse clubs (e.g., Sam’s Club) represent two main types of big box establishments that significantly forged the retail sector in recent decades (Hortaçsu and Syverson, 2015).

The expansion of mass-market retailers from the national level to the global level has occurred since the fall of the communist regimes. The spread of globalization (Toma, 2005), the growth of urbanization and the technological advancement sustained the deployment of this phenomenon (Toma *et al*, 2020). Thus, the birth and development of global retailing became a topic of interest for both researchers and practitioners worldwide. Global retailers have proved to highly influence the markets they enter (Alexander *et al*, 2009). In this respect, they have been the most profitable and the fastest growing retailers in the world as they achieve „low price/low operating costs while still providing high levels of service“ (Rosenbloom *et al*, 1994, p. 149). The impressive performance attained by global retailers in a changing environment (Marinescu *et al*, 2015; Toma *et al*, 2015) is based on a mixture of factors such as a global strategy (Toma *et al*, 2013a), sound business and corporate strategies (Toma *et al*, 2016a), strategic thinking (Toma *et al*, 2016b), entrepreneurial mindset (Catană, *et al*, 2020; Zainea *et al*, 2020), competitive business models (Toma *et al*, 2019), creativity (Toma *et al*, 2013b; Toma *et al*, 2018b), lean management (Naruo *et al*, 2007; Marinescu *et al*, 2008), quality management (Toma, 2006; Toma *et al*, 2009), balanced scorecard (Toma *et al*, 2010), Six Sigma (Toma, 2008a), marketing mix (Marinescu *et al*, 2010a; Catană *et al*, 2021), social responsibility (Toma, 2008b; Marinescu *et al*, 2010b). They are among the largest corporations in the world (Toma *et al*, 2016c; Grădinaru *et al*, 2018; Toma, 2019).

In essence, global retailing represents „the concept of selling products (i.e., goods and services) across the geographical boundaries of a country to the consumers available in the different parts of the world to attain global presence and recognition and to capture the opportunities prevailing in the potential overseas markets” (Prachi, 2019, p. 1). Global retailing is one of the key engines of the global economy. The COVID-19 pandemic had a significant impact on the businesses of global retailers. They faced numerous challenges such as „managing demand fluctuations, shoring up the cash reserves, protecting the people, thinking about the longer-term supply challenges, talking to customers“ (Vader, 2020, pp. 1-2). Despite the COVID-19 pandemic period, the total retail sales worldwide raised from 26.37 trillion USD in 2021 and 28.2 trillion USD in 2022 to approximately 29.29 trillion USD in 2023 and were projected to attain 30.57 trillion USD in 2024 (Sabanoglu, 2024).

### 3. Research methodology

The author utilised a qualitative research method in order to reach the aim of the paper. In the beginning, he identified the most relevant secondary sources of data. Then, he gathered the information and classified them. Afterwards, the author analysed a plethora of article, books and reports, mostly found in various electronic databases. In the end, he synthesised the data and concluded the study.

### 4. Findings

In most cases, the COVID-19 pandemic period 2020-2021 did not negatively affect the performance attained by global retailers. In 2020, the first ten largest global retailers in terms of retail revenues were from (Table no. 1):

- USA- seven corporations (Walmart, Amazon, Costco, Home Depot, Kroger, Walgreens Boots Alliance, Target);
- Germany- two corporations (Schwarz Group, Aldi);
- China- one corporation (JD.com).

Table no. 1. The top 10 global retailers at the end of fiscal year 2020

Rank	Retailer	Retail revenues (billions)
1	Walmart	559.151
2	Amazon	213.573
3	Costco	166.761
4	Schwarz Group	145.064
5	Home Depot	132.110
6	Kroger	131.620
7	Walgreens Boots Alliance	117.705
8	Aldi	117.047
9	JD.com	94.423
10	Target	92.400

Source: (Deloitte, 2022)

At the end of year 2021, the first ten largest global retailers in terms of retail revenues belonged to (Table no. 2):

- USA- seven corporations (Walmart, Amazon, Costco, Home Depot, Kroger, Walgreens Boots Alliance, Target);
- Germany- two corporations (Schwarz Group, Aldi);
- China- one corporation (JD.com).

Table no. 2. The top 10 global retailers at the end of fiscal year 2021

Rank	Retailer	Retail revenues (billions)
1	Walmart	572.754
2	Amazon	239.150
3	Costco	195.929
4	Schwarz Group	153.754
5	Home Depot	151.157
6	Kroger	136.971
7	JD.com	126.387
8	Walgreens Boots Alliance	122.045
9	Aldi	120.947
10	Target	104.611

Source: (Deloitte, 2023)

These outcomes allow the underlining of the following issues during the COVID-19 pandemic period 2020-2021:

- The global retailing market remained dominated by powerful multi- and trans-national corporations. The competition among these huge business organizations is tough all over the world.
- All the first ten largest retailers increased their retail revenues.
- That period witnessed the clear domination of the American corporation Walmart at the top of the world's largest global retailers by their retail revenues (Grădinaru *et al*, 2017). It was also the largest corporation of the world by its total revenues in the same period.
- The American corporations were highly predominant (70%) in the global retailing hierarchy.
- The top ten global retailers did not suffer profound changes in that period.

## 5. Conclusions

Since its emergence, the retail industry has significantly developed both qualitatively and quantitatively. On the one hand, retailing has acquired new and sophisticated forms of organization, distribution, promotion, and selling. On the other hand, the number of retailers has expanded all over the world and global retailers have appeared, especially in the developed countries. However, the COVID-19 pandemic raised multiple challenges to retailers worldwide.

The paper shows that global retailers are dominating the retail industry. They obtained impressive retail revenues even during the COVID-pandemic period 2020-2021. Walmart, the American giant, was by far the largest global retailer in the period 2020-2021. In that period, the top of the biggest global retailers in terms of retail revenues was dominated by American corporations. Further studies may address other indicators specific to retailing, such as profit and number of employees.

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## America's Most Innovative Corporations in the Period 2022-2023

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### Abstract

*Today's dynamic and changing business environment raises numerous challenges for any business organization, irrespective of its size and industry. The Fourth Industrial Revolution has brought numerous advancements in the information and communications technologies which require continuous innovation. This is why corporations, especially multinational and transnational, have heavily invested in research and development activities in order to increase their efficiency. The rapid spread of digital technologies has determined corporate management to re-evaluate its approach towards innovation and, therefore, corporations began to establish innovation ecosystems. The goal of the paper is to illustrate and analyse the hierarchy of America's most innovative corporations in the period 2022-2023. The author applied a qualitative research method in order to achieve the aim of the paper. The paper demonstrates that innovation, in general, and corporate innovation, in particular, represent key factors in ensuring business success. The hierarchy of the first ten American most innovative corporations in the period 2022-2023 was clearly dominated by the corporations from the IT&C sector.*

**Key words:** innovation, corporate innovation, corporation, America

**J.E.L. classification:** F00, F23, O30

### 1. Introduction

Today's dynamic and changing business environment raises numerous challenges for any business organization, irrespective of its size and industry. In search for gaining and preserving a competitive advantage in a hypercompetitive globalised business world (Toma, 2005), they have identified and implemented in the last decades various tools, methods and techniques, such as the Internet of Things, artificial intelligence or cloud computing (Toma *et al*, 2018a). As humanity has already entered the Fourth Industrial Revolution, technological changes have occurred at a very rapid pace all over the world (Toma *et al*, 2015). Since the end of 1990s and the beginnings of 2000s, an era of deep connectivity, high automation, advanced analytics, profound human-machine interaction, and augmented reality has begun and most corporations have understood the need to adapt to it (McKinsey, 2022).

The Fourth Industrial Revolution has brought numerous advancements in the information and communications technologies which require continuous innovation. This is why corporations, especially multinational and transnational, have heavily invested in research and development (R&D) activities in order to increase their efficiency. The last decades witnessed the growing preoccupation of corporate management towards R&D, as a key source of innovation (Spencer *et al*, 1989; Kim *et al*, 2020). However, the rapid spread of digital technologies has determined corporate management to re-evaluate its approach towards innovation and, therefore, corporations began to establish innovation ecosystems (Capgemini Consulting, 2018). In this respect, the American corporations represent a valuable example.

The goal of the paper is to illustrate and analyse the hierarchy of America's most innovative corporations in the period 2022-2023. The structure of the paper is as follows: the literature review is presented in the second part of the study. The third part displays the research methodology. The results are shown and discussed in the fourth part of the paper. The paper ends with conclusions.

## 2. Literature review

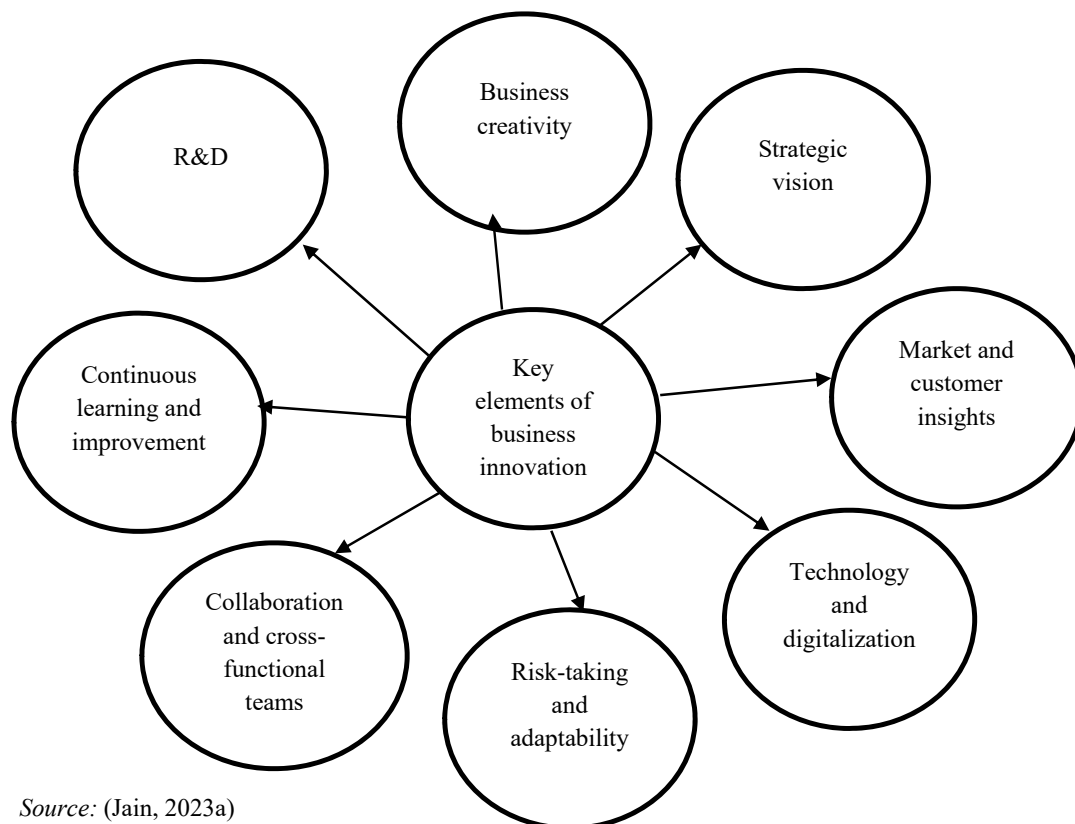
Innovation lies at the core of numerous successful businesses. This is why the topic of innovation has captured the attention of researchers and practitioners in the past decades, especially since the emergence of the Fourth Industrial Revolution. Despite the lack of consensus related to its definition, innovation is considered as:

- „a product, service, business model, or strategy that's both novel and useful” (Boyles, 2022, p. 1)
- „the process of bringing about new ideas, methods, products, services, or solutions that have a significant positive impact and value” (Jain, 2023b, p. 1).
- „the ways in with an organization updates, changes, and improves its internal processes, manufacturing techniques, and management methods” (American Society for Quality, 2024, p. 1).
- „the creating and use of new ideas or methods” (Cambridge Dictionary, 2024, p. 1).

These definitions show that the concept of innovation refers to a product, service, business model, strategy, idea, process or method which is new and has a positive impact. However, it involves a mixture of factors (e.g., creativity) and leads to the appearance of a tangible outcome. Innovation emerges not only in science and technology but also in business, social services etc.

Business innovation is seen as „the process of creating and implementing new ideas, methods, products, or services within an organization to improve its sales performance, competitiveness, and value creation of customers. It involves introducing new products/services, adding new features or simply making improvements to existing processes, products, or services to achieve a strategic advantage in the market” (Jain, 2023a, p. 1). It also refers to introduce a new concept to a business organization and should be able to „provide value and fuel growth” for that organization (EU Business School, 2022, p. 1). Business innovation encompasses several key elements such as business creativity and continuous learning (Figure no. 1).

Figure no. 1. Key elements of business innovation



Source: (Jain, 2023a)

Things are similarly happening at the corporate level. Corporate innovation may be defined as:

- „the process by which companies develop and implement new ideas, technologies, and ways of working to drive growth, improve efficiency, and stay competitive in the marketplace” (Dang, 2022, p. 1).
- „a strategic method of sourcing and embracing new ideas that allow a corporation to retain market share over an extended period” (Velazquez, 2022, p. 1)
- „the creation of new value through innovative ideas, solutions, and approaches, ranging from enhancing products and services to transforming business models and company cultures” (Doorway, 2023, p. 1).

There are different drivers of corporate innovation. They are related to both the internal and the external environment as follows: the appearance of market changes or industry changes, the possibility to fructify new growth opportunities, the need to improve the existing products/services/processes etc. Thus, corporate innovation helps corporations to obtain a higher efficiency, to adapt and remain competitive in an increasing turbulent business environment (Toma, 2013). It is obvious that more and more corporations put innovation in the center of their strategic (Toma *et al.*, 2016a; Toma *et al.*, 2016b) and entrepreneurial thinking (Catană *et al.*, 2020; Zainea *et al.*, 2020), and at the core of their strategies (Cornescu *et al.*, 2004; Toma *et al.*, 2013a; Marinescu *et al.*, 2015) and business models (Tohănean *et al.*, 2018a; Toma *et al.*, 2019), especially in today’s Industry 4.0, characterized by sustainability (Toma *et al.*, 2016c), digitalization (Toma *et al.*, 2007; Tohănean *et al.*, 2018b) and creativity (Toma *et al.*, 2013b; Toma *et al.*, 2018b). Also, corporations have understood that innovation highly contributes to obtaining a better quality of products and/or services/processes (Toma, 2006; Toma *et al.*, 2009) through various methods and techniques, such as lean management (Naruo *et al.*, 2007; Marinescu *et al.*, 2008), marketing mix (Catană *et al.*, 2021), Six Sigma (Toma, 2008) or balanced scorecard (Toma *et al.*, 2010).

During the last decades, numerous studies have shown that American corporations are among the most innovative in the world (Crane *et al.*, 2011). One of the methodology used to rank the most American innovative corporations takes into consideration three elements: product innovation, process innovation, and innovation culture (Fortune, 2024). This study also utilizes this methodology.

### 3. Research methodology

The author applied a qualitative research method in order to achieve the aim of the paper. He analysed the information obtained from different secondary sources of data (e.g., articles, reports) found in electronic databases. Then, the author synthesized the information and wrote the paper.

### 4. Findings

The analysis took into account the hierarchy of the top ten American most innovative corporations. The year 2022 witnessed the domination of Alphabet, an American software colossus (Tables no. 1). The first ten American most innovative corporations activated in the following sectors:

- information technology and communications (IT&C)- Alphabet, Salesforce, Microsoft, Oracle, IBM, Apple, Dell Technologies, Verizon Communications
- manufacturing infant and toddler products- Munchkin;
- banking and financial services- Capital One Financial.

Table no. 1. The top 10 American most innovative companies in 2022

Rank	Company	Culture rank	Process rank	Product rank
1	Alphabet	30	29	2
2	Salesforce	9	16	16
3	Microsoft	57	52	3
4	Oracle	37	35	6
5	IBM	49	55	4
6	Apple	122	47	1
7	Dell Technologies	52	54	7
8	Munchkin	14	23	28
9	Verizon Communications	65	39	8
10	Capital One Financial	31	37	19

Source: (Fortune, 2023)

One year later, Alphabet hold its first position in the top (Table no. 2). The first ten American most innovative corporations activated in the following sectors:

- IT&C- Alphabet, Apple, Microsoft, IBM, Salesforce, Oracle, Verizon Communications, Dell Technologies;
- retailing- Amazon;
- manufacturing sports equipment- Nike.

Table no. 2. The top 10 American most innovative companies in 2023

Rank	Company	Culture rank	Process rank	Product rank
1	Alphabet	3	1	6
2	Apple	23	2	5
3	Microsoft	10	4	11
4	IBM	18	3	27
5	Salesforce	1	19	1
6	Oracle	46	6	13
7	Verizon Communications	38	8	31
8	Amazon	110	5	36
9	Nike	27	7	59
10	Dell Technologies	29	11	41

Source: (Fortune, 2024)

Starting from these hierarchies some issues can be outlined as follows:

- The corporations from the IT&C sector were the most innovative American corporations in the period 2022-2023. They remained the same in that period.
- Alphabet preserved its first position in the ranking.
- The top changed significantly in the period 2022-2023.

## 5. Conclusions

By embracing innovation culture in their daily activities and processes, corporations can increase their performance and achieve a sustainable competitive advantage in the actual hypercompetitive business world. In most cases, they increase their efficiency and remain competitive in an uncessant changing business environment.

The paper demonstrates that innovation, in general, and corporate innovation, in particular, represent key factors in ensuring business success. It also analyses the top of the first ten American most innovative corporations in the period 2022-2023. The hierarchy was clearly dominated by the American corporations from the IT&C sector. Alphabet was the most innovative American corporation in the period 2022-2023. Further studies may expand the analysis to other countries or geographic regions.

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# An Empirical Study of the Effect of Leadership Exclusion on Employee Initiative Behavior

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## Abstract

*In recent years, leadership rejection has become an important topic of widespread academic concern as a factor that constrains individual career development and affects the competitive advantage of organizations. Although studies have been conducted on the implementation effect of leadership rejection, the role mechanism of leadership rejection has been less studied. In this study, we examine the impact of leadership rejection on employees' proactive behaviors and analyze the mediating effects of organizational identification, psychological empowerment, and the moderating effects of power distance. The path analysis of the two-stage survey data of 295 employees indicates that leadership rejection reduces employees' proactive behaviors by lowering subordinates' identification with the organization on the one hand and by lowering employees' psychological empowerment on the other. For employees with high power distance, leadership rejection has a weaker negative impact on employee proactive behavior by enhancing organizational identification; for employees with low power distance, leadership rejection has a stronger negative impact on employee work engagement by reducing psychological empowerment.*

**Key words:** supervision ostracism, personal initiative, psychological empowerment, organizational identification, power distance

**J.E.L. classification:** D23, J53, M54

## 1. Introduction

As a result of technological change and intense competition, organizational managers are constantly faced with contradictions and conflicts in their management practices. In such a context, managers must be able to balance contradictions and tensions in the management process using more refined management capabilities. Leading rejection has become a significant factor in the contemporary workplace as a representative behavior of work deviation, restricting individual career development, preventing members of a team from working together synergistically, and adversely affecting the organization's competitiveness (Zhao & Chen, 2019). Studies have shown that it tends to induce counterproductive behavior in employees, which is both organizational and interpersonal in nature (Hitlan & Noel, 2009). Since a leader holds a position of authority, rejection by him or her tends to have a greater effect on his or her subordinates than rejection by other sources (e.g., coworker rejection) (Chen & Tu, 2017). People in lower positions are usually more sensitive to the thoughts of those in higher positions (Lee & Tiedens, 2001). Therefore, leadership rejection felt by subordinates is the neglect, exclusion and rejection of leaders perceived by individuals in the workplace (Ferris et al., 2008).

A review of the literature reveals that the research on the impact of leadership rejection on employees primarily covers the following aspects: first when it comes to work attitudes, leadership rejection is often associated with decreased job satisfaction among employees, increased emotional exhaustion, and a greater tendency to leave the company (Ferris, 2008; Jahanzeb, 2018); second, in terms of workplace behaviors, there is a significant positive relationship between leadership

rejection and employees' silence, bias and negative behaviors such as knowledge hoarding have a considerable positive relationship (Jahanzeb, 2021; Li, 2021). In addition, leadership rejection may also directly trigger employees' unethical and anti-productive behaviors (Akhtar, 2020); thirdly, the relationship between leadership rejection and employees' performance has also been shown to be negative (Feng, 2019). However, most of the previous studies focused on the effects of leadership rejection on employees' negative attitudes and behaviors, relatively ignoring its impact on employees' proactive behaviors. While some individual studies have examined this issue, they have not examined the mechanism that explains the relationship between leadership rejection and employee proactive behavior. Thus, it is of great theoretical and practical significance to investigate the impact of leadership rejection on employees' proactive behavior and the mechanism of its effect at a deeper level.

According to the discussion above, what are the negative consequences of leadership exclusion? What is the effect of this on people? The study also examined the influence of individual perceptions of power on leadership rejection behaviors via employees' power distance. The employees with a high-power distance tendency often submit to authority. In response to a leader's authorization and ordering behavior, they are more likely to recognize the leader's respect and care, which enhances the employee's organizational identity. On the contrary, employees with a low power distance tendency dare to challenge authority and work autonomously. They will take the initiative to assume more job responsibilities and thus feel higher psychological empowerment.

## **2. Literature review and hypothesis development**

### **2.1 The mediating role of organizational identity on the relationship between leadership exclusion and employee initiative behavior**

Organizational identity is a special form of social identity, indicating the degree of psychological recognition of the organization by employees. Organizational identity is defined as a strong sense of belonging and responsibility based on the identity of an insider in the organization (Mael & Ashforth, 1992). The impact of workplace rejection on organizational identity focuses on two aspects: on the one hand, workplace rejection will weaken the four basic needs of employees (Zhao & Sun, 2017). First, workplace rejection can break the social connections between employees and others, separating employees from the organization and undermining their sense of belonging (Baumeister & Leary, 1995). Second, workplace rejection usually conveys the message that "the employee's ability is not recognized", resulting in the excluded employees not receiving the respect they deserve, which damages their self-esteem. Thirdly, workplace rejection often conveys a message that "the employee's abilities aren't recognized", therefore causing the excluded employee to lack the respect they deserve, thereby affecting his or her self-esteem. Workplace rejection undermines the employee's need for control by decreasing the employee's sense of control over their environment (Friedland et al., 1992). Last but not least, the phenomenon of "social death" in an organization robs excluded employees of the meaning of their existence in the organization (Solomon et al., 1991), leading to a decrease in their need for self-actualization. It can be seen, however, that workplace exclusion may weaken employees' interpersonal communication, which is important for organizational identity, and from this perspective, it can be concluded that workplace exclusion can undermine employees' organizational identity.

As a common phenomenon of unjust treatment in an organization, leadership rejection is a typical example. It refers to subordinate perceptions of negative behaviors originating directly or indirectly from superiors, whether intentional or unintentional (Hitlan & Noel, 2009). Studies have pointed out that employee identification with the organization leads to increased employee creativity and active implementation of innovative behaviors (Galvin et al., 2015). The first advantage of employees who have a high organizational identification is that they are able to think about problems from the organization's perspective and are willing to express their innovative ideas and act in the organization's interest. Second, employees' sense of belonging to the organization will motivate them to propose behaviors that are beneficial to the continuous development and growth of the organization. Thirdly, employees with a high sense of organizational identity will integrate their development and growth with the organization's growth, take the organization's



goals as their direction of action to guide them, constantly stimulate their creativity, and achieve the organization's objectives by reinforcing their innovative behaviors (Liu et al., 2011). According to the self-validation theory proposed in the 1980s, it is shown (Swann, 1997) that if an employee feels rejected in an organization, they will think that the organization does not accept them. It is difficult to form a sense of identity as an insider in an organization. As a result, the employee will seek validation from their surroundings in order to validate their negative self-concept, resulting in a low sense of organizational identity. Considering the importance of leaders to organizational performance and employee behavior, research has shown that leadership rejection negatively impacts employee organizational citizenship behavior (Chung & Yang, 2017). Overall, this paper proposes the following hypothesis:

*H1: Organizational identity mediates the relationship between leadership rejection and employee proactive behavior; leadership rejection reduces employee organizational identity, which in turn reduces employee proactive behavior.*

## **2.2 The mediating role of psychological empowerment on the relationship between leadership rejection and employee initiative behavior**

Psychological empowerment is rooted in the concept of empowerment, which is the distribution of power among individuals and the enhancement of their capabilities (Barner, 1994). The concept is a psychological state arising from employees' perceptions of their organization's environment and managers' behaviors, and is directly influenced by leaders' actions (Conger, 1988; Spreitzer, 1995). Psychological empowerment is manifested through four dimensions of cognition: job meaning, self-efficacy, self-determination, and job impact (Spreitzer et al., 1995). Self-efficacy refers to perceptions of one's ability to complete work tasks (Gist, 1987); job meaning relates to perceptions of the value of work according to personal criteria (Thomas & Velthouse, 1990); organizational influence refers to perceptions of the degree to which an individual influences the goals, strategies, and outputs of an organization (Ashforth, 1989). Job autonomy refers to an individual's perceived degree of control over work decisions and ways. Spreiter argues that psychological empowerment benefits organizations in terms of product quality, service efficiency, management effectiveness, and innovation. The higher the degree of psychological empowerment, the more the organization's performance will be substantially improved, and the two show a strong positive correlation.

Supportive leadership behaviors can enhance individual psychological empowerment in organizations. Several studies have shown that leadership support is positively related to psychological empowerment (Harris et al., 2009). Leadership rejection can be defined as the behavior of a leader that undermines organizational goals and reduces organizational performance, as well as subordinate motivation and job satisfaction (Einarsen et al., 2007). Jahanzeb, a Pakistani scholar, pointed out that leadership rejection can stimulate employees' defensive and silencing behaviors through a survey of 300 service personnel in Pakistan (Jahanzeb, 2018). Accordingly, Hypothesis 2 is proposed in this paper:

*H2: Psychological empowerment mediates the relationship between leadership rejection and employee proactive behavior; leadership rejection reduces psychological empowerment, which in turn reduces employee proactive behavior.*

## **2.3 The moderating role of entitlement distance**

Resource Conservation Theory suggests that employees' values influence individuals' perceptions of resource acquisition and resource depletion (Hobfoll, 1989). Power distance is the degree to which an individual accepts the unequal distribution of power in an organization. When employees have a high-power distance, they are more likely to show absolute loyalty and obedience to their managers (Farh et al., 2007). Therefore, employees with high power distance need more psychological resources such as satisfaction and self-worth, as well as more recognition and support from their supervisors under the pressure of leadership rejection, which in turn leads to

loyalty to leadership. It has been demonstrated that employees who have low power distance always communicate with their leaders with the attitude of equal participation, and leadership rejection leads to a stronger "reverse psychology" in subordinates with low power and a failure to stimulate their gratitude and emotional attachment to their leaders as a result. Accordingly, this study suggests that low power distance will exacerbate the negative consequences of leadership rejection for organizational identity.

The power distance is the degree to which people in different social classes are willing to accept an unequal distribution of power (Vidyarthi & Anand, 2014). Typically, organizations with a high-power distance have a strong concept of power and a weak concept of cooperation. In particular, a strong power conception means that an organization emphasizes the fact that power is the underlying principle of the organization and that those who have power enjoy special privileges. Liao et al. suggest that bureaucracy and officialism have led to hierarchical disparity and privilege being viewed as a badge of honor, and power and wealth are regarded as signs of success (Liao et al., 2010). Due to situational differences, employees often make different behavioral choices when faced with unfair treatment, such as complying, compromising, or quitting (Wang & Zhang, 2013). It is also necessary to explore other strategies or methods that may be employed by individuals in order to cope with the external threat of ostracism (Wu et al., 2016). When leadership rejection occurs in an environment of high-power distance, individuals are more likely to exhibit submissive and compromising behavior. It is possible to reduce negative experiences by pretending to cater to their needs. Thus, organizational identification may indirectly mediate the relationship between leadership rejection and employee proactive behavior. Based on this, Hypothesis 3 was proposed in this study:

*H3: Power distance positively moderates the relationship between leadership rejection and organizational identification. That is, the higher the employee's power distance, the stronger the negative relationship between leadership rejection and organizational identification.*

Furthermore, this study indicates that power distance negatively moderates the relationship between leader rejection and psychological empowerment. Particularly, employees with low power distance are more likely to challenge authority and interact with leaders on an equal basis with them (Wee et al., 2017). As a consequence, the influence resulting from leadership rejection is more likely to be recognized and obeyed by employees at this time; therefore, employees are more likely to follow the example and follow the flexibility of behavior as a result of leadership rejection, and they are more likely to be influenced and assimilated by leadership rejection. Due to this, under the influence of leadership rejection, employees with low power distance are more likely to assume responsibility, not only for completing routine tasks but also for participating in more proactive organizational affairs, and as a result, will have a greater degree of power distance. Employees with high power distance respect leadership authority. Those who receive the assistance and support of the leader will be more appreciative and agree with the actions taken by the leader. Leadership rejection, however, demonstrates that leadership behavior conveys a greater level of negativity to employees and increases their workload for them. Meanwhile, subordinates will convert leadership rejection into more fake pandering in order to reduce the level of leadership rejection, thereby weakening their psychological empowerment. Therefore, this paper proposes Hypothesis 4:

*H4: Power distance negatively moderates the relationship between leadership rejection and psychological empowerment. That is, the lower the power distance of employees, the stronger the negative relationship between leadership rejection and psychological empowerment.*

### 3. Research methodology

#### 3.1 Research sample

In this study, a questionnaire was used to collect data on the Powercx platform. The study sample consisted of workers in the service, financial and IT industries. To avoid homogeneity, this study adopted two-time points for questionnaire distribution, and the interval between each data collection is 2 weeks. In order to ensure that the respondents fill out the questionnaire truthfully and objectively, this survey informs the respondents before the questionnaire starts that this questionnaire is anonymous participation, that the collected data and information are used for academic research, and that the submitted questionnaires are approved by the quality audit and the subjects can be rewarded with a certain amount of money. The first time point collected variables on subordinates' power distance, perceived leader rejection, and demographic characteristics of subordinates. These variables included age, gender, education, and time spent with the leader. 400 valid questionnaires were eventually returned in the first phase. The 400 respondents who completed the first questionnaire were contacted two weeks later with a second questionnaire. 328 questionnaires were ultimately retrieved, including variables such as psychological empowerment, organizational identification, and proactive behaviors, and 328 questionnaires were finally retrieved, with 295 valid questionnaires ultimately retained after 33 invalid questionnaires had been eliminated. Among them, the sample of subjects consisted of 187 females (63.34%) and 108 males (36.61%). The average age was 27.56 years old, and the average working experience was 3.87 years. In addition, when analyzing the attrition rate of the subjects, the t-test results show that there is no significant difference between the attrition subjects and the retention subjects in terms of gender ( $t = 0.23, p > 0.05$ ), age ( $t = 0.26, p > 0.05$ ), educational background ( $t = 0.87, p > 0.05$ ), and the time spent with the leaders ( $t = 0.53, p > 0.05$ ), which indicates that the attrition sample does not cause serious sample bias. There was no significant bias in the sample.

#### 3.2 Measurement of variables

All the variables in this study are from the Maturity Scale. The scoring is based on the Likert 5-point scale, with "1" to "5" indicating a low to high level of agreement or agreement.

For the measurement of leadership rejection, a three-dimensional scale of workplace rejection was developed according to Hitlan and Noel, which are leadership rejection, coworker rejection, and verbal rejection, and the measurement items of the scale totalled 15, and leadership rejection was measured by 5 items (Hitlan & Noel, 2009). With the deepening and localization of research, leadership rejection measurement in China usually adopts the five-level scale developed by Jiang et al. With a total of 10 items, including representative items like "my supervisor ignores my existence", higher ratings indicate the more seriously the employee feels rejected by their supervisor (Jiang, Lu & Zhang 2011). The Cronbach's alpha of the scale was 0.88.

For the measurement of power distance, the scale developed by Dorfman and Howell was used, with 6 questions, such as "Superiors do not need to consult their subordinates when making decisions" (Dorfman & Howell, 1988). The coefficient value of Cronbach's  $\alpha$  is 0.93.

For the psychological empowerment measure, the scale developed by Spreitzer (Spreitzer, 1995), which was translated and revised by Chinese scholars such as Li Chaoping, was used, with a total of 12 questions. The scale consists of four dimensions, measuring self-efficacy, work meaning, organizational influence, and work autonomy, with sample questions such as "The work I do is very meaningful to me" (LI, Tian, Shi, 2006). In this study, the coefficient value of Cronbach's  $\alpha$  for the Psychological Empowerment Scale was 0.88.

For the organizational identity measure, the 6-item Organizational Identity Scale developed by Ashforth and Mael was used, such as "When someone blames my company, I feel like blaming myself" (Ashforth & Mael, 1989). The coefficient value of Cronbach's alpha for this scale in this study was 0.85.

For employee initiative behavior measurement, a seven-item scale developed by Frese et al. was used. The scale consists of three dimensions measuring proactive behavior at the individual, team, and organizational levels, with sample questions such as "I will take the initiative to do my job in a

better way" (Frese, 1997). The Cronbach's alpha coefficient value for the Proactive Behavior Scale in this study was 0.89.

#### 4. Results of the study

##### 4.1 Common method bias test

In order to avoid the homology problem, this paper adopts Harman's one-way analysis of variance (ANOVA) method to test the model. The variance explained by the first common component is 35.75%, which does not exceed the specific threshold value of 40%, indicating that the model does not have serious common method bias (Podsakoff et al., 2003).

##### 4.2 Validation factor analysis

The results of the model fit index are shown in Table 1. The specific value of each fitting index becomes worse with the reduction of the number of factors, which shows that the fit index of the five-factor model is the most effective. This indicates that there is a high degree of discriminant validity among the five variables of leadership rejection, organizational identification, psychological empowerment, rights distance and employee initiative.

Table no. 1 Confirmatory Factor Analysis

Model	Variables	c2	df	$\Delta c2/(\Delta df)$	CFI	TLI	RMSEA
Five-factor model	SO, PE, OI, PI, PD	204.23	138		0.95	0.96	0.07
Four-factor model	SO, PE+OI, PI, PD	251.56	141	62.82	0.91	0.93	0.08
Three-factor model	SO+PD+PI, PE, OI	283.93	149	129.33	0.88	0.86	0.09
Three-factor model	SO+OI+PI,PD,PI	331.82	157	183.25	0.81	0.83	0.11
Three-factor model	SO+PE+PI,OI,PI	493.78	189	243.18	0.77	0.79	0.13
Two-factor model	SO+OI+PE,PD+PI	572.21	164	351.44	0.65	0.73	0.15
One-factor model	SO+PE+OI+PI+PD	823.45	198	542.83	0.61	0.65	0.16

Source: own processing

SO=Supervisor Ostracism, PD=Power Distance, PE=Psychological Empowerment, OI=Organizational Identification, PI=Personal Initiative.

+ indicates that two constructs were combined into one.

\*\*p<0.01

##### 4.3 Descriptive statistical analysis

As shown in Table 2, Supervisor Ostracism was significantly negatively correlated with Organizational Identification ( $r = -0.73$ ,  $p < 0.01$ ), Supervisor Ostracism was significantly negatively correlated with Psychological Empowerment ( $r = -0.54$ ,  $p < 0.01$ ) showed a significant negative correlation, Organizational Identification showed a significant positive correlation with Personal Initiative ( $r = 0.61$ ,  $p < 0.01$ ), and Psychological Empowerment showed a significant negative correlation with Personal Initiative ( $r = -0.50$ ,  $p < 0.01$ ) were significantly negatively correlated, and the hypotheses of this paper were preliminarily verified.

Table no. 2 Descriptive Statistics and Correlation Analysis

	Mean	s.d.	1	2	3	4	5
Supervisor Ostracism	12.82	3.98	1				
Organizational Identification	4.72	0.59	-0.73**	1			
Psychological Empowerment	3.52	0.83	-0.54**	0.24	1		
Personal Initiative	3.67	0.62	0.05	0.61**	-0.50**	1	
Power Distance	2.73	0.59	-0.73**	0.24**	0.12	-0.45**	1

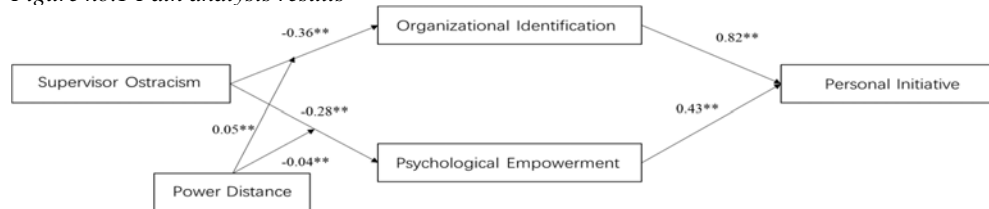
Source: own processing

295 samples. \*p < 0.05 ; \*\*p < 0.05

#### 4.4 Hypothesis testing

The results of the path analysis are shown in Figure 1, and the path coefficients are the standardized solutions of the model.

Figure no.1 Path analysis results



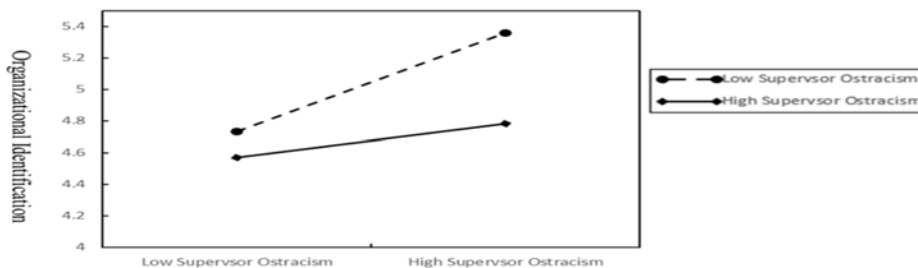
Source: own processing

H1 test results. Leadership rejection negatively affects leadership organizational identification ( $\beta = -0.36, p < 0.001$ ), and organizational identification positively affects employee proactive behavior ( $\beta = 0.82, p < 0.001$ ). The indirect effect value of leadership rejection affecting employee proactive behavior through organizational identification was  $-0.010$  with a 95% confidence interval of  $[0.07, 0.15]$  excluding 0. Hypothesis 1 was tested.

H2 test results. Leadership rejection negatively affects psychological empowerment ( $\beta = -0.28, p < 0.05$ ), and psychological empowerment positively affects employees' proactive behavior ( $\beta = 0.43, p < 0.001$ ). The indirect effect value of leadership rejection negatively affecting work engagement through psychological empowerment was  $-0.05$ , 95% confidence interval  $[-0.09, -0.01]$  excluding 0. Hypothesis 2 was tested.

H3 test results. This study found that employees' power distance moderated the relationship between leadership rejection and organizational identification ( $\beta = 0.05, p < 0.001$ ). The results of simple slope analysis showed (Figure 2) that the positive effect of leadership rejection on organizational identification was stronger when employee power distance was higher ( $\beta = 0.08, t = 4.53, p < 0.001$ ); and the positive effect of leadership rejection on organizational identification was weaker when employee power distance was lower ( $\beta = 0.03, t = 2.17, p < 0.05$ ), which supported Hypothesis 3.

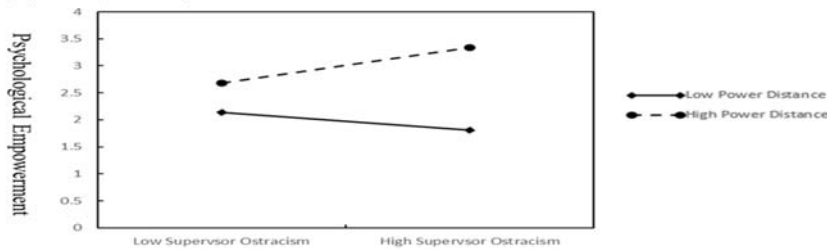
Figure no. 2 The moderating effect of power distance on the relationship between supervisor ostracism and organizational identification



Source: own processing

H4 test results. This study found that employees' power distance significantly moderated the relationship between leadership rejection and psychological empowerment ( $\beta = -0.04, p < 0.001$ ). The results of simple slope analysis showed (Figure 3) that the negative effect of leadership rejection on employees' psychological empowerment was stronger for higher power distances of employees ( $\beta = -0.08, t = -4.25, p < 0.01$ ), and the positive effect of leadership rejection on employees' psychological empowerment was stronger for lower power distances of employees ( $\beta = 0.06, t = 5.12, p < 0.001$ ). The hypothesis 4 has been validated.

Figure no. 3 The moderating effect of power distance on the relationship between supervisor ostracism and psychological empowerment



Source: own processing

## 5. Conclusions

Based on self-expression theory, this study examined the relationship between leadership rejection and employee proactive behavior, explored the mediating role of organizational identification, psychological empowerment, and delved into the moderating role of power distance.

### 5.1 Theoretical significance

(1) This study enriches the research content of leadership rejection, divorces the concept of leadership rejection from the previous field of destructive leadership and workplace rejection, and differs from previous studies that generally focus on the hindering effect of leadership rejection on employees' work behavior and neglect the impact on the recipient of rejection-employees' behavioral choices, verifying the effect of leadership. Depending on the employee's behavioral strategy choice, the impact of rejection will change employee behavior, providing new ideas for future research as well as expanding the research on leadership rejection outcome variables and proactive behavior antecedent variables.

(2) This study reveals the negative effect of leadership rejection on employees and explores its effect on employees' proactive behavior using organizational identification as a mediating variable. According to the study, the higher organizational recognition the employee receives, the higher their work initiative is. This study explores the effect of leadership rejection on organizational recognition by examining that the negative factors exhibited by leadership rejection increase the burden of employees' emotional and behavioral control, reduce employees' identification with the organization, and therefore reduce employees' proactive behaviors. The findings expand and enrich the understanding of the mechanism of action between leadership rejection and employee proactive behavior.

(3) By constructing a theoretical model of "leadership behavior-employee proactive behavior", the study finds that organizational identity and psychological empowerment mediate the relationship between leadership rejection and employee proactive behavior, thus more effectively revealing the inner mechanism of leadership rejection's influence on employee proactive behavior, enriching the study of the mediating variables between the two, and providing a valuable theoretical framework for deeply understanding and grasping the nature of individual behavior. The study provides a valuable theoretical framework for understanding and grasping the nature of individual behavioral influence.

(4) Considering the differences in individual abilities of different employees, this paper broadens the boundary exploration of the relationship between leadership rejection, organizational identification and psychological empowerment through the moderating variable of power distance. To a certain extent, it answers the key question of "how to influence employees psychologically when encountering leadership rejection". This study's exploration of the boundary conditions between leadership rejection, organizational identity, and psychological empowerment makes conclusions more robust and explicatory. It provides an important basis for scientifically predicting the consequences of leadership rejection.

## 5.2 Practical implications

The conclusion of this paper shows that in the Chinese workplace culture situation that emphasizes superiority and inferiority, hierarchical order, leadership rejection may lead to more negative behavioral tendencies of employees, and discourage employees from taking the initiative to work, which indicates that leadership rejection is not a reasonable means of motivation, and the conclusion of the study has certain guiding significance for management practice:

Improve the system of employee rights and interests related to the institutional protection system. The organization should take measures to solve the problem of leadership rejection when necessary. It is intended to prevent abuse of the leader's "power of life and death" in order to ensure the legitimate rights and interests of employees and the orderly development of the organization as a whole. For example, strictly implement supervision and punishment measures for leadership rejection, and at the same time establish a complete complaint and supervision mechanism so as to strengthen the sense of organizational support of employees, weaken the role of leaders as "organizational agents", and avoid the emergence of leadership rejection at the system level.

(2) Focus on creating a harmonious and open cultural atmosphere. The daily management of the enterprise should focus on caring for the learning, life and work status of the employees, provide emotional, rights and interests, information and resource support for the employees, and promote communication and collaboration within the organization, so as to avoid the decline of the degree of organizational identity of the employees, and, at the same time, encourage employees to take initiative as a way to promote the long-term development of the organization.

(3) Adopt different measures to cope with different employee types. For employees with low power distance, managers should weaken the leader's rejection of subordinates so as to obtain the subordinate's organizational identity and also to improve the staff's ability to work with higher enthusiasm. In order to reduce the uncertainty of the organization caused by leadership rejection, leaders should communicate with employees more frequently, provide timely feedback on tasks, and alleviate the uncertainty of the organization caused by low power distance.

## 5.3 Research limitations and prospects

Although this study contributes to the field of leadership exclusion, it still has some shortcomings. First, although this study used a two-time point questionnaire design to obtain data on the relevant variables at different time points, all the data relied on self-reporting, which could not completely exclude the effect of common variance bias, and future research could use methods such as multi-temporal and multi-subjective measurements to obtain data on the variables and improve the accuracy of the findings. Second, this study only examined the effect of leadership rejection on employees' work engagement. Future research could consider the study of leadership rejection on other employee behaviors or leaders' own well-being. Finally, this study only examined the moderating effect of power distance. However, there may be other moderating variables, such as employees' integration complexity, cognitive flexibility, etc., to dig deeper into the boundary conditions affecting leadership rejection.

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# The Interconnection Between Team Role Dynamics and the Trajectory of Financial Performance: An Integrated Analysis in the Context of the Belbin Model

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## Abstract

*Modern leadership thrives on team performance, driven by a shared vision, understanding of organizational goals, effective communication, cooperation, and adherence to common principles, norms, and values. Emphasizing the unique skills, talents, and experiences of staff, while fostering a "one for all and all for one" mentality and healthy interpersonal relationships, creates an environment for superior results. The company in the study exemplifies these elements, highlighting the critical role of human resources and teamwork in superior management. The team roles test was used to enhance teamwork effectiveness, revealing that a successful team encompasses diverse, complementary roles, as proposed by Meredith Belbin..*

**Key words:** human resources, leadership, management

**J.E.L. classification:** O15, J53, M12, M5

## 1. Introduction

Human resources are the cornerstone of any organization, characterized by their diversity and unpredictability. Individuals bring their unique qualities to the workplace, naturally gravitating towards forming various social groups for mutual benefits, which provide a sense of existential fulfillment. However, these benefits come with costs, such as limited personal freedom and adherence to specific rules of behavior. Despite these constraints, individuals are stronger together, able to set and achieve significant goals, showcasing the fundamental advantage of group and leadership structures within organizations.

Transitioning from a group to a team involves steps that may or may not occur. Colleagues can either remain a regular group or evolve into a synergistic team. Synergy, the hallmark of a true team, generates added value, meaning the collective output exceeds the sum of individual contributions. It's crucial to understand that teamwork does not erase individual personalities or differences. Instead, it emphasizes living and working within a community, respecting organizational rules while maintaining individuality, expressing personal opinions, and respecting the personality, dignity, and interests of others.

Effective leadership recognizes that even the most valuable and experienced leaders cannot be involved in every organizational activity. Successful leaders surround themselves with competent individuals who possess strong personalities, proven abilities, specific skills, and common work habits. These individuals complement the leader's vision and contribute significantly to the organization's success. Thus, the essence of effective leadership lies in harnessing the unique strengths of each team member, fostering a collaborative environment that respects individuality while striving for collective excellence.

This is one of the reasons why leaders achieve outstanding results: building a cohesive team that is deeply and continuously engaged in the organization's major issues. This explanation is borne out in this paper, which presents an example of a successful leadership team in a company that wished to remain anonymous, but which we refer to representatively as the "Entity".

This paper discusses key concepts in team management within the broader context of human resource management. The practical section will present the findings of the Belbin test, a method developed by the English expert Meredith Belbin to build effective teams.

## 2. Literature review

Team spirit is fundamental to achieving exceptional performance. Success arises from mutual assistance, the capacity for individual recovery, and effective creative work, all built on a foundation of trust, respect, honesty, ethical behavior, and shared responsibility for both successes and failures. The concept of a 'team' has various definitions in academic literature, often emphasizing the transition from a mere group to a cohesive team.

For instance, G.A. Cole suggests that a team is more than just a collection of individuals with a common goal; it is a group where individual contributions are complementary. The essence of teamwork lies in collaboration and working together harmoniously.

George Militaru defines a team as a group whose collective effort results in performance that exceeds the sum of individual efforts. According to Militaru, a functioning team creates positive synergy by effectively coordinating efforts.

George Arădăvoaice adds that a team is characterized by having a clearly defined objective. Through joint and collective action, a team generates synergy, enabling individuals to achieve more together than they could separately. He emphasizes that a team is not merely a collection of individuals; its quality and performance are determined by the level of interaction among its members. This interaction creates synergy, meaning that the whole is greater than the sum of its parts, with the relationships between members playing a crucial role in this dynamic.

John Pastor describes a team as a group of individuals working under the guidance of a leader. The relationships among team members are interdependent, and they carry out predefined tasks to achieve a common objective. While the quality of a team is influenced by the quality of each member, the team itself forms a distinct entity.

Constantin Rosca, Mihai Vărzaru, and Ion G. Rosca also view a team as a group of individuals organized under a leader, working together in a specific context towards a common goal. Their perspective aligns with the notion that teamwork involves coordinated efforts and collective action, resulting in outcomes that surpass individual achievements.

In summary, team spirit is pivotal for outstanding performance, relying on mutual support, effective collaboration, and shared responsibility. Academic perspectives on teams consistently highlight the importance of synergy, interaction, and collective effort in achieving goals that go beyond what individuals can accomplish alone.

Aurel Burciu identifies the following defining characteristics of a real team:

- A limited number of members
- Complementary skills and qualifications
- A clear understanding of the team's purpose
- A collaboratively produced product or service
- A well-defined understanding of tasks and roles
- A sense of mutual responsibility

As we have seen above, one of the reasons for outstanding results by leaders is to build a cohesive team that is deeply and continuously engaged in the organization's major issues.

To build a successful team, it is essential to build on the fundamental research of Meredith Belbin and her team. This research has shown that teams composed exclusively of highly intelligent people can be disastrous. Belbin and her team identified eight roles (later adding one) that team members can play.

Belbin's Team Role Theory, the result of over nine years of research, was first published in 1981 and is recognised as a vital tool for human resource management. Belbin defines team role as "the specific tendency of a person to behave, contribute and interact with others". This led to the

identification of nine unique roles, with positive and negative traits, that each team member can perform.

Assessment of behavioural characteristics is done through self-perception and that of observers, gathering feedback from multiple sources to identify dominant traits. Thus, team building and management is based on understanding and integrating these roles to achieve effective balance and maximum performance.

Comparing own perception with that of observers is essential in management teams. It is crucial to align these two perceptions and understand the reasons for differences when they arise. To do this, it is necessary to carry out further investigations, facilitate assessments and open discussions with different types of observers, such as managers, colleagues and subordinates. By encouraging them to provide feedback and paying particular attention to understanding it, we can get a fuller and more accurate picture of our performance.

Profiling individual roles in the team allows us to get to know each other better and understand our preferences in terms of contribution to the workplace. By exploring the nine types of team behaviour and contribution, we can identify our approaches and preferences. If we recognise ourselves in these roles, we can use this understanding to better interpret and understand the behaviour of our colleagues. Through these team roles, we can better understand and interpret information about ourselves and other team members, facilitating more effective communication and collaboration.

Roles in the team according to the Belbin model can be divided into three distinct categories:

1. **Action-oriented roles:** These are roles that focus on making quick decisions and implementing them effectively. These include:

- **Shaper (SH):** A person who proposes new and bold solutions, focused on achieving goals and overcoming obstacles.
- **Implementer (IMP):** The team member responsible for turning ideas into concrete actions, with a pragmatic and detail-oriented approach.
- **Completer Finisher (CF):** This is the person who ensures that tasks are completed on time and accurately, with attention to final detail and quality of work.

2. **Relationship-oriented roles:** These roles focus on developing interpersonal relationships and maintaining a harmonious work environment. They include:

- **Coordinator (CO):** The person who encourages collaboration and communication between team members, ensuring that everyone knows their role and contributes to common goals.
- **Teamworker (TW):** A team member who supports cohesion and cooperation, is empathetic and has the ability to resolve conflicts in a constructive way.
- **Resource Investigator (RI):** This is the person who explores and brings new ideas and external resources to the team, and is skilled at making and maintaining connections.

3. **Cerebral roles:** these are roles characterised by creativity and deep analysis. They include:

- **Plant (PL):** creative and innovative person who brings new ideas and unconventional perspectives to problem solving.
- **Monitor Evaluator (ME):** is the team member who provides an objective and analytical perspective on ideas and decisions, contributing to informed decision-making.
- **Specialist (SP):** is the expert in a particular field or subject, providing knowledge and technical expertise essential to achieving the team's objectives.

Individual team role profiling can provide valuable guidance to identify areas to focus on to improve individual performance.

The first step is to compare the nature of the tasks we currently perform with the profile of our team. By identifying the discrepancies between them, we can determine what secondary roles we should develop to naturally address the aspects of our work that require these roles. Understanding the skills required for specific tasks and behaviours of team roles helps us decide where we need to develop and how to do it. This decision is crucial, especially in terms of future career planning and associated requirements.

The second step is to compare our own perception with that of observers and take steps to align these perceptions. By correlating these two perspectives, we can make informed decisions about what actions to take. We can choose to adjust our own perceptions based on feedback from observers or to better promote our positive aspects in order to be perceived appropriately.

The third step involves assessing the team's requirements for specific roles. If there are gaps in the natural approach to a particular role, we may decide to develop this skill to complement the team. This decision can be seen as an opportunity for personal development or as a sacrifice for the benefit of the team. It is important to make sure that this sacrifice does not affect our long-term motivation.

Team role development objectives should be integrated into our overall personal development plans and assessed within performance appraisal systems. By repeating the team role profile assessment at regular intervals, we can track progress and adapt our development strategies accordingly.

### **3. Research methodology**

This research aimed to identify the roles within the first line of management in the organization. After consulting with the manager, we decided to administer the Belbin questionnaire to all seven members of the management team. The Belbin questionnaire, which consists of various statements grouped into categories, helps determine team roles. These statements describe different behaviors and attitudes within the team and are ranked in ascending order. A comprehensive evaluation includes both self-perception and the perception of others, with teammates completing the same test for their peers. While primary profiles remain consistent, secondary profiles may vary slightly.

Detailed reports generated by the Belbin profiles can be accessed on [www.belbin.com](http://www.belbin.com), and a computer program is available to automatically calculate employee profiles. Participants were allowed ample time to complete the test, and in addition to the questionnaire, they were asked to provide their department, full name, and current position.

The questionnaires were evaluated using a specialized scale to determine scores for each profile. The profile with the highest score indicates the dominant role, while descending scores reveal secondary roles. Some individuals have a limited number of profiles, but most adapt and "play" different roles depending on the situation. The roles with the highest scores are the ones most frequently utilized by team members.

The results showed that each member of the management team has a distinct primary role, with secondary roles varying based on circumstances. This adaptability allows team members to effectively contribute in various situations, enhancing overall team performance. The Belbin test provided valuable insights into the strengths and dynamics of the management team, helping to optimize team performance through a better understanding of individual roles and interactions.

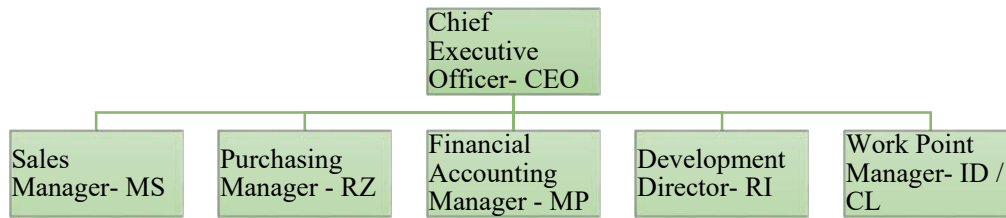
Respondents can use this information to develop roles necessary for their work and align their career plans with roles that suit them best. If a team lacks certain roles, some employees might choose to enhance their secondary roles to fill the gaps, but this should be temporary to avoid demotivation. Re-evaluating team roles can help track changes in personal profiles. A comprehensive assessment, including self-perception and observers' perceptions, can aid individuals in aligning these views by either adjusting others' perceptions or highlighting unnoticed strengths. This process helps improve team dynamics and individual performance.

### **4. Findings**

Meredith Belbin believes that there are no good or bad roles in a team; the important thing is to have all the roles for a successful team.

The Entity's front-line management team is composed of 7 members, each representing a specific role within the organisational structure.

Figure no.1 Organisation chart of the entity's management team



Source: processed by the authors

The diagram shown in Figure 1 is the organisation chart of the company in which the Belbin test was carried out and shows the hierarchical structure and the relationships between the different roles within the entity. Each role is followed by the initials of the person occupying it. From left to right, we have the following positions:

- ✚ Sales Manager - MS
- ✚ Purchasing Manager - RZ
- ✚ Director General - DC
- ✚ Financial Accounting Manager - MP
- ✚ Development Director - RI
- ✚ Work Point Manager - ID / CL

The Chief Executive Officer (CEO) is at the top of the hierarchy and coordinates the work of the other departments represented by the Directors of Sales (MS), Purchasing (RZ), Finance Accounting (MP), Development (RI), and Point of Work (ID/CL). This suggests that the CEO has ultimate authority within the company, and the other directors report directly to him.

After applying the employee test, the following results were obtained:

Table no. 1 Entity Team Roles

Name	Perception	1	2	3	4	5	6	7	8	9
DC	Own	CEO	CO	TW	RI	IMP	CF	HS	SP	PL
	Assembly	ME	CO	TW	RI	IMP	CF	HS	SP	PL
ID	Own	TW	CO	RI	PL	CF	SP	ME	IMP	HS
	Assembly	TW	CO	RI	PL	CF	SP	ME	IMP	HS
RI	Own	PL	RI	HS	ME	CF	CO	IMP	SP	TW
	Assembly	PL	RI	HS	ME	CF	CO	IMP	SP	TW
CL	Own	ME	TW	CO	IMP	CF	HS	SP	RI	PL
	Assembly	ME	TW	CO	IMP	CF	HS	SP	RI	PL
MP	Own	CO	IMP	CF	HS	PL	RI	SP	TW	ME
	Assembly	CO	IMP	CF	HS	PL	RI	SP	TW	ME
MS	Own	TW	ME	CO	HS	RI	CF	IMP	SP	PL
	Assembly	TW	ME	CO	HS	RI	CF	IMP	SP	PL
RZ	Own	TW	PL	CF	SP	IMP	HS	RI	ME	CO
	Assembly	TW	PL	CF	SP	IMP	HS	RI	ME	CO

Source: Belbin questionnaire results processed by the authors

Table 1 shows the Team Roles, arranged from most obvious (first column) to least obvious (last column) for each team member. For each person, the first row represents Own Perception; the second row reflects the aggregate views of the Observers. This exhibit provides suggestions about who should take on the tasks of each individual Team Role within the team. Some roles are shared; some individuals have more than one suggested role.

To provide new and innovative insights, it is recommended to consult RI, which has a creative approach according to Belbin's findings, reflecting strong trends like Plant (PL). Also involve RZ, who has Completer Finisher (CF) qualities and can therefore ensure that new ideas are achievable.

When it's time to discover new opportunities, you should rely on ID's Resource Investigator (RI) skills. Include RI in the process to benefit from his creative skills.

In situations where effective coordination of team efforts is needed, the CEO and MP are best suited, with strong Coordinator (CO) tendencies. For support and a balanced approach, involve the MS as well.

RI is the go-to person when quick decisions need to be made, with Monitor-Evaluator (TW) skills that allow him/her to objectively analyze situations.

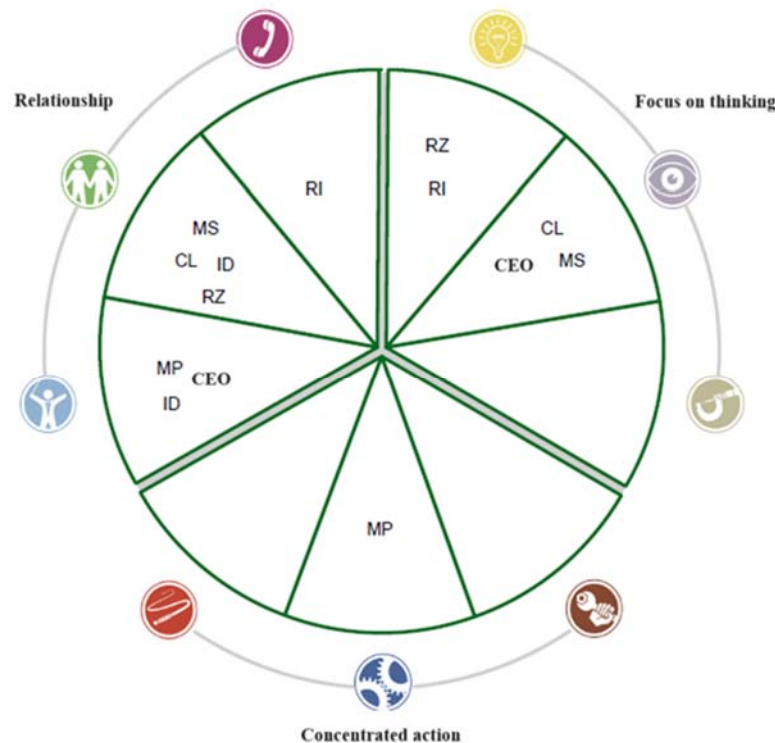
In order to mediate between different opinions and to reach consensus, the DC and CL are valuable resources, having the skills of Coordinator (CO) and Monitor-Evaluator (ME) respectively. The IR and MS can also add balance to these discussions, both having similar roles.

When tensions in the team rise and diplomacy and calm are needed, ID, MS and RZ are best suited to restore harmony, thanks to their abilities as Shaper (SH) and Specialist (SP).

For the transformation of decisions into practical actions, the PM is the right person, with an obvious tendency as Implementer (IMP).

When high standards are needed to complete plans, RZ can play a key role, thanks to its Finaliser (CF) skills.

Figure no. 2 Distribution of Team Roles



Source: Belbin questionnaire results processed by the authors

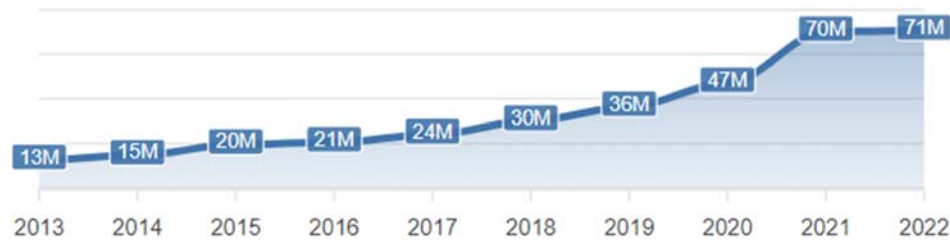
Figure 2 is a graphical representation of the distribution of team roles according to the Belbin test, organized into three main areas of activity: Relating, Thinking and Acting. Individuals' initials are placed in sections corresponding to each person's dominant team roles. This type of chart is used to visualize how team members' competencies are distributed according to the team's needs and to identify any areas that need development or balancing.

The distribution of team members in these three sections provides the following information:

- **Focus on thinking:** There is a relatively balanced distribution between different thinking styles, with a good representation in the strategy and analysis area (RI, RZ, CL, DC, MS). This suggests that the team has members capable of providing well thought-out plans and innovative solutions.
- **Relationship:** Several sets of initials (MS, CL, ID, RZ) are listed in this section, indicating that the team has good resources for maintaining internal relationships and collaborating effectively.
- **Concentrated action:** A single team member (PM) appears in the action area, suggesting that person might be a key implementer, but the team could benefit from more people with action-oriented skills to balance the distribution of roles.

In terms of team balance, it is essential to have a good distribution between these three areas, as teams with a balanced diversity of roles tend to perform better. If there is too much weight in one area, it could indicate a tendency towards groupthink or a possible neglect of other important aspects. For example, an excessive focus on thinking without enough action may mean that the team is good at planning but less effective at implementation.

Figure no. 3 Evolution of the entity's turnover



Source: [www.risco.ro](http://www.risco.ro)

Figure 3 shows a graph of the evolution of the turnover for the researched entity during the years 2013 to 2022. During this period, turnover increased from 13 million to 71 million, suggesting a general trend of growth and possible expansion of the organisation's business.

This type of growth within an organization can be an indicator of several positive factors, such as:

- Effectiveness of management strategies: Consistent growth could reflect effective implementation of management strategies and adaptability to market changes.
- Management team performance: The dynamics and synergy of the management team can be key determinants in steering the organisation towards success.
- Impact of personnel decisions: Changes in team structure and composition can have a direct impact on performance. For example, integrating team roles, as in the Belbin model, could be correlated with increased efficiency and innovation.
- Product or service development: Investment in research and development and the launch of new products or services may also be reflected in this growth.

## 5. Discussion and conclusions

Based on a comprehensive analysis of behavioral data, derived from the application of the Belbin model for team roles, in conjunction with the company's turnover trend over the period 2013-2022, the present research revealed a number of significant correlations between management team structure and dynamics and the financial performance of the corporate entity:

1. Correlation between team role structure and financial performance: The analysis revealed a significant correlation between the composition of team roles, as defined by the Belbin model, and the organization's turnover trajectory. Sustained growth in financial performance coincides with a diversification and strategic adaptation of team roles.



2. Functional balance of the team: The study identified a balanced distribution of functional roles, with a strong emphasis on roles associated with strategic thinking and interpersonal skills. However, the existence of a small number of action-oriented roles suggests the need for adjustments to improve the ability to implement strategies and boost operational effectiveness.

3. Implications of under-representation of action roles: Obvious under-representation in the action sphere indicates potential weaknesses in strategic execution, requiring greater attention to internal recruitment or development of implementation and completion-oriented skills.

4. Strategic recommendations for organisational management: It is recommended that the organisation regularly assesses its team role structure and aligns this profile with strategic directives. This process is essential to continuously optimise performance and exploit growth potential.

5. Team dynamics and adaptability in the context of financial performance: The results highlight the importance of the adaptability of the management team in the evolving business environment. The ability of the team to adjust and respond to dynamic changes can be a crucial determinant in maintaining superior financial performance.

6. Contributions to the academic literature: This paper contributes to the academic literature by demonstrating the concrete effects of team role dynamics on financial indicators, thus providing empirical evidence that strengthens human resource management theories.

7. Implications for management practice: There is an emerging need for management practitioners to take an integrated and thoughtful approach to team configuration, considering role profiles not only from a theoretical perspective but also in terms of their contribution to the organisation's financial objectives.

In conclusion, the present research illustrates the vital significance of the alignment between individual and collective roles within the management team and organizational financial success. This study highlights that a holistic and dynamic approach to team composition can provide a competitive advantage and facilitate sustainable financial performance.

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## **Section V**

### **Finance and Accounting**

# The Impact of Foreign Direct Investments and the COVID-19 Pandemic on the Economic Growth in Central and Eastern European Countries

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## Abstract

*The aim of the article is to analyse the impact of foreign direct investments on GDP growth and the link between the COVID-19 pandemic and the economic growth of Central and Eastern European countries. The study has shown us that there is a positive impact between foreign direct investment inflows and GDP growth, and that variables such as exports, labour productivity and unemployment rate also positively influence the development of the countries under analysis. We used a panel regression model with fixed effects, which showed us the correlation between FDI inflows and GDP growth, from which we can see that the decreases in FDI caused by the pandemic, led to a decrease in the GDP growth rate and thus in the economic development of the Central and Eastern European countries.*

**Key words:** FDI, COVID-19, CEE Economies, GDP

**J.E.L. classification:** H12, F21

## 1. Introduction

Foreign direct investments are an important source of external financing, contributing in particular to the growth of the economies of countries under development. As they do not generate debt, they are considered stable financial resources that are accessible even in times of financial crisis.

These investments involve capital flows from one country to another to establish or expand business operations such as factories, offices or other corporate infrastructures by creating jobs, transferring technology and know-how, increasing competitiveness, accessing new markets, developing infrastructure and diversifying the economy.

The COVID-19 pandemic has had a significant impact on FDI globally, leading to a considerable drop in FDI and having considerable effects on the economies of the countries under development. Major economic uncertainty has caused investors to become more cautious and to postpone or cancel investment projects. International investments have become more risky due to volatile financial markets and increased risks, and quarantines and travel restrictions have disrupted supply chains dependent on imports and exports.

The aim of this article is to show whether foreign direct investments have a significant impact on economic growth and whether variables such as exports, education, labour productivity or unemployment rates influence the development of Central and Eastern European countries, as well as to identify the impact that the COVID-19 pandemic has had on the economies of CEE countries. The article is structured as follows: section 2 presents the relevant specialized literature, section 3 describes the database on which the article is based, section 4 analyses the results obtained from the application of the model, and the last part is about the conclusions.

## 2. Literature review

Foreign direct investments are one of the factors that boost a country's economic growth. The impact of these investments may be influenced by a country's level of development, global economic conditions, political, economic and social stability, legal regulations on foreign direct investment and the degree of digitisation of a country. Any change in any of the above areas can have a major impact on FDI flows in a country or region.

Moraru (2013) believes that foreign direct investments are the ones that stimulate economic growth, and the increased attention they receive is due to the fact that they are those types of investments that do not generate external debt.

Following the analysis conducted on Central and Eastern European countries by Ciobanu, Şova and Popa (2020), two conclusions on the impact of FDI can be drawn. On the one hand, attracting foreign capital is beneficial to an economy, helping the recipient country to develop by adopting new technologies and managerial ideas. The study shows that FDI inflows have an important say over the period 2009-2018, influencing GDP growth through changes that have occurred as a result of globalisation, the contribution of technology, innovation, know-how and capital. On the other hand, the COVID-19 crisis, has created a problem, FDI have experienced a decline, this leading to economic decline and in some cases recession. In an effort to protect member countries during the pandemic, the European Union warned member states to pay more attention to FDI in key areas of industry in the country. In order to preserve, adapt and attract new FDI, measures can be taken to increase the absorptive capacity of the economy and implement strategies to attract foreign investors.

Giofre (2022), through his study, points out that economically advanced countries have not been affected to the same extent by COVID-19 as countries under development.

Vintilă and Mocanu (2024) point out that the impact of FDI is influenced by the degree of development of a country. FDI does not have such a large impact in the case of developed countries, as they have an already balanced economy, but for developing countries, FDI largely supports the economy, providing a multitude of development opportunities.

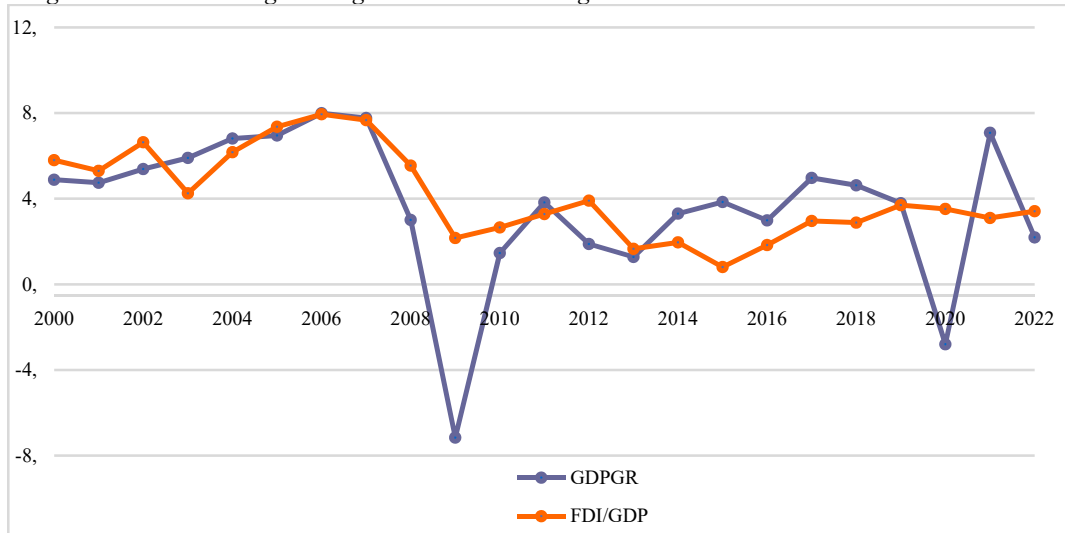
## 3. Research methodology

Analysis of foreign direct investment is important to determine its impact on the country's economic growth.

In our analysis we used data from EUROSTAT and UNCTAD for the period 2000-2022 for 10 Central and Eastern European countries, namely Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia and Slovenia. To determine the factors influencing GDP growth we analysed both the influence of foreign direct investment on GDP and the effects of exports, education, labour productivity and unemployment rate using a panel regression model with fixed effects.

In the following figure we present the share of FDI in GDP compared to the GDP growth rate as an average over the period 2000-2022.

Figure no. 1: The average GDP growth rate and average FDI/GDP%



Source: EUROSTAT and UNCTAD

Detailed descriptive statistics for all variables included in the empirical analysis are given in the table below (Table 1). The average GDP growth rate over the period 2000-2022 in the 10 countries analysed was 3.69%, with a minimum value of -14.47% in Estonia, as an effect of the economic crisis that started in 2008, and a maximum value of 13.46% in Latvia in 2006. The average share of FDI in GDP is 4.11%, with a minimum of -11.61% in Hungary in 2015 as a result of the withdrawal of foreign investment that took place in the country and a maximum of 27.88% in Bulgaria in 2007, the year of the country's accession to the European Union. The average share of exports of goods and services in GDP is 61.03%, with a minimum of 21.59% in Romania in 2000 and a maximum of 99.36% in Slovakia in 2022. Expenditure on education differs from country to country, the minimum being 2.32% while the maximum is 7.84%. The average labour productivity rate is 3.03%, with a minimum of -7.8% in 2009 in Lithuania due to the economic crisis and a maximum of 17.7% in Romania in 2002, closely linked to the country's export growth at that time. Unemployment rate has an average value of 9.05% in the 10 countries analysed, the minimum being recorded in the Czech Republic in 2019, of only 2.02%, and the maximum of 19.92% being recorded in Bulgaria in 2001.

Table no. 1: Descriptive statistics of the determinants of GDP growth

	AVERAGE	MEDIAN	STANDARD DEVIATION	MIN	MAX
<b>GDPGR%</b>	3,69	3,93	4,17	-14,47	13,46
<b>FDI/GDP%</b>	4,11	3,17	4,08	-11,61	27,88
<b>EXP/GDP%</b>	61,03	61,61	18,57	21,59	99,36
<b>EDU/GDP%</b>	4,61	4,66	0,81	2,32	7,84
<b>PROD%</b>	3,03	3	3,38	-7,8	17,7
<b>UNEMPL%</b>	9,05	7,65	4,22	2,02	19,92

Source: Author's own analysis

Table 2 represents the correlation matrix that includes both the model dependent variable and the model independent variables to determine the relationship between them.

Table no. 2: Correlation matrix

	<b>GDPGR</b>	<b>FDI</b>	<b>EXP</b>	<b>EDU</b>	<b>PROD</b>	<b>UNEMPLY</b>
<b>GDPGR</b>	1					
<b>FDI</b>	0,2675	1				
<b>EXP</b>	-0,1581	-0,1647	1			
<b>EDU</b>	-0,0854	-0,1354	0,1720	1		
<b>PROD</b>	0,7896	0,2201	-0,3420	-0,1016	1	
<b>UNEMPLY</b>	-0,0427	0.0845	-0,1783	0,1637	0,1221	1

Source: Author's own analysis

#### 4. Findings

In this part of the article, we will examine the hypothesis that foreign direct investments have a significant impact on GDP growth. The study is based on data taken from EUROSTAT and UNCTAD for 10 Central and Eastern European countries for the period 2000-2022. We used a panel regression model with fixed effects. Due to the fact that the effects of foreign direct investments cannot be observed in the year they were made, and the results will appear in later years, we determined the values of the variables with time effects.

The following table (Table 3) presents the information obtained from applying the model to the existing data. Each independent variable is shown with the associated coefficient value and in parentheses with the standard error value. The symbols \*, \*\*, \*\*\* refer to the significance levels of 10%, 5% and 1%.

Table no. 3: The model estimated results

<b>INDEPENDENT VARIABLES</b>	<b>(1)</b>	<b>(2)</b>
<b>FDI</b>	0.139*** (0.045)	0.092** (0.041)
<b>EXP</b>	0.034** (0.017)	0.024** (0.010)
<b>EDU</b>	-0.487 (0.332)	0.004 (0.229)
<b>PROD</b>	1.009*** (0.051)	1.044*** (0.052)
<b>UNEMPLY</b>	-0.017*** (0.048)	-0.131*** (0.042)
<b>R-SQUARED</b>	0.6504	0.6630
<b>PROB &gt;F</b>	0.0269	
<b>NUMBER OF OBSERVATION</b>	230	220
<b>NUMBER OF COUNTRIES</b>	10	10

Source: Author's own analysis

The obtained results show that foreign direct investment flows have a positive effect on GDP. According to the specialized literature, a hypothesis is launched confirming that FDI positively influences economic growth, in other words, the higher the amount of FDI, the more the economy of the beneficiary country will grow, in our model, the variable has a significance level between 1% and 5%.

Foreign direct investments are important for Central and Eastern European countries. These investments have contributed to the economic transformation and integration of these economies into the global market. Among the effects that investment has had on economic growth, we list: Capital growth, FDI brings new capital into the recipient country's economy, which enables the financing of infrastructure projects, upgrading of technologies and expansion of production capacity, with a direct effect on GDP growth; creating jobs through foreign companies investing in the country and often creating new jobs, the significance level of the unemployment rate being 1%; transfer of technology and know-how that improve productivity, both in the sector in which they are invested and in the local companies that adopt them, and human capital plays an important role in this process, the model showing us a significant link between the two variables, with labour productivity having a significance level of 1%; access to new markets, by facilitating access to new markets and international partnerships, so that exports are strongly related to GDP growth.

As a social factor, education plays a key role in a country's economic development, although our model did not show a significant impact on GDP growth, education is one of the fundamental pillars of long-term development.

As we can see from the results obtained, there is a strong connection between foreign direct investment from CEE countries and GDP growth. Considering the fact that the COVID-19 pandemic was declared in 2020, there have been decreases in FDI and thus decreases in GDP in most countries.

## 5. Conclusions

Considering the results obtained, the conclusions we reached are that attracting foreign direct investment is seen as an important component of a country's economic development and that the Covid-19 pandemic has negatively influenced FDI flows.

The study confirms that foreign direct investments bring numerous benefits to host economies, contributing to economic growth, creating new jobs, transfer of technology and know-how, infrastructure development, improved competitiveness and access to international markets, bringing long-term benefits and contributing to their integration into the global economy.

Foreign direct investments play a key role in stimulating GDP growth and economic development, and the COVID-19 pandemic has significantly reduced these types of investments by slowing down the economic activity, travel restrictions and social dislocation, financial market volatility and falling demand, thereby recording declines in GDP and implicitly in the economic growth of recipient countries.

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# Analysis of Non-Bank Loans in the Context of the Romanian Economy: Risks and Implications

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## Abstract

*The analysis of data concerning non-bank financial institutions in Romania reveals a consistent increase in loan issuance over the past 11 years, especially in the context of the pandemic. The excessive growth in the number of loans has generated an elevated risk of non-repayment, necessitating careful debtor management. Warning signs, such as decreasing available funds and payment delays, represent critical points for assessing credit risk. National-level analysis underscores the importance of implementing preventive measures to avoid the risk of bankruptcy. Non-bank financial institutions must adopt proactive and adaptable strategies to efficiently manage the loan portfolio and ensure the long-term stability of the financial sector.*

**Key words:** IFN (Non-Banking Financial Institutions), banking risk, credit, crisis, bankruptcy.

**J.E.L. classification:** G01, G21, G32

## 1. Introduction

In a continuously evolving economy, the financial-banking sector represents an essential pillar of development and economic stability. In the context of Romania, non-banking financial institutions have become increasingly relevant in providing diverse financial services, including credit issuance. Statistical analysis of credits granted by non-banking financial institutions in Romania is crucial for understanding the dynamics of the financial market and assessing the risks associated with this sector. We aim to explore and interpret relevant data regarding credits granted by non-banking financial institutions, with the purpose of highlighting trends, risks, and their impact on the national economy.

Through detailed data exploration and the application of rigorous analytical methodologies, we seek to provide a clear and objective perspective on the credit situation in Romania's non-banking sector. This analysis will not only bring to light recent trends and challenges but will also serve as a useful tool for making informed decisions regarding financial policy and regulation in the banking sector. Additionally, we will examine available data, identify relevant patterns and correlations, and draw conclusions to provide a deeper understanding of the financial-banking landscape in Romania.

## 2. Literature review

The financial-banking system represents an essential element of the functioning of a modern economy, facilitating financial intermediation, mobilizing savings, and ensuring access to financial services for various segments of the population. Within this system, both banking and non-banking entities fulfill distinct roles, contributing to the diversification and expansion of access to financial and credit services.

Authors such as Frederic S. Mishkin and Stanley G. Eakins in their works "Financial Markets and Institutions" and "Financial Markets, Institutions & Money" examine in detail the functioning and role of banking institutions in credit intermediation and financial risk management (Mishkin, Frederic, Eakins, Stanley, 2018, p.34-36). In parallel, non-banking entities have gained significant importance in providing financial services, including in the field of lending. Works by authors such as Anthony Saunders and Marcia Millon Cornett, such as "Financial Institutions Management: A Risk Management Approach" and "Financial Markets and Institutions," analyze the implications of transformations in the financial sector and the contribution of non-banking entities to diversifying the lending market.

Credits granted by non-banking entities represent a dynamic component of the financial market, offering funding alternatives and access to capital for consumers and businesses. Researchers such as Edward I. Altman and Anthony Saunders in their works "Credit Risk Measurement: New Approaches to Value at Risk and Other Paradigms" and "Credit Risk Measurement and Management" analyze various aspects of credit risk assessment and management, including within non-banking entities. The financial-banking system is a vast and complex field, in which both traditional banking institutions and non-banking entities contribute to the provision of financial and credit services. Understanding the evolution of lending in non-banking entities requires an interdisciplinary approach and careful analysis of the works of relevant authors in the financial and banking fields.

### **3. Research methodology**

To analyze the evolution of the number of loans and commitments granted by non-banking institutions in Romania, we adopted a linear regression method. This method was selected for its ability to highlight the relationship between time and the variables of interest, thus allowing for the observation of long-term trends (Saunders&Cornett, 2021, p. 78-80). The data analyzed were collected annually, providing a solid basis for evaluation. We used linear regression analysis to determine the coefficients that describe the relationship between time and the number of loans and commitments. This analysis allowed us to identify an upward trend in non-banking financial activity. To validate the model, we compared the estimated values with the actual values, finding a good fit for the model.

The descriptive method was used to observe the general characteristics of the data and to identify patterns in the evolution of the studied phenomenon.

### **4. Findings**

#### **4.1. Credits granted and commitments undertaken by Non-Banking Financial Institutions**

The geopolitical shock caused by the conflicts involving our neighboring country has generated major macrofinancial consequences (Basno C., Dardac N., 1999, p. 62-66). Uncertainties regarding the evolution of the economy and financial markets have increased, accentuating the risks associated with the financial-banking sector. The critical situation we are facing requires prudence from both banks, the population, and banking supervision authorities.

Non-Banking Financial Institutions represent an important segment of the financial sector and play a vital role in providing financial services and granting loans to consumers and businesses. The number of loans granted and the manner in which they are granted are indicators of the activity and trust in the non-banking financial sector. These institutions offer a diverse range of financial products, including personal loans, mortgages, business loans, and others, which are often more flexible in terms and conditions than those offered by traditional banking institutions. They have the ability to reach segments of the population or businesses that may have limited access to traditional banking services.

Regarding the granting of loans, non-banking institutions analyze the risk and repayment capacity of potential borrowers before granting loans. The evaluation process may include analyzing credit history, income, and other relevant financial aspects. Typically, these institutions offer a variety of lending options to adapt to the needs and individual circumstances of customers. The granting of

loans by non-banking institutions may be influenced by general economic conditions, government regulations, and customer behavior. During periods of economic growth, increased demand for loans may be observed, and non-banking institutions may be more willing to grant loans (Simona&Popa, 2010, p. 10). On the other hand, during periods of economic uncertainty, the demand for loans may decrease, and non-banking institutions may adopt a more cautious approach to lending.

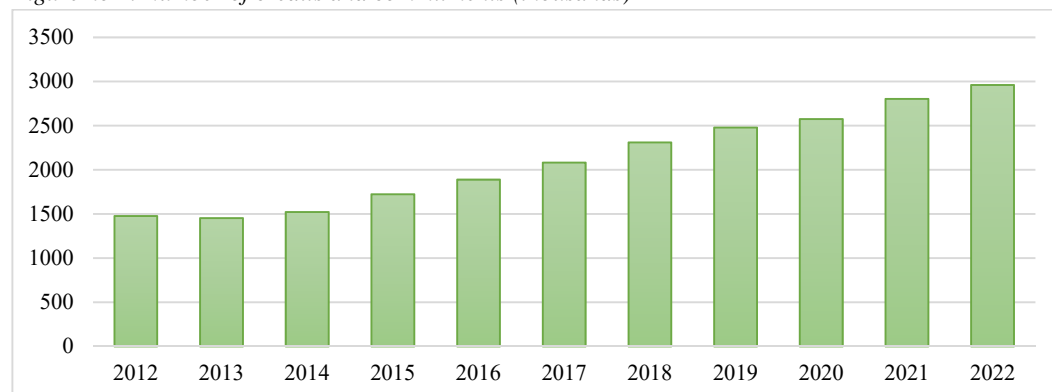
It is essential for non-banking institutions to implement responsible lending practices and closely monitor the risks associated with their loan portfolio. According to data extracted from the National Bank of Romania's reports, we have observed that over the past 11 years, the number of loans granted and commitments undertaken by non-banking financial institutions follows a linear pattern. For this reason, we have applied the time trend statistical application to observe the variation in the number of loans granted.

Table no. 1 Number of loans and commitments granted by non-bank financial institutions

Nr. ctr.	Date	Number of credits and commitments	ti	ti2	yi * ti	yti =a+b* ti	yi - yti
		<b>THOUSANDS</b>					
1	2012	1476	-5	25	-7380	1301,727	174,273
2	2013	1453	-4	16	-5812	1464,509	11,509
3	2014	1523	-3	9	-4569	1627,291	104,291
4	2015	1724	-2	4	-3448	1790,073	66,073
5	2016	1889	-1	1	-1889	1952,855	63,855
6	2017	2082	0	0	0	2115,636	33,636
7	2018	2309	1	1	2309	2278,418	30,582
8	2019	2478	2	4	4956	2441,200	36,800
9	2020	2574	3	9	7722	2603,982	29,982
10	2021	2803	4	16	11212	2766,764	36,236
11	2022	2961	5	25	14805	2929,545	31,455
	<b>TOTAL</b>	<b>23.272,000</b>	<b>0,000</b>	<b>110,000</b>	<b>17.906,000</b>	<b>23.272,000</b>	<b>618,691</b>

Source: Modeling based on statistical data published in the Annual Reports of the National Bank of Romania, <https://bnr.ro/PublicationDocuments.aspx?icid=3043>

Figure no 1. Number of credits and commitments (thousands)



Source: Modeling based on statistical data published in the Annual Reports of the National Bank of Romania, <https://bnr.ro/PublicationDocuments.aspx?icid=3043>

The analysis of the data from Figure 1 shows a decrease of 1.55% in the number of credits in 2013 compared to 2012, while between 2013 and 2022 there is a general trend of growth in the credits and commitments granted by non-banking financial institutions. This trend may reflect an increased demand for financial services and an expansion of non-banking institutions' activities in response to changing economic needs. This trend is evident in both the number of credits granted and in the interpretation of the linear regression equation applied to the data through descriptive methods.

Starting from 2013, the number of credits granted and commitments assumed by non-banking financial institutions in Romania has shown a consistent increase each year, reflected in an upward linear model. This consistent growth suggests high confidence in the non-banking financial sector and a continuously increasing demand for the services and products offered by these institutions. Additionally, the difference between the actual number of credits granted and commitments assumed and the number estimated by the linear regression equation is relatively small, indicating a good fit of the linear model with the observed data.

Moreover, within the linear regression analysis, coefficients  $a$  and  $b$  were calculated, describing the linear relationship between time and the number of credits and commitments. The coefficient  $b=162.78$  indicates an average increase in the number of credits and commitments over time, suggesting a growth trend in financial activity during the examined period. This means that for each additional unit of time (for example, one more year), the number of credits and commitments increases, on average, by approximately 162.78. Overall, the activity of non-banking institutions increases over time, showing a positive trend in the granting of credits and commitments by these institutions. The descriptive method applied, the Trend of the Phenomenon over Time, highlighted through the optimal variant, which is equal to 2.659% (it was incorrect in Excel), that the linear regression model is efficient and provides a good fit to the data, suitable for analyzing trends in the number of credits and commitments over time.

In conclusion, the results obtained mark a strong trend of growth in the activity of non-banking institutions in the field of granting credits and commitments, reflecting a stable and confident evolution.

#### **4.2. Outstanding credits and commitments of non-banking financial institutions**

In the dynamic landscape of the financial market, loans and commitments provided by non-banking financial institutions represent an essential aspect of economic activity. These entities, alongside traditional banks, play a vital role in providing various financial services and credit facilities to diverse segments of society. Analyzing the number of loans and outstanding commitments provides important insights into the stability and financial evolution of an economy. Non-bank loans are often perceived as a quick and convenient solution for immediate financing needs (Mishkin, Frederic S., Eakins, Stanley G. 2018, p 102-105). Their main advantage lies in their relative accessibility and less stringent procedures compared to traditional banking institutions. However, this advantage comes with certain risks and hidden costs, which may not always be evident to the average consumer.

Firstly, non-bank loans are known for their high interest rates and additional fees, which can significantly add to the total cost of the loan. While access to financing may be quicker and simpler with non-bank loans, costs can become substantial in the long run due to high interest rates and hidden fees. Another important aspect is the risk of default associated with non-bank loans. Since these loans are often granted without rigorous analysis of the borrower's repayment capacity and without a detailed evaluation of their financial history, there is a high risk that borrowers may not be able to meet their financial obligations. Additionally, the specific characteristics of non-bank loans, such as complex terms and conditions or unclear clauses, can lead to confusion and misunderstandings between the lender and the borrower. This can amplify the risk of default and have negative consequences on the borrower's financial situation. In the case of loans secured with assets (such as mortgages or auto loans), non-banking institutions may resort to repossessing the respective assets to offset outstanding amounts.

It is important to emphasize that non-banking institutions are subject to specific regulations and legal norms regarding the recovery of outstanding loans. They must respect consumers' rights and protection during the debt collection process, avoiding abusive practices.

In conclusion, while non-bank loans can provide quick solutions in emergency situations or for immediate needs, it is important for loan seekers to be aware of the associated risks and costs and to evaluate their options responsibly. A clear understanding of contractual terms and conditions, a realistic assessment of repayment capacity, and careful analysis of alternatives are essential for making informed financial decisions and avoiding unpleasant situations in the future.

Table no. 2 Number of Restated Loans and Commitments

Nr.	Date	Number of Restated Loans and Commitments	ti	ti2	yi *ti	yti =a+b* ti	yi – yti
		thousands					
1	2012	316	-5	25	-1580	282,136	33,864
2	2013	291	-4	16	-1164	277,127	13,873
3	2014	271	-3	9	-813	272,118	1,118
4	2015	259	-2	4	-518	267,109	8,109
5	2016	233	-1	1	-233	262,100	29,100
6	2017	230	0	0	0	257,091	27,091
7	2018	242	1	1	242	252,082	10,082
8	2019	244	2	4	488	247,073	3,073
9	2020	220	3	9	660	242,064	22,064
10	2021	243	4	16	972	237,055	5,945
11	2022	279	5	25	1395	232,045	46,955
<b>TOTAL</b>		<b>2.828,000</b>	<b>0,000</b>	<b>110,000</b>	<b>-551,000</b>	<b>2.828,000</b>	<b>201,273</b>

Source: Modeling based on statistical data published in the Annual Reports of the National Bank of Romania, <https://bnr.ro/PublicationDocuments.aspx?icid=3043>

Upon analyzing the data, we found that the number of loans and commitments outstanding to non-banking financial institutions exhibits a linear decreasing trend during the period of 2012-2017. An upward trend is observed during the period of 2020-2022. This observation led us to apply the formulas associated with the descriptive method of Time Phenomena Trend to facilitate a proper comparison between the loans granted and those outstanding. By applying the formulas mentioned in Table 2, we have the opportunity to quantify and compare various aspects of the loans, thus providing a deeper understanding of the dynamics and behavior of loans in different time contexts.

Figure no 2. Number of outstanding credits and commitments



Source: Modeling based on statistical data published in the Annual Reports of the National Bank of Romania, <https://bnr.ro/PublicationDocuments.aspx?icid=3043>

Figure 2 presents a detailed picture of the number of outstanding loans and commitments over a period of 11 years, spanning from 2012 to 2022. The analysis of Table 1.2 reveals a series of fluctuations in the number of outstanding loans over time. In the first 6 years, between 2012 and 2017, there is a downward trend in the number of outstanding loans. This decline may result from debt collection efforts or changes in the credit policies of financial institutions. Subsequently, between 2018 and 2022, we observe periodic fluctuations in the number of outstanding loans.

These fluctuations may be influenced by various factors, such as changes in the economy, shifts in customer payment behavior, or adjustments in the credit policies of financial institutions. For example, significant increases in the number of outstanding loans in 2018 and 2019 may indicate a decrease in the repayment capacity of borrowers or a temporary relaxation of credit standards. On the other hand, the major declines observed in 2017 and 2020 could be the result of increased debt collection efforts or stricter credit policies. It is important to note that fluctuations in the number of outstanding loans can also be influenced by major economic events, such as recessions or periods of economic growth. For example, during recession periods, there is an increase in the number of outstanding loans due to the financial difficulties faced by borrowers.

These fluctuations can be influenced by various economic and financial factors, such as changes in financial regulations, modifications in the credit policies of non-bank financial institutions, or changes in credit demand from consumers and businesses. Moreover, a detailed analysis of the data shows that there are some discrepancies between the actual and forecasted values ( $y_{ti}$ ), indicating possible deviations between the actual market behavior and the predictive models used. These discrepancies may indicate the need for periodic review of evaluation methodologies and forecast models to ensure the accuracy and relevance of the analysis. To assess this evolution, specific statistical formulas and methods have been applied to extract useful information about the long-term behavior of loans.

The optimal value (VI) = Number of outstanding loans and commitments /  $|y_i - y_{ti}|$  is 7.117 percentage points, which represents an indicator of efficiency and stability in managing the loan portfolio of non-bank financial institutions. A lower optimal value indicates a lower level of outstanding loans in the institution's loan portfolio, suggesting efficient management of credit risk and a solid debt collection capability. This contributes to maintaining financial stability and protecting the solvency of the financial institution against potential difficulties. Additionally, a lower optimal value indicates higher market confidence in the financial institution, which may attract new investors and clients. Therefore, the optimal value of 7.117% is a positive sign of performance and responsible credit management. To maintain or even improve this optimal value, financial institutions should continue to strengthen their responsible lending practices, provide support and assistance to customers in financial distress, and constantly monitor the performance of the loan portfolio.

This way, they can adapt to market changes and effectively manage credit risk in a dynamic and complex financial environment. In conclusion, using the statistical method of Trend of phenomena over time and applying the appropriate formulas allows us to obtain valuable details regarding the behavior and evolution of the number of loans granted by non-bank financial institutions and those outstanding. This approach helps us make informed decisions and identify potential trends and risks in the financial-banking sector.

## 5. Conclusions

In the light of the analysis conducted, a complex and dynamic picture of the Romanian financial-banking sector emerges, with a focus on the activity of non-bank financial institutions. The analysis of relevant statistical data and the interpretation of results provide a detailed perspective on the evolution and trends in this vital area of the national economy.

First and foremost, it is evident that the financial-banking sector represents a crucial engine of economic development and financial stability in Romania. Non-bank financial institutions have gained increasing importance in providing financial services, including lending, contributing to the diversification and expansion of access to financing for various segments of society.

The analysis of the number of loans granted by non-bank institutions reveals several relevant trends and fluctuations. The steady increase in the number of loans granted reflects increased confidence in the non-bank financial sector and the growing demand for the services and products offered by these entities. However, the observed fluctuations suggest the influence of various economic, financial, and legislative factors on the activities of non-bank institutions and lending behavior overall (Chiciudean I., David G., 2011, p. 84-88). Careful monitoring of market trends and fluctuations provides important information for adjusting strategies and lending policies, allowing for rapid adaptation to changes in the environment. In the loan approval process, transparency and financial education are key elements for creditors. Non-bank financial institutions should provide clear and accessible information regarding lending conditions, associated costs, and risks involved to enable customers to make informed and responsible lending decisions.

Following the analysis conducted for the period 2012-2022, based on the data presented in Tables 1.1 and 1.2, we observe a rising trend for loans granted by non-bank institutions. Outstanding loans mark a decreasing trend from 2012 to 2017, starting to increase from 2020 until 2022. In the context of the pandemic outbreak, we observed a significant increase in the number of loans granted, recording 229 thousand more loans issued in 2021 compared to 2020. However, this excessive increase also raised the risk of non-repayment. Outstanding loans have various causes, including the evolution of the economic cycle and subjective causes, requiring careful management by non-bank financial institutions. Identifying warning signals, such as decreasing funds in the debtor's account, increasing frequency of calls for credit lines, or late payments, is essential for detecting problems in a timely manner. Once payment delays become evident, financial institutions must initiate negotiations with the debtor and reassess the terms of the loan agreement. Failure to take appropriate measures can lead to the risk of bankruptcy for the debtor. To effectively manage credit risk, it is important for non-bank financial institutions to adhere to optimal loan values.

These findings highlight the need for a proactive and careful approach by non-bank institutions in managing the loan portfolio and associated risks to ensure the long-term stability and viability of the non-bank financial sector. Regarding the risk of loan defaults, the results of the analysis show that the optimal value of the number of loans granted is equal to 2.659%, marking an increasing linear fluctuation. The number of outstanding loans has an optimal value equal to 7.117%. This observation underscores the need for a secure approach and the implementation of appropriate measures to manage and minimize lending risks. It is essential for non-bank financial institutions to adopt sound risk assessment policies, monitor loans, and implement lending strategies to reduce exposure to financial risks and ensure the long-term stability of the non-bank sector.

In conclusion, the use of statistical methods and rigorous data analysis are essential tools for understanding and interpreting the dynamics of lending in the non-bank financial sector in Romania. This information is vital for making informed decisions regarding financial policy and regulation in the banking sector, thus contributing to promoting sustainable economic growth and ensuring financial stability in the country.

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# The Romanian Insurance Market Under the Impact of the Covid-19 Pandemic

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## Abstract

*The research work, through its structure, aims to achieve several objectives: following the evolution of the insurance market in Romania during the period 2015 - 2022, a period in which the pandemic generated by Covid-19 left its mark on several sectors of activity, the analysis the correlation between the indicators that define the insurance market and GDP/capita, and finally, with the help of the statistical program Eviews, we will create a multiple linear regression model.*

**Key words:** insurance market, economic growth, correlation, regression, Covid-19

**J.E.L. classification:** F65, G22, C30

## 1. Introduction

The pandemic generated by Covid-19 has left its mark on many sectors of activity in our country. If for some sectors such as the pharmaceutical industry (Hada, 2023, pp.8-9) the pandemic has had a favorable impact, for sectors such as (Doboreanu, 2020, pp. 4-5) hospitality, transport, culture, the pandemic has generated negative effects consisting of: decrease in sales, temporary suspension of activity, restriction of activity, abolition of certain jobs, technical unemployment and even the closing of some companies (Nuta et al, 2024, pp. 8).

The Romanian insurance market represented the main sector analyzed under the aspect of the covid-19 pandemic. The trend of consolidation of the insurance market was maintained in 2019, with car insurance still holding the largest share in total general insurance, but we cannot help but notice the increase in the share of health insurance from one year to another (ASF, 2019, pp. 11).

Were the effects generated by the pandemic a reason for the increase in health insurance in Romania? This is the question we asked ourselves at the time of correlating the increase in health insurance with the pandemic generated by covid-19. In 2020, health insurance registered, according to the reports of the Financial Supervisory Authority (ASF), an increase in gross premiums subscribed by approximately 18% compared to 2019. Also, the economic context from that time, as well as the effects of the pandemic have increased attention to guarantee insurance, which in 2020 compared to 2019 recorded a 68% increase in gross written premiums (ASF, 2020, pp. 12).

Although the tendency of Romanians is to take out insurance policies only for compulsory insurances such as motor civil liability (RCA) and housing liability (PAD), and for some professional activities there are also professional insurances, we observe a growing concern starting in 2020 for health insurance. The trend of increasing the share of these insurances in general insurances is also maintained in 2021, with a 10% increase in gross premiums subscribed compared to 2020 (ASF, 2021, pp. 36).

In 2022, the share of health insurance in general insurance increased significantly, with 35% more gross premiums subscribed than in 2021 (ASF, 2022, pp. 48).

We can therefore say that the pandemic has changed the perception of Romanians towards health insurance, they are increasingly concerned about these types of insurance. If until the time of the pandemic these types of insurance were conditioned by a series of factors: income obtained, lack of trust in insurance companies in our country, lack of financial education, after the pandemic the attitude of Romanians towards health insurance, according to statistics, is different.

## 2. Literature review

The insurance market in Romania has been and is the subject of numerous specialized researches, this being followed both as an evolution in different economic phases and in correlation with a series of macroeconomic indicators. With the emergence of the pandemic generated by covid-19, more and more researchers have analyzed both at the Romanian level, but especially at the international level, the effects generated by it on different sectors of activity, implicitly on the insurance market.

At the international level, the Global Monitoring Exercises (GME) commission that is part of the International Association of Insurance Supervisors (IAIS) met to assess the impact of the pandemic generated by covid-19 on the global insurance market. The most important 60 international insurers from 18 countries, as well as insurance supervisory institutions from 39 countries participated in this assessment (European Parliament and European Council, 2009).

Industry research has shown that "the virus has caused significant disruption to the economy and global supply chains, affecting the full range from small businesses to large corporations, with the insurance industry also affected."(PUŁAWSKA, 2021, p. 266) Analyzes of the insurance industry concluded that "for insurance companies, these disruptions were not only felt in normal business operations, but also in the form of increased claims volume."(BABUNA et al, 2020, p. 5766)

Another international analysis demonstrates that "the pandemic has affected almost every aspect of the human experience, it should come as no surprise to anyone that the pandemic is having a major impact on the insurance industry, and the full extent of the financial consequences are still unfolding. Thus, the pandemic has weakened insurers' balance sheets, strengthened the insurance market and stressed the claims environment."(Jerry, 2021, pp. 36-43)

At the level of Romania, numerous researches have been carried out on the effects of the pandemic brought to the insurance market, such an analysis can also be found by the author Năstase A. This, by presenting the evolution of specific indicators, surprises the insurance market before and during the pandemic. Thus, a continuous evolution of the insurance market in Romania can be noted, both the density indicator and the gross premiums subscribed demonstrating and confirming the aforementioned (Năstase, 2022, pp. 46-47).

Another analysis on the impact of the pandemic on the insurance market in Romania can be found by the author Gheordunescu M.E. It analyzes the specific indicators of the insurance market and comes to the conclusion that "in 2020, the insurance market ended the year with a gross volume of written premiums, increasing compared to 2019, even though 2020 was marked by the uncertainty due to the COVID-19 pandemic . The same trend can be observed in the first 6 months of 2021, in the general insurance segment"(Gheordunescu, 2021, pp. 58).

## 3. Research methodology

The analysis of the insurance market in Romania was possible thanks to the information reported by the Financial Supervisory Authority (ASF). Thus, the specific indicators of the insurance market were extracted from the annual reports published by the ASF: gross premiums subscribed, gross indemnities paid, density and degree of insurance penetration.

Over time, more and more researchers have analyzed the evolution of the insurance market in different countries of the world, at the same time correlating them with a series of macroeconomic indicators: GDP/capita, poverty rate, population income, etc. Such an analysis can be found in the authors Peter Haiss and Kjell Sűmegi, demonstrating with several EU countries as a reference the direct correlation between real GDP and the indicators of gross premiums subscribed, density and insurance penetration (Haiss, 2008, pp. 405-431).

Analysis of the insurance market and the correlation between it and macroeconomic indicators that reflect the well-being of an economy is also found in Huishan Lee, Zhen-Jiang YONG, Qiao-Ming LIM. They carried out a study using as a reference the indicators of the insurance market and GDP/capita from the level of 123 countries, reaching the conclusion that the link between these indicators differs from one country to another, the heterogeneity of the insurance market having a decisive role in establishing the intensity of these links (Huishan et al, 2022, pp. 10 - 11). This risk is excluded in our analysis as we follow the correlation between the insurance market and economic well-being indicators strictly at the level of Romania.

In the research paper, we propose to carry out an analysis of the correlation between the indicators that describe the insurance market: first underwritten general insurance policies (PBSAG); first underwritten life insurance policies (PBSAV); gross indemnities paid general insurance (IBPAG); life insurance gross benefits paid (IBPAV); the degree of insurance penetration (Gp) and the density of insurance per inhabitant (D/L) and the indicator reflecting the economic well-being GDP/inhabitant (GDP/capita), the analyzed period being 2015 – 2022, a period that can be divided as follows: 2015 – 2018 the period before the pandemic generated by covid-19, 2019 – 2021 the period of the pandemic, and 2022 the year of relaxation immediately after the pandemic.

Starting from the description of the insurance market presented in the ASF reports in correlation with the economic environment throughout this period, we consider the following research hypotheses:

H1: There is a close correlation between the gross premiums subscribed in the case of general insurance and GDP/capita, general insurance being the insurance with the largest share in total sales on the insurance market in Romania;

H2: Even though life insurance has a relatively low share in the total insurance sold in our country, there is also a significant correlation between GDP/capita and gross premiums written;

H3: there is also a close connection between gross indemnities paid and GDP/capita, the payment of these indemnities being part of the functioning mechanism of the insurance market;

H4: an inverse, significant correlation exists between insurance penetration and GDP/capita. Insurance penetration rate calculated as the ratio between gross premiums subscribed and GDP;

H5: the last research hypothesis refers to the link between insurance density and GDP/capita. There is a direct and significant correlation between the two, the higher the insurance density, the more significant the contribution of insurance to economic growth;

H6: the period of the pandemic generated by Covid-19 had a negative impact on the insurance market in Romania, the data from this period confirming the aforementioned.

The verification of these hypotheses was carried out with the help of the statistical program Eviews. We started with descriptive statistics where we performed a series of checks with the mean and standard deviation as well as with Skewness and Kurtosis. After validating the model with descriptive statistics, we moved on to check the correlations between the variables. This was possible with the Pearson correlation coefficient.

The analysis of the correlations between the variables then allowed us to decide on the variables taken into account in order to create the linear multiple regression model of the form:

$$\text{GDP/capita} = \alpha + \beta_1\text{PBSAg} + \beta_2\text{PBSAv} + \beta_3\text{IBPAg} + \beta_4\text{IBPAv} - \beta_5\text{Gp} + \beta_6\text{D/L} + \varepsilon$$

where:  $\alpha$  – constant;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  the coefficients of the independent variables and  $\varepsilon$  the error.

At the end of the research, the validation of the regression model was carried out through the heteroscedasticity and homoscedasticity test.

#### 4. Findings

The beginning of the empirical study of our research is given by the descriptive statistics where we will put special emphasis on the level between the mean and the standard deviation as well as on the level of the coefficients of Skewness and Kurtosis for each variable used separately.

Descriptive statistics are illustrated in the following table:

Table no. 1 Analysis with descriptive statistics

Date:  
02/26/24  
Time: 09:40  
Sample: 2015 2022

	GDP/capita	PBSAV	PBSAG	IBPAV	IBPAG	GP	D/L
Mean	41800.45	2.233750	9.236250	1.046250	5.083750	1.212500	625.0000
Median	42689.97	2.180000	8.380000	1.045000	5.350000	1.225000	572.0000
Maximum	49671.90	2.990000	13.860000	1.560000	6.400000	1.300000	959.0000
Minimum	33571.79	1.580000	6.960000	0.710000	3.600000	1.100000	446.0000
Std. Dev.	5724.490	0.492891	2.351601	0.274795	1.139611	0.080667	170.1000
Skewness	-0.172930	0.109359	1.076576	0.482999	0.192139	0.243740	1.019053
Kurtosis	1.810939	1.835798	2.829564	2.759644	1.369153	1.465158	2.843802
Jarque-Bera	0.511161	0.467734	1.555037	0.330307	0.935777	0.864459	1.392757
Probability	0.774467	0.791467	0.459545	0.847764	0.626323	0.649060	0.498387
Sum	334403.6	17.87000	73.89000	8.370000	40.67000	9.700000	5000.000
Sum Sq. Dev.	2.29E+08	1.700588	38.71019	0.528588	9.090988	0.045550	202538.0
Observations	8	8	8	8	8	8	8

Source: Table obtained in Eviews

Descriptive statistics data analysis validates all the variables for the multiple linear regression model we propose to build. Thus, for all variables the average is above the standard deviation and the coefficients of Skewness and Kurtosis are within the limits of the specific intervals.

After performing the descriptive statistics, we performed an analysis on the type of correlations existing between the variables. The analysis of the resulting correlations is reflected in the following table:

Table no. 2 Correlation analysis with Pearson correlation coefficient

	GDP/capita	PBSAV	PBSAG	IBPAV	IBPAG	GP	D/L
GDP/capita	1.000000	0.859439	0.878231	0.949528	0.961556	-0.054088	0.899059
PBSAV	0.859439	1.000000	0.702442	0.773132	0.896021	-0.155127	0.719102
PBSAG	0.878231	0.702442	1.000000	0.927318	0.807347	0.389777	0.998064
IBPAV	0.949528	0.773132	0.927318	1.000000	0.852195	0.086197	0.946947
IBPAG	0.961556	0.896021	0.807347	0.852195	1.000000	-0.130031	0.820998
GP	-0.054088	-0.155127	0.389777	0.086197	-0.130031	1.000000	0.348464
D/L	0.899059	0.719102	0.998064	0.946947	0.820998	0.348464	1.000000

Source: Table obtained in Eviews

The analysis of the data in the table leads us to the validation of the hypotheses from which we started the research. Thus, a direct and significant correlation was established between GDP/capita and gross premiums subscribed to both types of insurance, general and life, thus validating hypotheses 1 and 2.

A similarly direct and strong correlation resulted between GDP/capita and gross benefits paid, thus validating hypothesis 3 of the research.

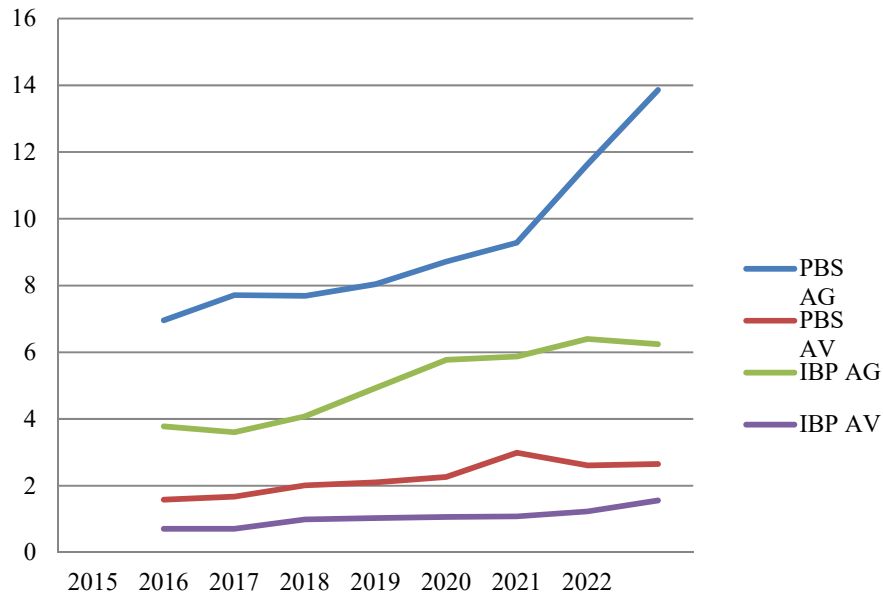
Partial validation of hypothesis 4 as there is an inverse relationship between GDP/capita and the degree of penetration (Gp) but it turned out to be insignificant.

In the case of the correlation between GDP/capita and insurance density, a strong direct link resulted.

We can thus say that there is a strong connection between the insurance market in Romania and GDP/capita, even if the insurance market in our country is not as developed as the other markets in the EU member countries, however it has proven to have a significant contribution in economy.

The analysis of the data regarding the gross written premiums and the other specific indicators of the insurance market selected in our study invalidate hypothesis 6 of the research, the gross written premiums as well as the density/inhabitant being on a continuous increase, these aspects being reflected in the following graph.

Figure no. 1 The general and life insurance market in Romania in the period 2015 - 2022



Source: Created by processing data from the ASF Reports 2015 – 2022

The analysis of the correlations between the indicators that describe the insurance market in Romania and the GDP/capita level allowed us to go further towards obtaining the linear multiple regression model.

Even if there was no significant correlation between the degree of penetration and GDP/capita, we kept this variable in the regression model, testing the probability of each variable being the decisive factor for this.

The coefficients of the multiple linear regression model are reflected in the following table:

Table no. 3 The resulting values in the definition of the regression model

Dependent Variable: GDP/capita

Method: Generalized Linear Model (Newton-Raphson / Marquardt steps)

Date: 02/26/24 Time: 09:40

Sample: 2015 2022

Included observations: 8

Family: Normal

Link: Identity

Dispersion computed using deviance

Convergence achieved after 0 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
PBSAV	577.3316	1674.157	0.344849	0.7302
PBSAG	8081.524	5358.094	1.508283	0.1315
IBPAV	376.8815	11459.50	0.032888	0.9738
IBPAG	3187.706	1349.646	2.361883	0.0182
GP	1641.772	14784.01	0.111051	0.9116
D/L	124.5874	86.73061	1.436487	0.1509
C	21275.46	18675.79	1.139200	0.2546
Mean dependent var	41800.45	S.D. dependent var		5724.490
Sum squared resid	881962.6	Root MSE		332.0321
Log likelihood	62.61113	Akaike info criterion		17.40278
Schwarz criterion	17.47229	Hannan-Quinn criter.		16.93396
Deviance	881962.6	Deviance statistic		881962.6
Restr. deviance	2.29E+08	LR statistic		259.0887
Prob(LR statistic)	0.000000	Pearson SSR		881962.6
Pearson statistic	881962.6	Dispersion		881962.6

Source: Table obtained in Eviews

By applying the Generalized Linear Model method (Newton-Raphson / Marquardt steps) we obtain the coefficients of the regression model with GDP/capita as the dependent variable and the specific indicators of the insurance market as independent variables.

The highest level of probability was obtained for gross indemnities paid in the case of life insurance (IBPAV) of 97.38%, followed by the degree of penetration with 91.16%, at the opposite pole being the gross indemnities paid in insurance general with a probability of 1.82%.

The obtained regression model is of the form:

$$\text{GDP/capita} = 21275,46 + 577,3316 \cdot \text{PBSAV} + 8081,524 \cdot \text{PBSAG} + 376,8815 \cdot \text{IBPAV} + 3187,706 \cdot \text{IBPAG} + 1641,772 \cdot \text{Gp} + 124,5874 \cdot \text{D/L} + \varepsilon$$

Validation of the regression model with the heteroscedasticity test is the last step carried out in our study, the results obtained being reflected in the following table:

Table no. 4 Heteroscedasticity test

Dependent Variable: PIB\_REAL\_LOCUITOR\_LEI\_LOCUITOR  
 Method: Generalized Linear Model (Newton-Raphson / Marquardt steps)  
 Date: 02/26/24 Time: 09:43  
 Sample: 2015 2022  
 Included observations: 8  
 Family: Normal  
 Link: Identity  
 Dispersion computed using Pearson Chi-Square  
 Convergence achieved after 0 iterations  
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
PBSAV	848.1128	1776.287	0.477464	0.6330

PBSAG	7305.277	5696.507	1.282414	0.1997
IBPAV	9946.692	8354.494	1.190580	0.2338
IBPAG	4338.868	958.9610	4.524552	0.0000
GP	18035.67	3630.777	4.967441	0.0000
D/L	90.92619	87.40182	1.040324	0.2982
Mean dependent var	41800.45	S.D. dependent var	5724.490	
Sum squared resid	2026552.	Root MSE	503.3081	
Log likelihood	63.66631	Akaike info criterion	17.41658	
Schwarz criterion	17.47616	Hannan-Quinn criter.	17.01473	
Deviance	2026552.	Deviance statistic	1013276.	
Pearson SSR	2026552.	Pearson statistic	1013276.	
Dispersion	1013276.			

*Source:* Table obtained in Eviews

The heteroscedasticity test leads to the validation of the obtained regression model, except for IBPAG and Gp where the probability level is almost impossible to identify. However, given the fact that all other tests were successfully passed by the variables, we can consider the obtained multiple linear regression model valid.

## 5. Conclusions

The study carried out on the insurance market in Romania for the period 2015 – 2022 in correlation with the indicator that reflects the economic growth in our country GDP/capita led us to conclude the following:

- the insurance market maintained its upward trend even during the pandemic, at the same time noting that the pandemic led to an increase in the gross underwritten premiums of life insurance in the period 2019-2020;
- although it is still insignificant as a contribution to economic growth in our country, strong, direct links have resulted between the insurance market and GDP/capita. This resulted in strong direct correlations between gross premiums subscribed, gross indemnities paid, insurance density/inhabitant and GDP/capita;
- an insignificant and inverse correlation resulted between the degree of insurance penetration and GDP/capita, this aspect also being explained in terms of the lack of logarithm between the two variables, having different measurement units;
- general insurances are the ones that still dominate the insurance market in our country, including compulsory insurances;
- in the steps taken to obtain the regression model, all the independent variables were validated, variables that define the insurance market in Romania, the regression model being validated through the heteroscedasticity test.

We can finally conclude that the insurance market in our country as an evolution is still under the impact of certain decisive factors such as: lack of education, financial power, distrust in insurance companies, etc. However, the insurance market continues to develop and increase its contribution to economic growth in our country.

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## Decisive Factors in the Evolution of the Insurance Market in Romania

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### Abstract

*The evolution of the insurance market in relation to certain economic, social, educational factors is the central point of our research work. Thus, starting from statistical data from the period 2015 – 2022 on the eight development regions in Romania, we analyzed the existing correlation level between the insurance market represented by the density of gross premiums in the case of general insurance, viewed as a dependent variable and other factors such as: growth economic represented by GDP/capita; the standard of living reflected by the average net salary and the average/family income, but also the level of education of people from a certain region on bachelor's, master's and doctoral study cycles, as independent variables.*

*With the help of the statistical program Eviews, we highlighted the level and type of correlation between the variables, at the same time, after testing with certain statistical methods, reaching the outline of a regression model.*

**Key words:** insurance, economic growth, standard of living, level of education

**J.E.L. classification:** C23, G22, I25

### 1. Introduction

The evolution of the insurance market over the past 20 years has covered the ever more varied and extensive needs of consumers. However, if we are to compare ourselves to the level of the insurance markets of other EU countries, the insurance market in Romania is insufficiently developed.

General insurance remains at the top of Romanians' preferences if we refer to the data sent by the ASF for the year 2023, it owning 80% of the total gross premiums subscribed.

Insurance Europe, through the data provided, performs a comparative analysis of the insurance market in our country with the other markets of the EU member countries. From the data provided, it can be seen that the level of gross premiums written for life insurance, compared to the total of gross premiums written in the field of insurance, is very low in our country compared to the European average.

The difference is given by the tradition of developed countries regarding the act of insurance, but also by the level of knowledge of this field by the population, the standard of living, the financial education of the population, etc (Competition Council, 2020).

The importance of one of these factors, namely the financial education of the population, is also highlighted by the vice-president of the ASF, D. Armeanu, who is of the opinion that the level of education is what determines the quality of the human factor, this also being true for the insurance sector. It mentions that demand and supply on the financial market should be in balance, determined by the level of financial education (Armeanu, 2019, pp. 5 -6).

Analyzing the results of research carried out by certain specialists in the field, there is a close correlation between financial education and economic growth. Author Tudose M comes and demonstrates this existing correlation between the level of financial education and the development of the life insurance industry. In general, the level of correlation between education and economic development, depending on the variables considered, is positioned between 0.3 and 0.7, while there is also a causal link between them, in the sense that a degree of economic development determines a development of the level of education and vice versa, the level of education can determine the development of the economy (Tudose, 2017, pp. 8-9).

## **2. Literature review**

The comparative analysis of the data presented by Eurostat shows us a significant link between the indicators that reflect economic growth in a country and the evolution of the insurance market in that country. Thus, the lower the purchasing power is as a result of the increase in inflation, the more the volume of gross insurance premiums tends to decrease.

There is also a strong connection between the indicators that define the labor market and the level of the specific indicators of the insurance market.

An analysis of the correlation between the development of the insurance market and economic growth can be found in the authors HuiShan Lee, Zhen-Jiang YONG, Qiao-Ming LIM. Thus, through the study carried out on 123 countries over a period between 1967 - 2014, in which the economic growth represented by GDP/capita was the dependent variable and the indicators that define the independent variable insurance market, demonstrated a significant, causal link between the development insurance market and economic growth. In other words, not only the insurance market makes a major contribution to the economy, but also the level of development of a country's economy influences the development of the insurance market. (HuiShan et al, 2022, pp. 8-9).

Author Rudolf Enz demonstrates through his research the correlation between GDP/capita and insurance penetration. The minimum and maximum points of insurance penetration are reflected according to the evolution of GDP/capita, also demonstrating the causal relationship between the two indicators. This resulted in the fact that, the higher the economic growth, the higher the gross premiums subscribed become in value, thus leading to an increase in the degree of penetration (Rudolf, 2000, p. 7).

The relationship between the growth of the insurance market and economic development is also demonstrated by the author J. François Outreville. He is based in his study on the review of 80 articles that address the relationship between insurance and economic growth and reaches the conclusion that there is a causal relationship between the two variables, in the sense that economic growth can be seen as a determining factor of the level of the insurance market and the level of insurance in an economy can be a determining factor of economic growth. At the same time, among the determining factors of insurance, in most of the works analyzed, the income of each person proved to be a decisive factor in the purchase of an insurance policy (Outreville, 2011, p.7).

Beenstock et al. demonstrates the direct relationship between the insurance market and demographic factors such as: population size, population density, urban pollution. Thus, there is a directly significant connection between these indicators and the insurance market (Beenstock et al, 1988, pp. 9-10).

The relationship between the level of education and the insurance market was highlighted by Haiss and Sumegi. They demonstrated the direct, significant connection between the level of insurance demand and human capital, represented by the ratio of the workforce with higher education to the total population (Haiss, 2008, p. 12).

## **3. Research methodology**

To carry out the research work, we used the data provided by the Financial Supervisory Authority (ASF) regarding the evolution of the insurance market in Romania, and for economic growth, standard of living, level of education by region, we used the National Institute of Statistics (INSSE).

The period taken into account is 2015 – 2022, the data being extracted from the 8 development regions of our country. The indicators extracted in order to carry out the study are: the distribution of gross premiums subscribed to general insurance; GDP/capita level; nominal salary; net income per family; number of people with bachelor's, master's and doctorate studies.

In this way, we created a panel data set, and starting from the research carried out in this field, we studied the existing links between them. The author J. François Outreville is one of the researchers who followed the results of 80 research papers, papers that demonstrated the significant direct relationships between economic growth and the insurance market, but also between the insurance market and demographic conditions, the evolution of the labor market, the level of education, etc. . In most of the works, direct, significant correlations resulted, also demonstrating the existence of causal relationships between variables (Outreville, 2011, pp. 6 - 7). The resulting causal relationships are also the starting point for the elaboration of this research.

Regarding the research, we selected as dependent variable the dispersion of gross premiums in general insurance and as independent variables GDP/capita, nominal salary, net income and the level of education for the 3 cycles: bachelor's, master's and doctorate. In order to standardize the variables, we applied logarithms using the natural logarithm in this sense. The variables used, the type of each variable as well as their distribution by domain are reflected in the following table:

*Table no. 1 The variables used in the statistical study*

<b>Variable name</b>	<b>Variable type</b>	<b>Domain</b>
<b>Density of gross premiums in the case of general insurance</b>	addiction	insurance
<b>GDP/Capita</b>	independence	Economic growth
<b>Average net salary</b>	independence	Standard of living
<b>Average net income per family</b>	independence	
<b>Number of people with bachelor's degrees</b>	independence	Level of education
<b>Number of people with master's degrees</b>	independence	
<b>Number of people with doctoral studies</b>	independence	

*Source:* made by the authors

With the help of the Eviews program, we moved on to the statistical processing of the data. In the first phase, we applied the Hausman test to determine the type of variables and the method we will use to create the regression model. This resulted in dummy variables and the method used was Panel Least Squares, with a fixed base.

After testing the type of variables as well as establishing the statistical method used, we performed the analysis of the variables with descriptive statistics. To validate the data, we analyzed the level between the mean and the standard deviation, as well as the level of the Skewness and Kurtosis coefficients.

Passing the test with descriptive statistics pushed us towards the analysis of the correlations between the variables. The resulting correlation level leads to the validation/invalidation of our research hypotheses:

H1: economic growth in a certain region influences the level of gross written premiums in the insurance field and implicitly the insurance market in that region;

H2: salary level is a factor that influences the decision to use or not the insurance bridges of an insurance company;

H3: the level of average income per family is also a decisive factor in contracting insurance policies;

H4: in general, the insurance market has proven to be influenced by the level of training, the financial education of the population in a certain country, region, etc. So there is also a significant direct correlation between the level of education and the insurance market.

Checking the type of correlation between the dependent variable and the independent variables represented the decisive moment on the final variables included in the regression model. In our case, all independent variables remained valid for the multiple linear regression.

The resulting multiple linear regression model is of the form:

$$\text{Ln\_Density PBS\_AG} = \alpha + \beta_1 * \text{GDP/capita} + \beta_2 * \text{Standard of living} + \beta_3 * \text{Level of education} + \varepsilon$$

where:  $\alpha$  – the constant,  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  the coefficients of the independent variables and  $\varepsilon$  - the error of the regression model.

#### 4. Findings

By following the previously presented research methodology, we conducted the study on the correlation between the insurance market and economic growth in a certain region, but also between the insurance market, the standard of living represented by the average net salary and average net income per family and the level of education of the population, having as reference the eight development regions in Romania.

The testing of variables and the choice of statistical processing method is reflected in the following table:

Table no. 2

Dependent Variable: LN\_DISTRIB\_PBS

Method: Panel Least Squares

Date: 02/27/24 Time: 10:35

Sample (adjusted): 2015 2021

Periods included: 7

Cross-sections included: 8

Total panel (balanced) observations: 56

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_DOCTORAL STUDY	-0.014646	0.069809	-0.209794	0.8350
LN_GDP_CAPITA	3.838721	1.383986	2.773670	0.0087
LN_LICENSE	0.364189	0.352418	1.033402	0.3083
LN_MASTER	-0.080429	0.215442	-0.373320	0.7111
LN_NOM_SAL	0.284073	0.714304	0.397693	0.6932
LN_NET_INCOME	-0.245054	0.486944	-0.503248	0.6179
C	-47.98852	18.13009	-2.646899	0.0120

#### Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.988400	Mean dependent var	-2.287942
Adjusted R-squared	0.982278	S.D. dependent var	0.564257
S.E. of regression	0.075116	Akaike info criterion	-2.067111
Sum squared resid	0.203127	Schwarz criterion	-1.343771
Log likelihood	77.87910	Hannan-Quinn criter.	-1.786673
F-statistic	161.4469	Durbin-Watson stat	1.662093

Prob(F-statistic) 0.000000

Source: table taken from Eviews

$R^2$ , the level of F and the Durbin-Watson test confirm the nature of the variables as well as the time period involved in the statistical procedure.

After studying the variety of variables as well as the statistical processing method, we conducted a study of the association between the variables.

Table no. 2 Correlation level with Pearson correlation coefficient

	LN_DISTRIB_P BS	LN_DOCTOR AL STD	LN_GDP_CAPI TA	LN_LICEN SE	LN_MAST ER	LN_NO M SAL	LN_NE T INC
LN_DISTRIB_P BS	1.000000	0.684900	-0.126338	0.748068	0.840014	0.53236	0.4908
LN_DOCTOR L STD	0.684900	1.000000	0.013329	0.943890	0.931313	0.44427	0.4282
LN_GDP_CAPI TA	-0.126338	0.013329	1.000000	0.043248	0.041606	0.32860	0.3661
LN_LICEN SE	0.748068	0.943890	0.043248	1.000000	0.972808	0.41763	0.4086
LN_MAST ER	0.840014	0.931313	0.041606	0.972808	1.000000	0.51215	0.4799
LN_NO M SAL	0.532365	0.444275	0.328606	0.417639	0.512155	1.00000	0.9649
LN_NE T INC	0.490849	0.428295	0.366138	0.408612	0.479999	0.96490	1.0000

Source: table taken from Eviews

Analysis of correlations between variables validates/invalidates our research hypotheses. So:

- Partial validation of the first research hypothesis (H1), between the density of gross premiums in general insurance and GDP/capita resulting in an inverse correlation but weak in significance. This is explained if we refer to the method of calculating the density of gross premiums subscribed, which is inversely proportional to GDP.

- Validation of the second hypothesis (H2), between the average net salary and the density of gross premiums for general insurance resulting in a direct, significant correlation;

- Validation of the third hypothesis (H3), the density of general insurance gross premiums and the average/family incomes, there being a direct, significant correlation;

- Validation of the fourth hypothesis (H4), between the density of general insurance gross premiums and the level of education, there are also strong direct correlations.

After performing the correlation analyses, we proceeded to determine the level of the regression coefficients:

Table no. 3 Coefficients of the regression model

Dependent Variable: LN\_DISTRIB\_PBS

Method: Panel Least Squares

Date: 02/27/24 Time: 10:42

Sample (adjusted): 2015 2021

Periods included: 7

Cross-sections included: 8

Total panel (balanced) observations: 56

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-47.98852	18.13009	-2.646899	0.0120
LN_GDP_CAPITA	3.838721	1.383986	2.773670	0.0087

LN_NOM SAL	0.284073	0.714304	0.397693	0.6932
LN_NET INC	-0.245054	0.486944	-0.503248	0.6179
LN_LICENSE	0.364189	0.352418	1.033402	0.3083
LN_MASTER	-0.080429	0.215442	-0.373320	0.7111
LN_DOCTORAL STD	-0.014646	0.069809	-0.209794	0.8350

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Effects Specification

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Cross-section fixed (dummy variables)

Period fixed (dummy variables)

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R-squared	0.988400	Mean dependent var	-2.287942
Adjusted R-squared	0.982278	S.D. dependent var	0.564257
S.E. of regression	0.075116	Akaike info criterion	-2.067111
Sum squared resid	0.203127	Schwarz criterion	-1.343771
Log likelihood	77.87910	Hannan-Quinn criter.	-1.786673
F-statistic	161.4469	Durbin-Watson stat	1.662093
Prob(F-statistic)	0.000000		

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Source: table taken from Eviews

The R<sup>2</sup> level of 0.988400 as well as the F-static of 161.4469 and the Durbin-Watson test validate the multiple linear regression model of the form:

$$\text{LN Distrib PBS} = -47,98852 + 3,838721 \cdot \text{LN\_GDP\_Capita} + 0,284073 \cdot \text{LN\_NOM SAL} - 0,245054 \cdot \text{LN\_NET INC} + 0,364189 \cdot \text{LN\_License} - 0,080429 \cdot \text{LN\_Master} - 0,014646 \cdot \text{LN\_Doctoral} + \varepsilon$$

The study carried out showed us the fact that the insurance market in Romania is influenced by a series of factors such as: the salary earned by each individual, the income per family, the level of development of a certain area, region, but also the level of education of the population from a certain region.

## 5. Conclusions

The analysis of the decisive factors of the level of development of the insurance market in Romania, showed us the existence of a close connection between the gross premiums subscribed and several variables such as: economic growth/development in a certain region, the salary level and the average income per family, the level of preparation (of studies), the level of education of the population in a certain area, etc.

The study carried out in our case on the main 8 development regions in our country showed us the existence of a close correlation between the insurance market and all these variables, with the exception of the economic growth reflected by GDP/capita where an insignificant inverse correlation resulted.

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- <https://asfromania.ro/uploads/articole/attachments/64a547281a50b379363631.pdf>
- <https://insse.ro/cms/>

# Accounting for Cryptocurrencies

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## Abstract

*Cryptocurrencies have emerged as an instrument of exchange, typical of the role of money. But in a short time, due to high fluctuations. Cryptocurrencies have become derivative financial instruments because of large increases in a very short time. Like any financial instrument it had a correction period, which brought huge losses to investors.*

*Accounting for cryptocurrencies is a common problem nowadays. This new method of exchange also affects the life of companies. At first cryptocurrencies directly affected individuals, but as their popularity grew, they began to become involved in the economic life of companies. These economic acts need to be reflected in the economic statements of companies. There is no clear regulation on how to account for these cryptocurrencies.*

*The aim of the paper is to address the need for regulation in the crypto area. The new financial instrument to be presented in a company's financial statements.*

**Key words:** cryptocurrencies, financial instrument, financial statements

**J.E.L classification:** G20, M41

## 1. Introduction

Clear regulations on how to account for them have not yet appeared. A European regulation has appeared which includes legal terms. These cryptocurrencies imply many benefits for users but the European regulation makes users aware that there are also obligations. These obligations are mainly of a legal nature.

These regulations do not exist for the accounting professional, so methods and techniques are sought to present them in the financial statements. The presentation of cryptocurrencies in financial statements must reflect reality and not manipulate certain results.

The only options are to find a solution through the classical accounting regulations. However, something unique and identical can be created for these cryptocurrencies. For a more accurate and realistic presentation, a new heading can be created in the financial statements. Thus, in addition to the basic activity of the company reflected classically. The financial statements should also include a section dedicated to cryptocurrencies. This new heading should include the profit from trading as well as tax and contributions.

## 2. Theoretical background

After the 2008 financial crisis, central banks expanded their monetary base through quantitative easing programmes, which aimed to reduce inflation. It was also around this time that a new technology-based financial asset emerged. Cryptocurrencies are unregulated assets and do not depend on any institution. The price is set freely in the market according to supply and demand. The first cryptocurrency to appear on the market is Bitcoin, whose creator is Satoshi Nakamoto. The clear identity of Satoshi Nakamoto is still anonymous (Nakamoto, 2008).

Cryptography facilitates cryptocurrency transactions between virtual wallets, each with a private key that blocks the transaction from being changed from one person to another. These transactions are secure and cannot be prevented.



Mining is the term for the creation of cryptocurrency, it is defined by the fee charged by the person who intermediates the payment. The miner provides the technical support to be able to transfer a cryptocurrency from one wallet to another. The main disadvantage is that this technological process consumes a lot of electricity. (Pastrana *et al.*, 2019)

The crypto wallet is the place where the investor keeps his or her money until it is used. There are two types of wallets, a hot wallet wallet directly within the platform. But there is also a ledger wallet, where coins are stored offline (Suratkar *et al.*, 2020).

"Analysis of Geographic Trends in Cryptocurrency Adoption and Usage" is adopted in 154 countries. There is a decentralised DEFI site that tracks transaction volume for each country. According to research, transaction volume increases exponentially from one year of use to the next.

"Cryptocurrency adoption: current stage, opportunities, and open changes" in this paper discusses the opportunities created by the emergence of cryptocurrencies. The ease of use and the increasing quality of life of users for the exchange of coins between them. However, the reverse side of the paper talks about the financial risks that arise from this phenomenon (Al-Amri, 2019).

In research from Bank of Canada "The Economics of Cryptocurrency Bitcoin and Beyond" it is shown that Bitcoin can create market instability compared to traditional payment instruments. Inflation rates can rise sharply, as the transaction fee can be higher because of the energy it consumes to make it. Thus, it can be interpreted that cryptocurrencies in particular Bitcoin can be a speculative element, but is not seen as a payment instrument (Chiu *et al.*, 2018).

Taxation of cryptocurrencies differs depending on the country of residence. Most investors look for the best tax rate variant to speculate and pay the least amount to the authorities.

### **3. Research methodology**

The main data sources we used were published literature, recorded videos, information taken from the market.

The main research technique is that we analysed the data and sources obtained. Data and information were interpreted based on common best practices. An attempt was made to approach the topic using a comparative method, but this could not be possible because cryptocurrencies are unique and cannot be compared to any financial instrument.

The limitations of the research are only in the limited material available, so the topic is still a little addressed one. The main sources were scientific articles in the international scientific literature.

### **4. Findings**

Globally, there is a need for clear regulation of the cryptocurrency issue. The subject has become a global issue, so a way of regulation must be found for a good practice of companies and countries where such activities are carried out. There are multiple and specific regulatory possibilities depending on the country of reference and the object of activity of the crypto companies. The legal regulation that has emerged cannot control to an almost absolute extent the presentation of these instruments in financial statements.

Cryptocurrencies are not without tax liabilities. The tax liabilities applied are taxable (Cong *et al.*, 2023). Thus, if these assets are presented separately from the rest of the items in the profit and loss account it is possible to maintain a correct tax treatment.

Each company has to pay a tax of the trading profit after deducting the costs involved in the transaction. This independent presentation increases the possibility of this method. The main reason for maintaining the 10% rate regardless of the type of company we are talking about is to reduce the possibility of money laundering. Because in Romania there are certain tax rate reductions for certain companies. Investors will turn their attention to these types in order to be able to pay as little tax as possible on gains from cryptocurrency transactions.

However, there is the possibility that a trading company does not actively trade these cryptocurrencies and at the time of reporting there is a certain amount in their wallets. Thus, a special note should also be created dedicated to the reporting of the types of cryptocurrencies held by them in their wallets together with the quantity held. This information must be understandable and interpretable to everyone, so a conversion based on the exchange rate at the reporting date can be

created. However, the focus of this accounting presentation should be kept around quantity information, as this is the most important. Quantity is the most relevant as the value can fluctuate tremendously from month to month.

These reports are very sensitive, so the regulation in this context must be very serious, and why not inspired by international accounting. Because these regulations must contain as many examples and possibilities as possible, so that the accounting profession can apply a template. As an instrument of fluctuating value, the regulation should not allow the application of an accounting rationale, but rather a template proposed by the authorities. This creed does not allow the application of reasoning that encourages money laundering. (Sanchez *et al*, 2017)

Also the accounting for cryptocurrencies varies greatly depending on the type of activity performed with these assets, as a company can buy and sell them in a short period of time (trading) to make a profit. For these desired profits one can also use top leverage procedures, which are very common in this area of trading (Dongxu *et al*, 2024). The second variant can be companies buying stable cryptocurrencies for the medium to long term. The terms cannot be compared with those in accounting. Long term in the crypto world can mean 3 months.

But besides this, accounting must also address the issue of those crypto service providers. These providers broker transactions and charge a fee. At the end of the day, month or year the fee from brokering crypto transactions becomes the company's profit and will fulfill the purpose for which it was recorded.

Possibilities of accounting based on the rules and clarifications made by the professional body in Romania, depending on the activity and object of activity of the company in question:

Cryptocurrencies recorded in the accounts as inventories are representative for short-term investment companies. These companies have the basic economic objective to produce profit from these transactions. Thus, the core objective of the company is to buy and sell at a profit a certain amount of a certain type of cryptocurrency, as these companies will rely on investment diversification (Paunescu, 2020)

Thus, the trial balance account used will be 371. This is the account reflecting the amount of cryptocurrency held at a given time in the financial statements. Also, when cryptocurrency is sold against 371, an expense must be recorded. The whole accounting process must be done in this way:

The first step is to purchase cryptocurrencies from a regulated platform. This platform plays the role of a provider. The transaction will be classically reflected, the inventories purchased in exchange with the provider. In the practical side of things, this crypto transaction is based on the purchase of a quantity of cryptocurrency and its storage on a hot wallet.

At the time of sale, these cryptocurrencies are taken off the company's books. First of all, an income from the sale of these cryptocurrencies must be recorded (KPMG, 2019). This income is closely related to a classic cash account. The second transaction is that the cryptocurrency has to be discharged from the company's accounts against an expense.

The real challenge for accountants is companies that trade a large amount in a very short time. Several dozen or even hundreds of sales and purchases can be recorded in a single day for a single type of cryptocurrency.

Cryptocurrencies issued by a trading company in order to be traded on a regulated market. The trial balance account used will be an intangible asset account. Following the technical process of creating a cryptocurrency, it must be recorded in the financial statements when the process is completed. When the decision is made to sell on a platform, the IPO process begins (Mitchell, 2018). During the IPO process, the entire value of the cryptocurrency is transferred against the receivable to be collected. The crypto project must be highlighted in the financial statements at the time the sale is complete. If the sale has not gone through all the steps there is a chance that it will become a failure. This failure will lead to the return of the money collected to the investors in the project phase. This accounting idea is a challenge for accountants. This cryptocurrency IPO cannot be compared in any way to the classic IPO for a company.

In addition to all these standards and accounting possibilities, another aspect must be taken into account. Cryptocurrencies carry risks in addition to the risk that their value may decrease for market reasons (Yukun *et al*, 2022). Company risks can also consist of theft, as it is an asset on the internet there can be certain attacks on wallets. There is also a risk of forgotten passwords or loss of physical wallets. Cryptocurrencies can be stored offline on certain devices similar to memory sticks.

The research method used is simulation, as clear regulation does not yet exist in this segment. The research was based on understanding the phenomenon and the technology and comparing it with a possible presentation in financial news. The comparison method cannot be used for more than one entity because this information does not yet exist. Very few companies have been open to using these assets in their perimeter of activity because they could not take the legal risks that might arise.

A real challenge for accounting is the recognition of NFTs in financial statements (Zhang, 2024). These are graphical representations with certain symbolism. NFTs are traded on the basis of prices determined by supply and demand. This blockchain product cannot be framed as an exchange currency. This is quite apparent, as there is no regulation for them, but there are entrepreneurs producing and selling such products. From an accounting point of view, these NFTs can be accounted for in financial statements as inventory or tangible assets. The subject cannot not be addressed together with cryptocurrencies because they come from the same world. Also, the market has shown the potential of price-related NFTs, as there have been transactions of a high material value, relative to the classical exchange currency (Heejung, 2024)

The most important part of these graphical representations in relation to accounting is whether they can be recognised as intangible assets. NFTs have no impact on a company's business, so do not meet one of the conditions. But on the other hand, neither can it be recognized as inventory. It cannot be recognised as inventory because its investment purpose is projected to be long term and thus would affect the performance indicators related to inventory. The age of inventories will lead to the need to recognise a provision in the accounts

## 5. Conclusions

Cryptocurrencies are the fantastic new tools that can bring a boost to a company or bankrupt it overnight. This uncertainty and risk makes them attract more and more risk takers. Thus, financial statements need to reflect these aspects for a correct accounting. In particular, companies that carry out a separate activity from crypto transactions must account for these gains or losses separately in order not to distort financial statements.

An accounting version can also be used, but these financial statements hide the performance of the core business. Accounting for cryptocurrencies remains a challenge for accountants and they need to be helped by the standards and rules issued in this area. For quality work accountants need to work very well with the IT department to understand the technological process behind a transaction. The accountant also needs to work with the investment department to be able to get in touch with the instability of the market.

The theoretical importance applied in a practical way of the research results is the awareness of the importance of the subject. Accounting is one of the oldest sciences because man has always needed a clear record of the result of the activity performed. Even if this specialization is one of the oldest, it has a very high rate of progress. The economy and the activities performed by the individual have progressed, but the goal has always remained the same. That is why society must now accept this new method of exchange. And, accounting must provide a clear certainty and adaptability on the presentation in financial statements.

The research on this topic is intended to provide a variant on how to orient the future of crypto in Romania. Once this world is clarified and regulated, entrepreneurs will have a greater openness to the topic. Also, serious regulation may attract foreign investors who can rely on the legality of their activity. These investors may be attracted by stability as well as tax rules and rates.

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## Italian direct investments in Romania: a growing economic partnership

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### Abstract

*Foreign direct investment (FDI) remains a topic of continuous interest for any country, as it can ensure economic recovery during times of crisis by providing a reliable financial source. Italian FDI is of particular interest due to Italy's significant commercial presence in Romania.*

*Italian companies are active in virtually every sector, with a notable focus on manufacturing, agro-industry, energy, and high-tech.*

*The objective of this report is to highlight the context and impact of FDI on Romania from both economic and social perspectives, and to track the evolution of financial results and reporting practices of these companies.*

*The original contributions of this research are significant in the current context, as the topic of FDI is not sufficiently discussed, despite its numerous benefits for the local economy. By succinctly outlining the advantages of foreign investors' presence in Romania, current economic directions, and the reporting methods of Italian-capital companies, this report fills certain informational gaps previously existing on this subject.*

**Key words:** foreign direct investment, Italian investments, commercial presence, investment growth  
**J.E.L. classification:** F21

### 1. Introduction

Early in the 1990s, significant political and economic developments in Eastern European nations, particularly Romania, opened up new markets for FDI. Romania's competitive advantages, macroeconomic policies, and overall economic conditions all had a role in how FDI flows changed from 1989 till after the global financial crisis.

Italy has consistently been a valuable partner, both in terms of direct investments in our country and in the exchange of goods. Initially, in the early 1990s, investments were primarily concentrated in the western region. However, Italian firms now operate across the entire country.

Large investment corporations and industrial organizations have come to Romania with significant financial power in the last 30 years. Romania is the major importer of Italian goods, Italy, in addition to serving as one of Romania's primary trading partners, has an important position in the Romanian economy in terms of Foreign Direct Investment (FDI) (OECD, 2022).

At the end of 2022, there were 244,215 companies with foreign capital, with a capital value of 67.647.064,3 USD of which 51.794 representing companies with Italian capital (ONRC, 2022).

In this context, the paper examines the FDI conceptual framework, highlights the driving factors in attracting Italian FDI to Romania as well as it provides some pieces of evidence in regard to the profile and activity of Italian investors in Romania. The results of this study indicate that Italian FDI significantly stimulates long-term economic growth. Analyzing product exchanges reveals the most important categories of goods distributed by sector, showing a 14.4% variation in exports from Italy and a 30.9% variation in exports from Romania to Italy. (ICE, 2022). Also, analyzing the profile of the Italian investor, recommendations will be made regarding the actions that Romania must undertake in order to increase its attractiveness for investments.

## 2. Literature review

Foreign direct investment is characterized by an investment made in a host country's economic interests by a firm established in that state, either via the foundation of a new firm or the acquisition of a controlling stake in previously existing corporate assets.

To be considered foreign direct investment, the following conditions must be met: the direct investment entrepreneur controls facilities abroad the capital circulation is typically accompanied by additional resources, technological, knowledge, finance, or staff flows and the investment company has a long-term attraction in the host country.

Foreign existence in a financial system, whether through a collaboration agreement or through investment from other countries (FDI), has both beneficial and detrimental effects. The majority of the research has concentrated on the effect of inbound FDI, indicating that it promotes host-country growth: total production and development in a certain state improve as the percentage of the economic activity attributed to multinationals increases. (Moosa, 2002)

**Factors that contribute to attracting Italian FDI in Romania.** There are three basic motives for attracting FDI: expanding consumer markets (FDI in quest of markets), discovering less expensive factors used in manufacturing (FDI in trying to improve efficiency), or an aim of developing technologically (FDI in search of resources / strategically resources) (Negritoiu, 1996):

### 2.1 Economic resources

- One of the most prominent outlet marketplaces in Central and Eastern Europe, second only to Poland;
- Attractive geographical location, situated at the intersection of three major European Transport Routes;
- Advanced mobile telecommunications networks. Low-cost labor workforce with technical knowledge, information systems, and engineering;
- Oil, fossil fuels, coal minerals, extremely productive agricultural land that sustains active production throughout economic downturns;
- Climatic, soils, hydrology network, and tourism potential;
- Transport network: trans-European highway, Rhine-Main-Danube major railway;

### 2.2 Non-economic factors:

- Maintaining the state's unitary nature, despite attempts to dismantle it
- Political environment, which remains shaky;
- Romanian culture and human civilization, based on Western models; Latin origin, as France, Spain, Italy, and Portugal.
- The inclusion in the EU in 2007 is one of the most significant advantage

### 2.3 Legal component:

- Investors can use any form and type of investment;
- The possibility to invest in any sector and in any legal structure;
- Social equality - fair, non-discriminatory and equitable
- Assurances against public ownership
- The opportunity to benefit from fiscal and norms bonuses established by law;

The fields of activity that investors choose in Romania are very diverse, including: trade, administrative activities, construction, electricity, hotels and restaurants, public administration and education, transport, the extractive industry, real estate transactions, or agriculture.

Between 2009-2021, the average number of new registered companies was 5,917, and in 2022 there was a slight increase, the number of new companies reaching 7,368, with a total capital value of 1.695.620,1 USD (ONRC, 2022).

## 3. Research methodology

The research methodology employed in this article is primarily qualitative. It is based on content analysis of reports on FDI published on the websites of both Italian and Romanian institutions, aimed at establishing the investment relationship between the two countries. Preceded by the study of the specialized literature, the analysis of the data communicated regarding the investments in Romania

led to understanding the impact that the Italian investments had in Romania, the evolution of Italian direct investments in Romania and the profile and activity of Italian companies operating in our country.. Thus, ONRC (National Trade Register Office) data allowed me to identify the companies with Italian capital existing at the end of each year, for the period 2012-2022, BNR provides data on investment flows from Romania in 2022, whereas Trade & Investment Agency of Italy reveals exchanges of goods between Italy and Romania, observing the flow on each field of activity.

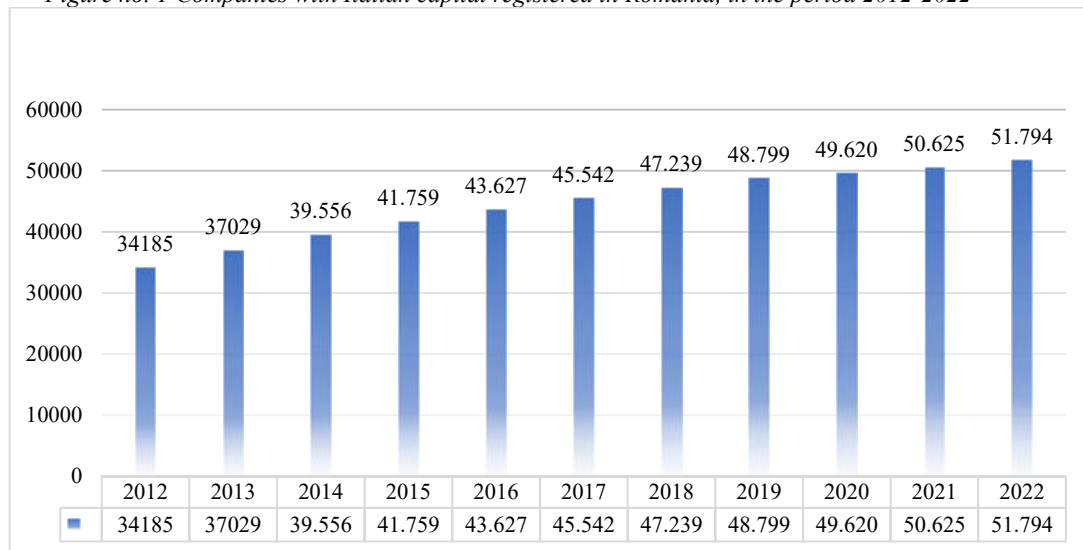
#### 4. Findings

Italy has a significant commercial presence in Romania. While investments were concentrated in the west of the country in the early 1990s, Italian firms now operate throughout the country.

Italian firms are active in practically every sector, with a particular emphasis on manufacturing, agro-industry, energy, and high-tech.

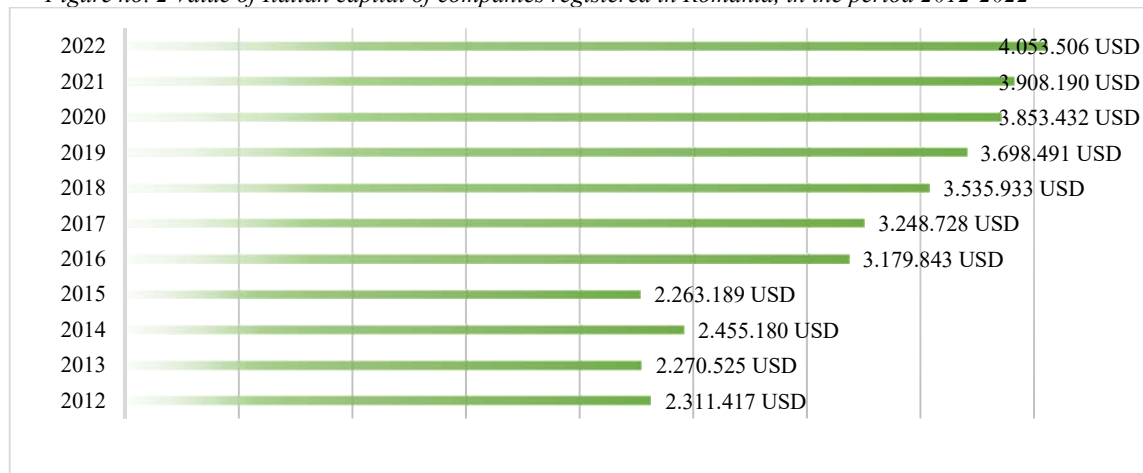
Over the years, the number of companies with Italian capital in Romania has consistently grown, with the recorded data as follows:

Figure no. 1 Companies with Italian capital registered in Romania, in the period 2012-2022



Source: National Trade Register Office (2022)

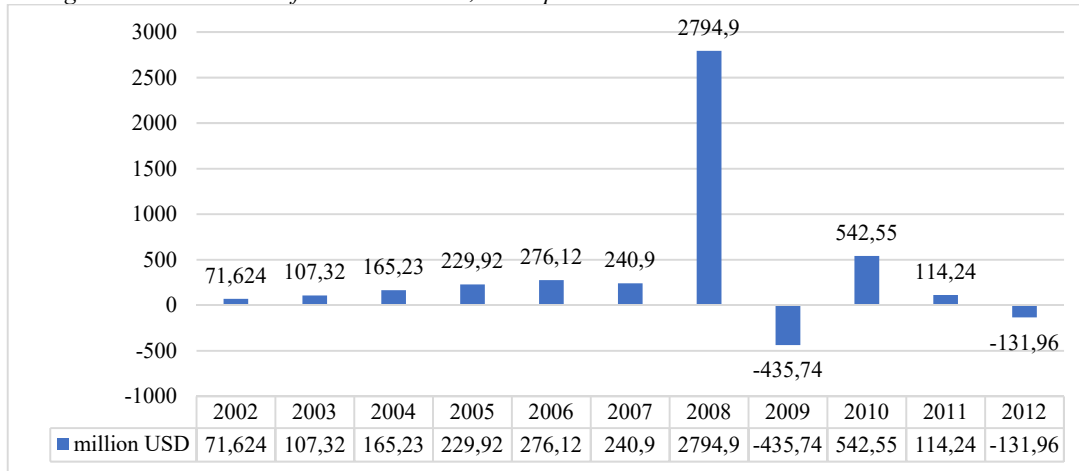
Figure no. 2 Value of Italian capital of companies registered in Romania, in the period 2012-2022



Source: National Trade Register Office (2022)

Regarding the evolution of FDI flows reported by Romania in relation to Italy, as presented in the table below, it indicates a good period between the years 1993-2007, knowing an upward trend, in 2008 registering the highest value of Italian investments in Romania in the amount of 2,794.63 million USD.

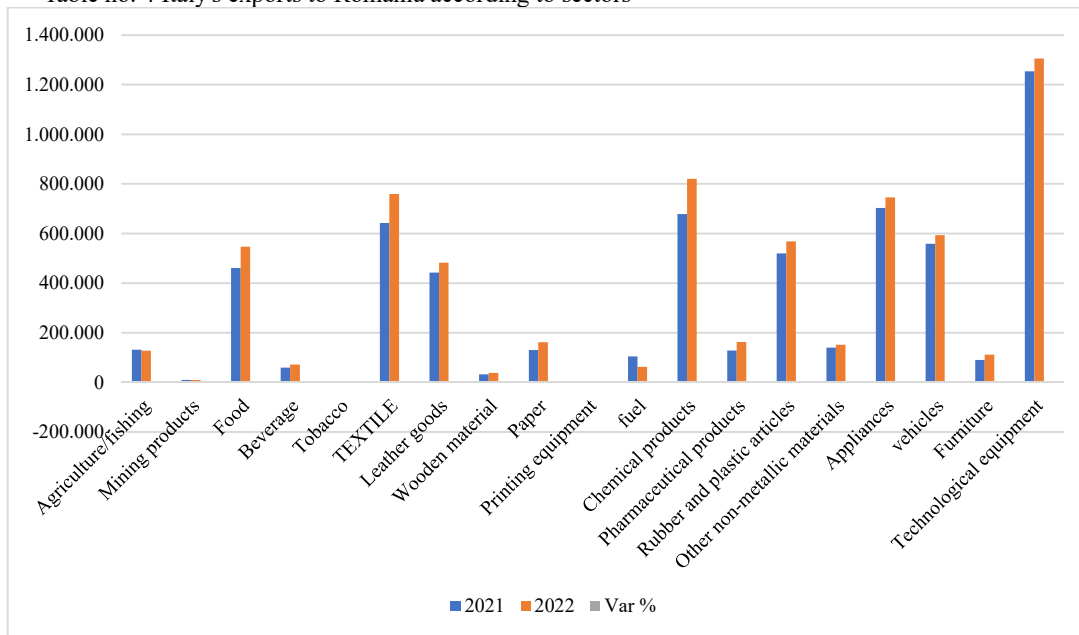
Figure no. 3 Italian FDI flows in Romania, in the period 2002-2012



Source: OECD

Inter trade between Italy and Romania by activity sector experienced a peak between 2021 and 2022, as follows:

Table no. 4 Italy's exports to Romania according to sectors



Source: compiled by ICE with data from ISTAT (2022)



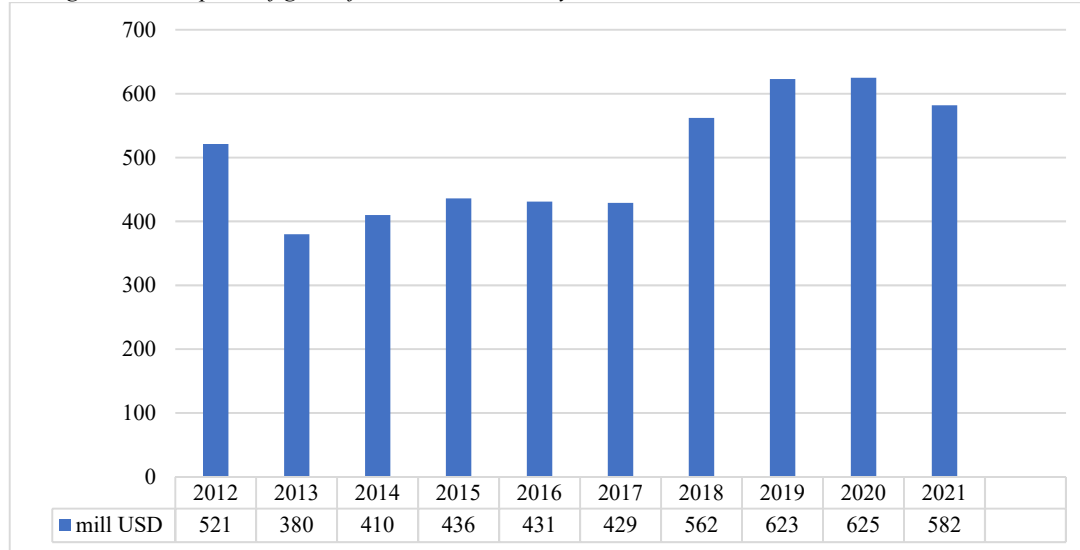
Table no. 1 Italy's exports to Romania according to sectors

	2021	2022	Var %
Agriculture/fishing	131.631	127.672	-3,00%
Mining products	9.636	9.806	1,80%
Food	461.204	547.168	18,60%
Beverage	59.271	71.932	21,40%
Tobacco	3.144	5.052	60,70%
Textiles	642.318	759.091	18,20%
Leather goods	442.640	482.846	9,10%
Wooden material	32.052	37.838	18,10%
Paper	130.026	161.471	24,20%
Printing equipment	524	454	-13,30%
fuel	104.288	62.385	-40,20%
Chemical products	678.545	820.795	21,00%
Pharmaceutical products	128.424	162.712	26,70%
Rubber and plastic articles	519.792	568.217	9,30%
Other non-metallic materials	139.510	152.112	9,00%
Appliances	703.013	745.553	6,10%
vehicles	558.488	593.839	6,30%
Furniture	90.185	111.616	23,80%
Technological equipment	1.253.731	1.305.347	4,10%

Source: compiled by ICE with data from ISTAT (2022)

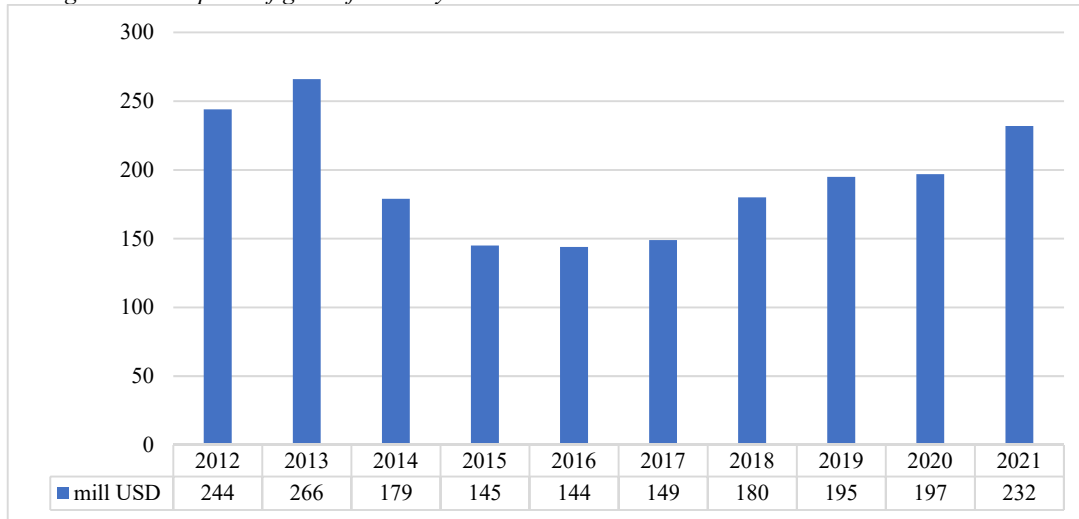
In continuation of the above, it is important to analyze the value of the bilateral exchange of goods between Italy and Romania. The data show that Romania exports more goods to Italy than it imports from them.

Figure no. 5 Exports of goods from Romania to Italy



Source: OECD 2012-2021

Figure no. 6 Imports of goods from Italy to Romania



Source: OECD 2012-2021

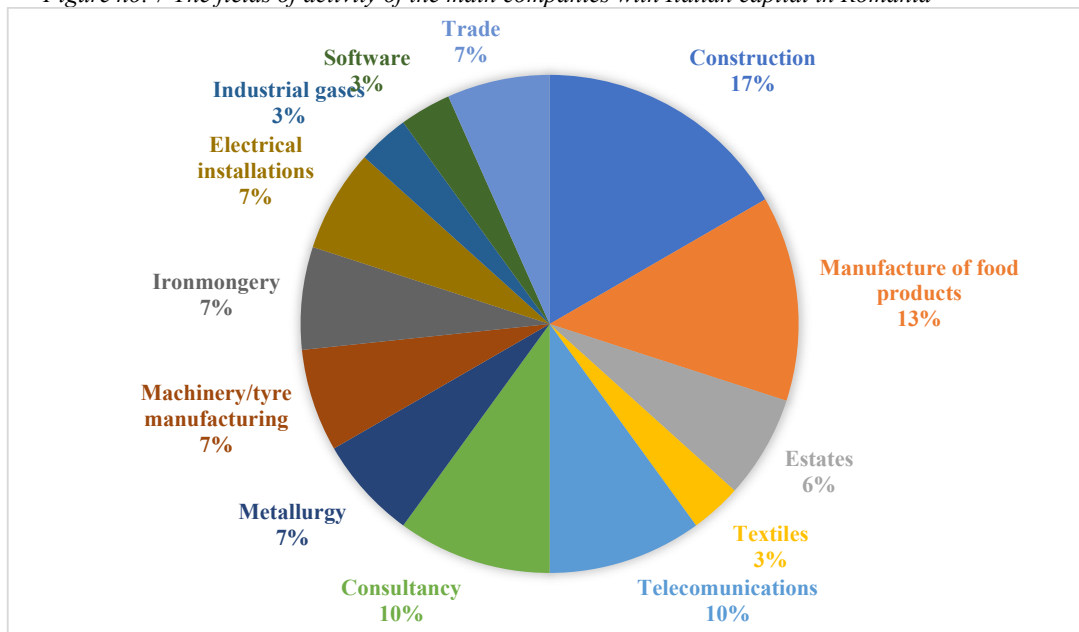
Analyzing the data above, we can conclude that Romania has more to gain from the exports of goods that it carries out to Italy, being among the main partners of this country, the value of exports being over the years almost double that of imports on which Romania makes from Italy.

The fields of activity that investors choose in Romania are very diverse, including: trade, administrative activities, construction, electricity, hotels and restaurants, public administration and education, transport, the extractive industry, real estate transactions, or agriculture.

Among those mentioned, there are some fields that most of the investors choose, here we are talking about trade - a field in which more than 25.68% of the total companies with foreign capital in Romania are active, followed by administrative activity with a weight of 23.8%, and in third place is the field of transport, registering 20.67% of the total number of companies.

The fields less chosen by investors are those such as agriculture/fishing - only 1.25%, financial intermediation and insurance with 1.46%, or the field of electricity and terminals, which only 2.71% of the total companies with foreign capital have as an object of activity.

Figure no. 7 The fields of activity of the main companies with Italian capital in Romania



Source: Ghidul.ro

## 5. Conclusions

From the sample of companies with Italian capital that I have selected, most of the companies are performing, obtaining very good financial results from one year to the next, being encouraged by the business environment in Romania to increase the level of investments, but it should be mentioned that 2 of them chose to close their businesses in our country for reasons independent of the determinants of investments in Romania.

Therefore, after analyzing the data and the main factors that influence the attraction of Italian investors, it can be concluded that Romania is an attractive country for investors, both from the perspective of economic resources, geographical location, workforce, and the legal framework.

Italian investments and the number of companies with Italian capital in Romania are steadily on the rise, thereby bolstering long-term economic growth. While Italian investors show interest across diverse sectors, there exists an imbalance. Hence, Romania should implement measures to enhance the appeal of less favored sectors, including prioritizing digitization, ensuring adequate infrastructure, and providing support for small and medium-sized enterprises.

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# The Challenges of Banking in the Age of Artificial Intelligence

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## Abstract

*Banking systems play an essential role in the economy through their varied functions. They facilitate access to credit, ensure efficient money management and promote the smooth functioning of financial markets.*

*In the current period, in financial and credit institutions there is an orientation towards the use of AI. Thus artificial intelligence has been introduced in bank asset management, in analyzing and assessing the risks of bank customers, in bank marketing, etc.*

*The aim of the paper is to present the current AI technologies used in banking, highlighting the transformations that the field has undergone in recent years as a result of the implementation of AI. Moreover, the benefits, but also the risks that may arise for all actors participating in the banking market will be highlighted. We focus our attention on AI because it stimulates innovation in industry and opens the way to new business opportunities.*

**Key words:** Artificial intelligence, banking, regulation

**J.E.L. classification:** G01, G20, G21, G24, G30, E50

## 1. Introduction

The banking system plays a pivotal role in the global economy and is a fundamental pillar of it. It facilitates financial transactions, promotes economic growth and provides essential services to individuals, businesses and governments. In this paper, we aim to explore a range of issues related to the banking system, with a focus on IA in banking, regulations, technological advances, challenges and the evolving landscape of banking in the digital age.

AI as a science of new technology has reached a stage of development that allows integration in financial areas under acceptable risk. If the intelligent machine is mature enough, it can simulate human behavior. As a result, banks, regulators, financial market players are increasingly interested in using AI in market analysis, risk or asset management. In the following, we will present issues that concern both edges of the sword: the competitive advantages that the financial banking industry gains by using AI, but also the multiple risks that accompany AI.

## 2. Theoretical background

The banking system performs key functions in modern economies. As financial intermediaries, banks facilitate the transfer of funds from surplus to deficit units. The banking system provides payment and settlement services, facilitating the fast and secure transfer of funds between individuals and businesses by various means, such as electronic transfers, debit or credit cards. All these services are vital for facilitating economic transactions and ensuring an efficient financial system.

In order to ensure the stability and integrity of the banking system, regulatory and supervisory frameworks have been put in place by central banks and other type of financial authorities. The regulations cover a few issues: capital adequacy, capital adequacy requirements, liquidity standards, consumer protection or risk management. Regulators monitor, supervise banks to reduce risks, prevent fraud and maintain the overall financial system. The purpose of these regulations is to promote transparency and accountability, protect depositors' funds and maintain public confidence in the banking sector. After the 2008 global financial crisis, regulatory reforms were implemented to strengthen the resilience of banking systems and improve risk management practices.

At the same time, banks have had to adapt to technological change, respond to customer needs and comply with evolving regulations in order to perform their functions effectively and contribute to a stable and prosperous economy.

But the challenges are not over, and artificial intelligence is a presence worth taking note of. Digitalization in banking has brought benefits but also new risks.

The traditional financial industry has adapted to new technologies, and the changes have also seen changes in banking. Traditional banks have adopted artificial intelligence to develop mobile banking applications, but certainly this utilization is wider. However, there is not much data in this field ( Lee & Chen, 2022).

The development status of AI in finance as well as specific risk issues are presented by Li, Yi, Chen and Peng (2021). Given the importance of financial markets globally, the authors analyze issues on the application of AI on a large scale. Their research is conducted on five directions including fraud prediction and credit risk management.

### **3. Research methodology**

In recent years, the banking sector has undergone significant technological transformations, leading to the emergence of digital banks and a wide range of digital banking services. Technological advances in information and communication technology have enabled banks to offer online banking, mobile banking applications and electronic payment systems (Dwivedi et al., 2023). These innovations have significantly improved convenience, accessibility and efficiency for customers, enabling them to bank anytime and anywhere.

Mobile banking apps have become a key element in today's banking landscape. They allow customers to quickly and easily access banking services, including functions such as balance inquiries, fund transfers, bill payments and investment portfolio management (Li et al., 2018). The number of mobile banking app users has increased significantly in recent years, reflecting the growing demand for digital and convenient banking services.

In addition to mobile apps, advanced technologies such as artificial intelligence (AI), machine learning and blockchain have brought significant transformations to the banking sector. AI and machine learning are being used to develop sophisticated fraud detection and financial data analytics systems, helping banks to prevent and detect fraudulent activities (Li et al., 2021) . For example, AI algorithms can identify suspicious spending or transaction patterns and alert banks and customers in a timely manner.

Studies on the use of artificial intelligence in banking are quite scarce and data are limited. Lee & Chen in 2022 conducted a research based on stimulus-organism-response (SOR) theory. This study was generated by the need to fill this gap. Lee and Chen wanted to find out what is the cost of using AI in banking from the perception of mobile banking app users.

The ECB has also been working to bring the use of AI techniques up to date through regulation.

The ECB welcomes digitization in banking, but draws attention to the associated costs and risk management.

Especially after 2022, regulations, impact studies and research are carried out in ECB departments to respond to the new reality because it is a fact that European banks are placing great emphasis on adapting to new technologies.

The risk-profit relationship being key in banking, it can be observed that many institutions are moving part of their activities exclusively online. Banks that operate exclusively online and use bots and artificial intelligence to interact with customers are emerging. Monetary authorities are expected

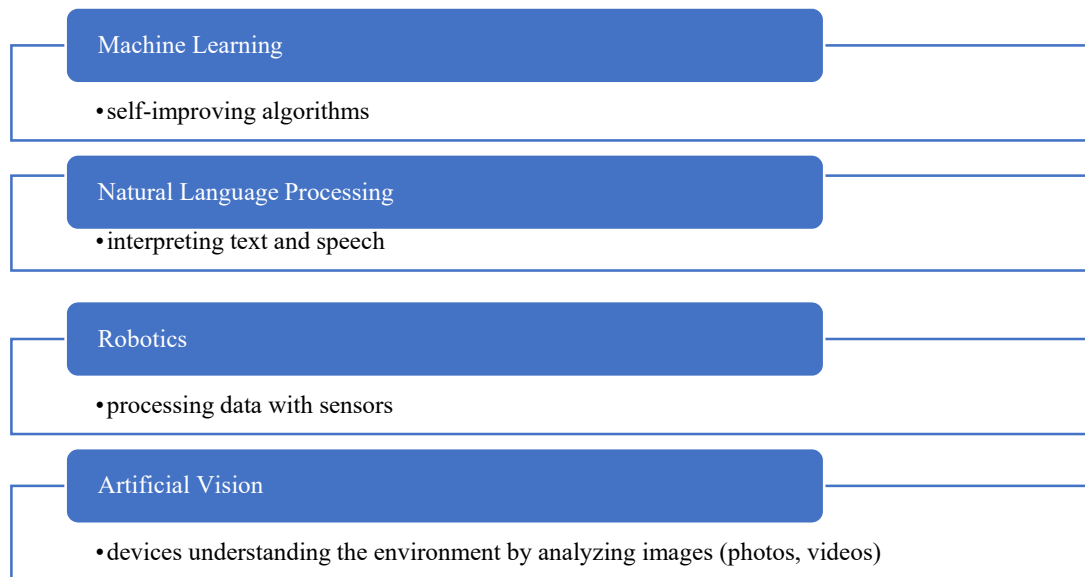
to be more present in the banking market as corporate governance actors. On the one hand, we expect visits of central bank representatives to systemic banks to take place more often.

#### 4. Models and algorithms in banking

In the early days, artificial intelligence was limited to sequential data processing and the use of logic. Later a more modern method of artificial intelligence was used by building a computer with a structure that mimics the human brain. This AI technology is called neural computation or artificial neural network (ANN).

From the first models to widely used AI, many steps have been taken relatively quickly.

Figure no. 1 AI variants



Source: Authors' conception

The Ai components used as models in banking are shown in Fig 1.

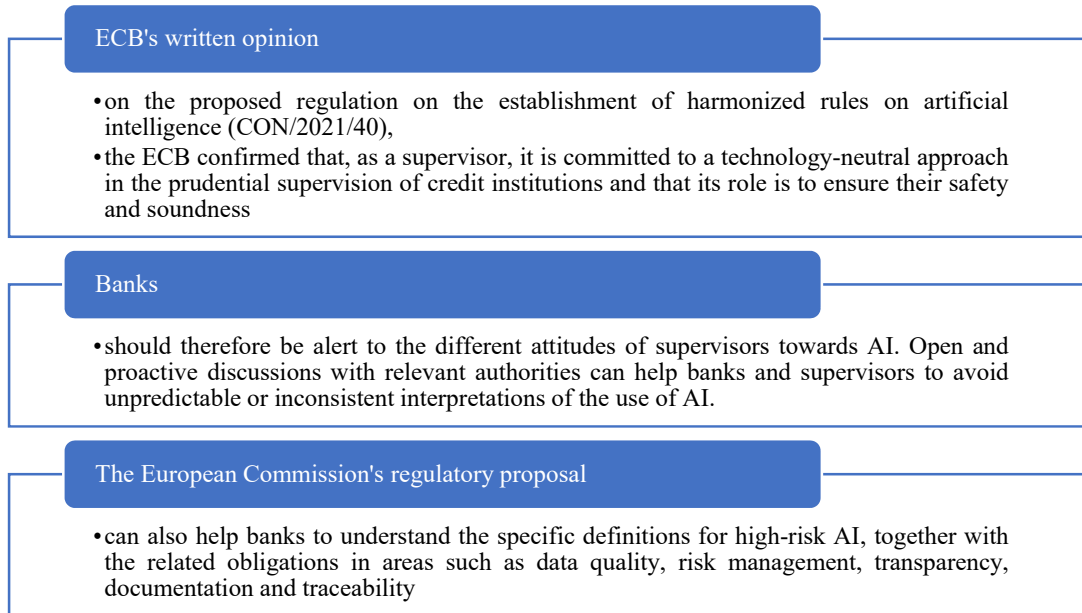
Blockchain, a technology based on distributed ledger and cryptography, has the potential to revolutionize the way transactions and clearing are conducted in the banking sector.

The use of blockchain can reduce reliance on intermediaries and ensure fast and secure transactions between parties (Ali et al., 2020) In addition, blockchain technology can bring transparency and security to the banking system, eliminating the risk of fraud or human error

These technological advancements have not only benefited banks and customers, but also have a widespread impact on the entire financial system and economy. The use of technology in the banking sector can help increase operational efficiency, reduce costs and improve risk management. Emerging technologies can also spur innovation in the industry and create new business opportunities.

Models that use facial recognition identification to perform ATM transactions, it has been found that significant errors can occur. So the system needs to be refined from a security perspective.

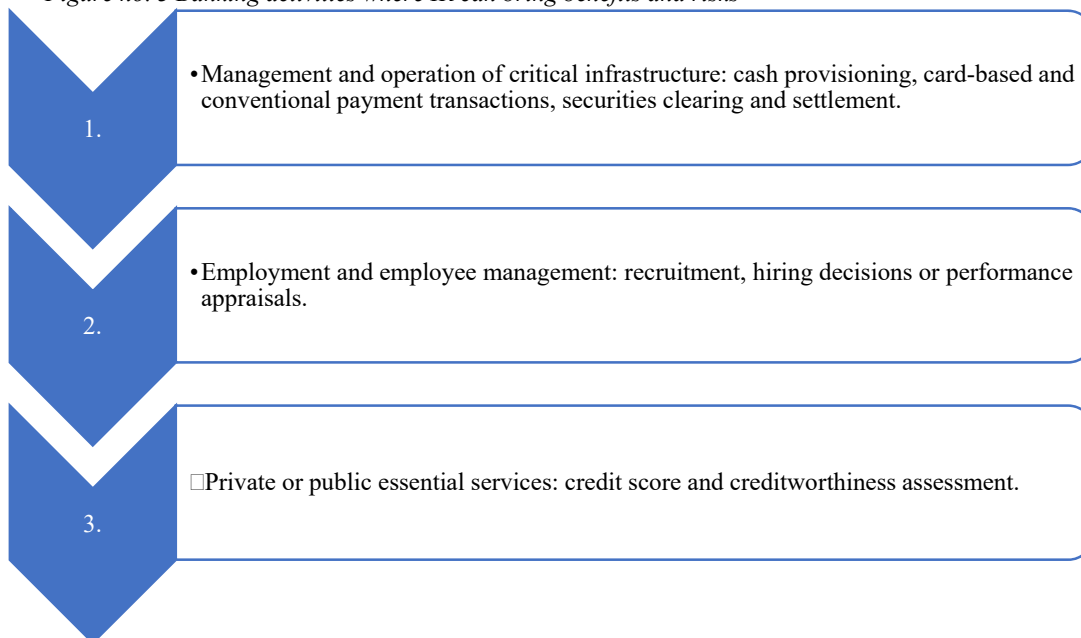
Figure no. 2 Reglementations and AI



Source: Authors' conception

However, it should be pointed out that anti-fraud algorithms have proven their usefulness many times. Convolutional neural networks (Fu et al., 2016), feature engineering strategies (Bahnsen et al., 2016), Bayes minimum risk method (Bahnsen et al., 2013) and hidden Markov model (Bhingarde et al., 2015) are used to prevent financial fraud on the Internet. All these models are used to detect fraudulent transactions.

Figure no. 3 Banking activities where IR can bring benefits and risks



Source: Authors' conception

The ECB, the monetary authority with a role in banking supervision, is part of this process of accommodating AI in banking (fig 2).

The role of digitalization in the bank-customer relationship is essential in this period. Cerchia and Zaif studied customer relationship management in Romanian banks, and the model is replicable. (Cerchia & Zaif, 2019)

In banking, high risks can arise when AI is used in certain situations. These are presented in Fig. 3.

## 5. Conclusions

The value of applying AI technology is so far difficult to estimate. But it is certain that financial entities applying AI are already realizing competitive advantages.

The future of banking is closely linked to the use of artificial intelligence. Several benefits have emerged from the reviewed studies, which are summarized in Fig. 4.

Figure no. 4 Benefits gained by using AI in banking system

<p>AI has truly transformative potential in banking. Its development and adoption is growing rapidly and is expected to accelerate further as post-COVID investment intensifies. For banks, there are the following potential benefits:</p>		
<p>Improve efficiency: Reduce costs and increase productivity by using AI for core processes in areas such as finance, compliance, risk management and administrative tasks.</p>	<p>Revenue generation: Use AI to improve segmentation, anticipate customer needs or create new products and services.</p>	<p>Risk mitigation: applying AI in risk analysis in areas such as lending decisions, market risk or insurance underwriting - thus improving institutional stability and system stability.</p>

Source: Authors' conception

In the light of the new technology, AI can pose potential risks if implemented without adequate controls over its actions and the data used. Some of the main risks include reduced accountability and transparency, the potential for bias or discrimination, data misuse or privacy breaches, and the potential for financial instability due to too much reliance on third parties in the future.

In recent years, the banking sector has undergone significant technological transformations, leading to the emergence of digital banks and a wide range of digital banking services. Technological advances in information and communication technology have enabled banks to offer online banking, mobile banking applications and electronic payment systems (Dwivedi et al., 2023). These innovations have significantly improved convenience, accessibility and efficiency for customers, enabling them to bank anytime, anywhere.

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# Navigating Financial Turmoil: Strategies for Defense Spending by NATO Alliance States in the 21<sup>st</sup> Century

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## Abstract

*In the 21st century, defense financing is a significant challenge in the context of evolving security threats and budgetary constraints. In the context of modern warfare, nations have certain commitments to allocate as much financial and substantial resources as possible to maintain robust defense capabilities.*

*In the first part, I will highlight the conflicts that have succeeded in convincing individual states, both the NATO alliance and globally, to invest some of their financial resources in defense.*

*In the second part, I will briefly outline the ways in which a state can fund its defense budget even though there are economic constraints, technology tends to evolve, but also the geopolitical sphere is constantly changing.*

*In the third part, I will highlight the principle on which the Euro-Atlantic alliance should be based, the principle of the "3E", and I will represent the spending that has taken place within the NATO alliance.*

**Key words:** financing, Euro-Atlantic alliance, economy, fiscal effort, political commitments

**J.E.L. classification:** G20, J38, O20

## 1. Introduction

In the context of the current geopolitical landscape, the financing of defense initiatives is a cornerstone that is essential in the sphere of global national security strategies. In the 21st century, nations face a multitude of complex threats from military aggression. Allocating financial resources for defense, therefore, has become an increasingly challenging and nuanced endeavor.

At the heart of this defense funding challenge is the imperative to adapt to an evolving security environment. Traditional notions of warfare have been upended by technological advances and asymmetric threats, requiring agile and forward-looking defense strategies. Funding for defense initiatives must therefore not only consider conventional military capabilities, but also address emerging threats in the areas of cyber security, space and information warfare.

The challenge of financing defense extends beyond mere budgetary allocations and includes a comprehensive reassessment of national security priorities. In addition, an ideology is forming around the defense funding sphere that highlights a nation's fiscal constraints and domestic priorities. At a time of economic uncertainty and austerity measures, governments are often forced to make difficult decisions in which resource allocation is considered to plug 'holes' that are identified in certain areas of a state.

A balance needs to be struck between the need to invest in a nation's defense and the demands of social welfare, infrastructure development and the ability to raise economic strength year on year, thus presenting policy makers with a delicate balancing act.

The globalization of security threats has made defense financing a matter of international interest and cooperation.

Initiatives such as defense cooperation agreements, arms control treaties and multilateral security alliances play an increasingly important role in shaping defense financing strategies.

Thus, the challenges posed by defense financing in the current context transcend simple budgetary considerations to encompass a complex interplay of strategic, fiscal and international dynamics. Given the evolution of conflicts and the need for heightened security, there is a need for the wisest allocation of resources which should be guided by the following: foresight, pragmatism and the ability to understand in depth the interconnected nature of contemporary threats that have been brought to the security level, bringing into clearer light the nuances and complexity of financing defense initiatives in the modern world.

## **2. Theoretical and empirical foundations of defense spending amid financial turmoil**

The literature reviewed for the study on “Navigating Financial Turmoil: Strategies For Defense Spending by NATO Alliance States in the 21<sup>st</sup> Century” will delve into several core of themes in cause to provide a comprehensive understanding of how economic crises impact defense spending and strategic will response among NATO countries.

Firstly, it will examine existing research on the economic theories that will explain the relationship between financial stability and military expenditures. Classical economic theories, such as those posited by Keynesian and neoclassical economics, will offer different perspectives on government spending during economic downturns. Keynesian argues for increased public spendings for stimulating economic growth meanwhile neoclassicals advocate for fiscal austerity (Wolf, 2012). Understanding these theories is crucial for analyzing NATO countries defense spending strategies during actual financial turmoil.

Secondly, the literature review will explore empirical studies that document historical trends and patterns in defense spending among NATO member states, in particularly during periods of economical crises. Research in this area often highlights the trade-offs that governments face between maintaining military readiness and addressing pressing economic challenges. For example, studies show that in the time of 2008 global financial crisis, many NATO countries were forced to make cuts to their budgets as part of broader austerity measures. For instance, some of the studies suggested that while countries were cutting defense spendings could provided immediate fiscal relief, it could also lead to reduced military readiness and capability gaps in the long run.

In the end, by reviewing these cases, the study aims to identify common factors that influence defense spending decisions, such as the severity of the economic downturn, political pressures and security threats.

By synthesizing these findings, the literature review will help to formulate a better approach to defense spending that NATO countries can adopt to navigate future financial turmoil effectively.

## **3. Research methodology**

In this article it is essential to adopt a comprehensive and systematic methodology. The methodology employed in this context relies on a multifaced approach that encompasses proactive risk assessment, strategic planning, effective communication and continual monitoring and adaptation.

This kind of comprehensive methodology will enable a through investigation into the strategies employed by NATO alliance states to manage defense spending during periods of financial turmoil.

In the end, continual monitoring and adaptation are integral components of the methodology for addressing financial crises. By regularly assessing the effectiveness of strategies, monitoring key performance metrics, and staying abreast of changing market conditions, organizations can make necessary adjustments and fine-tune their approaches. Flexibility and agility are key in adapting to evolving circumstances and ensuring long-term stability.

## **4. Findings**

### **4.1. Crises in the context of the 21st century**

The current geopolitical landscape of the 21st century is one of tensions and conflicts that continue to escalate and shape current international relations. Today, one of the key areas of concern is the

ever-deepening rivalry and tensions between the three world powers: the United States, China and Russia (Volkov, 2013). This rivalry is since the three countries are trying to assert themselves and dominate from three points of view: economic dominance, military supremacy, global influence in a business context. Thus, developing a complex web of alliances and conflicts that impact on countries around the world.

In the context of regional conflict, the civil wars in the Middle East serve to maintain tensions while aggravating the geopolitical situation.

Within the Middle East, long-standing conflicts stemming from history between Iran, Saudi Arabia and Israel have continued to keep the region unstable and at the same time, these conflicts have managed to influence other actions such as Syria, Yemen and Libya have begun to accede to this type of conflict, eventually leading to the destabilization of peace and the formation of a major humanitarian crisis.

At the same time, these conflicts have mainly served as proxy battlegrounds for external powers, increasingly complicating organization's efforts to keep the peace.

Long-standing tensions in both the Middle East and Eastern Europe have led to the escalation of a civil war in Israel and the Russian-Ukrainian war in the current context.

Despite differences in context and scale, wars and conflicts in the 21st century have several elements in common, conflicts that come from the past (historical conflicts), religious conflicts and not least territorial claims.

An analysis has shown that in the case of the current wars, the Russian-Ukrainian war and the war between the state of Israel and the Hamas group, an asymmetrical power dynamic can be observed, as Russia is for Ukraine, so Israel is for the Hamas group, each of these nations possessing much greater capabilities, military and financial resources than their opponents.

SIPRI's annual report on the growth of defense spending and arms purchases showed a record annual increase of 3.7% year-on-year. According to one of the authors of this report it is exposed that "*Whether the economic situation of countries has been satisfactory or not, the military is benefiting from more financial resources than in previous years*" (Glucroft, 2023).

Reflecting the recent structural deterioration in the global security sphere, more countries are increasing their spending to upgrade and modify their military capabilities.

At the European level, amid growing tensions in the European area over Russia, spending in the security and defense sphere has increased or will increase in the coming years, and one example could be the initiative to increase Sweden's defense budget, which officials say will increase by 45% between 2020 and 2025, while in the Pacific area, in response to threats from China's growing military might, Japan has begun the necessary steps to double its military force by the end of 2027 (Gheorghe, 2019).

#### **4.2. Financing of armaments expenditure at NATO alliance level and at global level**

In the context of escalating tensions in the 21st century and emerging security threats, the financing of defense budgets is of particular importance because it is only through a developed budget that both military systems and military technology can be modernized. Adequate funding and management of defense investment can enable the modernization and advancement of military technology, thus ensuring that armed forces remain agile, adaptable to whatever the situation demands and capable of dealing with evolving threats.

According to a study by the Stockholm International Peace Research Institute (SIPRI), NATO member countries have started to increase their funding for defense equipment since Russia illegally annexed the Ukrainian peninsula of Crimea and supported separatists in eastern Ukraine.

Starting from the intention to arm a nation, military spending is clear, and the mechanism and method of funding, remain challenges for governments of nations. The monetary resources required to be able to arm a state vary, but could be as follows: government borrowing, revenues from the sale of natural resources, increased tax rates.

Each of these possibilities for procuring financial resources comes with several consequences that can ruin a state.

Research on how military spending is financed is scarce and concentrated in debt as one of the main sources of revenue. This may therefore suggest that debt is not always used to finance the defense budget, as its use depends on national or regional characteristics and changing political conditions.

Based on the ideology of policy makers, the use of debt could finance the defense budget, because the need to repay this debt will occur in the future, and government borrowing will become beneficial, from a government policy point of view, because the repayment debt could fall on the future administration.

At the same time, there are several scenarios in which public debt could have consequences or benefits for the country that will request the funds, and these are the following:

- If a country has a sufficiently developed rating, public debt could be an affordable way to finance military spending and could exclude unpopular methods:

- Tax increases.
- Reducing certain expenditures in different sectors.
- Inflationary effects.
- Raising public debt are irrelevant, as the need will be self-imposed at some point. It is found in countries that do not have sufficient tax revenues, and this debt could become an additional method of financing.

- In the case of countries that prefer indebtedness, excessive debt could lead to the destruction, excessive slowdown of the economy and fictitious enrichment of a nation.

According to estimates by the World Bank, the global average of taxation as a percentage of gross domestic product (GDP), known as the tax effort, was 14% in 2020. For countries that are economically developed and are members of the OECD (Organization for Economic Co-operation and Development), the tax effort averaged 34% (Tian, 2023).

### **4.3. Results of defense financing expenditure at NATO alliance level**

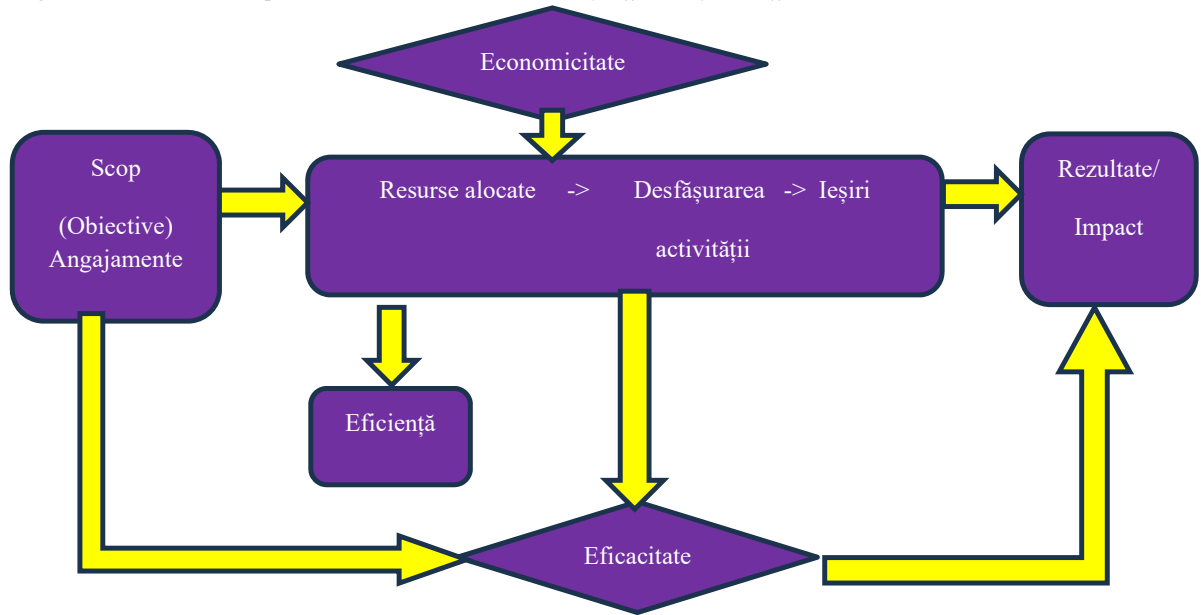
The North Atlantic Treaty Organization (NATO) has been, and still is, a cornerstone of international security since its inception. One of the most essential components of all Alliance operations is the provision of defense funding, which ensures that member countries can collectively address security challenges and maintain deterrence against potential threats.

Starting from the decision-making processes resulting from the specific decisions on the allocation of human resources, both material and financial, public organizations consider the rational selection of optimal options, and through a S.W.O.T. analysis, both the strengths and weaknesses of the decision on the resources to be allocated, the time required and the risks that may occur in the implementation process will emerge.

In situations that are under the managerial aspect, public institutions, even those that are of the logistical support type, have considered both the restrictive resources and those that are aimed at the realization or implementation of the variants at the level of decision-making and work processes. It is therefore appreciated that in public organizations it is mandatory that "in specific management processes, to adopt in performance the obvious elements" that refer to the following decisions:

- Well-founded decisions that refer to work processes, resources such as human, material and financial resources, which are necessary to achieve the objective.
- Well-founded and correlated decisions that involve planning as the main process.
- Decisions that do not include the additional financial efforts of resources that are represented in the budget.

Figure no. 1. Relationship between the three E's (economy, efficiency and effectiveness)



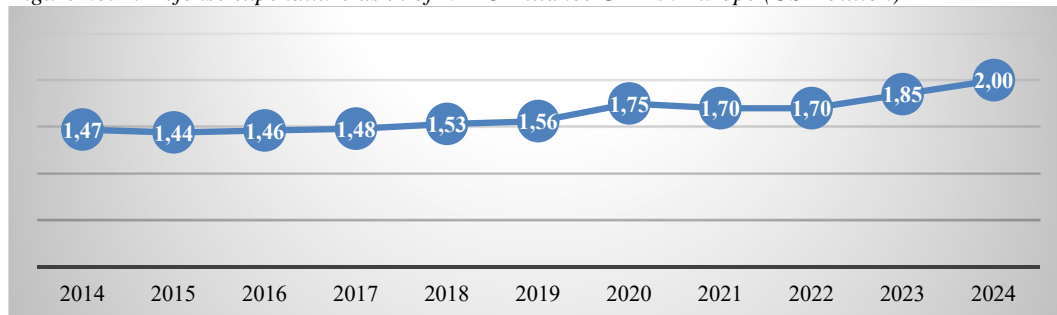
Source: Author's own contribution

Within NATO, defense spending is intended to reflect the Euro-Atlantic organization's commitment to collective defense and to share the burden between member states. In accordance with Article 5 of the North Atlantic Treaty Organization Treaty, the solidarity and mutual support of this alliance is emphasized.

Defense spending is intended to serve as a key indicator for assessing NATO members' commitments to meet defense investment objectives. Following the Wales Summit and Russia's illegal invasion of Crimea in 2014, it was agreed that at least 2% of Gross Domestic Product (GDP), i.e. at least 20% of defense budgets, should be allocated to the procurement of modern military and research equipment.

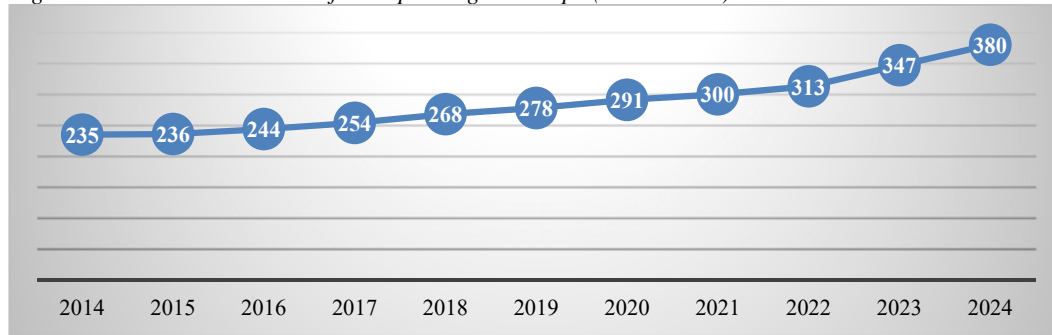
The forecast for the year 2024 is that the 32 countries that are part of the NATO alliance will be able to use 2% of GDP for defense, which for some countries represents a six-fold increase compared to 2014, when only some allies met this standard, and in line with the decisions taken at the Vilnius Summit in Finland, a decision was taken that the new defense investment commitment will be as follows: 20% of defense budgets will be allocated for augmentation, equipment and research programmed. At the same time, over the past decade, "NATO Allies in Europe have steadily increased their collective defense investment - from 1.47% of their combined GDP in 2014 to 2% in 2024, investing a total of \$380 billion in defense" (NATO, 2024).

Figure no. 2. Defense expenditure as % of NATO Alliance GDP in Europe (USD billion)



Source: Author's own contribution

Figure no. 3. NATO Alliance defense spending in Europe (USD billion)



Source: Author's own contribution

The above graphs show the increases in expenditure under commitments that NATO member states have made over the last decade since the start of the conflicts in Eastern Europe and Israel and the escalating tensions in the Pacific Ocean.

It is very clear that economic growth over the last decade has been driven by public spending and accompanied by declines in consumption and investment in security and defense compared to pre-war trends.

Given these concerns about armament and the mobilization of financial resources and their redirection towards defense budgets, a downward trend in economic growth has been observed globally.

A study of six major US wars: World War II, the Korean War, the Vietnam War, the Cold War, and the wars in Afghanistan and Iraq, led to the conclusion that war and its costs negatively affect the national economy, taxes, public debt, inflation, and tax rates end up rising substantially (IEP, 2023).

## 5. Conclusions

Starting from the myth "War is good for the economy", we can conclude that government investment in modern technological industries, education or infrastructure, which could bring financial resources and lead to the development of a state, is replaced by spending on security and defense.

Balancing budgets and peace are therefore a challenge for policy makers, because in most cases the costs of conflict tend to far outweigh the costs of prevention and resolution. Despite this, allocating resources to conflict resolution efforts often enters a competition of urgent priorities such as education, healthcare and infrastructure development.

At the NATO Alliance and global level, international aid and donations end up outstripping the costs of a war, as reconstruction and peacebuilding could play a crucial role and represent a negative impact in terms of finances.

Despite post-conflict efforts, sustainable peacebuilding would remain elusive in many parts of the globe, the long-term economic impact could be felt for generations, hindering development and perpetuating cycles of violence.

So, funding models adopted in the 21st century should not only be adopted for immediate needs, but also for the underlying structural causes of conflict.

The methodology for navigating financial turmoil and implementing crisis management strategies in the XXI century requires a systematic and dynamic approach. By integrating risk assessment, strategic planning, effective communication and ongoing monitoring, organizations can effectively manage crises, safeguard their financial health and thrive in an ever-changing economic landscape.

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# The Economic Impact of Non-Banking Financial Institutions and Risk Management in Romania

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## Abstract

*Non-banking financial institutions (NBFI), including microfinance institutions (MFIs), pawnshops, leasing companies, and insurance corporations, have become essential for financing the Romanian economy, contributing to the diversification of funding sources and supporting economic growth. NBFI have demonstrated their ability to provide flexible and accessible financing solutions, particularly during crises. As of the end of 2022, lending activities constituted the majority of NBFI portfolios, with consumer loans being the primary source of household financing. Loans extended to non-financial corporations experienced significant growth, with many denominated in euros. Additionally, there has been an increase in loans granted to non-residents. Between 2019 and 2023, outstanding balances decreased as a percentage of total amounts owed, while the number of debtors with arrears saw a slight increase. In the European context, NBFI have become increasingly important for financing non-financial corporations, indicating a significant rise in the proportion of loans provided by these institutions. These developments underscore the pivotal role of NBFI both domestically and globally.*

**Key words:** IFN (Non-Banking Financial Institutions), risk, audit, evolution, opinion

**J.E.L. classification:** G21, G23, G24

## 1. Introduction

Non-banking financial institutions (NBFI), also known as non-bank financial intermediaries, have gained an essential role in financing the Romanian economy over the past decade, providing a competitive alternative to the traditional banking system. The significant growth of NBFI has been fueled by increasing population incomes, economic development, and alignment with European standards. The recognition of the importance of these institutions was solidified by their inclusion under the supervision and regulation of the National Bank of Romania in 2006.

NBFI are entities that offer a variety of financial services, such as lending, investments, and payments, excluding the acceptance of deposits from the public, which is a banking activity. This specialization enables NBFI to respond to diverse financial needs and significantly contribute to economic dynamism (Barbu, M., 2019, p.56). By providing innovative financial products tailored to the specific needs of small and medium-sized enterprises (SMEs) and individual consumers, NBFI have played a crucial role in supporting economic activity.

The adoption of prudent and transparent practices, along with alignment with European Union standards and regulations, has been essential for the sustainable development of NBFI. These measures have strengthened consumer confidence in these institutions, thus fostering their growth.

Consequently, NBFIs have become essential components of the Romanian financial system, offering innovative and accessible financing solutions. However, the need for adequate regulation to maintain financial stability remains crucial as these institutions continue to expand and positively influence the economy.

## **2. Literature review**

As mentioned by economists Nicolae Dardac and Petronel Chiriac in their work, the non-banking financial sector in Romania has emerged as a competitive alternative to the traditional banking financing method, with the share of non-banking financial institutions (NBFIs) within the Romanian financial system steadily increasing (Basno C., Dardac N. 1999, p. 46-49). For instance, the growth of over 10% during the period 1998-2004 was attributed to both the increase in population incomes and the economic growth, as well as alignment with European standards. The National Bank of Romania included these institutions under its direct supervision and regulation in 2006. Additionally, economist Radu Diaconu notes in his book that the concept of non-banking financial institutions has multiple meanings (Radu, D., 2011, p. 103). In the broadest sense, this concept refers to all service providers that are not credit institutions (such as investment firms, collective investment schemes, specialized credit institutions, etc.). A financial institution is defined as an entity that can provide lending, investment, payment services, and similar activities, excluding the acceptance of deposits or other repayable funds from the public, which typically falls under the banking monopoly. Daniela L. Constantin and Alina I. Petrescu, in their study on the development of the financial market in Romania, emphasize that NBFIs have played a crucial role in stimulating economic activity by offering innovative financial products. These products have enabled both small and medium-sized enterprises (SMEs) and individual consumers to access financing under more flexible and tailored conditions.

Moreover, Corneliu Șerban and Gabriela Prelipcean, in their work on the integration of the Romanian financial market into the European framework, highlight that alignment with European Union standards and regulations has been essential for the sustainable development of NBFIs (Prelipcean, G., 2019, p.30). These authors underscore that the adoption of prudent and transparent practices has strengthened consumer confidence in these institutions, thus fostering their growth.

## **3. Research methodology**

To analyze the evolution of the non-banking financial institutions (NBFIs) sector in Romania, we utilized a dynamic approach to the balance sheet structure of these entities. We examined the components of the balance sheet to understand the distribution of loans granted and financial exposures. The analysis involved evaluating the directions of lending, focusing on the differentiation between loans granted to non-financial companies and those granted to households. We used descriptive statistical methods to highlight trends and identify major changes in the loan portfolio of NBFIs. Additionally, we applied risk analysis techniques to assess the exposure to currency and financial risks of the loans granted. The methodological approach included a comparative analysis of loan structures based on their destination, as well as an evaluation of their distribution across economic sectors.

## **4. Findings**

### **4.1. Non-banking Financial Institutions - Evolution in the Period 2020-2022**

The non-banking financial sector shows an upward trend, with total exposures to non-financial corporations and households reaching a record level of 42.1 billion lei in September 2022, up 12% compared to the same period of the previous year. Non-banking financial institutions' lending is predominantly directed towards the non-financial corporate sector, accounting for 77%, with corporate lending increasing annually by 12.7% in September 2022. Approximately 85% of the credit portfolio granted by non-banking financial institutions to non-financial corporations is allocated to SMEs. Corporate loans are exposed to currency risk, with a significant portion denominated in

foreign currency (81%), while loans granted to the household sector are denominated in the national currency (90%, September 2022).

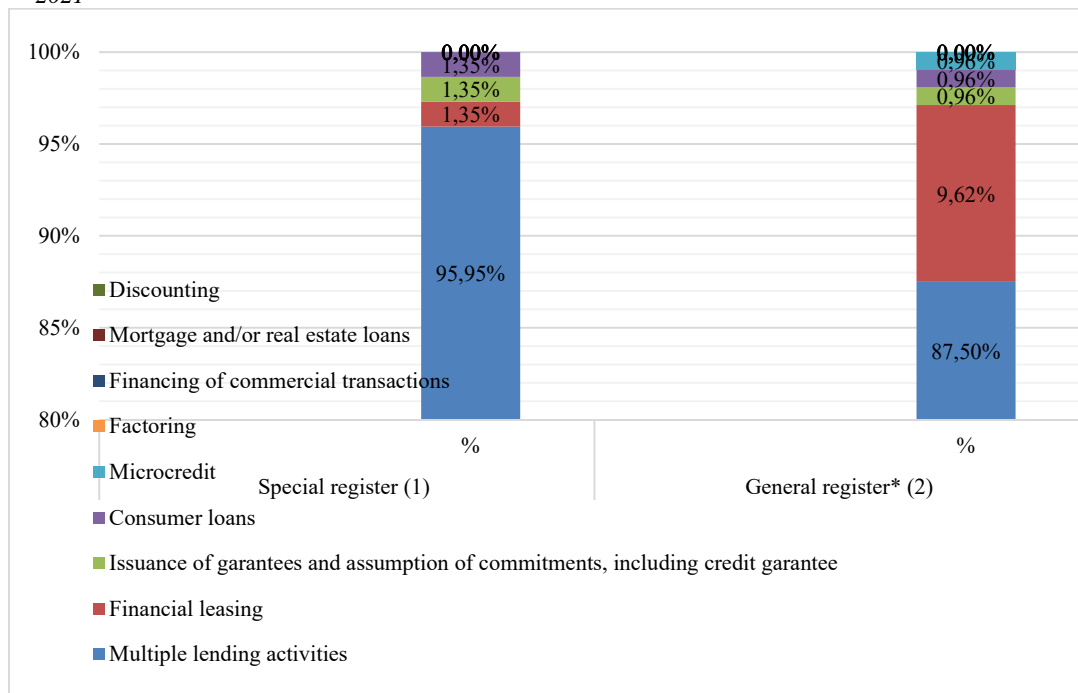
As of December 31, 2021, there were 178 institutions registered in the General Register, 4 more than in 2020.

Table no. 1. Distribution of non-banking financial institutions by types of activities as of December 31, 2021

The type of activity	Special register (1)		General register (2)		General register (1+2)	
	nr.	%	nr.	%	nr.	%
Multiple lending activities	71	95,95%	91	87,50%	162	91,01%
Financial leasing	1	1,35%	10	9,62%	11	6,18%
Issuance of guarantees and assumption of commitments, including credit guarantee	1	1,35%	1	0,96%	2	1,12%
Consumer loans	1	1,35%	1	0,96%	2	1,12%
Microcredit	0	0,00%	1	0,96%	1	0,56%
Factoring	0	0,00%	0	0,00%	0	0,00%
Financing of commercial transactions	0	0,00%	0	0,00%	0	0,00%
Mortgage and/or real estate loans	0	0,00%	0	0,00%	0	0,00%
Discounting	0	0,00%	0	0,00%	0	0,00%
Total	74	100%	104	100%	178	100%

Source: (National Bank of Romania, 2022)

Figure no. 1 Distribution of non-banking financial institutions by types of activities as of December 31, 2021



Source: (National Bank of Romania, 2022)

Thus, according to the type of lending activity undertaken, as per the data provided by the NBR, 162 institutions, or 91.01%, were registered under the category of multiple lending activities. Furthermore, compared to the end of the previous year, as of December 31, 2021, the number of non-banking financial institutions registered in the Special Register increased from 69 to 74, while the number of NBFIs registered only in the General Register decreased from 105 to 104.

From Table 2, the main indicators of the non-banking financial institutions sector can be observed as of December 31, 2021.

Table no. 2. Main Indicators of the Non-Banking Financial Institutions Sector as of December 31, 2021  
-millions of RON-

Name of the indicator	Special register	General register***	General register
Social/endowment capital	3.093,33	433,90	3.527,23
Total assets (net)	41.592,01	1.718,06	43.310,07
Total credits, of which:	34.683,17	1.062,26	35.745,43
-financial leasing	18.398,33	235,05	18.633,38
-other types of loans	16.284,83	827,23	17.112,06
Outstanding and doubtful debts (net), of which:	541,00	59,02	600,02
-outstanding and doubtful credits	364,64	31,02	395,66
Provisions related to outstanding and doubtful receivables, of which:	2.983,67	144,23	3.127,90
-provisions related to outstanding and doubtful credits	2.299,05	109,61	2.408,66
Non-performing loans and commitments (gross) ****	2.758,60	163,29	2.921,89
Retained earnings	2.695,42	(14,42)	2.681,00
Profit/ loss for 2021	1.187,93	61,78	1.249,71
Return on assets (ROA), net profit/total assets (%)	2,86	3,60	6,46
Return on equity (ROE), net profit/equity (%)	12,70	10,01	22,71
Number of contracts	1.671.834	74.296	1.746.130
Number of customers, of which:	1.479.710	62.623	1.542.333
-natural persons	1.327.215	48.018	1.375.233
-legal entities	152.495	14.605	167.100

Source: (National Bank of Romania, 2022)

The aggregate net balance sheet asset of non-banking financial institutions (NBFIs) recorded an upward trend, reaching a level of 43,310.1 million lei, an increase of 8.63% compared to the value registered in the previous year, while the total social capital of NBFIs amounted to 3,527.23 million lei, a decrease of 0.11% compared to the end of 2020. With a value of 35,745.4 million lei, the aggregate level of current loans, at net value, is increasing by 10.18% compared to the end of the previous year. While the balance of other types of loans increased by 11.94%, compared to the end of 2020, from 15,287.5 million lei to 17,112.1 million lei, financing in the form of financial leasing increased by 8.61%, from 17,156.6 million lei to 18,633.4 million lei. The level of overdue and doubtful receivables shows a decreasing trend, from 655.2 million lei in 2020 to 600.0 million lei in 2021, a decrease of 8.42% in real terms, their share in total net assets decreasing from 1.64% to 1.39%.

Regarding overdue and doubtful loans, they also showed a downward trend in 2021, by 16.13%, from 471.7 million lei to 395.6 million lei. The non-performing loan ratio granted by non-banking financial institutions decreased by 0.6% to 3.6% in 2021. The most significant adjustments were recorded for the population (-1%). However, the non-performing loan ratio granted by NBFIs to the population was more than twice as high as that of bank loans granted to the population, which was 7.4%, and much higher than the value observed for loans granted to companies (2.2%) in 2021.

The distribution of social capital/endowment by the country of origin of the institutions registered in the Special Register as of December 31, 2021, is summarized in Table 3.

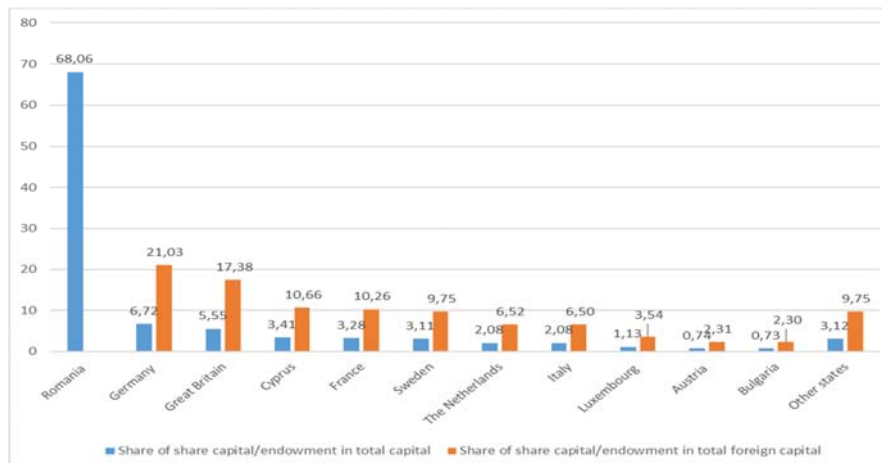
Table no. 3 Distribution of Social Capital/Endowment by Country of Origin as of December 31, 2021  
-%-

Country of origin	Share of share capital/endowment	
	in total capital	in total foreign capital
Romania	68,06	
Germany	6,72	21,03
Great Britain	5,55	17,38
Cyprus	3,41	10,66
France	3,28	10,26
Sweden	3,11	9,75
The Netherlands	2,08	6,52
Italy	2,08	6,50
Luxembourg	1,13	3,54
Austria	0,74	2,31
Bulgaria	0,73	2,30
Other states	3,12	9,75

Source: (National Bank of Romania, 2022)

The graphic representing the distribution of social capital by country of origin as of December 31, 2021, can be illustrated as follows:

Figure no. 2 Distribution of Social Capital/Endowment by Country of Origin as of 31.12.2021 (%)



Source: (National Bank of Romania, 2022)

Unlike the end of 2020, the share of Romanian capital increased slightly, from 67.63% to 68.06%.

Regarding the other 23 states holding shares in the social capital/endowment of IFNs registered in the Special Registry, Germany ranked first in investment positions at the end of 2021 (21.03% of total foreign capital), followed by the United Kingdom (17.38%), Cyprus (10.66%), France (10.26%), and Sweden (9.75%). These positions combined account for 69.08% of foreign capital.

#### 4.2. The situation of assets and liabilities of non-banking financial institutions registered in the General Registry in Romania on December 31, 2022

Using March 31, 2022, as the reference date, data regarding non-banking financial institutions are reported in accordance with the methodology established by ECB Guideline No. 12/2021 regarding statistical information reported by financial intermediaries other than monetary financial institutions (Rădulescu, A., 2015, p.73).

The structure of assets and liabilities regarding types of non-banking financial institutions aligns with the lending activities outlined in Law No. 93/2009 regarding non-banking financial institutions and those presented in the general registry. Based on data provided by NBFIs and in line with analysis requirements, the classification of loans is conducted at the level of institutional sectors, based on certain types of financing such as: consumer, real estate, and other purposes, categorized by original maturity, including: up to 1 year, more than 1 year and up to 5 years inclusive, and more than 5 years, and by currencies, for example: euro, lei, and other currencies.

Table no. 4 Dynamics of Balance Sheet Structure (mil RON)

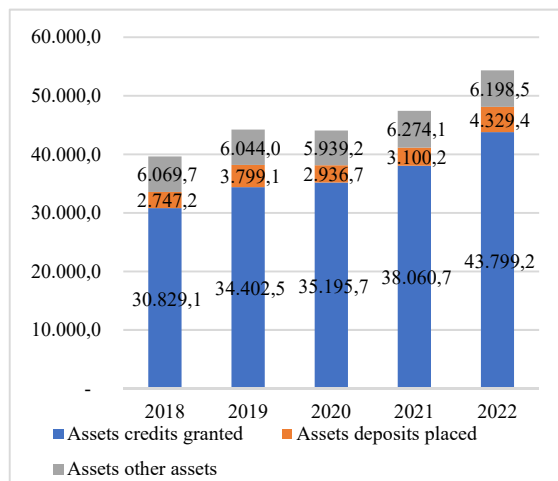
Period	Total assets/equity & liabilities	Assets			Equity & liabilities		
		credits granted	deposits placed	other assets	capital and reserves	credits received	other liabilities
2018	39.644,9	30.829,1	2.747,2	6.069,7	9.801,2	27.581,7	2.262,1
2019	44.245,6	34.402,5	3.799,1	6.044,0	10.366,3	29.784,2	4.095,1
2020	44.071,6	35.195,7	2.936,7	5.939,2	11.223,0	28.759,5	4.089,0
2021	47.434,9	38.060,7	3.100,2	6.274,1	12.128,9	30.808,4	4.497,7
2022	54.327,1	43.799,2	4.329,4	6.198,5	12.419,2	38.311,9	3.596,0

Source: (National Bank of Romania, 2022)

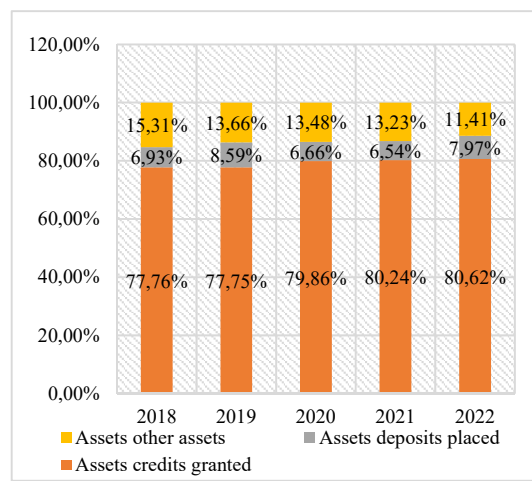
From the data provided by the National Bank of Romania, it can be observed that during the period 2018-2022, non-banking financial institutions experienced slight fluctuations, with an overall upward trend, from 36,196.5 million RON in March 2018 to 54,327.1 million RON in December 2022.

In terms of the dynamic balance sheet structure of assets, it is notable that throughout the analyzed period, loans granted hold the largest share of total assets, accounting for 80.62% in 2022, followed by other assets (11.41%) and placed deposits (7.97%).

Figure no. 3 Dynamic Balance Sheet Structure – ASSETS Figure no. 4 Dynamic Balance Sheet Structure



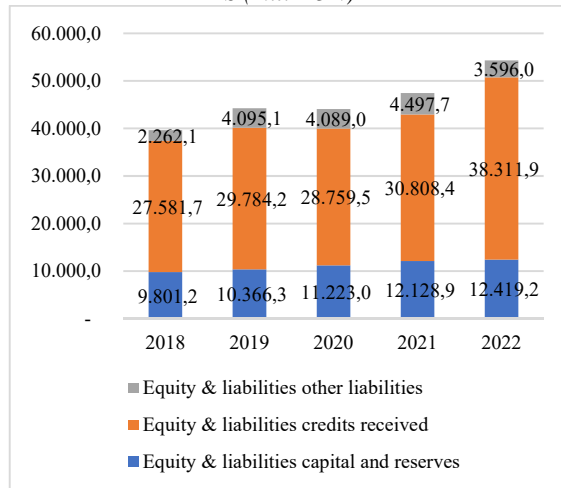
Source: Own processing (mil RON)



Source: Own processing (Share in Total)

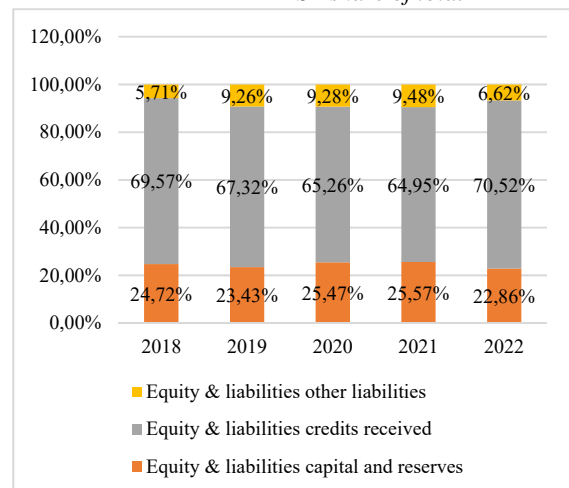
Regarding the dynamic balance sheet structure of liabilities (graphs 6 and 7), it is observed that, during the analyzed period, loans received hold the largest share of total liabilities, accounting for 70.52% in 2022, followed by capital and reserves (22.86%) and other liabilities (6.62%).

Figure no. 5 Dynamic Balance Sheet Structure  
LIABILITIES (mil. RON)



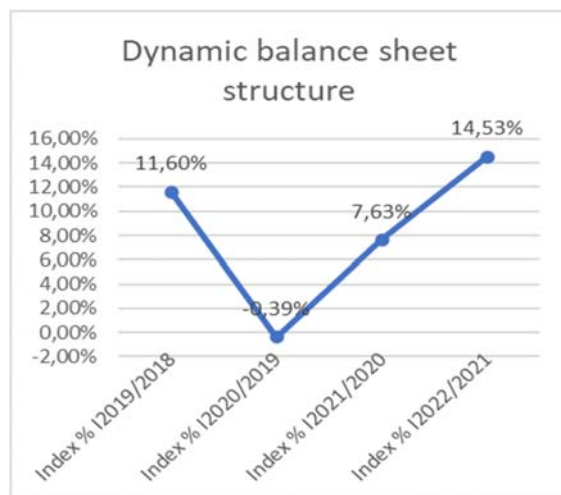
Source: Own processing

Figure no. 6 Dynamic Balance Sheet Structure  
LIABILITIES - share of total



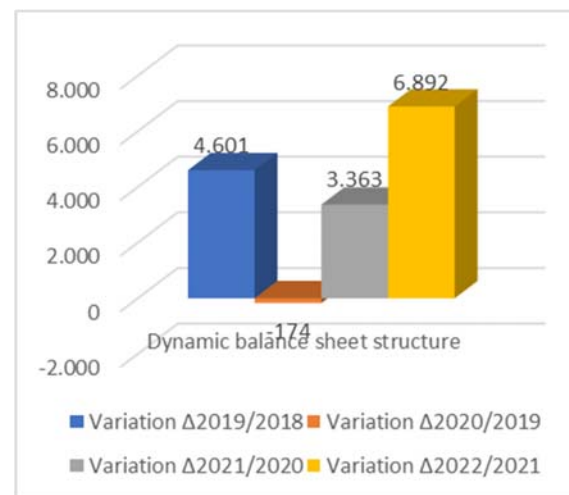
Source: Own processing

Figure no. 7 Dynamic Balance Sheet Structure –  
ASSETS/LIABILITIES – static analysis (million RON)



Source: Own processing

Figure no. 8 Dynamic Balance Sheet Structure –  
ASSETS/LIABILITIES – dynamic analysis



Source: Own processing

During the analyzed period, the most significant increase in the dynamic structure of assets/liabilities occurred in 2021-2022, with a nominal growth of 6,892 million lei, or 14.53% in real terms, whereas in 2019-2020, a decrease of 0.39%, equivalent to 174 million lei in nominal terms, was observed.

Regarding the balance sheet structure by types of non-banking financial institutions registered in the General Register, the National Bank of Romania reports that multiple credit activities hold a significant share of the total, accounting for 96.15% in 2022.

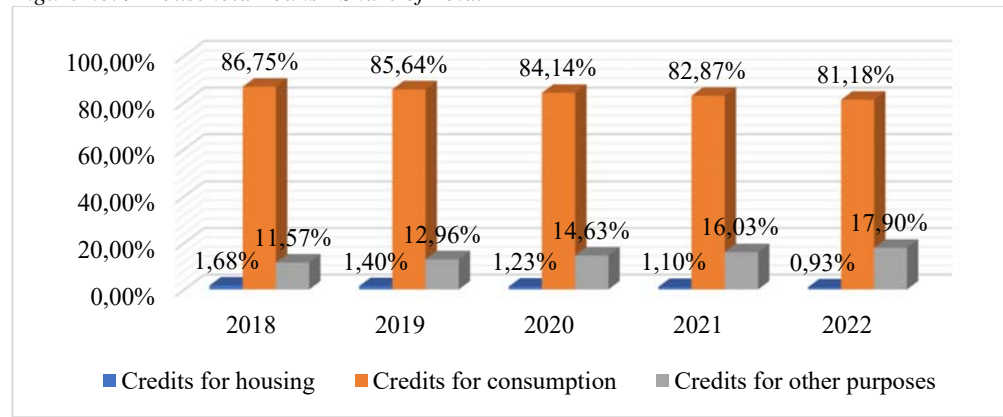
Table no. 5 Household Loans Granted

Period	Total credits	Credits for housing	Credits for consumption	Credits for other purposes
2018	7.351,2	123,6	6.376,9	850,7
2019	8.237,2	115,7	7.054,1	1.067,5
2020	8.233,7	101,3	6.928,2	1.204,2
2021	8.873,7	97,4	7.353,6	1.422,8
2022	9.944,5	92,1	8.072,6	1.779,9

Source: (National Bank of Romania, 2023)

Figure 9 illustrates the proportion of housing loans, consumer loans, and loans for other purposes in total loans. We can observe that the largest proportion in total loans is held by consumer loans, accounting for 81.18% in December 2022. While consumer loans show a slight decreasing trend, loans for other purposes exhibit an upward trend.

Figure no. 9 Household Loans - Share of Total



Source: (National Bank of Romania, 2023)

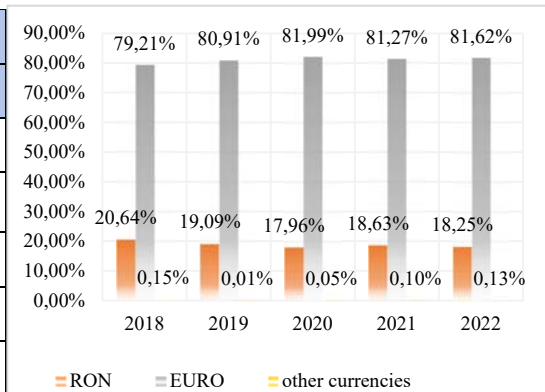
Non-financial corporations have predominantly contracted loans in foreign currency, with euro-denominated loans reaching a share of 81.62% in 2022, up from 79.21% in 2018. With a slightly fluctuating trend, these are followed by loans in the local currency, which account for 18.25% of total loans granted to non-financial corporations in 2022, while loans in other currencies reach a percentage of 0.13% during the same period.

Table no. 6. Loans Granted to Non-Financial Corporations (mil RON)

Period	Loans granted to non-financial institutions			
	Total	RON	EURO	other currencies
2018	23.211,8	4.790,8	18.386,4	34,6
2019	25.885,1	4.941,0	20.942,5	1,6
2020	26.645,1	4.784,6	21.847,3	13,2
2021	28.743,2	5.355,1	23.359,1	29,1
2022	33.389,9	6.092,7	27.254,4	42,8

Source: National Bank of Romania (2023)

Figure no. 10 Loans Granted to Non-Financial Corporations



Source: Own elaboration based on data from National Bank of Romania (2023)



### 4.3. Credit Risk Information. Credits granted by NBFIs + IFMI + FSA

Credit risk information includes the identification data of a debtor, whether a natural person or a non-banking legal entity, and the operations in lei and in foreign currency through which the reporting entities are exposed to risk against that debtor by granting loans; assuming commitments on behalf of the debtor (Simona D. and Popa B., 2010, p.22). Credit risk information refers to the exposure of each reporting entity to a debtor, equal or greater exposure of 20,000 lei.

Table no. 9 Credit Risk Information (NBFIs + EMI + PI)

	2019 (dec.)	2020 (dec.)	2021 (dec.)	2022 (dec.)	2023 (febr.)
Total amounts owed - global risk (million RON)	31.175	32.130	35.191	41.059	40.685
Total outstanding amounts (million RON)	1.124	1.053	1.034	1.069	1.024
Number of debtors (natural and legal persons)	177.797	178.054	189.722	200.169	200.535
Number of debtors with arrears (natural and legal persons)	22.849	20.197	20.428	22.572	23.431
Number of CRC database queries for own and potential borrowers	20.303	20.749	21.844	22.124	30.763
Number of CRC database queries for potential borrowers, with their consent	15.264	14.967	15.827	16.565	21.256
Number of loans granted and commitments assumed by credit institutions	339.231	335.326	353.803	382.100	384.113

Source: Own processing based on data from National Bank of Romania (2023)

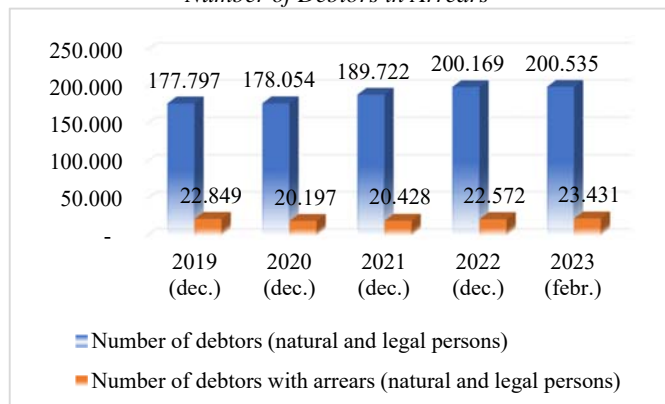
IEME - electronic money issuing institutions

PI - payment institutions recording a significant level of lending activity

The figures presented below depict the graphical evolution of the analyzed indicators.

As observed in the above graph, both total amounts due and outstanding amounts show fluctuations throughout the analyzed period. At the end of 2022, total amounts due amounted to 41,059 million lei, an increase of 31.70% compared to the value recorded in 2019, which was 31,175 million lei. Outstanding amounts in December 2022 amounted to 1,059 million lei, 5.78% less than the value recorded in 2019, which was 1,124 million lei. Additionally, concerning total outstanding amounts, based on the analysis conducted, we can observe a slightly decreasing trend, with the proportion in total amounts due being 3.6% in December 2019 and 2.51% in February 2023.

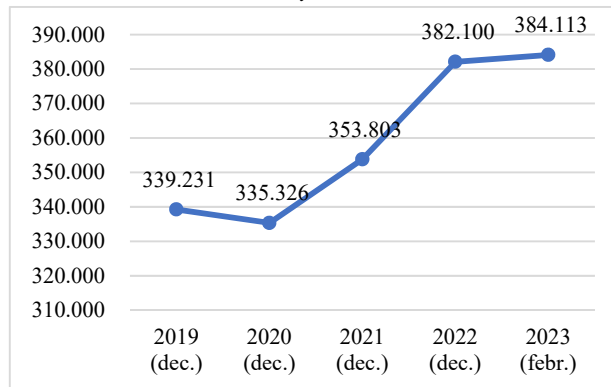
Figure no. 11 NBFIs + EMI + PI - Number of Debtors /  
Number of Debtors in Arrears



The graph above illustrates the evolution of the number of individual and legal debtors, as well as debtors in arrears. As observed, they show fluctuations during the period from 2019 to February 2023, but generally exhibit an increasing trend. Regarding debtors in arrears, their number increased from 22,849 in December 2019 to 23,431 in February 2023, representing a 2.54% increase in real terms and 582 in nominal terms.

Source: Own processing based on data from National Bank of Romania (2023)

Figure no. 12 NBFIs + EMI + PI - Number of Loans and Commitments Assumed by Credit Institutions



The number of loans granted and commitments assumed by credit institutions increased over the analyzed period, from 339,231 million lei in 2019 to 384,113 million lei in February 2023, representing a 13.23% increase in real terms and 44,882 million lei in nominal terms.

Source: Own processing based on data from National Bank of Romania (2023)

## 5. Conclusions

In the past decade, it has been increasingly demonstrated that the role of non-bank financial institutions (NBFIs) in financing the economy has become more and more important. While this is a welcome development in terms of promoting financial inclusion and supporting economic growth, it also entails increased risks for the financial system (Mishkin, Frederic S., Eakins, Stanley G., 2018, p.93-94). Non-bank financial institutions offer the advantage of diversifying sources of funding and, in this way, can contribute to ensuring smooth financing of the real economy. Studies in the field show that a higher proportion of non-bank financing can help economies recover more quickly from recessions when banks' lending capacity may be affected (Saunders, A., Cornett, M.M., 2021, p 51). Hence, the importance of stress testing in the market, such as pandemics, wars, energy crises, etc.

Upon analyzing the balance sheet structure by types of non-bank financial institutions registered in the General Register, we can conclude that multiple lending activities hold a significant share of the total (96.15% as of December 31, 2022), to the detriment of financial leasing (1.90% as of December 31, 2022).

Regarding loans granted to households, it can be observed that the largest share in total loans is held by consumer loans, accounting for 81.18% in December 2022, followed by loans for other purposes and housing loans. Loans granted to non-financial corporations represented 76.23% of the total loans granted by NBFIs according to the dynamic balance sheet structure in 2022. These experienced an upward trend during the analyzed period (2018-2022), with the predominant currency for these loans being the euro (increasing from 79.21% in 2018 to 81.62% in 2022). As for loans granted to other institutional sectors and loans granted to non-residents, these present the lowest values among the total loans granted by NBFIs, namely 206 million lei and 258.8 million lei, respectively. Noteworthy is the evolution of loans granted to non-residents, which increased by 198.1 million lei in nominal terms, from 60.7 million lei in 2018 to 258.8 million lei in 2022, and by 326.35% in real terms.

The number of loans granted and commitments assumed by credit institutions increased over the analyzed period, from 339,231 million lei in 2019 to 384,113 million lei in February 2023, representing a 13.23% increase in real terms and 44,882 million lei in nominal terms.

Significant importance is also attributed to credit risk information (NBFIs + EMI + PI) analyzed over the period from December 2019 to February 2023, such as total overdue amounts (million lei) reported to total amounts due - global risk (million lei), or the number of debtors with arrears (individuals and legal entities) reported to the total number of individual and legal debtor. Thus, regarding the total overdue amounts, we note a slightly decreasing trend, with the share in total amounts due being 3.6% in December 2019 and 2.51% in February 2023. As for debtors with arrears, their number increased from 22,849 to 23,431 in February 2023, representing a 2.54% increase in real terms and 582 in nominal terms.

Moreover, the non-bank sector has become increasingly important in financing the real economy of the euro area in recent years. As part of the credit granted by financial institutions, credit granted by non-bank financial institutions to non-financial corporations in the euro area nearly doubled from 2008, from 15% to 26% at the end of 2022.

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## The Changing Face of the Economics Profession – Do Digital Technologies Have the Capacity to Eliminate or to Support It?

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### Abstract

*The new digital technologies integrated into economic and social life had determined the need for professionals in the economic field to possess and to develop new skills, capable of giving organization added value. The economics students’ groundwork for these new competencies is both a necessity and a consequence of the changes that have taken place in the different market types, as they increasingly become protagonists of their own learning process. The current endeavor is an effort to explore the students’ attitude towards technology, in which the proactive attitude of economics students determines their involvement in economic life and their resultant determines how they relate to information technology as future professionals on the dynamic job market. The study is based on a number of 424 questionnaires completed between April and May 2024 by the students from The Faculty of Economic Sciences of the “Ovidius” University of Constantza, Romania, through which proactive attitudes and the active involvement into economic life and pro-technology attitudes were determined, resulting in a significant positive correlation between them.*

**Key words:** economics students, the accounting profession, digital technologies, students’ attitude, pro-technology attitude

**J.E.L. classification:** A11

### 1. Introduction

The dependence of society's progress, both macro and micro, on choices made regarding technology has been proven by the history of the last 1000 years but also by the contemporary evidence. The current and future behaviours in the socio-economic members’ life, the way that production is organized, the communication channels are used can, to the same extent, either serve the interests of an elite but also become the foundation of general well-being and prosperity.

Since the Middle Ages, the agriculture technologization has allowed the nobility to obtain much higher incomes and to develop in the architectural field, building imposing cathedrals, in contrast to the poor life of the peasants. Later, industrialization also had the effect of stagnating the incomes for the various fields’ workers. And today, around the world, we are witnessing the process of digital technologies and artificial intelligence replacing many jobs through automation, data collection and processing.

By their very nature, the existing job on the labour market in recent decades have experienced numerous transformations under the action of rapid globalization, changes in the economic, business, social and political environment, but, in particular, as a result of innovation and technological progress (Chan et al., 2017). All this also required a conversion of university training to a competency-based training system (Kirschner et al., 1997), developing students' alongside

technical knowledge, extremely important, and skills, attitudes and values relevant to their future professional performance (Westera, 2001; Gichuru et al., 2021) becoming from increasingly protagonists of their own learning. The level of professional competence and innovation for students, conditioned by the level of motivation, involvement and satisfaction (So, H.J., Brush, T.A., 2008), together with their ability to adapt to new digital technologies, directly influences their competitiveness on the labour market (Yago et al., 2023; Gargallo et al., 2018), regardless of gender or specialization (Hsu, 2018).

The economic field is no exception. The profession has moved far beyond the threshold of accounting, analysis, budgets and forecasts, assuming a strategic role for the future businesses, cloud database management, process automatization, advanced analytics are just some of the activities set to raise the standards of this profession. Technology will support economists, but will not replace them (Frick, 2024).

International Education Standards (IFAC, 2019)(IES) issued by the International Accounting Education Standards Board (IAESB) together with extensive empirical evidence from several research studies published in indexed journals, emphasizes the needs of economics students to cultivate, apart from technical knowledge, soft-skill sets, digital and sustainability attitudes and values essential for an adequate professional practice in the economic field (Gargallo et al., 2018, Gichuru et al., 2021, Yago et al., 2023).

The economics students' attitude towards the economic environment, the labour market and digital technology determines the behaviour of future professionals in the field, and determining of this attitude' type is the first step towards improving, adapting, perfecting and implementing effective and comprehensive techniques, methods and means of technological education.

Due to its distinct structure and characteristics, in order to study the attitude towards technology, it is necessary to collect empirical data with reference to it. This study aims to validate a questionnaire that allows a comprehensive assessment of the economics students' attitude towards the ability of digital technologies and artificial intelligence to change the economics profession in the future.

*The purpose* of this research is to explore how the proactive attitudes of economic studies are related to their pro-technology attitudes regarding the profession in this field. These have as the basis, as a research tool for the analysis of the characteristics of the innovative attitude, a questionnaire.

*The objective* is to establish the existing relationships between the students' proactive attitude and their involvement in economic life, aspects that, in turn, determine their pro-technology attitude and openness to activities in the economic field that incorporate technology and artificial intelligence.

To achieve this goal, we formulated the following *research questions*:

1. Does the proactive attitude of economics students influence their involvement degree in the economic environment?
2. Do the two components analysed in the previous point determinate the pro-technological attitude of economics students?
3. Is there a direct link between the pro-technological attitude and the acceptance of managerial decisions provided by artificial intelligence?
4. According to the expectations of economics students, what are the professions in this field that will not be eliminated by the development of computer technologies and artificial intelligence?

In extension, the relevant specialized literature on this theme is presented, followed by the methodology used, by the database and by the processing methods. Chapter four highlights the main results of the research and, finally, the conclusions emphasize the connection between the pro-creative attitude, the active participation of economics students in economic life and their innovative attitudes in the field of information technology and artificial intelligence.

## 2. Literature review

The positive effects of technology and what it can do on the job market are obvious. The transition to technological work has caused the share of farmers in the US to decrease from 41% in the 1900s to only 2% in the 2000s (Gordon, 2000). The production boom generated by machines led to the emergence of new cities, new businesses, the economy transiting towards urbanization and industrialization and the well-being of the whole society did not lag behind. Employee salaries are on an upward trend simultaneously with the reduction of working hours and the drastic reduction of jobs that involve strenuous physical activities, technology succeeding in replacing the repetitive tasks of the previously employed human force (Acemoglu & Restrepo, 2019).

The dynamic of information technologies has given rise to a race between education and technology (Goldin & Katz, 2009), technology requiring a high level of education to be able to unlock and reap its productivity-related benefits to a maximum level (Guryan, 2009), technological changes being based, in fact, on skills (Goldin & Katz, 2009). The openness to the use of information technology during the academic process represents a trend of the 21st century (Waits et al., 2003) and digital technologies represent a generalized learning tool (Engelbrecht, 2005) with significant impact on educational processes, business, economic, social and even on personal life (Yago et al., 2023).

The proactive skills development, valued by employers, involves conceptual and operational challenges and the attitude of students towards this type of skills is essential (Chan et al., 2017; Gargallo et al., 2018) to overcome the challenges and obstacles that future economic professionals may encounter (Acemoglu & Restrepo, 2019; Yago et al., 2023) and involving the interaction between them (Gichuru et al., 2021).

Digital technologies act in a double sense, being able to take over tasks associated with different jobs, giving them productivity and profitability (Frick, 2024), but they have also generated an evolution towards positions that, until recently, did not exist, requiring new skills, currently, finding ourselves in an education-technology race (Acemoglu, D., Restrepo, P., 2019).

The study of the pro-technology attitude is based on various theoretical approaches, including the theory of rational action (Fishbein & Ajzen., 1975), the theory of the technology acceptance model (Davis, 1989), the theory of planned behaviour (Ajzen, 1991), the theory diffusion of innovation (Rogers, 2002), the stage model (Poon & Swatman, 1999) or the technology-environment-organization theory (Eveland & Tornatzky, 1990).

Previous research shows the intention of Generation Z in the economic field to profession, in particular, as accountants or bank clerks (Walczak, 2018) and the labour market requires them technological knowledge and skills and the future model of these attitudes is based on different multidimensional factors: literacy information, the use of innovative technologies during studies and the perceived support in the academic process (Zabukovšek et al., 2019), the lack of digital means during studies (Tugun et al., 2020). Students are aware of the impact of artificial intelligence, although their current knowledge is limited by the lack of practical skills in this direction (Almaraz-López et al., 2023) and they are concerned with the issue of sustainability, without a consensus regarding the necessary actions to overcome problematic situations and identify the necessary resources (Cifuentes-Faura & Noguera-Méndez, 2023).

The ingression of the new Z generation into the labour market puts managers in charge of managing generational differences between employees, differences accentuated by the phenomenon of the population aging and, implicitly, of the workforce (Iorgulescu, M.C., 2016).

## 3. Research methodology

### Participants

Questionnaires were sent to a number of approximately 650 students pursuing bachelor's or master's studies at the Faculty of Economic Sciences of the Ovidius University of Constantza, and responses were received from 424 of them. Participation was voluntary and anonymous, with students being informed that there were no "wrong answers" or "right answers" to any of the questions.

Table no. 1 Questionnaire Respondent Structure

	Female age interval				Male age interval				Romanian students	International students
	18-27 years	28-35 years	36-49 years	>49 years	18-27 years	28-35 years	36-49 years	>49 years		
1 <sup>st</sup> year Bachelor	18	2	0	0	0	0	0	0	20	0
2 <sup>nd</sup> year Bachelor	112	11	12	0	30	3	4	0	160	12
3 <sup>rd</sup> year Bachelor	56	12	16	2	13	6	2	2	107	2
1 <sup>st</sup> year Master study	18	2	4	0	2	2	0	0	28	0
2 <sup>st</sup> year Master study	62	5	8	0	16	2	2	0	93	2
<b>TOTAL</b>	<b>266</b>	<b>32</b>	<b>40</b>	<b>2</b>	<b>61</b>	<b>13</b>	<b>8</b>	<b>2</b>	<b>408</b>	<b>16</b>

Source: made by authors

### Questionnaire elaboration

The completed questionnaire represents an extremely useful and valid tool that allows both the evaluation of the competences, of skills and the innovative attitudes of economics students as well as their vision of the economic profession in the future. The questionnaire can be used both in the economic field and in other disciplines due to its interdisciplinary character.

A set of 37 questionnaire items was developed, 18 of which focus on proactive attitude, active participation in economic life and pro-technology and digitization attitude, being used in the present research. The data were collected between April and May 2024 through a questionnaire accessed over the Google Forms platform, and then processed.

### Procedure & Quantitative results

The questions were uploaded to the platform and the link was sent to the participants, the average completion time varying between 7 and 10 minutes. They were asked to answer, depending on their situation, to a series of questions, in the first section those type was of the "single choice question" and, in the second section there were questionnaire questions with a 5-point Likert scale that they ranged from 1 (strongly disagree) to 5 (strongly agree). In about 6 weeks the data collection was completed and then the statistical analysis of the data began using IBM SPSS Statistic 29.

Table no. 2. Descriptive statistics

	N	Range	Min	Maxim	Mean	Std. Deviation	Kurtosis	Std. Error
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Proactivity Attitude	424	7	1	8	4.51	1.431	-.544	.237
The quality of being an active participant in economic life	424	8	1	9	5.81	1.598	-.396	.237
Pro-technology attitude	424	10	5	15	9.18	1.891	-.110	.237
Valid N (listwise)	424							

Source: made by authors

To determine the pro-technology attitude, we focused on the theory of the "technology acceptance model" (Davis, 1989) and for the other types of attitudes, the levels of relevance attributed by the respondents to the different categories of questions were summed up in a similar way, depending on the aspect pursued, thus determining the scores related to proactive attitude, openness to active participation in economic life and pro-technological attitude.

Subsequently, we determined the dependence relationships and existing correlations between the indicators. The complexity of the innovative attitude interaction is confirmed by the direct relationship between the pro-technology and digitization attitude of economics students and their openness to activities in the economic field that incorporate technology and artificial intelligence.

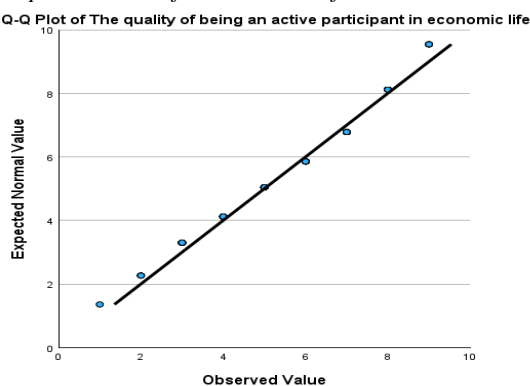
A total of 424 student responses from the Faculty of Economic Sciences were received and analysed. The distribution of their various categories of attitudes is presented in table no. 2.

#### 4. Findings. The economist of tomorrow: more competitive, more relevant and more creative than ever

National and international organizations are constantly engaged in attracting to the work field graduates able to combine in a harmonious way the theoretical notions acquired during studies with practical ones, and the entrepreneurial activity or a job during studies can ensure the necessary balance.

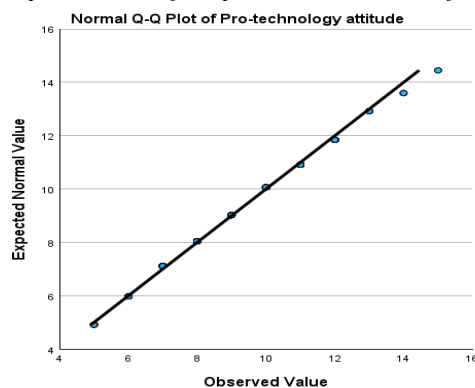
The different extracurricular activities carried out by students during their studies can have the effect of developing innovative attitudes on the employment and can offer an opening to fields of activity that incorporate information technology. In this study, the determined Pearson indicator shows the low degree linear direct correlation in the proactive attitude of economics students including here activities such as volunteering in various non-profit organizations, active participation in various student mobility programs and other extracurricular activities, and their tendency to actively participate in economic life during university studies, as employees, entrepreneurs or investors (fig. no. 1 and fig. no. 2). No differences were observed in these characteristics determined by the students' gender or environment of rural or urban origin (fig. no. 3 and fig. no. 4).

Figure no. 1. Graphic representation of the structure of students active in economic life



Source: made by authors

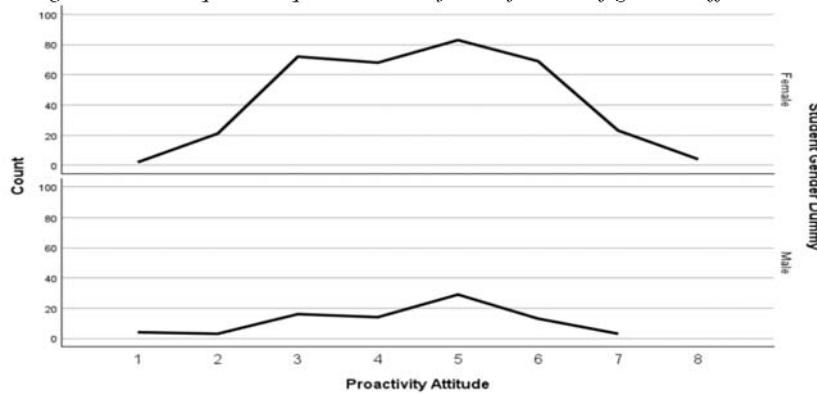
Figure no. 2. Graphic representation of the pro-creative attitude of economics students



Source: made by authors

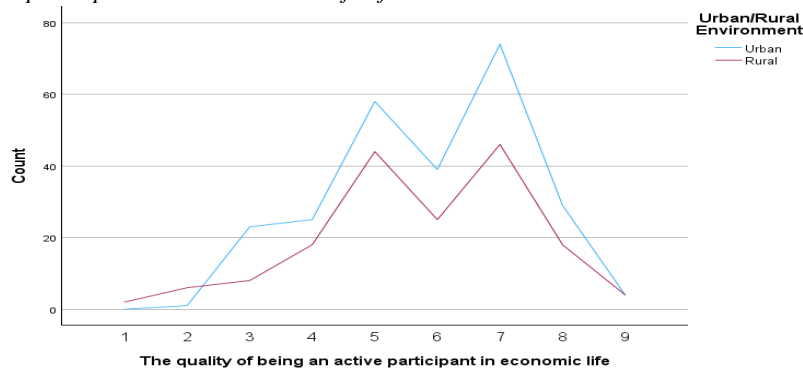


Figure no. 3. Graphical representation of the influence of gender differences on the pro-creative attitude



Source: made by authors

Figure no. 4. The graphic representation of the influence of the environment of origin on the active participation in the economic life of economics students



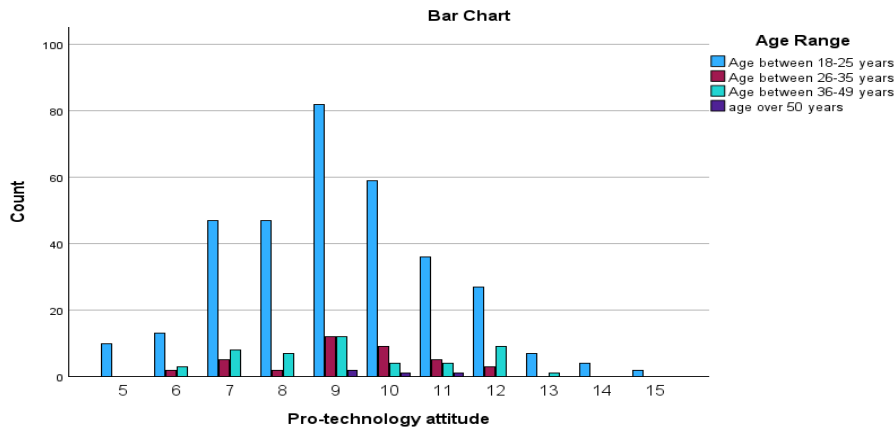
Source: made by authors

In order to acknowledge the second working hypothesis, we used the Pearson coefficient that indicates a positive linear correlation between pro-creativity and active participation in economic life, on the one hand, and the innovative attitude of the future economists, on the other hand, an aspect that enhances their ability to adapt quickly and efficiently to new ideas and new technologies, to market demands and the work environment, crucial requirements for long-term success.

The activity carried out by students during their studies, either as employees or as entrepreneurs, also imprints on them the pro-technological attitude, the ability to understand and accept AI technologies, cyber security technologies or cloud computing, to work with them, to accept the challenges and discover the opportunities in the professional world of the digitally interconnected future. Students realize that working during their studies is not only an additional source of income, but rather represents an accumulation of experience needed later, contact with people, increasing the ability to face challenges or deepening these fields with direct positive implications on the whole socio-economic environment. However, age is a determining factor in the innovative attitude of economics students, digital technologies representing solutions of the future for them (figure no. 5). All this will change the way the economic profession will manifest itself in the future, will facilitate its adaptation to technological progress, digitalization and globalization, starting from traditions towards the future.

Viewed as a unit, pro-creative activities have a weak positive impact on the innovative attitudes of future economists, although they enhance their ability to adapt quickly and efficiently to new ideas and new technologies, to the market demands and to the work environment, crucial requirements for success in the long term, but cumulates with the active participation during the studies in the economic life, the two variables determine the students innovativeness, their openness through the use of innovative technologies.

Figure no. 5. The graphic representation of the dispersion by age groups of the pro-technology attitude of economics students

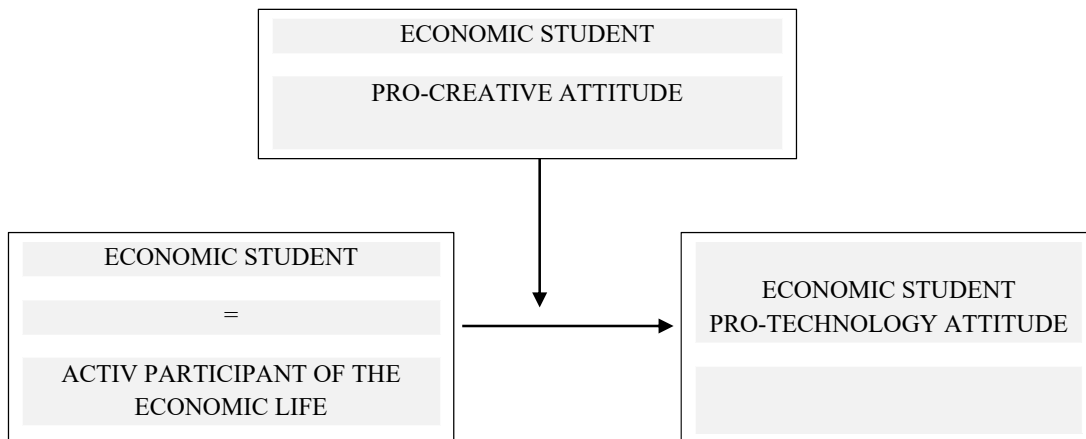


Source: made by authors

Thus, the system of ethical, moral and digital values as well as the concepts acquired within the various volunteering or mobility programs for students determine their character and economic behaviour. As many students benefit from such activities during their studies, integrated thinking and innovative behaviour will be able to be better embedded among future professionals in the economic field and connectivity with the digital and IT environment will flow much more naturally.

As a result of the analysis, the complexity of the future of the economic profession as a vector of innovative models and requires an integration of educational, social, environmental, cultural and ethical pillars has emerged. The connections between the different types of student attitudes and the implications for the economics profession in the future of technology are represented in figure no. 6

Figure no. 6. The relationships between the pro-creative attitude, the active participation in economic life and the pro-technology attitude of economics students

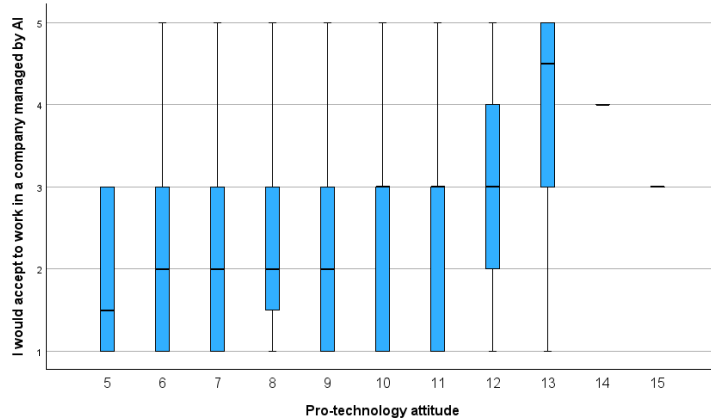


Source: made by authors

From the correlational analysis of the answers received following the questionnaires, the trend was highlighted with an average of 9.51 among girls (min.5, max.18) compared to that of 9.24 (min. 5, max. 15) among boys to understand that information technology and artificial intelligence will play an important role in their professional future. In addition, the spread of AI is not a threat to the economic profession for students, the interest of students to be users of artificial intelligence

and consumers of scientific and technological information is greater compared to their agreement to accept AI in managerial processes. The level of pro-technological attitude gives students the necessary openness to understand and accept the involvement of artificial intelligence elements in the organisations management activities.

Figure no. 7. Graphical representation of the correlation between the level of pro-technology attitude and the degree of acceptance of the emergence of artificial intelligence within managerial processes



Source: made by authors

In the second part, we focused on the students' perception of future professions in the economic field, on the disappearance and emergence of new activities in this sector. In the first place as longevity in the perception of economics students is the profession of accountant, followed by that of manager and economist and at the opposite pole are the professions in the field of sustainability, despite the general trends through such activities, a situation that requires the completion of new researches to explain this attitude. In organizations, as in life, the change represents the true constant autonomous. Emerging technologies cause major changes in all activity fields so that the next professionals in the economic field will have to mitigate the unprecedented disruptions in the business environment and to adapt to the new operational paradigms.

Figure no. 8. The chart of careers considered stable in the next 10 years by economics students



Source: made by authors

The students possess the necessary skills and abilities to perceive the potential of innovative technologies as a useful tool for the future profession of economist, but also the limitations and risks of their irrational use, aspects that will have a direct impact on future professions in the field.

## 5. Conclusions

Considered the "engine" of global economic growth in recent years, emerging economies impose on their participants new codes of "good practice" in business in order to align with the new requirements and to smoothly overcome all cultural, ethnic, digital or economic barriers that can make their presence felt.

The more students participate in volunteering, internship, mobility, entrepreneurship activities during their studies, the more their openness to economic activities that incorporate innovative technology is more pronounced and their connectivity with the digital environment and the IT system will flow much more naturally, which will ensure and support their integration in the economic environment much better.

The balance between the need for technology and digitization in the economic profession field and the attitude of the future professionals who will be active in the next period, will be able to be achieved in a way that is much easier, to measure in which the acceptance of responsibilities becomes part of the economic thinking during the studies through specific programs, and the innovative attitude towards digitization and technology is cultivated before the access to the job market.

The main limitation of this work is represented by the small number of students involved, the national character of the answers and the limited area of applicability, at the level of a single university. By adapting this questionnaire within other universities or within other fields of study, cultural and geographical barriers can be broken down and relevant attitudes and trends can be generated at the national or global level.

Regarding the hypotheses initiated by the work, we conclude that, for students, participating in various extracurricular programs increases their interest in actively participating in economic life during their studies and determines their perception about benefits of using innovative technologies within the future economic professions but gives them a low confidence in accepting AI technologies in the management processes.

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## Digital Information – Innovative Technologies Generate a New Paradigm

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### Abstract

*While innovative technologies significantly influence all organizational activities, information tends to become one of the vital resources of sustainable development. In this direction, the present article aims to present a reflection on the paradigm of innovative technologies - digital information starting from the digital information features and challenges. The methodology used consists of the bibliographic-documentary survey, a review of the literature in the digital information field, its management and its quality, opening new directions of study and analysis on this topic. The data collected in this way were subjected to a qualitative analysis, structured according to thematic sections and the main interest spheres were identified. The results demonstrated a major challenge for responsible parties in terms of information management, assurance and compliance with quality requirements in the age of innovative technologies.*

**Key words:** digital information, innovative technologies, information quality, accountability, accounting paradigm

**J.E.L. classification:** M40

### 1. Introduction

While innovation is the basis of high-quality economic and social development, organizations are the main means of technological innovation, talent stimulation, optimization of business processes and tools, having available as a basic resource the information and knowledge volume. Digital transformation significantly influences the company's production and operational activities and determines the optimal all resources use, so a new round of scientific and technological revolution, industrial transformation tends to revolutionize globally. Innovative technologies are becoming the new requirement for the company's sustainable development. The fourth contemporary industrial revolution, all processes digitalization, including informational ones, produces the same effects from an institutional point of view that capitalization determined in the last century. Digitalization has metamorphosed all the value chain elements and information was no exception to this phenomenon (Loureiro et al., 2021; Enholm et al., 2022).

In this interconnected economy dominated by artificial intelligence and robots, the information process has become automated and these technologies are capturing the information systems of all enterprises categories (Sanakuiev, 2022; Odat et al., 2023).

Shannon (1948), the information founder, considers it to be an accumulation of effective data for substantiating economic decisions and attributes to it the role of "eliminator of random uncertainty". The information technologies progress, their impact on different activity spheres, the time elapsed

since the beginning of computerization as well as the users experience determine the relationship between information and information technology.

The present research approach represents an incursion into the approach of digital information as an innovative technology, starting from the very implications generated by the association of these terms. Information, as the main source of measuring the uncertainty degree on the production of an event determined by a random experiment, has shown responsiveness to innovative technologies, developing into an extremely complete and complex digital information system.

This research paper marginal contribution consists in expanding the research on the economic consequences of digital transformations from the perspective of the quality of accounting information. The purpose of this research is to examine the paradigm of digitization at the informational level and the object is to clarify, through specialized literature, the innovative technologies integration relevance in increasing the information quality and, implicitly, on the information provided by the informational accounting systems.

In the briefing, a short introduction is presented regarding the digitalization of accounting information as a component of the accounting information system relevance. In the paper second section, a specialized literature review on the subject of the study is presented, and in the third section, the used research methodology, the limits and future research suggestions are presented. Section number four describes the results obtained, namely the quality of digital information to serve as an essential channel for understanding the state and transformations of an entity, the evaluation and comparability of the efficiency and operational health of an entity. The last of the sections highlights the research conclusions and implications.

## **2. Theoretical background**

Information literacy, as coined in the 70s, refers to individuals' abilities to use information, including its search, access, identification, evaluation, management, reuse and communication (Machin-Mastromatteo, 2021), while Bawden (2001) introduces the concept of hyperliteracy suitable for the complex information environment, based on knowledge, perceptions, skills, attitudes and abilities.

Information represents that equivalent amount of uncertainty regarding the occurrence of a future event as a result of a random experiment (Shannon, 1948), uncertainty being the one that precedes the occurrence of the event and information succeeds its occurrence. The key to the resource allocation efficiency is the effectiveness of information, timeliness, complexity, relevance, comparability, transparency and their intelligibility (Mansour et al., 2023). The information digitalization has the ability to support the company's development by increasing the ability to analyse large databases, improving business models (Yang et al., 2024), generating added value and development (Verhoef et al., 2021; Liu et al., 2023), improving the performance level (Kohtamäki et al., 2020), increasing the corporate innovation level (Nwankpa & Roumani, 2016) and increasing the corporate management transparency (Goldfarb & Tucker, 2019).

For an organization, the most complicated process is the right decision (Simkin, et al., 2012) and the central role of long-term decision-making planning rests with central management (Galbraith & Schendel, 1983), decision-making success largely depending on the availability of information (Azar et al., 2019).

The integration and the exploitation of digital information changes for entities the face and way of functioning, the awareness of the impact of digitalization information, the proactive management of digital technologies and the reduction of rigidity in their use on a large scale increases companies' ability to quickly adapt to environmental turbulences that may appear on different types of markets (Huanli et al., 2021), the lack of digital skills leads to the accentuation of the digital divide and generates operational difficulties (van Deursen & van Dijk, 2009).

If the basis of technological progress was represented by states, in contrast, the propulsion of current innovative technologies is carried out by private entities, the general public has immediate access to them and various categories of threats are continuous and diversified (Perfetto et al., 2023). The main trends in information approaches are towards information society, information age, digital divide and information shortage (Demir, 2021).

### 3. Research methodology

From the perspective of scientific research methods, we approached a qualitative method, namely a bibliographic-documentary survey of various articles, books, publications in scientific journals within the Web of Science and Elsevier databases. It is characteristic to review the specialized literature both of the authors who have researched the topic in the past period and the most cited articles as well as those of the last three years, a period in which research on the topic of digital information has become increasingly relevant and numerous. The data thus collected were subjected to a qualitative content analysis and structured by thematic sections according to the area of interest of this work.

Digital information and innovative technologies represent an extremely complex research field that combines and expands specific notions of various socio-economic, technical, medical disciplines.

In order to support the research direction, namely the new paradigms generated by innovative technologies and the digitization of information in the economic field, we paid special attention to the factors that contribute to the accounting information quality, both financial and non-financial. Theoretical knowledge is fruitful in order to understand the phenomena and not to generate working hypotheses, relying on interpretative methods to understand the impact that innovation has on the information quality.

There are also limitations of this work, due to the lack of a qualitative analysis, the identification and validation of some determinants of information quality, aspects that will be part of a future study.

### 4. Findings. Digital information & innovative technologies

For the definition and in-depth presentation of the information concept, we turn our attention to different authors. The first definitions of information theory are based on the mathematical study of the quantification, storage and communication of information (Nyquist et al., 1920), so that later they are located at the intersection between electronic engineering, mathematics, statistical, informatics, neurobiological and physical (Shannon, 1998), after being defined as that equivalence level of uncertainty about an outcome generated in the future as a result of a random experiment. (Shannon, 1948). The innovative technologies development has led information to new attributes: opportunity, adequacy, collection, distribution, accuracy, flexibility.

*Table no. 1 Information & digital information definitions*

<b>Author' name</b>	<b>Definition</b>
Le Coadic, 2004	Information is a set of classified and interpreted data to provide the necessary support for the decision-making process
CApurro & Hjorland, 2007	Information is a complex process involving knowledge transformation, selection and interpretation in a specific context
Pomim et al., 2014	Information is that valuable resource, essential for knowledge generation and asset growth
Mokodompit & Wuriaih, 2017	Information is a tangible or intangible entity capable to reduce the uncertainty of future events
Novianty et al., 2018	Information is the organization lifeblood, without which modern business models cannot exist.

*Source:* made by authors



We have identified, in the information definition, the existence of a data-information-knowledge triad, so that the informational process begins with the existence of data that becomes knowledge through the process of transforming it into something useful for the receiver. The existence of a transmitter simultaneously with that of a receiver, that interacts through a channel, either through speech, writing, images, codes, sequences represent a first information characteristic, followed by its qualitative elements: relevance, reliability, comparability, understanding, consistency, neutrality (Akumbo et al., 2020).

*Table no. 2 The evolution of information perception*

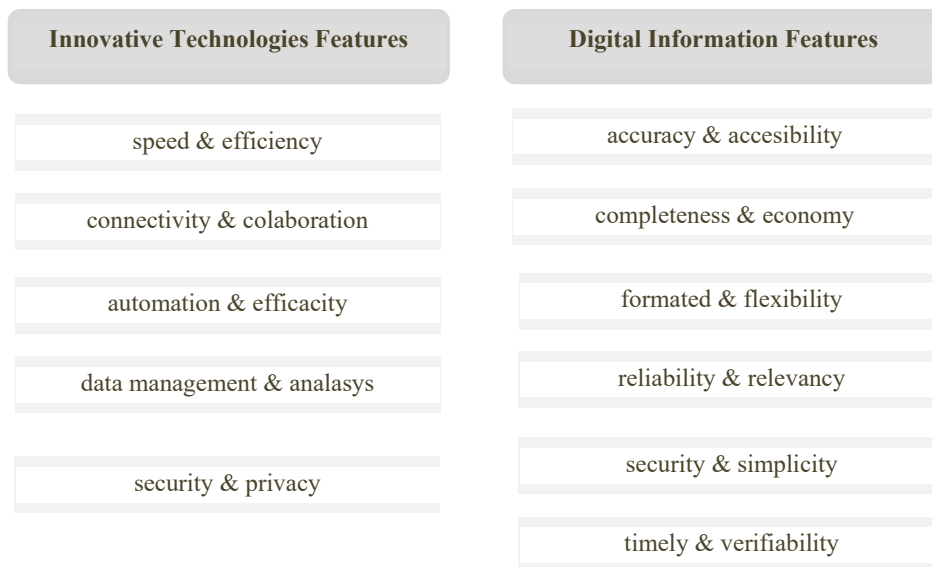
<b>Decade</b>	<b>The Evolution of Information Perception</b>
1950	A necessary bureaucratic requirement
1960 – 1970	A support for the company general purposes
1970 – 1980	A management and control mean
1990 – by present	A strategic vital resource

*Source:* made by authors

Not only the perception of information has experienced substantial changes, but the form of its presentation has gone from the physical, visible, palpable format to various, technological supports in which the transmission speed overcomes all types of barriers, including geographical ones (Blattmann, 2001) and has the ability to limit secondary details and highlight the fundamental aspects of reality.

Digital information represents the logical attribute and result of the economy digitization, the new innovative circumstances update the feasibility of the digital information paradigm, positioning it among the essential resources for high-quality economy growth and sustainable development. The essential channel that imprints organizations with operational health and efficiency is served by information, regardless of its nature. Thus, through this adherence, information is assigned a high degree of comparability and accuracy that allows users to analyse and make effective and timely decisions.

*Figure no. 1 Innovative technologies and digital information features*



*Source:* made by authors

Information asymmetry is mitigated in the easiest way through digital technologies, digital transformation has the ability to significantly improve the information comparability. Although the information comparability is the foundation of economic life, and most studies focus on the information economic consequences, we have identified few specialized studies that investigate the determinants of this attribute. However, all this showed the positive impact of innovative technologies on the information comparability and on its quality.

*Table no. 3 The main determinants of the financial and non- financial information in accounting*

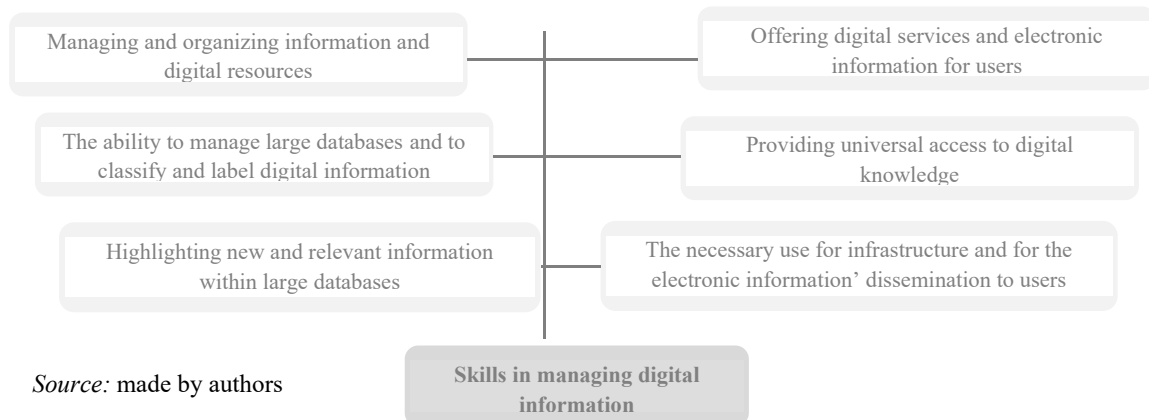
Determinants of financial and non-financial information	Researchers
Accounting information system quality	Puspitawati & Anggadani, 2019; Kanakriyah, 2016, Sjaiful et al., 2021; Kuraesin et al., 2019
- The nature and security of information accounting systems	(Al-Dalabih, 2018
- Financial data quality	Al-Dalabih, 2018; Akumbo et al., 2020)
- The accounting informational system computerization and digitization degree	Bouchetara, 2022; Akumbo et al., 2020)
- Knowledge Management	Sjaiful et al., 2021)
- Management support	Kuraesin et al., 2019)
- Good corporate governance	Sjaiful et al., 2021)

Source: made by authors

Despite all the advantages offered by information technology, we have also identified a number of challenges that companies must pay attention to in order to overcome them. A first aspect concerns the "perishability" of technology, the need for permanent updating of software equipment. Another extremely important aspect is that of personal data protection PGPD, extremely precise and rigorous measures are required, the procedures standardization regarding the collection, recovery, storage, processing and use of personal information. Another warning sign is the difficulty with which innovative technologies respond to the transformation of social networks into "digital weapons" through propaganda and false disinformation. Nor are the risks of cyber-attacks negligible, even representing an imminent threat to digital information systems.

Digitization can improve the information quality, but the Internet does not yet "know" how to address the problems of public life, it only distracts and disperses (Habermas, 2023). Schmidt and Cohen (Schmidt, E., Cohen, J., 2014) emphasize the distance between the use of digital communication tools and information, respectively the distance between information and its accuracy.

*Figure no. 2 The necessary skills for managing digital information*



Source: made by authors

## 5. Conclusions

The essence of timely and relevant information is represented by information systems that, at the same time, ensure the efficient channel of their transmission to interested parties, the value of this information being fundamental to the decision-making process for evaluating past performances and for planning sustainable activities, with an impact on social development - economic of the whole society, access to information generates efficiency and financial performance, stability, balance, sustainable development.

The significant developments recorded in the field of innovative technologies and, implicitly, in the information field, the changes imposed by economic digitization, the increase in the information space are determinants of the development of the current society. Between digital information and innovative technologies there are a series of links that give rise to a new paradigm, the progress recorded being extremely important, new concepts are developed, new research methods are approached.

All this explosion of innovation and informational avalanche characteristic of this globalized and interconnected society represents both an opportunity and a challenge in the organization, processing, storage and dissemination of digital information. Whether we look at it from an economic-financial point of view, or from a social point of view, information is an asset, but the dilemma is the management and mediation of this volume of digital information that is in a permanent qualitative and quantitative evolution, and to respond to this problematic, the forms of information management are permanently improved. Another barrier that must be overcome is represented by the restrictions on digital preservation, the short lifespan of informational software elements, the need for significant storage spaces due to the informational volume. To these is added the issue of the legislation on the protection of personal data, PGPD, which provides precise rules regarding the collection, processing, storage and distribution of information related to different natural persons.

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# The Impact of Financial and Performance Indicators on Labor Productivity in Construction and Engineering Companies Listed on the BVB

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## Abstract

*Labor productivity is the result of the interaction of a number of complex factors, including employee motivation, allocated resources, the work environment, the level of education and experience, and the financial performance of the economic entity. Integrating effective strategic approaches aimed at increasing performance indicators can contribute significantly to the overall productivity growth and long-term success of the organization. To this end, databases of companies operating in the construction and engineering industry were used to pursue this analysis and the relationships between labor productivity and performance indicators were tracked. The results indicated a significant positive correlation demonstrating the association between productivity and performance. We conclude in the present study that labor productivity can be influenced by the increase in financial performance and the way top management integrates strategic decisions aimed, at the expense of investment in human capital, at increasing productivity.*

**Key words:** labor productivity, economic-financial performance, employee motivation, correlation, regression

**J.E.L. classification:** M41, M45

## 1. Introduction

Work productivity is significantly influenced by a number of factors, including the level of employee motivation, the implementation of effective occupational health and safety policies, the provision of competitive salary rights and benefits, and the provision of modern work equipment and advanced technologies that can significantly contribute to increased employee engagement and satisfaction. Organizations with a positive organizational culture and effective leadership are able to maintain a high level of motivation among their human resources, thus boosting productivity.

## 2. Literature review

Investments in high-quality projects, intangible assets, research and organizational development can have a significant impact on productivity. Implementing modern and advanced technologies that make it easier for employees to do their jobs can lead to an increase in individual and team-wide efficiency and productivity (Ferrando and Ruggieri, 2018; Lessa, 2022).

Some authors argue that well-structured reward systems can additionally motivate employees, leading to increased productivity (Bocean and Sitnicov, 2015; Smoluk, 2019). Other authors emphasize the role of formal education obtained in the public school system and on-the-job experience in increasing individual productivity (Chowdhury, 2014). Also, other studies (Afonso et al, 2021; Chen et al, 2022) correlate the financial performance of companies with the level of labor productivity, highlighting the role of economic and financial indicators as determinants. Thus, indicators such as turnover (Turnover), net profit (NP), average number of employees (NmA), economic rate of return on assets (ROA), financial rate of return (ROE) and commercial rate of

return (ROS) provide an overview of the company's financial performance and how it utilizes available resources.

Through the efficient use of resources, top management can contribute to increased labor productivity through decisions related to the purchase of modern machinery, equipment and infrastructure, automation of repetitive processes allowing employees to focus on more complex and higher value-added tasks, investment in employee education and training to better adapt to new technologies and competitive market requirements, allocation of capital to stimulate innovation, integration of ERP systems which brings numerous benefits including increased productivity (Relich, 2017; Meiryani et al,2021). From this point of view financial indicators can be predictors in determining high productivity.

A detailed analysis of these financial indicators, in correlation with the other determinants of labor productivity, can provide a complex picture of how they influence profitability at the company level. Integrating decision-making solutions that help to improve financial indicators as well as motivational factors can significantly contribute to increased work profitability and long-term organizational success.

The economic and financial indicators mentioned above can influence labor productivity in several ways:

- Turnover indicates the level of demand for products or services and a higher level of this indicator reflects an increase in output through the efficient use of resources, increasing productivity;
- Net profit indicates the level of profitability of the entity. A high level of this indicator suggests that the firm is efficiently managing costs and generating value. Net profit can be reinvested or distributed as dividends to shareholders;
- The average number of employees can contribute to labor productivity by allowing for an even distribution of work-related tasks and preventing overwork. This can lead to better work organization and increased efficiency;
- Ratios for determining profitability, such as the economic rate of return (ERR) and the rate of return on equity (ROE), indicate how well companies' resources are being utilized. A higher value of these rates indicates efficient use of company resources leading to productivity. A high level of financial ROE can provide the company with the resources to invest in new technologies, modern work equipment and also in employee training, which would contribute to increased labor productivity in the long run;
- Commercial profitability rate reflects the profitability per unit sold on the efficiency of the entity's core operations. A higher value of this indicator demonstrates a greater ability to generate more profit from sales, stimulating production and innovation.

We track financial indicators to estimate the level of labor productivity within companies so that top management can more effectively allocate resources to the departments or projects that have the greatest potential to contribute to productivity growth.

### **3. Research methodology**

The research is determined by its aims and objectives and consists in analyzing the relationship between labor productivity and performance indicators. The relationship is analyzed by various statistical methods such as correlation, multiple linear regression and mathematical determination of the regression equation. These methods make it possible to identify the factors that have a significant influence on productivity and to quantify the magnitude of the impact of each factor.

Data were collected for 16 companies in the construction and engineering industry, as presented in the "Industrial & Commercial Services" section and the "Construction & Engineering" subsection of the "Industrials" category of the LSEG - Eikon data platform. Information on turnover, net profit, average number of employees, economic rate of return on assets (ROA), financial rate of return (ROE) and return on revenue (ROS) were selected from the financial reports. Labor productivity was calculated as the ratio of turnover to average number of employees. Data were selected for the period 2014-2023, i.e. for 10 fiscal years, from companies listed on the Bucharest Stock Exchange.

After establishing the economic-financial performance indicators, the correlations between the dependent variable "Labor Productivity" and the independent variables (CA, Pn, NmA, NmA, ROA, ROA, ROE, ROS) were tested and a multiple linear regression model was performed, having "Labor Productivity" as dependent variable.

The correlation analysis and the application of the regression model was carried out using *SPSS version 26.0* statistical analysis software. The regression model was performed with the help of *analysis* function, through *regression* section and the method used was *enter* method (Siminică et al, 2017).

The regression equation to model the complex relationships between variables and obtain valuable information for econometric analysis will be of the form:

$$PM = c1*y1+c2*y2+c3*y3+c4*y4+c5*y5+c6*y6+\varepsilon,$$

- where: y1 = turnover (Turnover);
- y2 = Net profit (Pn);
- y3 = Average number of employees (NmA);
- y4 = Return on Assets (ROA);
- y5 = Return on Equity (ROE);
- y6 = Rate of Return on Sales (ROS);
- c1...c6 = the valence of coefficients;
- $\varepsilon$  = Error.

The research on which this paper is based is formative. The information that has been collected from companies operating in the construction and engineering industry and which are listed on the Bucharest Stock Exchange, are the basis of our analysis to determine the main objective.

#### 4. Findings

Correlation is an efficient measurement tool of statistical analysis that helps us to better understand the relationship between variables. With this tool, we can assess causal or interdependent relationships between two or more variables. The main purpose is to determine whether there is a significant association and to describe the nature of this association. Descriptive statistical analysis allows the identification of potential problems with the data, such as missing values, measurement errors or non-normal distributions. It also provides valuable information about the central tendencies, variability and shape of the distribution of each variable. The process of correlation analysis involves a number of essential steps, the first of which is descriptive statistical analysis.

Table no. 1. Analysis of descriptive statistics

Variable	Mean	Std. Deviation	N
PM	77,35	43,000	142
CA	81,50	44,035	142
PN	79,75	44,828	142
NmA	36,46	25,626	142
ROA	74,18	40,012	142
ROE	75,47	42,497	142
ROS	74,51	40,172	142

Source: table taken from SPSS

The descriptive statistical analysis presents relevant information for a total of seven variables. The table gives an overview of the mean values, standard deviation and number of observations for each variable.

The standard deviation values are lower than the mean which means that the data are more concentrated around the mean values and the study is a relevant one and one can perform the correlation level analysis and the appropriate regression model.



In order to identify the relationships between variables, Pearson correlation coefficient is determined as a first step in this analysis process.

Table no. 2. Pearson correlation between financial indicators and labor productivity

Correlations		PM	CA	PN	NmA	ROA	ROE	ROS
Pearson Correlation	PM	1,000	,608	,648	,048	,500	,422	,483
	CA	,608	1,000	,502	,747	,099	,035	,141
	PN	,648	,502	1,000	,136	,800	,590	,801
	NmA	,048	,747	,136	1,000	-,242	-,264	-,194
	ROA	,500	,099	,800	-,242	1,000	,779	,833
	ROE	,422	,035	,590	-,264	,779	1,000	,586
	ROS	,483	,141	,801	-,194	,833	,586	1,000

Source: table taken from SPSS

The Pearson correlation analysis revealed significant correlations between the dependent variable labor productivity and the independent variable turnover, the Pearson coefficient being .608 with a sig. significance level of less than 0.01; a significant correlation between net profit and labor productivity, the correlation coefficient being .648 and a sig. less than 0.01; a significant correlation between the economic rate of return and labor productivity with a sig. significance level of less than 0.01; a significant correlation between the financial rate of return and labor productivity with a sig. significance level of less than 0.01; a significant correlation between the income rate of return and labor productivity with a sig. significance level of less than 0.01.

An insignificant correlation was obtained between labor productivity and the average number of employees, the correlation coefficient being .048. The indicator has a sig. sig.

Following the correlation analysis, tests were conducted to obtain the appropriate multiple linear regression model. The first test performed in the econometric analysis is given by the summary model in which the R and R<sup>2</sup> values are presented.

Table no. 3 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1	,880a	,775	,765	20,855	,775

Source: table taken from SPSS

The values of R and R<sup>2</sup> tend towards level 1. These results demonstrate that the regression equation is significant for this study. The multiple correlation coefficient (R-squared) has a value of 0.775. The value provided, 0.880a, represents approximately 0.88, but the letter "a" indicates that the p-value associated with R-squared is statistically significant at a certain  $\alpha$  (alpha) level of 0.05. The closer the R-value is to 1, the more the model explains more of the variance of the dependent variable.

The value R<sup>2</sup> = 0.775, represents the proportion of the variance of the dependent variable that is explained by the independent variables included in the model. In this case, the model explains about 77.5% of the variance of the dependent variable "Labor productivity".

Another test is the ANOVA F-test. This must be as high as possible to obtain statistical significance of the differences between groups. The value of the F-test and its significance level are presented in the ANOVA table:

Table no. 4 ANOVA test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	201998,369	6	33666,395	77,409	,000
	Residual	58713,723	135	434,916		
	Total	260712,092	141			

Source: table taken from SPSS

The ANOVA table confirms that the multiple linear regression model fits the data well. The independent variables included in the model explain a significant part of the variance of the dependent variable.

According to ANOVA test,  $F = 77,409$  and  $Sig. = ,000$ , that the statistical validation of the regression model gives us confidence in the accuracy of the coefficients of the equation and its mathematical form. The results obtained are presented in the following table:

Table no. 5 Coefficients of the regression equation for the independent variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15,804	5,888		2,684	,008
	CA	1,118	,078	1,144	14,243	,000
	PN	,051	,105	,053	,482	,631
	NmA	-1,294	,120	-,771	-10,816	,000
	ROA	,111	,117	,103	,948	,345
	ROE	,064	,068	,063	,944	,347
	ROS	,007	,093	,007	,080	,936

Source: table taken from SPSS

The mathematical form of the regression equation can be determined using the coefficients presented in the table above:

$$PM=15,804+1,118*CA+0,051*PN-1,294*NmA+0,111*ROA+0,064*ROE+0,007*ROS+\varepsilon$$

By deriving the regression equation, it is shown that economic-financial performance indicators have a direct influence on labor productivity through the mathematical expression of this relationship.

## 5. Conclusions

In this study, we analyzed the relationship between financial indicators and labor productivity for 16 companies operating in the construction and engineering sector, listed on the Bucharest Stock Exchange. There is a significant and positive correlation between financial indicators and labor productivity, which indicates that an increase in the financial performance of companies is associated with an increase in labor productivity. Thus, through the correlation relationships between the dependent variable "Employee Productivity" and the independent variables "Turnover", "Net Profit", "Average Number of Employees", "Economic Rate of Return on Assets", "Financial Rate of Return" and "Commercial Rate of Return", it can be stated that our study demonstrates a significant and positive correlation between financial indicators and labor productivity, emphasizing the crucial role of effective financial management in boosting productivity.

The multiple linear regression model developed explains 78% of the variance of labor productivity. This result confirms the robustness of the model and the relevance of the financial variables included in the analysis.

The results of this study have significant practical implications for companies in the construction and engineering sector such as:

- effective financial resource management essential for increasing productivity by focusing on improving financial performance, increasing turnover and profitability;
- by investing in human capital through training courses, the acquisition of modern infrastructure and technology and the implementation of effective digital solutions;
- a positive and motivating work environment that encourages creativity, collaboration and employee engagement.

Implementing these recommendations can make a significant contribution to improving the overall performance of companies in the construction and engineering sector, strengthening their competitiveness in the market.

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## Credit Ratings and ESG Ratings in the European Union

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### Abstract

*Over time, credit ratings have gained a major role in the financial market, influencing various financial aspects. For businesses, a good credit rating can indicate financial stability to investors, suppliers, and customers. This can increase the business's reputation and bring new opportunities for growth. However, in the current global context, environment, social aspects, as well as governance policies become essential for global decision-making, but also for financial markets. This article aims to present the importance of ESG ratings for companies.*

**Key words:** credit rating, CRAs, ESG rating

**J.E.L. classification:** A10, D81, D84, G10, G20, G30, G41

### 1. Introduction

This current article aims to present an overview of the importance of the new types of ratings, respectively ESG ratings, compared to the well-known credit ratings issued by rating agencies (CRAs). The most important rating agencies, whose ratings are presented in this article, are S&P (Standard & Poor's), Moody's (Moody's Investor Services) and Fitch (Fitch Ratings). These are also among the oldest agencies, thus having the most experience in issuing ratings. The information regarding the credit ratings issued by the rating agencies presented in this article applies globally and so does the concept of ESG ratings, but the information presented in this article regarding the regulations in the field of ESG ratings are those applicable to the European Union.

### 2. Theoretical background

Currently, CRAs have a very important role in the financial markets. They assess credit risk of issuers, which can be countries, companies, or others, by analysing the issuer's ability to fulfil all their assumed financial obligations at the appointed time. Credit Ratings also foster the development and smooth functioning of capital markets by providing transparent information and insight to market participants. The analyses performed by the CRAs are based, to the greatest extent, on the financial indicators recorded by an entity that are calculated strictly on the basis of financial information. The importance of CRA is analysed quite a lot in the specialized literature, including by (Bouye and Menville, 2021) which states that the economic role played by rating agencies is an important one because they provide essential information about an issuer's default risk, thus helping the debt market. At the same time, Bozic and Magazzino (2013) mentioned in their study that rating agencies do not provide a firm recommendation for making an investment decision, but rather an opinion about the creditworthiness of the rated entity. Therefore, the ratings issued by the credit rating agencies facilitate investment decisions, influence borrowing costs and increase market transparency, thus remaining an integral part of the global financial system.

Given that, the main asset of any rating agency is credibility (Raimbourg, 2013) it means that the analysis of entities must be performed in a professional manner and with a full understanding of the impact on the financial market.

In order to reflect in a correct manner newly emerging situations in the financial market, agencies can change or update the rating previously offered to an entity to reflect a more appropriate level from the perspective of the concept of financial creditworthiness.

The first appearance of the term ESG is in 2004 when it was included in a UN Global Compact report. ESG has now evolved into a fundamental component of modern investment and corporate strategy. ESG factors are analysed from both a macroeconomic and a microeconomic perspective.

An overview of each pillar of ESG rating for a company (environmental, social, and governance) includes the following factors:

- 1) *Environmental* pillar: This evaluates a company's impact on the environment, including factors like direct and indirect greenhouse gas emissions, energy efficiency, the firm's overall resiliency against physical climate risks (like climate change, flooding, and fires), waste management, and resource conservation.
- 2) *Social* pillar: This assesses the way in which the relationship with employees, suppliers, customers and communities is managed in a company. It includes factors such as labour practices, employee health and safety, diversity, and community engagement.
- 3) *Governance* pillar: This examines a company's leadership (how an organization is led and managed), board structure, shareholder rights, and transparency (what types of internal controls exist to promote transparency and accountability on the part of leadership). It covers issues like executive compensation, board diversity, and business ethics.

Therefore, while credit ratings assess the creditworthiness of companies or financial instruments by providing an opinion on the risk of default of a company, ESG ratings assess the impact on environmental factors, but also on social aspects and governance policies. Both credit ratings and ESG ratings are opinions provided by specialised entities and used by financial institutions and professional investors.

### **3. Research methodology**

In the analysis presented in this paper regarding the two indicators Rating and ESG, the starting point is the consultation of the specialized literature and the research of the current state of knowledge of the topic. It is also important to clarify the meaning of the concepts as well as to identify the fundamental theoretical statements in order to demonstrate the global importance of these studied aspects.

Regarding the exact data presented in this paper, the method used is the comparison method that allows obtaining general conclusions by comparing the representative indicators using tabular spreadsheets contained in the Excel software.

### **4. Findings**

#### **4.1. Regarding Credit Ratings**

Understanding the solvency of companies is a crucial element in making business decisions. Investors need to know the probability that the money invested in bonds or loans will be repaid. Companies must quantify the creditworthiness of suppliers, customers, acquisition candidates and competitors.

The traditional measure of credit quality is a corporate rating, such as that produced by S&P, Moody's or Fitch. However, such ratings are only available for the largest companies, not millions of smaller companies. To quantify their creditworthiness, smaller companies are often analysed using alternative methods, namely probability of default (PD) models.

Probability of default is the probability that a borrower will not be able to make repayments as scheduled. Usually, this is evaluated over a determined period of time, in general one year (according to *IFRS 9 – Financial instruments*). It can be applied to a variety of different risk management or credit analysis scenarios. Probability of default depends not only on the borrower's characteristics but also on the economic environment.

Lenders usually want a higher interest rate to compensate for bearing a higher risk of default. Financial measures (such as cash flow relative to debt, revenue or operating margin trends) are common considerations when assessing risk.

The simplest scenario for estimating the cost of debt occurs when a company has long-term bonds in circulation that are widely traded. The market price of the bond along with its coupon and maturity can be used to calculate a yield that is used as the cost of debt. For example, this approach works for a company that has dozens of bonds in circulation, liquid and frequently traded on the secondary market.

Some companies have bonds in circulation that do not trade regularly. Because these companies are usually rated, we can estimate their debt costs using the ratings and associated default spreads. Thus, an A-rated company can be expected to have a cost of debt of about 1.00% higher than the Treasury bond rate, as this is the spread typically paid by AA-rated companies.

The rating system published by Moody's in 1909 is still in force, being a globally accepted standard and is presented in *Table no. 1*. The rating system of the other two important rating agencies is similar to the one used by Moody's, as can be seen in *Table no. 2* below.

*Table no. 1 Moody's: Global Long-Term Rating Scale*

Rating	Description
Aaa	Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk.
Aa	Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.
A	Obligations rated A are judged to be upper-medium grade and are subject to low credit risk.
Baa	Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics.
Ba	Obligations rated Ba are judged to be speculative and are subject to substantial credit risk.
B	Obligations rated B are considered speculative and are subject to high credit risk.
Caa	Obligations rated Caa are judged to be speculative of poor standing and are subject to very high credit risk.
Ca	Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.
C	Obligations rated C are the lowest rated and are typically in default, with little prospect for recovery of principal or interest.

*Note: Moody's appends numerical modifiers 1, 2, and 3 to each generic rating classification from Aa through Caa. The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category. Additionally, a "(hyb)" indicator is appended to all ratings of hybrid securities issued by banks, insurers, finance companies, and securities firms.*

Source:

[https://www.moody.com/sites/products/productattachments/ap075378\\_1\\_1408\\_ki.pdf](https://www.moody.com/sites/products/productattachments/ap075378_1_1408_ki.pdf)

*Table no. 2 Rating Scale "Big Three"*

Standard and Poor's	Moody's	Fitch	Linear transformation
AAA	Aaa	AAA	21
AA+	Aa1	AA+	20
AA	Aa2	AA	19
AA-	Aa3	AA-	18
A+	A1	A+	17
A	A2	A	16
A-	A3	A-	15
BBB+	Baa1	BBB+	14
BBB	Baa2	BBB	13
BBB-	Baa3	BBB-	12
BB+	Ba1	BB+	11
BB	Ba2	BB	10
BB-	Ba3	BB-	9
B+	B1	B+	8
B	B2	B	7
B-	B3	B-	6
CCC+	Caa1	CCC+	5
CCC	Caa2	CCC	4
CCC-	Caa3	CCC-	3
CC		CC	2
C		C	2
SD	Ca	DDD	1
D	C	DD	1
		D	1

Source: (Bozic and Magazzino, 2013)

Following the Basel II agreement, credit risk is assessed individually and not at the level of the entire portfolio. For this, the time profile of the exposure, the realistic default rates and the correlations between them are taken into account.

Some of the most important credit risk assessment models, belonging to international agencies, would be the following:

- CreditMetrics (J.P. Morgan), which assesses the credit risk caused by changes in the market value of loans,
- CreditRisk+ (Credit Suisse First Boston), which estimates the probability of going bankrupt based on historical data on bankruptcy events as well as the debt recovery rate,
- The KMV model (Moody's Analytics), which is based on options theory and structural analysis of credit risk and
- CreditPortfolioView (McKinsey), which estimates the risk of bankruptcy according to certain macroeconomic variables (interest rate, exchange rate, unemployment rate, etc).

Not all companies have a rating granted by the CRAs. Many companies are small or do not want to receive a rating, therefore there are enough companies that are not rated based on probability of default. In these cases, there are two other alternatives:

- i. To evaluate recent loan history in order to get an idea of the types of default spreads charged by the company and use these borrowings to get a cost of debt.
- ii. To estimate a synthetic rating, which is often calculated using financial models that consider various financial metrics and ratios to approximate what an official rating might be.

#### 4.2. Regarding ESG ratings

Globally, ESG is an important indicator and there is an ongoing process of increasing the transparency and accuracy of information in this regard.

The importance of Environmental, Social, and Governance (ESG) factors for investors has grown significantly in recent years, including for ESG-compliant products. Asset managers and institutional investors are increasingly incorporating ESG factors into their investment strategies to meet regulatory requirements and align with the preferences of their clients.

Overall, an ESG framework supports sustainable development while achieving financial goals.

There are various ESG regulations worldwide, but this article presents the main ESG regulations in the European Union as follows:

- SFDR – Sustainable Finance Disclosure Regulation: establishes ESG disclosure requirements for some financial market participants and for asset managers that are mandatory. This regulation aims to increase clarity in order to direct investable capital towards sustainable investments.
- Taxonomy Regulation: establishes the way in which ecologically sustainable economic activities are classified.
- CSRD – Corporate Sustainability Reporting Directive: expands the scope and detail of sustainability reporting requirements for companies, ensuring consistency and comparability of ESG information. This directive mandates that large companies and listed SMEs to report ESG data in a detailed way. The CSRD aims to standardize sustainability reporting across the EU in order to increase transparency and comparability for investors.

In addition to these, regarding the activity of granting an ESG rating, the Commission has published a regulation proposal in order to obtain the transparency and integrity of these rating activities, which can be found on the authentic Official Journal of the EU (EUR-Lex). The proposed regulation aims to improve the quality of information on ESG ratings, but it does not intend to harmonise the methodologies for the calculation of ESG ratings, just to increase their transparency.

According to the draft regulation, an ESG rating provider is a legal entity that provides and distributes ESG ratings on a professional basis and obtains an ESMA (European Securities and Markets Authority) authorization. Also, an ESG rating means an opinion on the impact on people, society and the environment obtained using an established methodology and a well-defined classification system. Therefore, the draft regulation aims to develop a regulatory framework applicable to ESG rating providers and to provide greater transparency on the ratings they issue.

According to World Bank (Baharoglu et al., 2018), good environmental, social and governance practices have become a new normal in doing business, a way to support companies' financial performance and their ability to grow and compete. According to an analysis of 656 companies, those with good environmental and social (E&S) practices outperform those with worse E&S practices on return on equity (ROE).

Also, the idea that a solid ESG indicator can bring value to a business also appears in a McKinsey quarterly report from 2019 (Henisz et al., 2019) where it is stated that there are five links between ESG and value creation which are presented in table no. 3.

Table no. 3 Five links to value creation

	<b>Strong ESG proposition</b> (examples)	<b>Weak ESG proposition</b> (examples)
<b>Top-line growth</b>	Attract B2B and B2C customers with more sustainable products Achieve better access to resources through stronger community and government relations	Lose customers through poor sustainability practices (eg, human rights, supply chain) or a perception of unsustainable/unsafe products Lose access to resources (including from operational shutdowns) as a result of poor community and labor relations
<b>Cost reductions</b>	Lower energy consumption Reduce water intake	Generate unnecessary waste and pay correspondingly higher waste-disposal costs Expend more in packaging costs
<b>Regulatory and legal interventions</b>	Achieve greater strategic freedom through deregulation Earn subsidies and government support	Suffer restrictions on advertising and point of sale Incur fines, penalties, and enforcement actions
<b>Productivity uplift</b>	Boost employee motivation Attract talent through greater social credibility	Deal with "social stigma," which restricts talent pool Lose talent as a result of weak purpose
<b>Investment and asset optimization</b>	Enhance investment returns by better allocating capital for the long term (eg, more sustainable plant and equipment) Avoid investments that may not pay off because of longer-term environmental issues	Suffer stranded assets as a result of premature write-downs Fall behind competitors that have invested to be less "energy hungry"

Source: (McKinsey Quarterly, 2019)

According to World Bank (Stewart et al., 2022), the efforts to develop at the sovereign level a reporting framework in the ESG field must be performed together with the development of the activity to implement clear international sustainability standards at the corporate level.

From an investor's perspective, an overview of a country's situation is important in the case of investments that exceed the borders of a state within the European Union, or in the case of investments coming from outside the European Union. It is very possible that investors will also take into account the global situation of the state in which the targeted corporations for making investments are located, respectively the sovereign ESG together with the sovereign rating granted by the CRAs to the respective state (see *Table no. 4* for a sovereign overview). Also (Bouye and Menville, 2021) stated that, in order to measure the viability of the debt but also the exposure to the sovereign risk, it is a good thing that the ESG Ratings are analysed together with the credit ratings.



Table no. 4 Sovereign ESG and Sovereign Rating

ESG, Global score, Indicator		Sovereign Risk (Long Term Rating)			
EU member state	Rating	EU member state	S & P Rating	Moody s Rating	Fitch Rating
Ireland	100,00	Denmark	AAA	Aaa	AAA
Luxembourg	99,28	Germany	AAA	Aaa	AAA
Denmark	88,95	Luxembourg	AAA	Aaa	AAA
Netherlands	86,60	Sweden	AAA	Aaa	AAA
Austria	86,52	Netherlands	AAA	Aaa	AAA
Sweden	85,57	Austria	AA+	Aa1	AA+
Belgium	84,40	Finland	AA+	Aa1	AA+
Finland	84,36	Belgium	AA	Aa3	AA-
Malta	83,20	France	AA	Aa2	AA-
France	82,92	Ireland	AA	Aa3	AA-
Czechia	81,59	Czechia	AA-	Aa3	AA-
Slovenia	81,30	Estonia	AA-	A1	A+
Italy	79,39	Slovenia	AA-	A3	A
Cyprus	79,05	Latvia	A+	A3	A-
Lithuania	78,87	Lithuania	A+	A2	A
Estonia	78,75	Slovakia	A+	A2	A-
Spain	78,71	Spain	A	Baa1	A-
Portugal	77,42	Malta	A-	A2	A+
Hungary	77,32	Poland	A-	A2	A-
Poland	76,83	Portugal	A-	A3	A-
Slovakia	76,58	Croatia	BBB+	Baa2	BBB+
Romania	75,89	Bulgaria	BBB	Baa1	BBB
Germany	75,79	Cyprus	BBB	Baa2	BBB
Latvia	75,79	Italy	BBB	Baa3	BBB
Croatia	74,44	Greece	BBB-	Ba1	BBB-
Bulgaria	72,41	Romania	BBB-	Baa3	BBB-
Greece	71,19	Hungary	BBB-	Baa2	BBB

Source: Own processing based on data provided by Refinitiv

In Table no. 4, the data presented regarding Sovereign Rating and ESG Global Score Indicator (which represents a statistical grade where 0 is the lowest value and 100 is the highest value) is provided by the Refinitiv database.

## 5. Conclusions

Credit rating agencies have a very long history and they have reached the point where the rating they offer is essential to the financial markets. However, as a result of major changes in environmental care, ESG evaluations have become very important and they have started to have a major impact on investment decisions. Environmental conditions, social policies, but also those related to governance can provide very important additional information which, combined with financial information, can provide an edifying overview for investors in the actions undertaken by them, but also for other categories of entities/individuals for other various activities.

The purpose of this paper is to present the importance currently gained by ESG ratings, but also to signal the need for the cumulative analysis of the two indicators presented in the present article (credit rating issued by CRAs and ESG rating).

A cumulative analysis is needed taking into consideration that credit ratings, which are traditional financial analysis, can overlook non-financial factors that can significantly influence a company's long-term performance. Companies that manage their ESG risks effectively are often better positioned for long-term success. They are more resilient to environmental changes, social and governance challenges, which can lead to more stable and sustainable financial performance.

Therefore, the purpose of this paper to present the importance of the new ratings, respectively ESG ratings, complementary to the credit ratings issued by the rating agencies, was reached.

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# Reflections on the Modification of the Paradigms of Processing the Accounting Information in an Interactive System

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## Abstract

*The purpose of this paper is the brief exploration of the paradigms- models of accounting information processing. The classic paradigm of batch accounting, which has its origins in Luca Pacioli, is currently subject to the concerted assault of new technologies. We are witnessing a period of technological transformations and in the economic-legal environment with a major impact on accounting, the theory and practice of information systems of entity accounting. How could we describe the changes to the accounting of companies, entities? We are aware of the difficulties of penciling in the multiple trends that influence the organization of entity accounting. Accounting standardizers, public accounting regulatory bodies, accounting professionals, members of academic bodies in universities - we are all facing new perspectives of the development of Accounting, but also new challenges. The classic flows of the processing of identifiable data are transformed by the new provisions of the legal regulatory framework.*

**Key words:** accountings paradigms, new technology

**J.E.L. classification:** M41, F60

## 1. Introduction

The widespread use of hard and soft information technology tools radically changes both the structuring of data flows and the way users perceive accounting information.

The users of the financial-accounting data generated by the accounting data processing systems and made aware of through the annual financial statements, currently have new possibilities of perceiving business development trends. ([www.hyperledger.org](http://www.hyperledger.org))

We are in full swing of a set of interconnected processes regarding the development of the financial-accounting data processing processes and the amplification of the informational content of the summary accounting reports. ([www.hyperledger.org](http://www.hyperledger.org))

## 2. Theoretical background

The existence of multiple processes regarding the development of summary accounting reports can be found in the phenomena of the activity of economic entities and in the space of legislative regulations. The abundance of accounting data sources involves a great deal of disparate, seemingly unrelated information. There is a growing trend to integrate intelligent processes in accounting applications (algorithms, mathematical models, artificial intelligence), based on high computing capabilities. A specific characteristic of these technologies is the inclusion in the analysis process of unstructured data in different formats (video, audio, geographic locations, smart devices, etc.). ([www.hyperledger.org](http://www.hyperledger.org))

The financial-accounting algorithm is the programmed code that contains a series of accounting rules and formulas, which are executed in a certain order to accomplish a task specified by the users of the financial statements. Financial-accounting algorithms offer a new perspective on data, in which, with the help of complex computing techniques, accountants understand data, collected in increasingly large volumes and in increasingly varied forms: text, numbers, images, video, audio. ([www.hyperledger.org](http://www.hyperledger.org))

The evolution of analysis methods has materialized in the development of analysis capabilities based on artificial intelligence (AI) algorithms. A typical AI algorithm analyzes its financial-accounting environment and takes actions that maximize its chances of success.

Artificial intelligence (AI) is the ability of computers to perform duties and tasks commonly associated with human intelligence in financial and accounting activities. In its broadest sense, AI includes any technology designed to mimic, in one way or another, the way human analysis of accounting input data works. AI technology learns, adapts to the surrounding conditions, by assimilating and processing information and storing it for use in other similar situations. ([www.hyperledger.org](http://www.hyperledger.org))

Developing an algorithm to solve a financial-accounting problem is essentially equivalent to discovering a solution to the accounting problem. After identifying the accounting algorithm, the next step is to represent it in a form that can be communicated to a computing machine. The accounting algorithm must be transcribed from conceptual form into a clear set of instructions. These instructions must be represented in an unambiguous manner. In this field, studies are based on knowledge of grammar and language and have led to a wide variety of algorithm representation schemes (called programming languages), based on various approaches to the programming process (called programming paradigms). ([www.hyperledger.org](http://www.hyperledger.org))

Along with the development of algorithms, various algorithm libraries appeared, some of them being open-source, and others owned by the companies that developed them.

Accounting data processing algorithms are customized according to the restrictions imposed on the entity's activity sector. ([www.hyperledger.org](http://www.hyperledger.org))

### 3. Research methodology

The research methodology used in this article consists of empirically researching a set of accounting data available on the Internet and building models of accounting records.

The use of artificial intelligence systems to create profit-maximizing algorithms, together with elements of machine learning and algorithm optimization, can give companies a relevant competitive advantage that will allow them to create new products and services or improve existing ones. Profit maximization can be done, on the one hand, by reducing expenses, and on the other hand, by maximizing income. If expenses are an internal factor that is mostly under the company's control, revenues depend on a series of external factors that must be known, monitored and optimized. ([www.hyperledger.org](http://www.hyperledger.org))

Several types of algorithms can be used in the process of analyzing external factors.

Matching algorithms are similar to ranking and recommendation algorithms, but they match buyers' desires with sellers' variables. ([www.hyperledger.org](http://www.hyperledger.org))

Cross-merchandising algorithms promote a seller's other goods and services to a buyer based on the buyer's browsing history or preferences. ([www.hyperledger.org](http://www.hyperledger.org))

Personalized pricing algorithms analyze consumer preferences to determine a personalized price for a specific good or service. ([www.hyperledger.org](http://www.hyperledger.org))

Advertising algorithms are needed to create targeted advertising by providing personalized content and recommendations. ([www.hyperledger.org](http://www.hyperledger.org))

Dynamic pricing algorithms analyze the price of the product compared to other similar products and change the price, dynamically adjust a seller's prices automatically in response to competitors' prices and changes in the market; in general, it is a repetitive process, which takes place between two limits - a minimum value and a maximum value of the price.

Price prediction algorithms are more complex algorithms that can be based on a predefined prediction model, e.g. regression analysis. In this case, the programmer chooses the factors relevant to sales, and the algorithm uses past observations to adjust the model to maximize revenue. In this case, the algorithm benefits from having a historical data set on which to test the parameters of its model to maximize returns. ([www.hyperledger.org](http://www.hyperledger.org))

Sales forecasting algorithms are using past sales data, industry-wide comparisons, and economic trends, these algorithms can forecast sales results and help companies inform business decisions and predict short- and long-term performance. ([www.hyperledger.org](http://www.hyperledger.org))

Predictive analytics use predictive algorithms and technologies such as Business Analytics to identify patterns, behaviors, exceptions, predict possible trends and estimate consumer behavior and preferences. ([www.ziare.ro](http://www.ziare.ro))

## 4. Findings

### 4.1. Synthetic review on the application of computer models in the accounting and financial information system

According to publicly available data, the implementation of digital transformation programs in the field of accounting is a business priority, starting in 2020. ([www.hyperledger.org](http://www.hyperledger.org))

A computer-assisted audit is, in essence, a classic audit, which instead of employing users as testers, use software programs (research assistants), creating fake user accounts, or programmatically constructed traffic. While this obviously provides a great deal of control over the handling and collection of data, it also creates a number of difficulties. First, it involves spoofing: the researcher invents fake data and injects it into the platform, hoping that these fake accounts cannot be distinguished from real users. This can cause the same legal problems described above. However, it is also more likely that the fake data injection can be claimed as harmful by the vendor itself. The processes for obtaining a user account (as well as the information required) differ for each platform. An effective audit needs more tests and therefore it is necessary to create an audit software program to investigate a certain platform. This method is unlikely to produce enough data for a proper audit, especially if multiple variables need to be considered to properly understand how the algorithm works. ([www.hyperledger.org](http://www.hyperledger.org))

General analysis of the results can be useful in solving some problems. In this approach, test data sets are created (either in a protected regulatory environment or using synthetic data) that can be used to assess whether the overall statistical results suggest that problems exist. For example, standard statistical evaluation techniques could be used to determine whether results or accuracy are different for specific subgroups of individuals, suggesting problems of fairness. This is particularly useful for static models, although it can be more difficult with continuous learning systems. ([www.hyperledger.org](http://www.hyperledger.org))

The use of big data can bring significant gains to a business, which can translate into benefits for consumers, employees and society in general. Organizations can choose better strategies and allocate resources more efficiently. ([www.hyperledger.org](http://www.hyperledger.org))

Data creates significant value for the economy, driving innovation, efficiency and productivity. The use of large volumes of data and the development of their analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, for example, by improving the decision-making process, forecasting, predicting market trends and by allowing a more good segmentation and understanding of consumer needs. ([www.hyperledger.org](http://www.hyperledger.org))

The use and management of big data affects many fields of activity, not only digital ones. Big data applications have demonstrated a high level of adaptability to the diverse requirements of the scientific and industrial fields in which they are used. big data influences the activity of entities, they being obliged 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 market based on accounting information. ([www.hyperledger.org](http://www.hyperledger.org))

The decision-making process is moving from a model based primarily on the experience of the decision-maker to one based on information. The use of big data offers a new perspective by improving the practices of analysis and predictive modeling, with a positive effect in the real-time decision-making process. By processing large data sets collected on existing or potential customers, businesses can tailor both their products/services to customer needs and their pricing strategies. The use of price algorithms also brings companies advantages related to cost reductions and/or revenue increases. Just as it helps companies increase their productivity, big data allows public administrations to improve their efficiency in managing their areas of interest, it helps global organizations analyze information for strategic planning. ([www.hyperledger.org](http://www.hyperledger.org))

The use of big data solutions and the development of their analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, these can be transferred to consumers, employees and society, in general the big data solution cannot be treated as a market itself, but represents a technology that can be implemented in almost any industry and has the capacity to significantly influence the operation of that industry. ([www.hyperledger.org](http://www.hyperledger.org))

The use of digital platforms increases consumer choice, generates alternative business models, based on new technologies and access to the global market. The use of dynamic price algorithms brings advantages to companies, which adjust, in real time, the price level to changes in the demand/offer ratio, ensuring the rebalancing of demand and supply. The high level of transparency of retail markets, due to the possibility to compare prices on the Internet, has generated fiercer price competition, both online and offline, as well as an increase in the visibility of products/brands on the Internet, with beneficial effects on consumers while raising competition concerns related to tacit coordination or anti-competitive agreements. ([www.hyperledger.org](http://www.hyperledger.org))

On the one hand, the use of big data technologies helps companies to increase their productivity, achieve increases in operational and transactional efficiency, allows public administrations to improve their efficiency in managing areas of interest, helps global organizations in analyzing information for the development of strategic planning. On the other hand, these technologies can raise competition issues by changing market dynamics, creating new barriers to market entry, thus offering players already present on the market a competitive advantage while increasing the risk of possible abuses dominant position. ([www.bnr.ro](http://www.bnr.ro))

#### 4.2. A case study of multi-entry accounting for a set of bank transactions

Table no. 1 Transactions

Transactions	Textual description of the transactions
01.02.2024	The Super77 company purchases 10,000,000 Deposit units in transferable digital currency (DUTDC) on 01.02.2024 at the exchange rate of 1 DUTDC = 1 m.u. ( monetary unit) (Nicolae, 2010).
01.02.2024	The sum is sent to the account of <i>Digital transfer control unit (DTCU)</i> .
30.03.2024	The change in the exchange rate is registered 1 DUTDC = 1.2 m.u. The amount is updated in the account of Digital transfer control unit.
30.04.2024	The change in the exchange rate is registered 1 DUTDC = 1.3 m.u. The amount is updated in the account of Digital transfer control unit ( <i>DTCU</i> ).
31.05.2024	The change in the exchange rate is registered 1 DUTDC = 1.25 m.u. The amount is updated in the account of Digital transfer control unit ( <i>DTCU</i> ).
30.06.2024	The change in the exchange rate is registered 1 DUTDC = 1.4 m.u. The amount is updated in the account of Digital transfer control unit ( <i>DTCU</i> ).
31.07.2024	The change in the exchange rate is registered 1 DUTDC = 1.5 m.u. The amount is updated in the account of Digital transfer control unit ( <i>DTCU</i> )
05.08.2024	The company sells the DUTDC - exchange rate is registered 1 DUTDC = 1.52 m.u. The sum is sent to the account of Digital transfer control unit ( <i>DTCU</i> ).

**Note:** Debit = D, Credit = C

*Source:* Case study data proposed by the author

**Accounting data**

(Accounting records made by the author)

Table no. 2 Calculations at 01.02.2024

<b>Calculations</b>	
Purchase cost: 10,000,000 Deposit units in transferable digital currency (DUTDC) x 1 mu = 10,000,000 mu	

Source: Calculations made by the author

Table no. 3 Purchase of Deposit units in transferable digital currency (DUTDC) at 01.02.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Deposit units in transferable digital currency (DUTDC)	Available electronic money	10,000,000

Source: Calculations and records made by the author

Table no. 4 The sum is sent to the account of Digital transfer control unit (DTCU) at 01.02.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Digital transfer control unit (DTCU)	Deposit units in transferable digital currency - Mirror Account (DUTDC-MA)	10,000,000

Source: Calculations and records made by the author

Table no. 5 Calculations at 30.03.2024

<b>Calculations</b>	
Revenues of re-estimation = 10,000,000 Deposit units in transferable digital currency (DUTDC) x (1 - 1.2) = 2,000,000 mu	

Source: Calculations made by the author

Table no. 6 Re-estimation of Deposit units in transferable digital currency (DUTDC) at 30.03.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Deposit units in transferable digital currency (DUTDC)	Financial revenues - electronic currency	2,000,000

Source: Calculations and records made by the author

Table no. 7 The sum is sent to the account of Digital transfer control unit (DTCU) at 30.03.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Digital transfer control unit (DTCU)	Financial revenues - electronic currency Mirror Account	2,000,000

Source: Calculations and records made by the author

Table no. 8 Calculations at 30.04.2024

<b>Calculations</b>	
Revenues of re-estimation = 10,000,000 Deposit units in transferable digital currency (DUTDC) x (1.3 - 1.2) = 1,000,000 mu	

Source: Calculations and records made by the author

Table no. 9 Re-estimation of Deposit units in transferable digital currency (DUTDC) at 30.04.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Deposit units in transferable digital currency (DUTDC)	Financial revenues - electronic currency	1,000,000

Source: Calculations and records made by the author

Table no. 10 Re-estimation is sent to the account of Digital transfer control unit (DTCU) at 30.04.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Digital transfer control unit (DTCU)	Financial revenues - electronic currency Mirror Account	1,000,000

Source: Calculations and records made by the author

Table no. 11 Calculations at 31.05.2024

<b>Calculations</b>
Cost of re-estimation = 10,000,000 Deposit units in transferable digital currency (DUTDC) x (1.3 – 1.25) = 500,000 mu

Source: Calculations and records made by the author

Table no. 12 Re-estimation of Deposit units in transferable digital currency (DUTDC) at 31.05.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Financial expenses - electronic currency	Deposit units in transferable digital currency (DUTDC)	500,000

Source: Calculations and records made by the author

Table no. 13 Re-estimation is sent to the account of Digital transfer control unit (DTCU) at 31.05.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Financial expenses - electronic currency Mirror Account	Digital transfer control unit (DTCU)	500,000

Source: Calculations and records made by the author

Table no. 14 Calculations at 30.06.2024

<b>Calculations</b>
Revenues of re-estimation = 10,000,000 Deposit units in transferable digital currency (DUTDC) x (1.4 – 1.25) = 1,500,000 mu

Source: Calculations and records made by the author

Table no. 15 Re-estimation of Deposit units in transferable digital currency (DUTDC) at 30.06.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Deposit units in transferable digital currency (DUTDC)	Financial revenues - electronic currency	1,500,000

Source: Calculations and records made by the author

Table no. 16 Re-estimation is sent to the account of Digital transfer control unit (DTCU) at 30.06.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Digital transfer control unit (DTCU)	Financial revenues - electronic currency Mirror Account	1,500,000

Source: Calculations and records made by the author

Table no. 17 Calculations at 31.07.2024

<b>Calculations</b>
Revenues of re-estimation = 10,000,000 Deposit units in transferable digital currency (DUTDC) x (1.5 – 1.4) = 1,000,000 mu

Source: Calculations and records made by the author

Table no. 18 Re-estimation of Deposit units in transferable digital currency (DUTDC) at 31.07.2024

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Deposit units in transferable digital currency (DUTDC)	Financial revenues - electronic currency	1,000,000

Source: Calculations and records made by the author



Table no. 19 Re-estimation is sent to the account of Digital transfer control unit (DTCU) at 31.07.2024

Account - D	Account - C	Amount
Digital transfer control unit (DTCU)	Financial revenues - electronic currency Mirror Account	1,000,000

Source: Calculations and records made by the author

Table no. 20 Calculations at 05.08.2024

Calculations
Downloading the book value of Deposit units in transferable digital currency (DUTDC) = 10,000,000 DUTDC x 1.5 = 15,000,000 mu
Earnings from e-currency = 10,000,000 DUTDC x (1.52 - 1.5) = 200,000 mu
Total amount collected = 10,000,000 DUTDC x 1.52 = 15,200,000 mu

Source: Calculations made by the author

Table no. 21 Sale of Deposit units in transferable digital currency (DUTDC) at 05.08.2024

Account - D	Account - C	Amount
Available electronic money	Deposit units in transferable digital currency (DUTDC)	15,000,000
Available electronic money	Earnings from Deposit units in transferable digital currency	200,000

Source: Calculations and records made by the author

Table no. 22 The sale is sent to the account of Digital transfer control unit (DTCU) at 05.08.2024

Account - D	Account - C	Amount
Deposit units in transferable digital currency - Mirror Account (DUTDC- MA)	Digital transfer control unit (DTCU)	15,000,000
A Deposit units in transferable digital currency - Mirror Account (DUTDC- MA)	Earnings from Deposit units in transferable digital currency Mirror Account	200,000

Source: Calculations and records made by the author

## 5. Conclusions

Our brief analysis results in a set of ideas regarding the possibilities of digital processing of large volumes of accounting and financial data.

The use of big data solutions and the development of their analysis and processing capabilities in accounting have generated substantial benefits for entities in the sense of streamlining the activity and improving the quality of accounting data processing services, which can be transferred to users of financial statements. Big data systems are a technology that can be implemented in almost any accounting service industry. ([www.hyperledger.org](http://www.hyperledger.org))

The use of digital platforms increases the choice of users of financial statements, generates alternative models of accounting, based on new technologies and access to the global market of accounting services. ([www.hyperledger.org](http://www.hyperledger.org))

The use of dynamic accounting data processing algorithms brings advantages to the reporting entities, which adjust, in real time, the financial-accounting reports.

The high level of transparency of financial reporting, due to the possibility of accessing financial reporting, has generated an increase in the visibility of financial statements of entities on the Internet, with beneficial effects at the level of users. ([www.hyperledger.org](http://www.hyperledger.org))

The use of BD technologies helps entities to increase their productivity, achieve increases in operational and transactional efficiency, allows public administrations to improve their efficiency in managing areas of interest, helps global organizations in analyzing information for the development of strategic planning.

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# Considerations Regarding Recordkeeping Tools in Accounting Information Systems

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## Abstract

*The purpose of this work consists in the brief description of the developments concerning the instruments used for records in accounting information systems. The accounting information system is currently subject to a major impact generated by new information technology applications, new software programs and hardware devices. We are in full expansion of the use of the Internet in accounting, software and cloud solutions, new legislative requirements, the e-invoice system, new financial reports, reports - the standard fiscal control file SAF-T.*

**Key words:** recordkeeping, accounting, technologies

**J.E.L. classification:** M41, G32

## 1. Introduction

The tools used to create accounting records have experienced a wide evolution in the course of business in the current period. We are witnessing a set of extensive changes in the accounting information system of entities. The classic accounting system based on classic accounting books has been amplified and expanded by information technology tools. ([www.hyperledger.org](http://www.hyperledger.org))

The processing of accounting data in computer networks that communicate via the Internet, the automated acquisition of input data through electronic scanning, the transmission of geo-location data allow a new way of integration in accounting records. ([www.hyperledger.org](http://www.hyperledger.org))

Using smart software programs based on smart phones, tablets, laptops allows accounting information to be reported in real time. Wireless, high-speed 5G networks enable the transfer and processing of very large volumes of reliable data. ([www.hyperledger.org](http://www.hyperledger.org))

## 2. Theoretical background regarding the use of accounting tools in accounting information systems

The use of large volumes of accounting data can bring important gains in the accounting records of entities, which can translate into benefits for the different categories of users of accounting information: investors, employees and society in general. Organizations can choose better strategies and allocate resources more efficiently. Accounting data creates significant value for the economy by driving innovation, efficiency and productivity. The use of large volumes of data and the development of their analysis and processing capabilities in accounting have generated substantial benefits for entities in the sense of streamlining the activity and improving the quality of services, for example, by improving the decision-making process, forecasting, predicting market trends and by allowing a better segmentation and understanding of consumer needs.

The use and management of large volumes of accounting data affects many areas of activity, not only digital ones. Big data applications have demonstrated a high level of adaptability to the diverse requirements of the scientific and industrial fields in which they are used. Large volumes of data influence the activity of entities, 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. ([www.hyperledger.org](http://www.hyperledger.org))

The decision-making process in management accounting is moving from a model based primarily on the experience of the decision-maker to one based on information. The use of large volumes of accounting data offers a new perspective by improving the practices of analysis and predictive modeling in the accounting information system, with a positive effect in the real-time decision-making process. By processing large sets of accounting data collected on existing or potential customers, entities can adapt both their products/services to customer needs and their pricing strategies. The use of accounting data processing algorithms brings entities advantages related to cost reductions and/or revenue increases. Just as it helps companies to increase their productivity, large volumes of data allow public administrations to improve their efficiency in managing areas of interest, it helps global companies to analyze financial-accounting information for strategic planning. ([www.hyperledger.org](http://www.hyperledger.org))

### **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 technologies of large volumes of accounting data are becoming a defining element for increasing the competitiveness of companies, which can collect more accurate and detailed data, which will help them understand the needs of customers, their preferences, but also the phenomena that influence performance to obtain superior results. ([www.hyperledger.org](http://www.hyperledger.org))

The use of solutions for large volumes of accounting data and the development of analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, which can be transferred to consumers, employees and society in general. ([www.hyperledger.org](http://www.hyperledger.org))

By using dynamic accounting data processing algorithms, companies can adjust their price level in real time to changes in the supply/demand ratio, thus rebalancing supply and demand. The calibration of individual offer characteristics to those of competitors' offers is a distinct facet of the use of pricing algorithms, the implications of which have been outlined in the previous section.

A key question in the enforcement of tax fraud legislation is whether the emergence of computer algorithms, which are based on large volumes of data, should lead to a rethinking of the way legislation is enforced in this area. Even in a changing technology and business environment, businesses can take traditional efforts, such as corporate compliance programs, to reduce their exposure to potential criminal liability. Large volumes of data and algorithms enable increasingly innovative means of implementing and monitoring tax compliance. ([www.hyperledger.org](http://www.hyperledger.org))

Without discounting the role of the human factor in setting business objectives, in choosing the methods to achieve them and, implicitly, in the creation, implementation and use of artificial intelligence (AI) technologies, it has been suggested that, in the future, it could fundamentally affect competitive dynamics. Thus, clearer guidelines are needed on how to apply competition legislation, in situations where cartel agreements are reached through interactions between different AI technologies, without the involvement of the human factor in the actual implementation process.

### **4. Findings**

#### **4.1. Assessments on the changes in the use of record-keeping tools in the information systems of accounting entities**

Users of accounting information are now able to extract the data needed for decision-making in an interactive manner and with short reaction times. The use of hardware and software tools, access to high-speed 5G internet or optical cable allows a variety of options for analyzing financial-accounting data issued by entities. ([www.hyperledger.org](http://www.hyperledger.org))

We are currently witnessing an explosive evolution of the volume of accounting data, accessible to users through various platforms. In the mentioned context, the users of the accounting data from the annual financial statements: the statement of the financial position, the statement of cash flows, the statement of the overall result, the statement of changes in equity, the notes comprising the

accounting policies, are able to perform quantifications of the financial-accounting information in comparatively new ways with traditional approaches. ([www.hyperledger.org](http://www.hyperledger.org))

The mentioned technological developments raise in front of the accounting, accounting data processing systems perspectives but also new challenges to which they must give the appropriate answers. The information record system based on double-entry bookkeeping is being expanded and profoundly modified. Accounting through the use of blockchain tools causes the de-localization and multiplication of accounting registers. ([www.hyperledger.org](http://www.hyperledger.org))

#### 4.2. Case study on aspects of the implementation of accounting record-keeping tools

Table no. 1 Table of transactions related to the case study for accounting record tools (Nicolae, 2010)

Transactions	Textual description of the transactions
01.01.2024	The entity Swa55 launched on 01.01.2024 a loan from the bond issue in the amount of 100,000,000 monetary units (mu), guaranteed by an investment in fund units.
01.01.2024	<i>The acquisition of the stock portfolio is recorded</i>
01.01.2024	Installment 1 of the 25,000,000 mu of the loan from the bond issue is transferred
01.04.2024	Installment 2 of the 25,000,000 mu of the loan from the bond issue is transferred
01.07.2024	Installment 3 of the 25,000,000 mu of the loan from the bond issue is transferred
01.10.2024	Installment 4 of the 25,000,000 mu of the loan from the bond issue is transferred
31.12.2024	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2024	The calculated interest related to the loan in the amount of 1,000,000 mu is highlighted
31.12.2025	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2025	The calculated interest related to the loan in the amount of 1,000,000 mu is highlighted
31.12.2026	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2026	The calculated interest related to the loan in the amount of 800,000 mu is highlighted
31.12.2027	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2027	The calculated interest related to the loan in the amount of 600,000 mu is highlighted
01.01.2028	The loan from the bond issue due is repaid
01.01.2028	The portfolio is for sale - investments in fund units

Note: Debit = D, Credit = C

Source: Case study data proposed by the author

#### Accounting data

(Accounting records made by the author)

*The following operations take place in the Entity's accounting:*

Table no. 2 Recording the purchase of the stock portfolio used as collateral

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	Available in digital currency	100,000,000

Source: Calculations and records made by the author

Table no. 3 Installment 1 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	Bond loan issued in digital currency	25,000,000

Source: Calculations and records made by the author

Table no. 4 Installment 2 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	Bond loan issued in digital currency	25,000,000

Source: Calculations and records made by the author

*Table no. 5 Installment 3 of the bond loan is transferred*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Available in digital currency</i>	<i>Bond loan issued in digital currency</i>	25,000,000

*Source:* Calculations and records made by the author

*Table no. 6 Installment 4 of the bond loan is transferred*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Available in digital currency</i>	<i>Bond loan issued in digital currency</i>	25,000,000

*Source:* Calculations and records made by the author

*Table no. 7 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial instruments – Equity portfolio</i>	<i>Financial gains related to the share portfolio</i>	500,000

*Source:* Calculations and records made by the author

*Table no. 8 The calculated interest related to the bond loan in the amount of 1,000,000 mu is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial expenses related to the bond loan issued in digital currency</i>	<i>Available in digital currency</i>	1,000,000

*Source:* Calculations and records made by the author

*Table no. 9 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial instruments – Equity portfolio</i>	<i>Financial gains related to the share portfolio</i>	500,000

*Source:* Calculations and records made by the author

*Table no. 10 The calculated interest related to the bond loan in the amount of 1,000,000 mu is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial expenses related to the bond loan issued in digital currency</i>	<i>Available in digital currency</i>	1,000,000

*Source:* Calculations and records made by the author

*Table no. 11 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial instruments – Equity portfolio</i>	<i>Financial gains related to the share portfolio</i>	500,000

*Source:* Calculations and records made by the author

*Table no. 12 The calculated interest related to the bond loan in the amount of 800,000 mu is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial expenses related to the bond loan issued in digital currency</i>	<i>Available in digital currency</i>	800,000

*Source:* Calculations and records made by the author

*Table no. 13 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial instruments – Equity portfolio</i>	<i>Financial gains related to the share portfolio</i>	500,000

*Source:* Calculations and records made by the author

*Table no. 14 The calculated interest related to the bond loan in the amount of 500,000 mu is highlighted*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Financial expenses related to the bond loan issued in digital currency</i>	<i>Available in digital currency</i>	500,000

Source: Calculations and records made by the author

*Table no. 15 The bond loan owed is repaid*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Bond loan issued in digital currency</i>	<i>Available in digital currency</i>	100,000,000

Source: Calculations and records made by the author

*Table no. 16 The portfolio is sold - investments in fund units*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Available in digital currency</i>	<i>Financial instruments – Equity portfolio</i>	100,000,000
<i>Available in digital currency</i>	<i>Earnings realized on portfolio investments</i>	2,000,000

Source: Calculations and records made by the author

**The following operations take place in Cloud Mirror accounting:**

*Table no. 17 Registration of the electronic transfer of the purchase of the stock portfolio used as collateral*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Mirror account N - Financial instruments - Share portfolio</i>	<i>N Mirror Account - Available in digital currency</i>	100,000,000

Source: Calculations and records made by the author

*Table no. 18 The electronic transfer is recorded - installment 1 of the bond loan*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Mirror account N - Financial instruments - Share portfolio</i>	<i>N Mirror Account - Available in digital currency</i>	25,000,000

Source: Calculations and records made by the author

*Table no. 19 The electronic transfer is recorded - installment 2 of the bond loan*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Mirror account N - Financial instruments - Share portfolio</i>	<i>N Mirror Account - Available in digital currency</i>	25,000,000

Source: Calculations and records made by the author

*Table no. 20 The electronic transfer is recorded - installment 3 of the bond loan*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Mirror account N - Financial instruments - Share portfolio</i>	<i>N Mirror Account - Available in digital currency</i>	25,000,000

Source: Calculations and records made by the author

*Table no. 21 The electronic transfer is recorded - installment 4 of the bond loan*

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
<i>Mirror account N - Financial instruments - Share portfolio</i>	<i>N Mirror Account - Available in digital currency</i>	25,000,000

Source: Calculations and records made by the author

Table no. 22 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial instruments - Share portfolio	Mirror account N - Financial gains related to the share portfolio	500,000

Source: Calculations and records made by the author

Table no. 23 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 1,000,000 mu

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial expenses related to the bond loan issued in digital currency	N Mirror Account - Available in digital currency	1,000,000

Source: Calculations and records made by the author

Table no. 24 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial instruments - Share portfolio	Mirror account N - Financial gains related to the share portfolio	500,000

Source: Calculations and records made by the author

Table no. 25 The electronic transfer is recorded - the calculated interest related to the bond loan in the amount of 1,000,000 mu

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial expenses related to the bond loan issued in digital currency	N Mirror Account - Available in digital currency	1,000,000

Source: Calculations and records made by the author

Table no. 26 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial instruments - Share portfolio	Mirror account N - Financial gains related to the share portfolio	500,000

Source: Calculations and records made by the author

Table no. 27 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 800,000 mu

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial expenses related to the bond loan issued in digital currency	N Mirror Account - Available in digital currency	800,000

Source: Calculations and records made by the author

Table no. 28 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

<b>Account - D</b>	<b>Account - C</b>	<b>Amount</b>
Mirror account N - Financial instruments - Share portfolio	Mirror account N - Financial gains related to the share portfolio	500,000

Source: Calculations and records made by the author



Table no. 29 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 500,000 mu

Account - D	Account - C	Amount
Mirror account N - Financial expenses related to the bond loan issued in digital currency	N Mirror Account - Available in digital currency	500,000

Source: Calculations and records made by the author

Table no. 30 The electronic transfer is registered - loan repayment from bonds due

Account - D	Account - C	Amount
Mirror account N - Bond loan issued in digital currency	N Mirror Account - Available in digital currency	100,000,000

Source: Calculations and records made by the author

Table no. 31 The electronic transfer is recorded - sale of the portfolio - investment in fund units

Account - D	Account - C	Amount
N Mirror Account - Available in digital currency	Mirror account N - Financial instruments - Share portfolio	100,000,000
N Mirror Account - Available in digital currency	Mirror Account N - Earnings realized from portfolio investments	2,000,000

Source: Calculations and records made by the author

## 5. Conclusions

In my opinion, the use of solutions for large volumes of accounting data and the development of their analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, which can be transferred to consumers, employees and society in general. Big volumes of accounting data is a technology that can be implemented in almost any industry and has the ability to significantly influence the operation of that industry. ([www.hyperledger.org](http://www.hyperledger.org))

The use of digital platforms increases consumer choice, generates alternative business models, based on new technologies and access to the global market. The use of accounting data processing algorithms brings advantages to companies, which adjust, in real time, the price level to changes in the demand/offer ratio, ensuring the rebalancing of demand and supply. The high level of transparency of retail markets, due to the possibility to compare prices on the Internet, has generated fiercer price competition, both online and offline, as well as an increase in the visibility of products/brands on the Internet, with beneficial effects on consumers, while raising competition concerns related to tacit coordination or anti-competitive agreements. On the one hand, the use of technologies of large volumes of accounting data helps companies to increase their productivity, achieve increases in operational and transactional efficiency, allows public administrations to improve their efficiency in managing areas of interest, helps global organizations in analyzing information for developing strategic plans. ([www.hyperledger.org](http://www.hyperledger.org))

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## **Incorporating Sustainability into Indirect Procurement: The Audit Approach**

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### **Abstract**

*This study investigates how to integrate sustainability into indirect procurement and develop an efficient sustainability audit process. Using a qualitative approach, the research analyzes relevant articles, reports, and regulations from various countries. In today's business environment, incorporating sustainability into procurement is essential for enhancing corporate responsibility and efficiency. The study highlights the importance of audits in identifying and mitigating environmental and social risks in indirect procurement. Comprehensive audit procedures, including supplier evaluations, compliance checks, and performance monitoring, are crucial for promoting sustainable procurement practices. The findings show that a well-structured audit approach ensures adherence to sustainability standards, promotes transparency, and fosters continuous improvement in the supply chain. The paper concludes with recommendations for effective audit strategies to achieve sustainable indirect procurement. Global economic development varies, and corporate governance sets rules to ensure transparency and security for investors. Non-financial reporting is increasingly important, with companies evaluated on social and financial metrics, leading to more sustainability reports following GRI standards.*

**Key words:** sustainability, ESG (Environmental, Social, Governance), indirect procurement, supply chain, sustainability audit

**J.E.L. classification:** M14, M42, L14, Q50

### **1. Introduction**

In today's world, where environmental and social responsibility are crucial, organizations are actively looking to incorporate sustainability into their procurement processes. Indirect procurement, which involves sourcing goods and services that support an organization's operations, offers unique opportunities and challenges for sustainable practices. This paper explores the integration of sustainability into indirect procurement using a comprehensive audit approach, emphasizing the essential role of audits in maintaining responsible and ethical supply chain management. Indirect Spend Sustainability encompasses all efforts and practices by a company to minimize the environmental, social, and economic impacts of its indirect spending. These efforts can include various initiatives, such as assessing and engaging suppliers, selecting products and services with lower environmental impacts, reducing waste, recycling, investing in energy-efficient technologies, reducing greenhouse gas emissions, enhancing social responsibility, and regularly tracking and reporting sustainability performance to ensure transparency and continuous improvement. (Supply Shift E-book 2023) The biggest challenge remains to manage supplier social responsibility and to create a way to rate a company overall. According to (Hill, 2020) the simplest method of grading a business is to only depend on its or its industry's past reputation.

However, this approach may undervalue the efforts businesses make to enhance their performance and, on the other hand, may be susceptible to deceptive or false corporate advertising. The multifaceted nature of ESG issues adds another layer of complexity. The effectiveness of a business can be evaluated in a variety of ways, including the effects it has on the air, water, and energy; the sustainability of its customers and employees; and its recruiting, training, and promotion policies regarding women and minorities. How should I weigh and measure each of these? Companies and investors increasingly rely on outsourced services to conduct research and help on ESG issue identification, compliance, and reporting due to the challenges associated with compiling and evaluating data on a broad range of ESG issues. Some businesses have implemented a self-assessment approach in which they request suppliers to self-report their social responsibility (SR) capabilities. Since self-reported information is hard to confirm, a crucial credibility dilemma arises: can a buyer reasonably be expected to receive genuine reporting? (Tao and Brian, 2022). The chance of no violation is represented by a certain SR level that is known only to the supplier. The buyer operates in a market where reported SR infractions are taken seriously. After the supplier notifies the customer of its SR level, the buyer chooses how much to order and between two audit stringency levels to be performed on the provider. Findings: If the buyer orders a larger quantity from the high-type supplier but imposes a stricter audit than the buyer would for the low-type supplier, and the high-type supplier chooses to accept this larger order while the low-type supplier, fearing audit failure, does not, then influential truthful communication may emerge in equilibrium. As the cost of the audit increases, the buyer stands to gain.

## **2. Theoretical background**

### **2.1. Indirect procurement driving efficiency**

Purchasing has become more strategic in recent years and is frequently the source of competitive advantage (Sitar, 2012). Purchases made by a company can be divided into two categories: direct and indirect.

Indirect Procurement, or Non-Production Procurement, often seems less critical than Direct Procurement. However, sourcing goods for daily operations, like office supplies and equipment, significantly impacts a company's overall processes. Due to its broad scope, Indirect Procurement requires specialized expertise rather than leaving purchases to individual departments, which can lead to tensions and unnecessary costs. Larger global companies may have dedicated Indirect Procurement teams, while smaller businesses benefit from virtual procurement services. As digital supply chains evolve, refining sourcing strategies is essential for reducing internal costs and achieving sustainability goals. Indirect Procurement not only supports daily business operations but also offers a strategic avenue for financial and sustainability improvements. According to (Retail Technology Innovation Hub, 2022) almost 80% of purchases are made through indirect procurement. Therefore, more careful management of indirect procurement is an efficient cost-saving method for businesses where profit is the primary goal, particularly in an era of high inflation where minimizing financial strain is crucial. However, indirect procurement plays a significant role in sustainability. The hazards that procurement professionals continue to face were brought to light in (Inverto's 2022) Risk Management in Procurement Study. The survey, which was primarily centered on the engineering, automotive, and consumer industries in Western Europe, found that lowering CO2 emissions was the third most risky factor after securing supply and growing costs. It is imperative that businesses prioritize sustainability in both indirect and direct procurement due to mounting demand on them to promote sustainable supply chains by reducing their carbon footprints and environmental damage. By reducing the need for indirect materials, a more efficient and well-organized strategy to sourcing and purchasing can improve sustainability by reducing waste, transit, and storage. Purchasing indirect commodities efficiently has several advantages for companies. Specialists in indirect procurement are essential in assisting businesses in creating more robust and economical supply networks in the face of financial strains, supply chain interruptions, and sustainability initiatives.

## 2.2. Sustainability audit

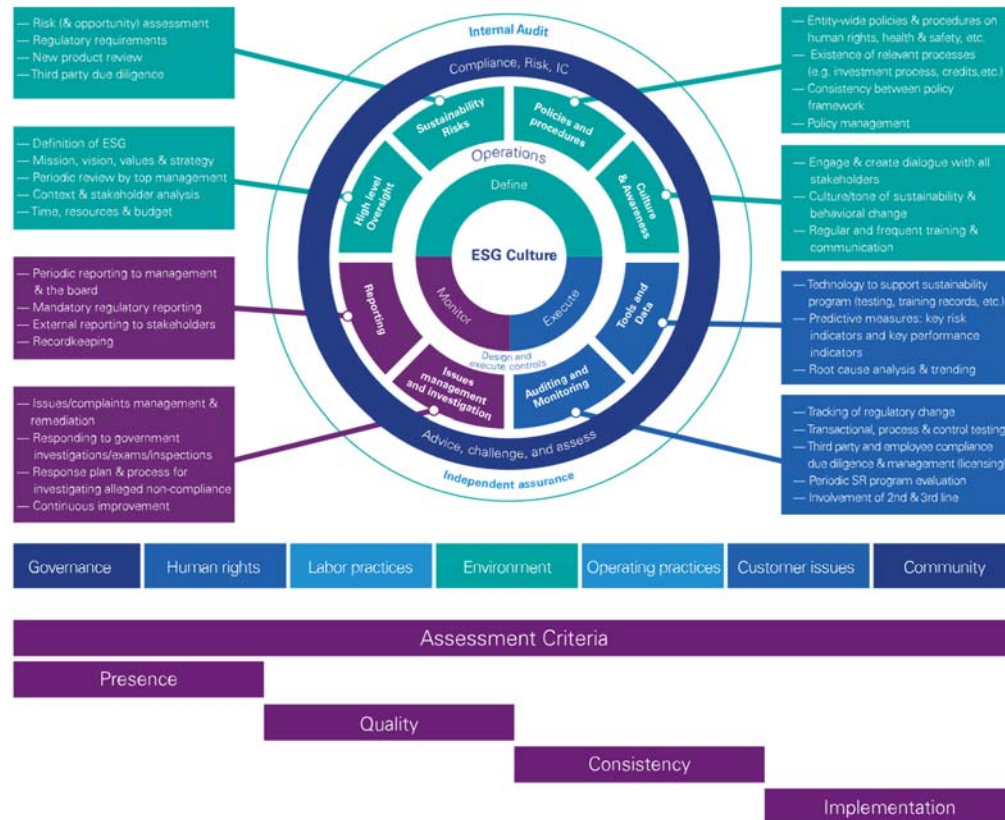
For decades, the concept of Environmental, Social, and Corporate Governance (ESG) has gained increasing attention from both the public and private sectors. Companies are now assessed not just on economic grounds, but also on their societal and environmental impacts. The growing significance of ESG is evident in the numerous standard-setting initiatives that have emerged over the years. Notable examples include the ISO 26000 standard on Social Responsibility, the Global Reporting Initiative (GRI), the guidelines developed by the Sustainability Accounting Standards Board (SASB), and the universal Sustainable Development Goals (SDGs) set by the UN Global Compact.

Sustainability audits, which prioritize an objective examination, are intended to assist organizations in controlling their sustainability activities, achieving managerial commitment, adhering to organizational sustainability policy, and meeting environmental legislation. Sustainability audits include elements including utilizing stronger rules and regulations to safeguard the environment, making decisions based on sustainable development, and peacefully resolving problems through dialogue for sustainability development. This somewhat aligns with the research conducted by DeSimone et al. (2021), which demonstrated that sustainability sensitivity had a considerable impact on sustainability audits in both listed and non-profit organizations but was not significant for unlisted enterprises in the organization type analyses. According to a continental-level analysis (DeSimone et al., 2021), sustainability sensitivity had a major impact in Asia and Oceania as well as North America, but a negligible impact in Africa, Europe, and Latin America on sustainability audits. The current study, however, disproves this conclusion by showing that Accra-based manufacturing companies must prioritize environmental friendliness in order to improve sustainability audits. (Samagaio and Diogo, 2022).

With the increasing integration of environmental assessment and auditing methods into our decision-making processes, sustainability auditing is emerging as the most potent audit style to date. A sustainability auditing framework can be developed using one of several conceptual frameworks. They all entail identifying the most important problems facing a company, creating targets and indicators for sustainable development, and regularly assessing how well one is doing in reaching the goals. Examples of such frameworks are the capital stocks, ethics-conservation-cooperation-competition, effectiveness-thrift-margin, pressure-state-response, and environment-society. (McCartney, 2003)

KPMG has created an internal audit program that integrates well-known standards with their internal expertise in internal audit and ESG. This methodology evaluates sustainability initiatives through three stages: Define, Execute, and Monitor. Auditors should review the company's ESG policy, including oversight, risk assessment, due diligence, and implementation actions. Additionally, auditors should evaluate the organization's tools, technology, controls, and monitoring activities. The organization must have measures to address issues and report according to stakeholder expectations. To assess the organization's maturity, the audit methodology elements are evaluated based on their presence, quality, consistency, and implementation level. (KPMG 2021)

Figure no. 1. All the 17 SDG Goals



Source: (KPMG Report, 2021)

### 2.3 Sustainable procurement

Since its inception at the World Summit on Sustainable Development in Johannesburg in 2002, sustainable procurement has gained significant attention from policymakers worldwide. (Zaidi et al 2021) Sustainable procurement influences all participants in the supply chain and is based on a multi-stakeholder approach. It requires a commitment to social responsibility at every level of the organization and for all types of procurement, including minor items. These practices take into account human rights, diversity, philanthropy, environmental issues, and safety considerations. There is a growing focus on purchasing from local and small-sized suppliers, which leads to life cycle costing that promotes the production of environmentally friendly products. Sustainable procurement practices encompass local and SME-oriented purchasing, eco-friendly products, and social returns on investment (Grandia and Kruyen, 2020). They address organizational procurement policies while also concentrating on reducing packaging and waste. Organizations evaluate their suppliers' social performance, their capability to produce environmentally friendly products, and their efforts to decrease carbon emissions related to the transportation of goods.

Financial constraints and product quality issues are major obstacles globally. The UK primarily faces financial barriers, while other regions struggle more with product quality. In Pakistan's education sector, government legislation and third-party pressure are significant barriers, while in Spain, supplier capacity and employee motivation are key issues. Governmental barriers include inadequate environmental laws, lack of support, and weak enforcement. Market barriers involve limited supplier availability, low consumer demand for sustainable products, unavailability of green materials, and poor collaboration in the supply chain. Strategic barriers within organizations include lack of management commitment, resistance to change, insufficient incentives, inadequate

funding for green initiatives, and a focus on cost over sustainability. Operational barriers include lack of financial support, insufficient employee skills, perceived high costs, lack of awareness, and a short-term focus. These barriers highlight the varied challenges in adopting sustainable procurement practices. (Shaikh et al., 2023)

### **3. Research methodology**

This research methodology involves a comprehensive analysis and comparison of various studies on indirect procurement, sustainable procurement, and sustainability audits (SA) mainly from the past 3 years. The methodology encompasses a systematic review of existing literature, reports from the Big Four accounting firms, and internal regulations pertaining to sustainability and indirect procurement procedures.

The analysis was structured by dividing the subject into three distinct parts: indirect procurement, sustainability audits, and sustainable procurement processes. This segmentation facilitated a thorough examination of each component, offering a comprehensive overview, and enabling a deep understanding of each area.

By employing comparative analysis techniques, we identified trends, patterns, and significant changes in legislation and policy regulations. Studies were meticulously selected based on their relevance, credibility, and the comprehensiveness of their findings. This approach ensured a holistic perspective on enhancing the sustainability of indirect procurement processes and determining the optimal sustainability audit (SA) approach. Consequently, this methodology provided detailed insights into each area, ultimately leading to a nuanced and integrative perspective on embedding sustainability into indirect procurement practices.

### **4. Findings**

Since indirect procurement accounts for a very small percentage of the expenditures of manufacturing enterprises, it is a complex and important aspect of purchasing that has received little attention from academic study. Another issue with indirect purchase is its ambiguous terminology, which makes it challenging to draw conclusions from many sources.

According to (Karjalainen, Kempainen and Van Raaij, 2009), the absence of procurement strategies for indirect spending results in problems like maverick purchasing, which is the buying of products and services outside of established contracts or procedures. These purchases are detrimental to the company because they deviate from accepted best practices and complicate the analysis of indirect spending (Sodhi, Sodhi, and Tang, 2014). Furthermore, a lot of indirect procurement strategies just consider the purchase price, not the system's overall costs (Bailey and Helms, 2007).

Strategies must be tailored to each individual subcomponent of indirect spend and will vary based on a firm's industry and value of the purchased item. Incorporating sustainability practices into procurement strategies can help ensure that purchases are not only cost-effective but also environmentally responsible. A sustainability audit can further enhance procurement by evaluating the environmental and social impact of purchasing decisions, ensuring that the organization adheres to sustainable practices and reduces its overall ecological footprint.

Sustainability reporting has shown to be a critical factor in enhancing supplier engagement and environmental management activities. According to a report by Business for Social Responsibility and the Carbon Disclosure Project (BSR 2016), suppliers often demonstrate higher levels of risk recognition and improved environmental management once they initiate regular reporting processes. This suggests that the act of reporting itself can drive suppliers to be more attentive to sustainability aspects within their operations. Furthermore, standardized approaches to supplier assessment, such as those promoted by initiatives like Together for Sustainability, help reduce confusion and overwhelm among suppliers by aligning requirements and methodologies (TfS Initiative, 2013). The Sustainable Purchasing Leadership Council is also working towards developing a rating system that aims to enhance credibility, institutional alignment, and efficiency in purchasing practices across both public and private sectors (SPLC, n.d.).

These efforts underscore the importance of consistency and standardization in sustainability reporting to foster better sustainability practices among suppliers.

While indirect procurement accounts for a small portion of total expenditures, its complexity and importance are significant. Developing tailored strategies that include sustainability practices and audits can ensure cost-effective and environmentally responsible purchasing. Sustainability reporting and standardized supplier assessments, as promoted by initiatives like Together for Sustainability and the Sustainable Purchasing Leadership Council, enhance supplier engagement and environmental management. These efforts underscore the importance of consistency and standardization in fostering better sustainability practices across supply chains.

## 5. Conclusions

The study looks into creating an effective sustainability audit process and incorporating sustainability into indirect buying. To improve operational efficiency and corporate responsibility in the modern company environment, procurement practices must incorporate sustainability. The study emphasises how crucial audits are for spotting and reducing social and environmental hazards associated with indirect procurement.

Implementing sustainable practices is made more difficult and presents special opportunities when it comes to indirect procurement, which is purchasing products and services to support an organization's operations. The research is divided into three main sections: sustainable procurement methods, sustainability audits, and indirect procurement. This allows for a thorough comprehension of each section as well as a thorough summary. This methodical methodology made it possible to conduct a comprehensive analysis of the topic and identify trends, patterns, and important modifications to laws and policy regulations.

According to the findings, supporting sustainable procurement methods requires thorough audit procedures that include supplier evaluations, compliance checks, and performance monitoring. Audits are essential for guaranteeing that sustainability guidelines are followed, forging open communication, and encouraging ongoing supply chain development. Evaluating a company's ESG policies, performing risk assessments, carrying out due diligence, and guaranteeing compliance with internal and external regulations are just a few of the components that make up an effective sustainability audit. These audits support companies in meeting stakeholder expectations, managing their sustainability initiatives, and upholding responsible supply chain management.

The relevance of non-financial reporting is also emphasised in the study, given the growing trend of evaluating businesses using both financial and social criteria. The increasing interest of investors in companies adhering to ESG criteria is reflected in the increased demand for sustainability assurance statements and responsible investing methods. It has been demonstrated that strong ESG performance has a beneficial effect on economic metrics, lowering financial risks and boosting company reputation.

The report also emphasises the difficulties with ESG ratings, pointing out the lack of uniformity and openness in the standards applied by various rating firms. The disparities in ESG ratings highlight how the assessment process needs to be more transparent and standardised. According to the study, more research on suitable ESG standards for assessing businesses' social responsibility, environmental, and governance practices would be advantageous for several stakeholders.

The study concludes by offering specific insights into how sustainability is incorporated into indirect procurement procedures as well as suggestions for successful audit tactics. These tactics are essential for improving corporate responsibility, attaining sustainable indirect procurement, and guaranteeing long-term operational efficiency. The study also emphasises how different countries' economies are developing and how important corporate governance is to providing investors with security and transparency. Organisations can support ongoing improvement in their supply chains, uphold sustainability standards, and encourage sustainable procurement practices by implementing thorough and organised audit procedures.



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## Corporate Governance and ESG in Romania, Concept Awareness

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### Abstract

*This study examines corporate governance and ESG (Environmental, Social, and Governance) in Romania, focusing on current awareness and implementation while suggesting improvements. Using a qualitative approach, it reviews relevant laws, reports, and regulations.*

*Global economic development varies, and corporate governance provides rules to ensure investor transparency and security. Non-financial reporting is crucial, with companies increasingly evaluated on social and financial metrics, leading to more sustainability reports in line with GRI standards.*

*Romania's corporate governance began in the early 2000s, with governance codes adopted in 2001, updated in 2008, and a new code by the Bucharest Stock Exchange in 2015, supported by the EBRD. The EU Directive 2014/56, integrated into Romanian Law 162/2017, requires accounting professionals on audit committees to enhance transparency, though implementation is ongoing. This study aims to clarify the current state and suggest improvements for corporate governance and ESG in Romania.*

**Key words:** corporate governance, ESG (Environmental, Social, Governance), CSRD, GRI

**J.E.L. classification:** M4, M14, F23

### 1. Introduction

Despite the trend towards globalization, the world's economies are not uniform; some are highly advanced, while others are just beginning to develop. Corporate governance fundamentally involves establishing rules that companies should follow to offer investors transparency and greater security in their investment decisions. Transparency is not only about the publication of information but also the quality and professionalism of those responsible for the information disclosed. Non-financial reporting has also become a crucial concern for managers, with companies being evaluated not only financially but also socially. Consequently, there is a growing trend of companies publishing annual sustainability reports in accordance with GRI standards.

The governance of corporations pertains to the structure through which companies are managed and supervised. (OECD 1999).

Originating in the UK private sector, shareholders sought better control over management to maximize financial results. The Organization for Economic Co-operation and Development (OECD) later promoted this concept globally by publishing universally applicable principles. The initial set of principles was established in 1999, with an improved version released in 2004. The national level guidelines for implementing these principles have also been issued by the OECD. These guidelines encompass shareholders' rights, the fair treatment of all shareholders, the responsibilities of different parties engaged in corporate management and control, transparency, and the disclosure of information.

As stated by (IFAC 2009) corporate governance involves the interrelationships among a business's executive leadership, board of directors, shareholders, and other stakeholders. It establishes the structure for defining the company's goals, accomplishing those goals, and overseeing performance. Successful corporate governance encourages companies to pursue objectives in the company's and shareholders' best interests, fostering efficient use of resources and strong performance oversight. IFAC defines corporate governance as a conceptual framework with two primary aspects: adherence and performance. Adherence encompasses the responsibilities, framework, and compensation of management, while performance focuses on strategy and generating value. This aspect assists management in making strategic choices, identifying risks, enhancing performance, and identifying critical decision-making moments. Therefore, it is important to develop best practices and approaches customized for various economic entities. Consequently, developing best practices and techniques tailored to different economic entities is essential.

Several scientific studies have integrated these principles and have shown that the implementation of corporate governance benefits shareholders and maximizes their profits. Even in the face of recent global financial challenges, there is a continuous discussion on whether improved corporate governance can lead to increased economic and financial stability. The primary aim of the corporate governance system is to protect investors' interests. Financial scandals involving multinational companies have led to significant shareholder losses, prompting some shareholders to develop mechanisms to safeguard their interests.

Modern corporate governance is heavily influenced by the adoption of best practices in corporate governance and corporate social responsibility, as these are the only ways to ensure a company's sustainability and long-term value addition. In evaluating a company's overall performance, it is important to consider the concerns of international rating agencies that assess ESG scores. These scores are used alongside financial scores to enhance the accuracy of evaluating a company's performance and risks. (Achim and Bordea, 2015).

## **2. Theoretical background**

### **2.1. Overview of the Corporate Governance ecosystem**

Economic globalization complicates business management by dispersing capital and resources, making it difficult to locate stakeholders and diversifying their interests. Multinational companies adapt business practices to local standards, while international companies impose uniform standards wherever they operate. Transnational companies combine local standards with those of the parent company. Globalization brings complex competition between international markets, where products are manufactured in areas with cheap labor and sold in more profitable markets, leading to an inequitable distribution of profit and loss between markets and countries. These factors are among the main ones influencing corporate governance, determining how companies set and implement their operating rules and standards to ensure transparency and security of investments. (Telembeci, 2014)

The term "governance" in Romanian is interchangeable with "administration" or "leadership," encompassing all management activities within an organization. Hence, if "governance" equals "leadership," then "corporate governance" signifies the overall leadership of the entire organization, given that "corporate" originates from "corp," indicating the notion of a whole, a unit. Corporate governance spans various fields, spanning from economics and reaching into information theory, law, accounting, finance, management, psychology, sociology, and politics. This concept encompasses all the influences affecting institutional processes, including the appointment of regulators or control authorities involved in organizing the production and sale of goods and services (Turnbull, 1997).

The management of an organization and its structures is closely connected to corporate governance, the specialized literature (Bunget et al., 2009) recognizes that this concept includes significant issues related to social responsibility and business ethics. Corporate governance has a broad connotation, encompassing elements such as transparency in internal and external audits, strict deadlines for financial reporting, managers' responsibility for the accuracy of information in financial

reports, and total transparency in financial results. In common language, the concepts of "corporate management" or "corporate leadership" emerged in the United States during the Watergate scandal in the 1970s, when American companies were found to be involved in political financing. Corporate governance developed after a string of impressive mishaps in the business world, leading to a loss of investor confidence in managers' ability to lead large corporations or public institutions. In 1992, Sir Adrian Cadbury in the UK produced the extensive Cadbury Report, identifying significant issues in internal control systems as the main cause of major corporate failures. (Cadbury, 1992) This indicated that the management of these entities not only failed to prevent bankruptcies but also caused them. The World Bank also commented on corporate governance, stating that its scope is to align the interests of society, corporations and individuals. Over the past two decades, various definitions of corporate governance have emerged in the literature, without a universally accepted definition. The Cadbury Report defines corporate governance as the system by which companies are directed and controlled. In April of 1999, the Organization for Economic Co-operation and Development (OECD) expressed that corporate governance delineates the allocation of rights and responsibilities among various participants within the organization, including the board, directors, shareholders, and other stakeholders. It sets forth the regulations and processes for making decisions regarding corporate matters. The OECD views corporate governance as encompassing a series of connections among the company's management, board, shareholders, and other stakeholders, and the framework through which the company's goals are defined and pursued, with incentives provided to the board and management in order to achieve these objectives in the best interest of shareholders and society. (OECD, 2004).

## **2.2. Sustainability Reporting Frameworks and Regulations**

In the last three decades, there has been a significant global push towards sustainable development, evident through initiatives such as the Paris Agreement and the United Nations Sustainable Development Goals (SDGs). Alongside these international efforts, various frameworks and regulations have emerged to guide businesses and organizations in reporting their sustainability practices.

- Paris Agreement (2015): The Paris Agreement outlines a comprehensive action plan to mitigate global warming and reduce greenhouse gas emissions to limit the increase in global temperature to well below 2 degrees Celsius above pre-industrial levels. It emphasizes efforts to achieve net-zero emissions by 2050, with major economies like China, the United States, and the European Union committing to significant emission reductions. The EU, for instance, has pledged to reduce emissions by 55% by 2023 compared to 1990 levels. (Paris Agreement, 2015)
- United Nations Sustainable Development Goals (SDGs): In 2015, all UN member states adopted 17 goals known as the SDGs, which are designed to tackle a wide range of global social, economic, and environmental challenges. It is crucial for entities to align their sustainability objectives with these SDGs to ensure comprehensive and coordinated efforts towards sustainable development. (United Nations, 2023)

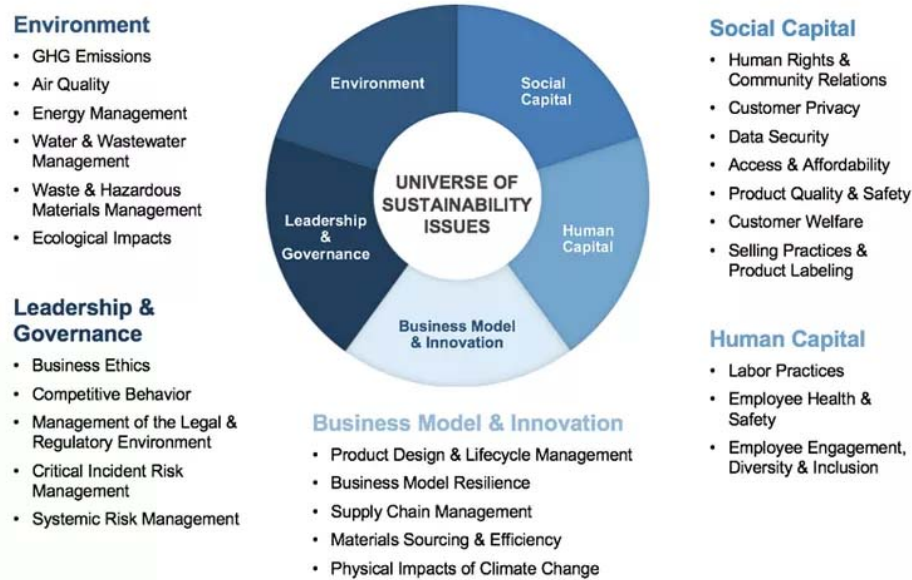
Figure no. 1. The 17 SDG Goals



Source: safricom.co.ke

- Romanian Government's Sustainable Development Objectives: Romania has developed its national strategy for sustainable development, focusing on achieving sustainable development goals by 2030. This includes the establishment of a National Department for Sustainable Development and the implementation of a national action plan. These efforts align with the broader international agenda for sustainable development. (Vladineanu and Celac, 2018)
- Reporting Frameworks and Regulations: Several reporting frameworks and regulations have been introduced to guide organizations in disclosing their sustainability performance. The ESG framework in Romania showcases a company's commitment to being sustainable and ethical. The push for mandatory ESG reporting in Romania is driven by legal requirements and the expectations of the community, highlighting the significance of openness and ethical behavior in different business sectors. At the moment, this is a requirement for bigger companies and certain sectors in specific areas, in line with the global trend towards corporate accountability. Although mandatory ESG reporting is not a requirement for all companies yet, choosing to voluntarily disclose can bring several benefits. Mainly, it shows a forward-thinking commitment to sustainable and ethical business operations. (ACACE)
- Global Reporting Initiative (GRI): Established in 1997, GRI provides voluntary standards for reporting on environmental, social, and economic impacts, offering specific guidance on presentation formats. It is widely utilized, with 73% of the largest companies adopting its standards. GRI Guidelines were formally sent off in October 2016. The new guidelines are planned to achieve more straightforwardness organizations' effects on the economy, climate and society and work with better decision-production at hierarchical level. The items in Principles contain particular between related norms, considering updates of any autonomous guidelines or expansion of new ones without modifying the entire set. The design involves three widespread norms that apply to all associations: GRI 101 – Foundation; GRI 102 - General Disclosures; GRI 103 - Management Approach. These are followed by three series of topic-specific standards: GRI 200 – Economic; GRI 300 – Environmental; GRI 400 – Social (Rao, 2016)
- Sustainability Accounting Standards Board (SASB): Founded in 2011 in the US, SASB develops sustainability accounting standards for 77 industries, facilitating industry-specific reporting on sustainability performance. Every set of standards divides topics according to five issue categories: Environment; Social capital; Human capital; Business model and innovation; Leadership and governance.

Figure no. 2. Sustainability Accounting Standards Board



Source: <https://www.investopedia.com/sustainability-accounting-standards-board-7484327>

- **European Union Regulations:** The EU has implemented various regulations to promote sustainable finance and reporting. These include the Non-Financial Reporting Directive (2014/95), which requires large companies to disclose non-financial information, and the EU Taxonomy Regulation (2020/852), establishing criteria for determining sustainable economic activities. (UNPRI, 2022)

- **Corporate Sustainability Reporting Directive (CSRD):** The directive (EU) 2022/2464 has been legally added to the Romanian laws by the Ministry of Finance on January 26th, 2025. This year signifies the debut of company reporting for entities in Romania. It is part of the net zero project and aims to extend ESG reporting to several categories of companies by 2050, which will have an impact on business models

### 3. Research methodology

This research methodology involves a comprehensive analysis and comparison of various studies on corporate governance and ESG (Environmental, Social, and Governance) about Romanian market and global market, from the 1900s till present.

The methodology includes a systematic review of existing literature, legislative documents, and policy regulations related to corporate governance. Therefore, we analyzed it from 2 points of view, first from a global perspective and then we tried apply the global perspective to Romania, in order to have a perspective at country level.

Studies were selected based on their relevance, credibility, and the comprehensiveness of their findings. A chronological approach was adopted to trace the evolution of corporate governance and ESG practices over the years.

Comparative analysis techniques were employed to identify trends, patterns, and significant changes in legislation and policy regulations. This approach ensures a robust understanding of how corporate governance and ESG frameworks have developed and their impact on corporate sustainability and performance in Romania.

#### 4. Findings

The demand for sustainability assurance statements and responsible investment strategies is growing among both private and institutional investors. (Bauckloh et.al, 2023)

Investors are increasingly interested in companies committed to ESG criteria and sustainable practices. Examining ESG criteria across business sectors can attract investment and improve stakeholder reputation. Good ESG performance positively impacts economic measures, reducing financial risk, corporate opacity, and debt agency costs while lowering bond credit spreads (Chen and Xie, 2022; Lian et al., 2023). This effect is amplified by media coverage, particularly in developing nations, which boosts analyst attention and reduces agency costs (He, Guo and Yue, 2024). Integrating ESG factors is vital for sustainable development and addressing environmental and social challenges (Lokuwaduge and Heenetigala, 2017; Raman, Bang and Nourbakhsh, 2020).

Recent research has highlighted the shortcomings of ESG ratings, focusing particularly on the lack of transparency in the criteria used to rate companies. For instance, Busch and Hoffmann (2009) discovered that major ESG rating agencies employ different criteria, weighting schemes, and rating scales, leading to significant discrepancies in ESG ratings across agencies. Similarly, Khan, Serafeim and Yoon (2016) criticized these ratings for their opaque and inconsistent methodologies, advocating for greater standardization and transparency in the assessment process. Consequently, further studies on appropriate ESG criteria for evaluating companies' environmental activities, social responsibility, and governance policies—considering different countries, time periods, industries, and cultural conditions—would be highly beneficial for various stakeholders (Chatterji, Levine and Toffel, 2009a; Huang et al., 2024).

Over the past three decades, globally, corporations have been involved in various financial-accounting practices, some fraudulent, leading to bankruptcies and notable scandals. This trend highlights the persistent risk of accounting fraud in developed capitalist countries, despite ongoing regulatory improvements. Common factors behind these scandals include managerial incompetence, non-compliance with internal regulations, inadequate risk management, flawed role allocation, disregard for internal audit recommendations, and ineffective external audits. (CFI)

#### 5. Conclusions

The results of the methodology applied in this study, offers us a perspective about the evolution of corporate governance and ESG over time. The literature analysis was conducted starting with the 1900s and up to the present, something that made us able to expose in an objective way the evolution of the 2 indicators over time and gave us a clear perspective on the actual regulations and policies as well as on the future directions.

Introduced in 2022, the CSRD expands reporting requirements to more companies, mandates detailed reporting formats, and introduces mandatory assurance of sustainability information.

Reporting on ESG encompasses the strategy and action plan detailing how organizations aim to achieve their ESG objectives and targets. This involves both qualitative and quantitative information, provided retrospectively and prospectively within the annual report. Auditors play a crucial role in ensuring the integrity of sustainability reporting, transitioning from limited assurance for non-financial statements to reasonable assurance for sustainability reports by 2028. Auditor qualifications are essential, requiring deep theoretical knowledge of relevant ESG domains and at least eight months of practical training, with additional responsibilities assigned to audit committees. Internationally, ESG scores are assessed by various agencies using diverse scales and evaluation methods. However, there are growing concerns regarding the complexity of ESG reporting, challenges in data acquisition and measurement, significant additional costs, limited access to funding sources, and the prevalence of greenwashing. These issues underscore the need for standardized reporting frameworks, robust auditing practices, and greater transparency to address the multifaceted challenges associated with ESG reporting and performance evaluation.

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# The Role of Data Visualization in the Finance – The Case of Publicly Listed EdTech Companies

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## Abstract

*This study explored the application of data visualizations in finance, focusing on publicly listed EdTech companies from the New York Stock Exchange (NYSE) and NASDAQ. By adopting a qualitative approach combining literature review with document analysis, the study has revealed a limited use of graphical items in 10-K reports of these companies. Most visualizations are used to illustrate cumulative shareholder returns over specific periods and use the major indexes for comparison purposes. The financial information platforms like Yahoo Finance and Google Finance provides to investors advanced, interactive data visualizations features such as Bollinger bands visualizations that meet the requirements of sophisticated investors and traders. There are potential benefits of integrating more graphical elements in official financial reports to improve data comprehension, interpretation, and investment decision-making*

**Key words:** data visualization, EdTech, financial reporting

**J.E.L. classification:** C80, C88, G10, G30

## 1. Introduction

Data visualization, often named “DataViz”, in its simplest definition is “*the representation of information and data using charts, graphs, maps, and other visual tools*” (Coursera, n.d.).

Data visualization lies at the intersection of art and science, combining principles of visual perception with analytical thinking to enhance the understanding and impact of graphically displayed information. As a scientific discipline, DataViz relies on principles of visual perception and human cognition to enhance understanding and make data memorable.

Its utility is visible in many major fields such as healthcare, education, energy, manufacturing, and finance, to name just a few. For example, data visualization is used in healthcare for visualizing patient data, medical research, and improving hospital operations. In manufacturing, it is used in product development and quality control. In the energy sector, it is utilized for visualizing production and distribution flows of electricity. Data visualization is particularly important in the financial sector. In this field, data visualization is useful for analyzing stock price, financial statements, illustrating various comparisons and trends of key performance indicators or financial ratios, and forecasting cash flows or revenues. Other uses include detecting banking fraud, analyzing investment portfolios, and applying technical analysis to stocks.

The goals of data visualization include intuitive and quick understanding of data, making better decisions, improving efficiency, and adding greater value to organizations.

As financial reports become more complex and harder to read, due to adapting to reporting requirements (Schoenmaker and Schramade, 2023), data visualization has the potential to provide an efficient way to transform data into an easily understandable and analyzable form.

Data visualization can be achieved with line plots, scatter plots, box plots, density plots, violin plots, bar charts, area charts, pie charts, histograms and so on. More advanced forms of data visualization include heat maps, tree maps, parallel coordinate plots, or spider plots.

Particularities of financial data: These are predominantly quantitative data related to costs, stock levels, and the display of statements—mandatory accounting data for investors—as well as time series with various indicators such as stock prices. In the field of companies’ financial valuation, we differentiate between two types of analysis: fundamental and technical. Technical analysis has generated sophisticated elements for the analysis and interpretation of financial data, such as MACD or Bollinger Bands.

Over time, various software programs have been developed to aid in data visualization, such as Microsoft Excel, Google Charts, Tableau, Power BI, D3.js, Grafana, etc.

Additionally, programming languages Python and R have become popular among data scientists through their data analysis and visualization libraries. Among these, we mention matplotlib, bokeh, and seaborn in Python, or ggplot2, ggvis, and plotly in the R language.

The purpose of this article is to explore the role of data visualization in the financial field, with examples from the financial reporting and analysis of public companies in the EdTech sector. For this, we have provide examples of visualizations from companies’ annual reports and from financial platforms such as Yahoo Finance or Google Finance.

## 2. Literature review

Data visualization has become a popular topic in the last decades. This was influenced by the development of data science and data analytics applications (Schmidt, 2021). A simple query in Web of Science Core Collection database on the “data visualization” topic has returned 12,795 results that included articles (7660), proceeding papers (5094) and reviews (402). The highest number of papers (1363) were published in 2022.

In the current section, the authors have reviewed the most relevant papers returned by the query in WoS. On a thorough review, we have removed a few papers from the original list that were not fully relevant for the topic of this paper.

Kawahara and Takeuchi (2021) have proposed a scalable graph analysis and machine-learning platform in order to improve the cash flow prediction in banks. They introduced two new graph features: an internal money flow feature based on Markov processes and an anomaly score derived from other graph features. Tested with real bank transaction data, their method significantly improved prediction accuracy over traditional time-series models.

Laidroo (2019) investigated how graphical elements from the annual reports of 33 banks located in Central and Eastern Europe influence performance attributions. The study found that negative performance attributions increase the use of external indicator graphs. This is in line with the previous researches and may indicate intentional impression management by banks.

Similarly, impression management strategies have been investigated in an older paper by Laidroo and Tamme (2016). They have analyzed the usages of graphs in annual reports from Central and Eastern European (CEE) banks over a five-year period, identifying impression management strategies and recommending vigilance from annual report users due to potential material distortions in the visual display of the information or sudden disappearance of certain graphs. Furthermore, Laidroo (2016) assessed the reliability of graphs in CEE bank reports during crisis and non-crisis periods. The research revealed a prevalence of favorable measurement distortions and an increase in impression management during crises.

Melis and Aresu (2022) have studied the selective use of graphical information in corporate annual reports across different countries. Since the pressure to deliver good performance is high, companies may be inclined to provide a subjective, non-neutral image of their performance. Based on this, the authors have recommended that the readers of annual reports to be cautious when using graphical information provided by companies.

Zhang (2020) has investigated the effect of the visual impact defined as graphical vividness on non-professional investors. Based on the conclusions drawn from an experiment with 470 participants, the author has found that the graphical vividness degree had an influence on the non-professional investors’ judgments and decisions.

Falschlunger et al. (2015) have examined the graphical representation from the annual reports of the top 50 publicly listed companies in Europe. This analysis included the annual reports from seven years, which included more than 4600 graphic displays. The authors concluded that topics and the

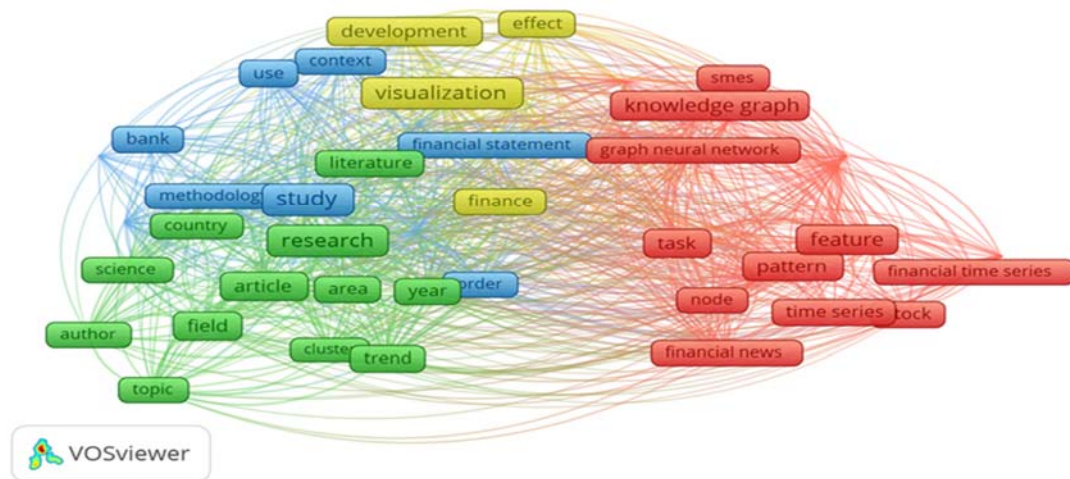
ways that are illustrated have changed in time. Furthermore, the graphs seem to exaggerate positive trends.

As it can be seen, the data visualization is used in a variety of domains related to finance, including enhancements in predictive accuracy for bank cash flow, impression management through graphical display, selective use of graphical information in annual reports.

Based on the papers extracted from WoS, we have used VosViewer, version 1.6.19, Leiden University, The Netherlands (Van Eck and Waltman, 2010) in order to perform co-word analysis in order to identify notable key terms associated with our research topic.

In the Figure 1 below, we have illustrated the co-word analysis.

Figure no.1. – The keyword co-occurrence map generated by VosViewer



Source: generated by authors with VosViewer

### 3. Research methodology

The objective of this research is to examine the role of data visualization in understanding complex data from the financial domain.

The authors have adopted a qualitative approach, combining the literature review with content analysis.

**Literature review:** The authors have conducted an analysis of scientific literature published in journal entries indexed in Web of Science Core Collection (WoS) database, reviewing relevant journal articles and research reports published in the last decade.

The approach that has been adopted was to focus on the most relevant papers written in English that included in their titles the relevant keywords pertaining to data visualization and finance. The complete query in WoS is presented below:

data visualization" OR "data viz" OR visualization\* OR chart\* OR plot\* OR diagram\* OR dashboard\* OR graph\* OR heat\*map\* OR histogram\* OR tree\*map\* OR infographic\* OR box\*plot\* OR "graphical representation" OR "visual analysis" OR "information visualization" OR "visual data analysis" (Title) AND "finance" OR "financial\*" OR "annual report\*" OR "quarterly report\*" 10-K OR 10-Q OR "balance sheet" OR "income statement\*" OR "cash flow\*" (Title) AND 2014-01-01/2024-05-31 (Publication Date) AND English (Language) and Review Article or Proceeding Paper or Article (Document Types)

The query above has returned 268 results that included 182 articles and 83 Proceeding Papers that have been exported in text and RIS file formats. Next, we have used the VosViewer software tool, version 1.6.19 (Van Eck and Waltman, 2010) in order to generate a co-occurrence analysis based on extracted data.

**Content analysis:** we have performed a document analysis of the latest annual reports of a sample of 11 publicly listed companies on NYSE and Nasdaq stock exchanges from EdTech sector: 2U, Inc., Adtalem Global Education Inc. , American Public Education Inc. , Chegg, Inc. , Coursera, Inc., Duolingo, Inc., Grand Canyon Education Inc., Perdoceo Education Corporation, Stride, Inc., Strategic Education Inc., Udemy, Inc. Furthermore, we have reviewed the data visualization features of the financial platforms such as Google Finance and Yahoo Finance in order to assess the

#### 4. Findings

We have identified the following companies from the EdTech sector that are listed on New York Stock Exchange (NYSE) or NASDAQ stock exchanges.

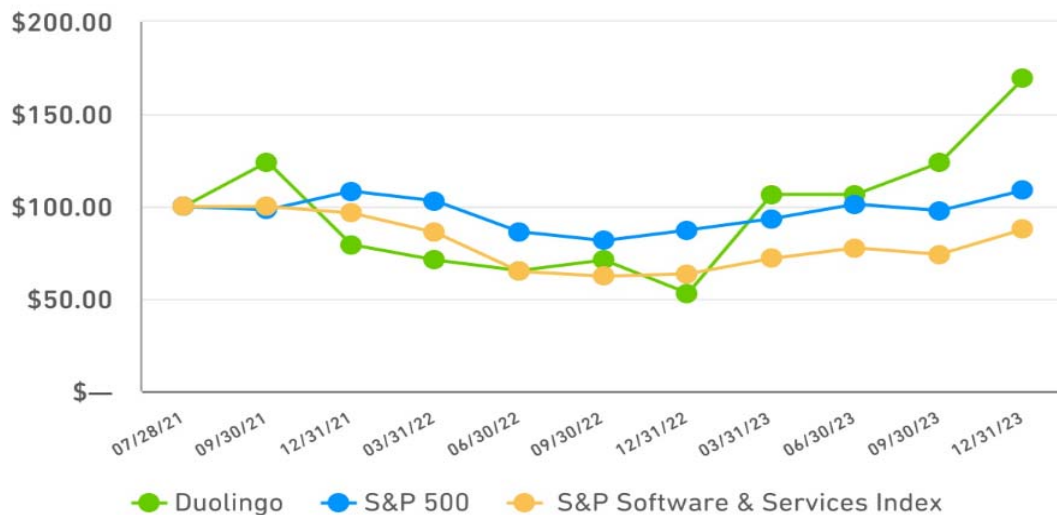
Table no. 1 The list of publicly listed EdTech companies on NYSE or NASDAQ

Company Name	Symbol	Number of charts or graphs from 10-K Reports
2U, Inc.	TWOU	1
Adtalem Global Education Inc.	ATGE	1
American Public Education Inc.	APEI	3
Chegg, Inc.	CHGG	1
Coursera, Inc.	COUR	2
Duolingo, Inc.	DUOL	1
Grand Canyon Education Inc.	LOPE	1
Perdoceo Education Corporation	PRDO	1
Stride, Inc.	LRN	1
Strategic Education Inc.	STRA	1
Udemy, Inc.	UDMY	1

Source: Authors

After identifying these companies, we examined their 10-K reports to understand how they utilize graphical items such as charts or graphs. We observed that there are limited occurrences of visualizations in official 10-K reports. This means that investors should rely more on often on numerical and text data, which can be less intuitive and harder to understand or interpret comparing with chart or graphs visualizations. The analyzed companies use graphs to illustrate the cumulative return of their common shares over a period, such as two to five years. Figure 2 below illustrates this for Duolingo Inc.

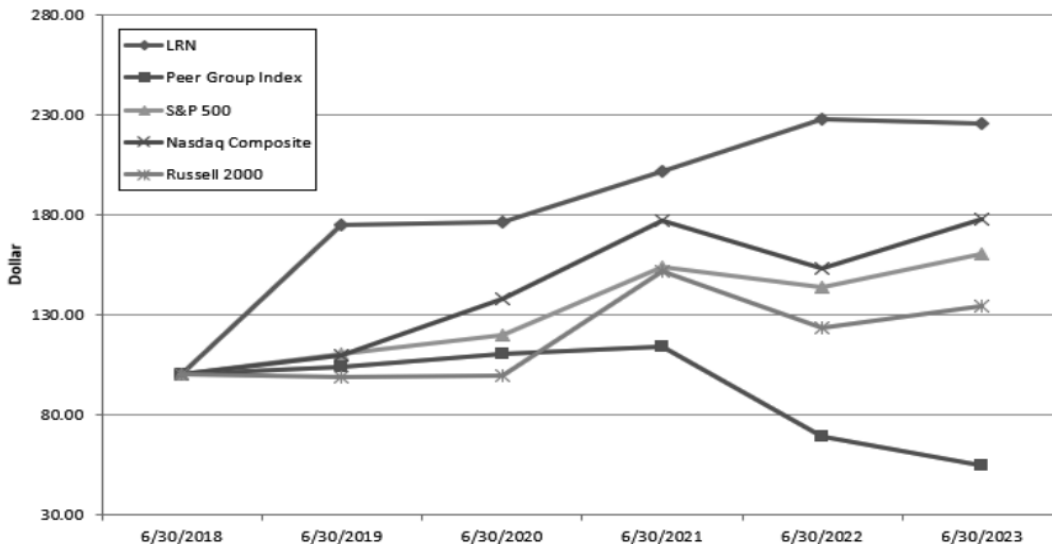
Figure no. 2 Comparison of Cumulative Total Return, Duolingo Inc.



Source: Duolingo Inc., 2024

Also, the companies compare this with a number of various indexes such as S&P 500 Index, S&P 500 Information Technology Index, Nasdaq Composite Index, Russell 2000 Index. Besides the well-established indexes, some of the analyzed companies used additional benchmarks such as a peer group of companies from the same sector to measure the cumulative total return (Stride, Inc., 2024 ; Adtalem Global Education, 2024). Figure 3 shows a comparison of five-year cumulative total returns for Stride Inc. against various benchmarks.

Figure no. 3 Comparison of Five-Year Cumulative Total Return for Stride Inc.

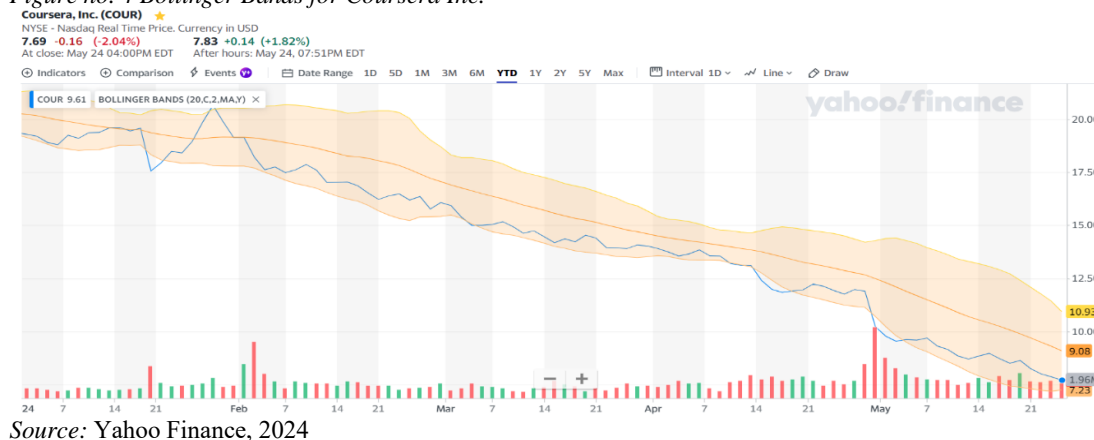


Source: Stride Inc., 2023

The analysis of annual reports revealed the scarcity of the visualizations included in the official 10-K reports. This may be explained by the rigorous communication rules that need to be enforced in the audited materials.

If the graphical displays in annual reports were mainly used to illustrate the evolution of the stock price and to compare against various benchmarks such as S&P 500 index, the financial platforms offer more advanced data visualization features that are more appropriate for technical analyses. In contrast with 10-K Reports filled by analyzed companies, the financial platforms such as Yahoo Finance offer multiple options of interactive data visualization of stock price. This include advanced visualizations that can illustrate the volatility of stocks, such as Bollinger Bands – a popular instrument among traders and investors (Investopedia, 2024). We have illustrated below the Bollinger Bands for Coursera Inc. on Yahoo Finance platform.

Figure no. 4 Bollinger Bands for Coursera Inc.



Source: Yahoo Finance, 2024

Also, financial platforms can provide comparisons of multiple stocks like Google Financials. The Figure 6 below illustrates an example of such comparison.

Figure no. 6 Evolution of the stock price for the current year three companies



Source: Google Finance, 2024

While 10-K Reports adhere to the regulatory requirements and ensure accuracy of the financial disclosures the diverse options of data visualizations from platforms such as Yahoo Finance or Google Finance, play an important role in helping investors to understand the financial data. These platforms help investors in gaining more insights regarding the trends of the stock price and provide a wide variety of displaying historical data.

The inclusion of more advanced graphical elements in official financial reports such as 10-K Reports, where possible, has the potential to improve the understanding of the financial data.

The financial research platforms can be used together with 10-K reports to improve the understanding of the financial positions of the analyzed companies and to make better investment decisions.

## 5. Conclusions

When applied correctly, data visualizations have the potential to improve the understanding of the financial data.

The current analysis has shown that there is a limited utilization of visual graphs and charts in 10-K reports of EdTech companies listed on NASDAQ or NYSE.

Whenever used, the purpose of these graphs and charts was to show the cumulative shareholder returns over specific periods. This limited utilization of data visualizations suggests that investors should rely very often on number or text data – that are less intuitive and harder to be processed comparing with visual information.

While 10-K reports adhere to regulatory requirements and provide accurate data, they lack the power of advanced data visualizations. The inclusion of more advanced graphical elements in official financial reports such as 10-K Reports could have a positive impact on understanding and make sense of the financial data.

This research has shown that using advanced visualization tools could add significant value to financial reporting and analysis.

The current study has a number of limitations: we have considered a limited sample of companies that are listed on NYSE or NASDAQ. This leaved aside the publicly listed companies from other regions.

Also, we have examined a very limited number of platforms that delivers financial information. Including more such financial research platforms may be beneficial for understanding the available visualization options in financial domain.

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# Internal Managerial Control and Internal Audit in Crisis Management: Lessons from the Pandemic

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## Abstract

*The COVID-19 pandemic has generated many challenges for the society we live in, and in this area of identifying the public sector, it has been the most tested, focusing on its resilience and response in times of crisis, as well as how to which citizens relate with public administrations. Public institutions, not generating profit, but rather consuming resources, are obliged, by the legislation in force and by professional conduct, to be responsible for the use of public funds. In a crisis situation, effective and efficient use of these funds becomes essential, and public entities must adapt quickly to maintain service delivery and public trust.*

*The scientific effort of this paper aims at how the Internal Managerial Control (IMC) System managed to "impose" itself in a crisis situation and the difficulties that the leaders of public entities faced during this health crisis. The pandemic has highlighted the crucial importance of human resources in achieving the general and specific objectives of public institutions. This study aims to explore the adaptations and innovations implemented within IMC System on pandemic issues highlighting key lessons learned and providing recommendations for building institutional resilience in the face of future crises. It will also discuss strategies to overcome the challenges, ensuring the continued and efficient operation of public services in the context of unprecedented disruption.*

**Key words:** COVID-19, internal managerial control, public institutions, risk management

**J.E.L. classification:** H83, M42, M48

## 1. Introduction

The current global context has presented public administration in Romania with a variety of new challenges and limitations due to the COVID-19 crisis. Public institutions have a greater duty in handling the health crisis, which has a considerable economic effect on the entire public sector.

The IMC System is a useful tool for managers of public entities, as it guarantees that financial activities are carried out in accordance with established policies and procedures. This helps prevent errors, discrepancies, and fraud while promoting openness in managing the company's resources. Additionally, an internal control system helps identify areas to improve efficiency and cut down on unnecessary resources.

The pandemic was a significant moment for public institutions in Romania. Many people had to adjust their work settings to adhere to Government rules, such as limiting contact with the public and, in certain cases, colleagues. During this 30-month period, public entity managers faced a crisis as they were tasked with overseeing public involvement and daily operations to avoid the shutdown of the institution.

During periods of emergency, the IMC System acts as the main tool for tackling issues, identifying weaknesses, maximizing resource allocation, and guaranteeing stability. This system ensures specific procedures and supervision are in place to reduce the impact of crises and offer guidance to the organization through structured management. Incorporating risk management into internal control systems is essential for managing crises. Risk management procedures assist in recognizing possible dangers, evaluating their influence, and creating plans to lessen them. This

integration guarantees that organizations are more prepared to address crises (Figo & Anderson, 2009).

*The motivation* for selecting this subject is the significant issue arising from the COVID-19 pandemic. This has caused us to understand that we must alter our approach to managing risk in the workplace. The crisis demonstrated the significance of embracing digital transformation and utilizing advanced technologies like artificial intelligence to guarantee efficient operations. With the arrival of spring, we are encountering obstacles like poor road conditions, the necessity for increasing training programs, and concerns about information security. Understanding how these dynamics operate is crucial for establishing a robust internal control system capable of handling unexpected events and ensuring the smooth operation of the organization.

*The aim* of this article is to illustrate the critical importance of maintaining an updated and well-maintained IMC system. By doing so, entities will be prepared to deal with any unforeseen circumstances that could arise. The article's objective is to explain how public institutions can enhance their risk management tactics by incorporating AI and digital technologies into their IMC operations. The key is to strike a delicate equilibrium between harnessing technology for our benefit and addressing the obstacles it presents, in order to effectively manage crises such as the COVID-19 pandemic and maintain operational efficiency.

## **2. Literature review**

Internal control is defined as a method carried out by a company's management to reach particular objectives, guarantee adherence to policies, safeguard assets, and enhance operational effectiveness (Rada & Rada, 2010). Internal control includes policies and procedures implemented by management to ensure objectives are met, comply with regulations, safeguard assets, and maintain information reliability (Ștefănescu et al, 2008). It is crucial to regularly monitor and update control procedures in order to maintain their effectiveness and ensure that the entity's objectives are achieved (Iancu, 2016).

Although the IMC system is utilized in public and private entities as mentioned in the specialized literature, this paper will specifically concentrate on the role of the IMC system in public entities.

Since Romania's EU accession in 2007, IMC has had to comply with EU guidelines and national laws. And from 2007 until present, there have been important changes in Romania regarding the definition of IMC and the majority of these legal modifications have transformed internal control into a highly beneficial instrument for companies. At present, IMC consists of 16 standards and is responsible for guaranteeing the efficiency of operations, the accuracy of financial reporting, and adherence to laws and regulations.

At present, the rules governing internal managerial control procedures in Romania is set out in Order no. 600 dated April 20, 2018 which approves the Internal Managerial Control Code for public entities. This is the standard set of rules that all public institutions, no matter their area of operation, must adhere to.

Some authors discuss the relationship between IMC and the audit function, emphasizing how they work together effectively. Authors see the internal audit process as an ongoing and organized endeavor to enhance the effectiveness of the management process. The auditor plays a vital role in enhancing internal controls by offering assurance, advising, and overall support at every level of the organization (Zecheru, 2014).

## **3. Research methodology**

This article utilizes a qualitative research approach in examining specialized articles related to the topic from a research methodology perspective. To maintain the article within a research field that blends observations and enhancements to the IMC System, the author found it beneficial to also explore views on potential enhancements to the IMC System in public institutions, but also limitations, if the case.

The database for these articles were: ScienceDirect, CEEOL, Wiley Journals, Google Scholar, Emerald Management Journal and other databases and the keywords used for the research were: "internal managerial control", "internal control in Romania", "internal control during pandemic" etc.

All the articles and opinions were incorporated into the present paper and the results are detailed as follows.

#### **4. Findings**

The author categorized the findings made into two groups: one focusing on internal control and auditing amidst the pandemic, and the other on the changes and possible enhancements with the pandemic's arrival. The control and internal audit functions operate as a dynamic, adaptive system, continuously evolving in response to organizational changes and external influences. An occurrence like the pandemic brought about alterations concerning the necessity for digitalization and enhancing infrastructure, highlighting the importance of continuously updated risk management and procedures tailored to meet the institution's current requirements.

##### **4.1. IMC and IA And The Pandemic**

To examine how institutions reacted to the pandemic, we reviewed multiple case studies and identified key concepts.

A thought-provoking article that grabbed my attention discussed the implementation of social distancing protocols and remote work options. Singh & Best (2023) noted that this method allowed internal audit functions to concentrate on areas with high risk and adjust to changing needs. Discoveries show that the pandemic has sped up the digital transformation in internal audit divisions, emphasizing the significance of educating and training audit personnel in new technologies. Organizations that had already adopted technologies like continuous monitoring controls saw enhancements in audit efficiency and effectiveness, especially in dealing with risks and maintaining compliance. The authors also noted that organizations that had previously invested into continuous controls monitoring technologies found that their transitions were smoother and were more readily accepted. Still, implementing continuous monitoring controls was difficult due to the absence of support from upper management and inadequate training for internal audit personnel. This case study shows that previous technology and education investments play a vital role in ensuring that internal audit operations are effective during crises.

From the author's point of view, if we were to examine the conclusions drawn by the two authors and apply them to public institutions in Romania, they would encounter similar challenges to a significant degree. Nevertheless, there are several sectors where telecommuting is not feasible, and workers are required to report to the office on a regular basis. Nevertheless, incorporating these technologies would be advantageous for auditing, though the transition may not be as seamless as the scenario described. This is a result of the need for ongoing enhancements to the infrastructure and the necessity for training personnel in using these systems.

In a paper published by Jarva & Zeitler (2023) which examined the impact of COVID-19 on AI, indicates that the transition to remote auditing brought about both advantages and difficulties. The shift to remote audits has been fast and effective, made easier by strong information and communications technologies. Nevertheless, difficulties were encountered when auditing non-digital procedures and holding remote interviews, as they frequently did not have the same level of effectiveness as face-to-face interactions. Interviewees stressed the indispensable importance of being present on-site for specific audits, pointing out the psychological influence and ability to physically examine certain items. The future of auditing may consist of a mixture of on-site and remote audits, taking into account risk assessments and individual organizational requirements.

Another study conducted by Passetti et al (2021) in Italian cooperatives highlights the dual role of management control in addressing technical and ethical aspects during the pandemic. Using various measures, the organization was better able to adjust and reduce the effects of the pandemic. The research contributes to current understanding by providing practical insights into the role of management control during an unprecedented crisis, emphasizing the importance of integrating

social values and organizational tactics to enhance resilience during emergencies. These actions also helped to collaborate with neighboring communities and decrease inequalities caused by the pandemic. This study highlights the importance of flexible and adjustable management control systems in times of crisis. There are also other opinions formulated by Zhu & Song (2021) that emphasizes that as the pandemic grows more severe, the positive effects of internal control also increase, suggesting that companies in areas with widespread outbreaks saw greater benefits from strong internal controls.

When combining these different studies, it is clear that the ability of audit functions and management control systems to adapt is essential in overcoming the difficulties brought about by the pandemic. Singh & Best (2023) and Jarva & Zeitler (2023) emphasize the speed-up of digital transformation and the transition to remote auditing, highlighting the significance of adopting technology and providing training. The results indicate that companies that already had continuous monitoring technologies and strong information and communication infrastructures were more prepared to manage the sudden changes caused by the crisis. Nevertheless, obstacles like the requirement for being physically present on-site and the efficiency of remote engagements continue to exist, suggesting that a combination of both methods could potentially be the upcoming trend in auditing.

Additionally, Passetti et al (2021) emphasize the dual function of management control in navigating technical and ethical elements amidst the pandemic, underlining the significance of integrating social values and organizational tactics to enhance resilience. This all-encompassing approach not only reduced the immediate impact of the crisis, but also encouraged collaboration and reduced inequalities, highlighting the broader societal significance of management control systems.

According to their research, Zhu & Song (2021) maintain that regions with high pandemic severity see greater benefits from strong internal controls. This indicates that strong internal controls are crucial for the organization's resilience and play a significant role in managing crises.

Overall, these studies suggest that the pandemic has emphasized the importance of adaptable and reactive audit and management control systems. Organizations that had already embraced technological advancements and continuous surveillance were better equipped to transition smoothly and maintain effectiveness. However, it remains essential to keep focusing on infrastructure improvements and offering personnel training. The future of internal audit and management control involves integrating both remote and on-site strategies tailored to unique organizational requirements and risk assessments in order to ensure technical expertise and ethical responsibility.

### ***Mitigating Uncertainty: The Importance of Risk Management***

Managing risks is deemed essential to achieve organizational objectives because attempting to eradicate risks completely would lead to a lack of action and failure to accomplish goals. It is important to have a systematic and structured approach to handling risks, which includes identifying, analyzing, evaluating, responding to, monitoring, and communicating risks. Public entities must implement the "Risk Management" internal control standard to meet management regulations and establish efficient internal control systems (Costescu, 2008; Zaharia, 2013; Dăneci-Pătrău et al, 2014).

Some authors also viewed risk management as a beneficial concept to evaluate internal control. From an internal control standpoint, risk management is a procedure in which an organization foresees, recognizes, assesses, and suggests remedies for potential future dangers, which can be addressed with proper readiness and resources (Sustano, 2018), and is also viewed as the instrument that enables timely responses to the appearance of risk threats (Frigo & Anderson, 2009). Having a precise comprehension and portrayal of potential dangers is crucial for successful decision making and risk management. Ambiguous or inaccurate risk descriptions can result in incorrect or insufficient analyses, leading to mismanagement or wrong decisions that may result in substantial losses. Therefore, it is crucial to guarantee that the interpretation and depiction of risk are precise and effective to prevent any negative impact on risk management and decision making processes (Avent, 2016). When examining the pandemic era, numerous risks linked to any primary

function of a government entity shared the common factor of restricted interaction with the public. In numerous instances, it was not feasible because of the nature of the activity, so the leaders had to devise solutions to ensure the activity could proceed as normally as feasible.

An effective risk management system must be accompanied by a monitoring and control system that is necessary for all organizations. These systems are necessary for reducing risks and guaranteeing the safety of both employees and production operations. Additionally, it offers data-driven approaches for detecting problems early on, leading to improved decision-making, enhanced efficiency, and more significant cost reductions. An effectively executed monitoring and control system can serve as a strong tool in guaranteeing the success of a company.

Given these points, incorporating and properly executing risk management frameworks in public organizations not only comply with regulations but also improve overall organizational readiness. Organizations can enhance their ability to navigate uncertainties and ensure operational continuity, even during crises like the COVID-19 pandemic, by adopting a systematic approach to identifying, analyzing, and addressing risks. Ensuring risk descriptions are accurate and clear is essential, as it directly impacts the quality of decision-making and organizational results. Hence, it is essential to have ongoing monitoring and strong internal controls to promote a risk management culture that is proactive, ultimately protecting the organization's goals and interests of stakeholders.

#### **4.2. What Positive Changes Would Help The IMC System?**

Certainly, when considering the benefits that could improve the IMC system, it is important to include artificial intelligence, automated compliance monitoring, improved decision-making support, predictive maintenance, among others. All these concepts, which could appear to be inspired by science fiction films, are actually ideas that have been explored by corporations and experts in the field.

In an article written by Chan (2023) and published by ISACA that explores how AI could be used in the risk management process, the author delves into how AI transforms continuous auditing by enabling the examination of entire data sets and transactions, rather than just samples. This comprehensive approach leads to thorough audits and the detection of previously unnoticed discrepancies. AI-driven tools like Microsoft's Security Copilot, which uses OpenAI's GPT-4, are adept at addressing threats, assessing risk levels, and providing practical insights and reports. Furthermore, AI enhances risk assessments by analyzing data from IoT devices to verify evidence, oversee controls, and oversee compliance tasks. AI systems are constantly evaluating fresh information to improve the precision of forecast results and validate parameters. Nevertheless, companies must carefully evaluate the possible risks, collection of information, and challenges to protect data when implementing AI. In general, AI revolutionizes how risks are evaluated by automatically analyzing data, enhancing decision-making, and providing accurate risk data promptly, ultimately improving risk management strategies.

An important perspective is that with the rise of AI and platforms like ChatGPT, work across various sectors is being transformed, leading to a widespread adoption of these technologies. Romania's public institutions will gradually implement this change with the help of the National Recovery and Resilience Plan, leading to better quality services and work from officials. Certainly, utilizing this tool for controlling and auditing activities carries advantages as well as potential risks, which will be explored later. Among these benefits, Chan detailed the potential advantages in terms of risk mitigation.

Of course, these aspects of the digitalisation of public institutions and, moreover, internal control and audit functions also have shortcomings. Paul et al., 2024, argued that digital transformation includes fundamental changes in organizational characteristics through the integration of information, computing, communication and network technology. The authors discuss how digital transformation affects value creation, client engagement, innovative business models, and improvement of operational efficiency. The article also discusses obstacles such as digital exclusion, potential privacy issues, and ethical use of data and technology.

Other authors, such as Bjerek-Busch & Aspelund (2021), identified various obstacles to the implementation of digital transformation in public organizations. These include external obstacles such as rules, budgetary restrictions and interconnections of government organizations. The

obstacles within the organization include segmented structures, upper-level leadership and staff's insufficient digital skills and mindset. Managing obstacles are related to traditional administrative responsibilities, a lack of strategic prevision and a refusal to accept change.

Certainly, these technologies' potential was enhanced during the pandemic, leading organizations across the board to seek permanent solutions for their implementation. The merging of digitalization and AI in IMC operations offers great potential and significant difficulties, particularly evident in the COVID-19 crisis. AI technologies improve the effectiveness and precision of internal controls through ongoing auditing and thorough data analysis.

AI-powered tools and automated compliance monitoring enhance operational efficiency and regulatory compliance by analyzing IoT data, overseeing controls, and improving risk assessments, all in line with Romania's National Recovery and Resilience Plan. Nevertheless, challenges like digital exclusion, privacy concerns, regulatory constraints, budget limitations, staff skill gaps, inadequate infrastructure, and resistance to change hinder efficiency, further exacerbated by the lack of necessary resources and reluctance to adapt. Effective internal control systems require strategic planning, investment in infrastructure, training, and change management, especially during crises like the COVID-19 pandemic, to strike a balance between the advantages and disadvantages.

## 5. Conclusions

The pandemic has shown us how important it is to have a defense system that corresponds to the general and specific objectives of the institution, this system being the internal control system, in order to face unexpected challenges.

The use of digital technologies and advanced technologies such as AI have considerably improved risk management and strengthened operational efficiency and helped monitor compliance. The pandemic has accelerated the use of digital tools, showing us how important it is to keep learning and improving our skills in new technologies. Research suggests that companies that had already invested in technology and had a strong infrastructure were better equipped to deal with the crisis.

But, public institutions have their own set of challenges, such as aging infrastructure, employees who need to learn new skills. There are a lot of rules and restrictions, not enough money and people who don't want to change things, which makes it even harder to make digital technologies work. It is very important that institutions have clear and honest descriptions of risks and make good decisions during a crisis to manage things well.

In order to maximize the benefits of digital transformation and avoid problems, public institutions should carefully plan their infrastructure investment, provide continuous training and effectively manage changes. To ensure the smooth running of the business and maintain trust, it is important to use remote and on-site audit strategies. By updating the risk management framework and using AI technologies, public institutions can be more resilient and prepared for emergencies. This allows them to use public funds wisely and to provide good services to the people.

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