

7TH INTERNATIONAL SCIENTIFIC-BUSINESS CONFERENCE
LEADERSHIP, INNOVATION, MANAGEMENT AND ECONOMICS:
INTEGRATED POLITICS OF RESEARCH



LIMEN 2021



December 16, 2021

Graz, Austria

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CONFERENCE PROCEEDINGS



Association of Economists
and Managers of the Balkans
UdekoM Balkan

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LIMEN 2021

***Leadership, Innovation, Management and Economics:
Integrated Politics of Research***

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Preface

Organizing is an evolutionary phenomenon, distinctive because of the laws of existence and maintaining all structures in all processes of their functioning. As such, it is a civilizational phenomenon also that occurs as a component of human, individual and social activities and as a factor in the overall development of man and society. On the other hand, as a deliberate human activity, organizing involves seeking solutions to problems that occur on the way to achieving specific goals. No goal can be achieved without appropriate or necessary, or at least minimal organization of conditions, factors, and processes needed for goal achievement. However, the new era requires new types of leaders and managers, and new forms of organization; demands those who are willing and able to lead the company/corporation/state, in a distinct competitive environment, with all the good and bad sides brought by the globalization of world economy.

The purpose of the annual LIMEN conference is to support the power of scientific research and dissemination of the research results with the objective to enhance society by advancing knowledge; policy-making change, lives, and ultimately, the world. Our objective is to continue to be the foremost annual conference on cutting-edge theory and practice of leadership, innovations, management, and economics, encouraging advancement via excellence, and interaction.

LIMEN conference aims to bring together the international academic community (experts, scientists, engineers, researchers, students, and others) and enable interactive discussions and other forms of interpersonal exchange of experiences and popularization of science and personal and collective affirmation.

The annual LIMEN conference is committed to the highest standards of publishing integrity and academic honesty ensuring ethics in all its publications. Conformance to standards of ethical behavior is therefore expected of all parties involved: authors, editors, reviewers, and the publisher. The conference organizer follows the Committee on Publication Ethics (COPE) guidelines on how to deal with potential acts of misconduct.

All received full papers prior peer review process are subject to plagiarism check with iThenticate by Turnitin software. Any identified plagiarism automatically disqualifies a paper. Afterward, all full papers are double-blind peer-reviewed by the reviewers drawn from the editorial committee or external reviewers depending on the topic, title, and the subject matter of the paper. Peer reviewers provide a critical assessment of the paper and may recommend improvements. Although the author may choose not to take this advice, we highly recommend that the author address any issues, explaining why their research process or conclusions are correct.

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia along with the partner institutions, namely the Faculty of Engineering Management - Belgrade, Serbia; Modern Business School - Belgrade, Serbia; the University of Novo Mesto, Faculty of Business and Management Sciences, Slovenia; the University of Novo Mesto, Faculty of Economics and Informatics, Slovenia; Business Academy Smilevski - BAS, Skopje, North Macedonia; and BAS Institute of Management, Bitola, North Macedonia organized 7th International Scientific-Business Conference titled: Leadership, Innovation, Management, and Economics: Integrated Politics of Research – LIMEN 2021 on December 16, 2021.

Bearing in mind the challenges of a dynamic engagement in contemporary organizations, it is clear that the analysis of these important subjects should be applied interdisciplinary approach. For this reason, the main theme of the conference LIMEN 2021 was processed through the following key topics:

- COVID-19 Pandemic Influence on Business Operations and Management
- Leaders and Leadership
- Entrepreneurship
- Innovation
- Creativity
- Management of Small and Medium-sized Enterprises
- Contemporary Strategic Management
- Financial Management and Banking
- Marketing Management
- Project Management
- GREEN Management
- Natural Resource Management
- Quality Management
- Management of New Technologies
- Management Information Systems
- Education Management
- Intercultural Management
- Public Sector Management
- Human Resources Management
- Organizational Behavior
- Business Ethics
- Macroeconomics
- Microeconomics
- Finance
- Marketing
- Labour Law
- Business Law

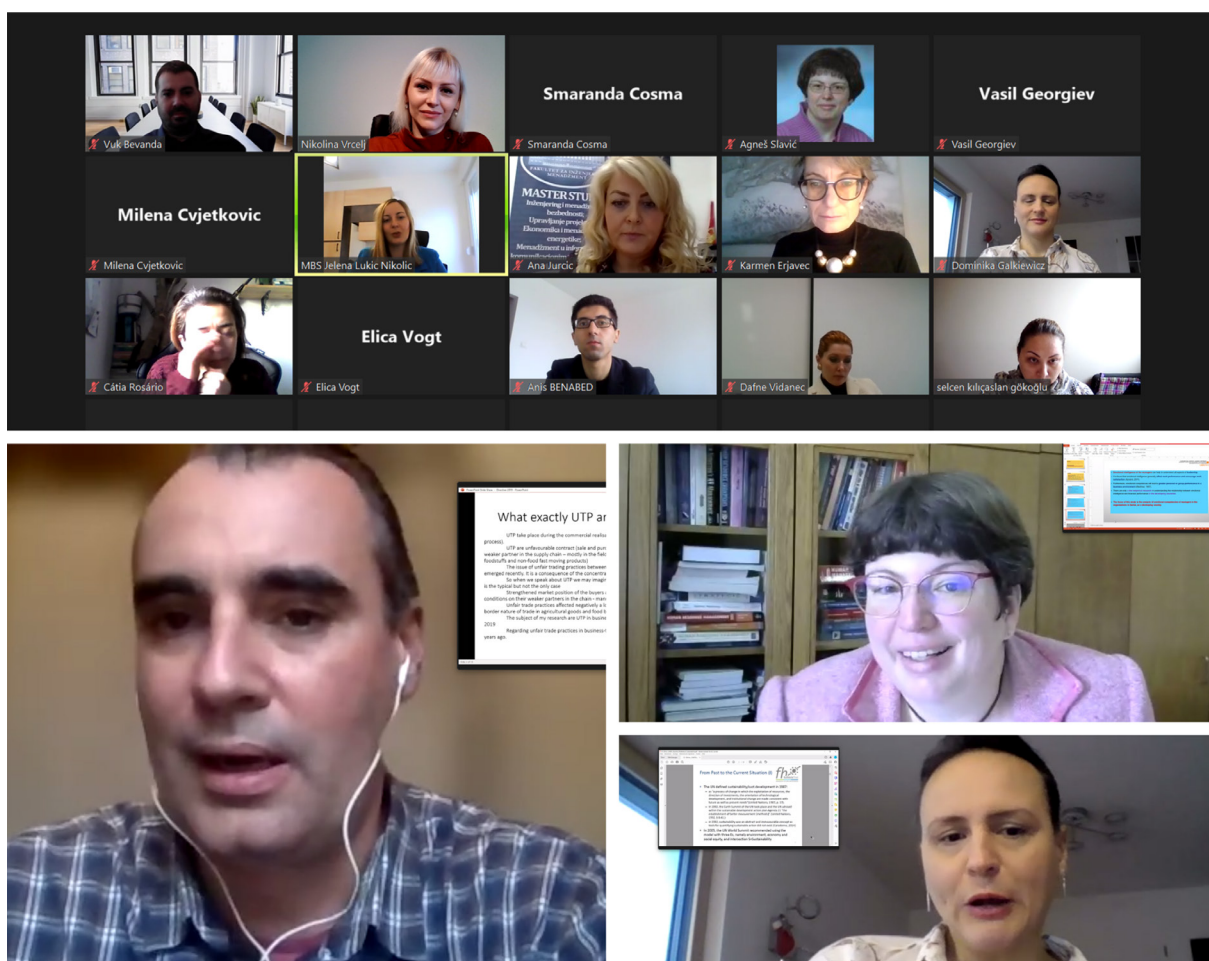
LIMEN 2021 keynote speaker was Prof. Dr Dominika Gałkiewicz representing the University of Applied Sciences Kufstein, Tirol, Kufstein, Austria with the topic *“Sustainability Regulation and Reporting: Trends in the Dach Region”*.

Within publications from LIMEN 2021 conference:

- 15 double peer-reviewed papers have been published in the Selected Papers - International Scientific-Business Conference LIMEN 2021,
- 39 double peer-reviewed papers have been published in the Conference Proceedings - International Scientific-Business Conference LIMEN 2021,
- 70 abstracts have been published in the Book of Abstracts - International Scientific-Business Conference LIMEN 2021.

Altogether LIMEN 2021 publications have more than 600 pages. All full papers have DOI numbers and ORCID iD integration.

Participation in the conference took nearly 140 researchers with the abstracts/papers representing 16 different countries from different universities, eminent faculties, scientific institutes, colleges, various ministries, local governments, public and private enterprises, multinational companies, associations, etc.





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Comparative Analysis of the Development of the Small and Medium Enterprises Sector in the Republic of Serbia and the European Union

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Abstract: *In modern conditions, developed market economies base their growth and development on the small and medium enterprises sector and entrepreneurship, as the most efficient segment of the economy, which provides the greatest contribution to employment, GDP and turnover. Since SMEs significantly contribute to employment, competitiveness and exports, developed countries have taken a systematic and organized approach to encourage their development and successful functioning. Following the example of developed countries, developing countries, are increasingly basing their economic growth and development on the SME sector. In the Republic of Serbia, at the beginning of the 21st century, institutional changes were implemented, which resulted in the improvement of the business environment and significant progress in building a system for encouraging and supporting the development of SMEs. The paper aims to, through comparative analysis, explain the development of the SME sector in the Republic of Serbia and the European Union.*

1. INTRODUCTION

The sector of small and medium enterprises in modern conditions has a very important role in the economic development of the country, whether developed or less developed, such as the Republic of Serbia, which, following the example of developed countries, bases its economic growth and development on the sector of small and medium companies. Strengthening the sector of small and medium enterprises in the Republic of Serbia is defined as one of the priority goals of the country's economic policy.

The goal of the Republic of Serbia is that, over time, small and medium enterprises become a competitive sector at the international level that is export-oriented. If this goal is achieved, the Republic of Serbia will have numerous benefits: regional development will become more even, living standards will rise, employment rates will increase, as well as the chances of joining the European Union.

The National Agency for Regional Development, the Development Fund, the Agency for Foreign Investments and Export Promotion and the National Employment Service form the institutional infrastructure to support the development of small and medium enterprises and entrepreneurship in the Republic of Serbia. The European Entrepreneurship Network in the Republic of Serbia is also active, operating within a consortium led by the National Agency for Regional Development. In this regard, small and medium enterprises in Serbia have the opportunity, as

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well as companies in the European Union, to receive the necessary information and services, which are extremely important for successful business in the European Union, for transfer of equipment and technology, for finding business partners, for innovation and participation in European Union programs.

According to the Report of the Republic Bureau of Statistics, the largest part of the Serbian economy – as much as 99.5% are micro, small and medium enterprises, and it is they who create 50% of added value, participate with 46% in total exports and 58% employment. The fact is that in the Republic of Serbia, the SME sector is becoming a key factor in the development of a competitive economy and increasingly stimulates entrepreneurial skills, private initiative, diverse economic activity.

Small and medium-sized enterprises are vital to the economy of the European Union (EU), given that they account for more than 99% of enterprises and the majority of jobs (around 70%) in the private non-financial sector of the EU economy. In some industries, such as the textile industry, small and medium-sized enterprises employ over 80% of the working population and are a crucial source of innovation, growth and employment. It is in the European Union that various action programs have been adopted to increase the competitiveness of small and medium-sized enterprises (SMEs) through research and innovation and to provide better and safer access to finance. The COVID-19 pandemic also had a negative impact on the small and medium-sized enterprise sector, so some new considerations arose about the construction and resilience of this sector, as well as reconstruction and economic recovery.

2. COMPETITIVENESS OF SMALL AND MEDIUM ENTERPRISES

There are two basic categories of competitiveness: micro competitiveness, which means the competitiveness of enterprises as their main advantage over other enterprises and macro competitiveness, which means the competitiveness of one national economy as a whole.

Micro competitiveness, ie comparative advantage of the company belongs to the characteristics of production units. This represents their relative ability to place their own products and services in a market where international competition is present.

The competitiveness of the company is based on relative prices and product quality compared to the offer of other manufacturers. Low operating costs (especially labor) or higher growth of factor productivity are typical factors of micro comparative advantage, ie competitiveness. When it comes to the exchange rate as an element that affects short-term competitiveness, then we mean micro-competitiveness.

In order for small and medium enterprises to be able to maintain the current level and improve competitiveness, it is necessary to focus on the continuous development of competitive advantages. Competitive advantage is a realistic basis, ie a rational way, by which a certain company can participate or compete in a certain market in order to realize some of its specially defined goals. (Mičić, 2010, p. 11)

In the Republic of Serbia, in 2018, the tendency of recovery of the cost competitiveness indicator of the non-financial sector of the economy, which began in 2014, continued.

The more efficient use of available business resources in 2018 is also indicated by the positive growth rates of basic cost competitiveness indicators: GVA increased by 10.4% in real terms (SME sector 11.9%), average labor costs by 6.1% (8.1 %), and labor productivity 4.8% (SME sector growth 6.6%) (Ministry of Economy, 2020, p. 26).

Table 1. Cost competitiveness – average labor costs (in thousands of dinars)

	2008	2010	2012	2014	2015	2016	2017	2018
Non-financial sector	625,7	724,9	874,2	952,5	950,2	999,7	1058,4	1.123,9
A big	776,6	890,8	1042,5	1121,3	1.078,6	1158,2	1223,1	1.270,3
SMEs	552,1	640,8	783,8	861,0	883,2	916,9	973,6	1.047,5
Manufacturing industry	579,8	647,6	768,9	826,6	904,7	905,6	956,7	1.012,9
A big	714,4	813,1	925,0	983,2	1.134,0	1105,7	1164,0	1.207,2
SMEs	494,8	549,6	668,8	725,7	761,6	777,3	811,3	895,0

Source: Ministry of Economy, based on SBS data – current prices

The competitiveness of the non-financial sector of Serbia in 2018, and according to 2017, evaluated through the movement of labor productivity, is growing compared to the previous year. Labor productivity increased by 4.8% in real terms, due to higher GVA growth (10.4%) than real growth in the number of employees (5.5%).

Table 2. Cost competitiveness – labor productivity (thousand dinars)

	2008	2010	2012	2014	2015	2016	2017	2018
Non-financial sector	1.013,9	1.191,6	1.457,0	1.564,0	1.558,6	1706,0	1768,1	1.854,2
A big	1.265,3	1.562,6	1.843,4	1.954,6	1.923,7	2177,1	2253,9	2.302,0
SMEs	891,3	1.003,5	1.249,4	1.352,0	1.368,0	1459,7	1517,8	1.620,5
Manufacturing industry	879,2	1.004,0	1.245,5	1.328,1	1.563,1	1693,1	1743,1	1.772,3
A big	1.035,8	1.238,6	1.452,2	1.550,4	2.102,2	2282,3	2333,4	2.298,0
SMEs	780,4	865,1	1.113,0	1.185,0	1.226,6	1315,2	1329,4	1.387,3

Source: Ministry of Economy, based on SBS data – current prices

In 2018, positive trends continued, as productivity growth was realized in the SME sector (6.6%) and large companies (2.1%). The biggest impact is the real growth of GVA in SMEs (11.9%) and (8.5%) in large companies, as well as the increase in the number of employees (5.0% of SMEs, 6.4% of large companies), which implies the emergence of the more favorable business environment for the development of SMEs and large enterprises.

Unit labor costs (UTR), which are presented through the ratio of wage costs and gross value added, are a significant indicator of the degree of competitiveness. In the non-financial sector of UTR in 2018, and compared to 2017, they increased by 1.2%. The decline in the competitiveness of the non-financial sector is due to the decline in the competitiveness of large economic entities (1.6%) and SMEs (0.8%). Even though the share of wages in the non-financial sector shows a declining trend in the given period (2008-2017), it is still very high (60.6% in 2018), so there is not much place for improvement and modernization of work processes and qualitative progress. competitiveness.

In order to improve the competitiveness of the economy, it is necessary to bring the level of real productivity growth above the level of real growth of gross wages. According to the trends of average labor productivity (whose average level of growth in the analyzed period was 1.1%) and labor costs (0.9%), the non-financial sector raised the level of competitiveness compared to the pre-crisis year 2008. Compared to 2008, the competitiveness of the SME sector decreased, as average labor costs increased by (1.3%), labor productivity (0.9%), with a lower level of employment (-2.4% compared to 2008).

Overall aggregate competitiveness is dominated by industrial competitiveness, which is the foundation of export competitiveness. In order to improve industrial competitiveness, it is necessary to increase the average annual growth rates of industrial production, then the growth of the number of newly employed persons, in addition to changing the personnel structure in production and the number of employees in favor of highly educated staff in collective employment. Monitoring of the achieved level of industrial competitiveness is performed based on the analysis of the structure of the number of enterprises and productivity according to the technological complexity of production. Within the Manufacturing Industry in Serbia, the sectors of lower technological complexity and lower productivity (labor and resource-intensive activities) dominate, with the situation being less favorable for SMEs compared to large enterprises. In 2018, SMEs from the sector of high and medium-high technological complexity make up only about 8.7% of SMEs in the Manufacturing Industry (27.2% large), employ 14.7% of workers (34.6% large) and create 19.1% GVA of SMEs in the industrial sector (26.5% large) (Ministry of Economy, 2020, p. 27).

Productivity of SMEs in the Manufacturing Industry in 2018 compared to 2017 increased by 4.4%. The growth of productivity of the processing SME industry was due to the growth of productivity in the sector of high technological complexity (7.2%), low technological complexity (5.8%) and medium-low-tech complexity (4.1%), while in the sector of medium high technological complexity recorded a decline in productivity by 1.6%. In 2018, compared to 2017, the situation has improved significantly in terms of productivity trends. GVA of SMEs increased in almost all sectors, which was accompanied by an increase in employment, but the growth of GVA is faster than the increase in the number of employees, which led to an increase in productivity.

In 2018, the economy achieved a total foreign trade of 4,437.4 billion. dinars, while imports (RSD 2,538.1 billion) amounted to RSD 638.8 billion. dinars higher than exports (1899.3 billion dinars). The manufacturing industry has the highest share (60.5%) and accounts for 76.5% of total exports, 48.6% of imports and a surplus of 219.3 billion. dinars. If we look at the structure of foreign trade of the Manufacturing Industry, the largest volume is achieved by large companies (70.4%), especially in exports, where they participate with 71.6% (they participate in imports with 69.1%). In 2018, large companies in foreign trade have a surplus of 187.7 billion. dinars – 1.6 billion euros, and SMEs of 31.6 billion. dinars (Ministry of Economy, 2020, p. 29).

After the end of the crisis in 2009, in the period 2010-2018. year, the foreign trade activity of the economy, the SME sector has been constantly growing. The highest growth rate of exports was recorded in 2012, 15.7% and imports 18.0%. In 2018, compared to 2017, exports grew by 4.7% and imports by 9.9%. Results of exports and imports in the period 2013-2018. years were at a satisfactory level (average growth rate of exports 9.6% and imports 8.9%). Within the SME sector, real growth of exports in 2018 compared to 2017 was recorded in entrepreneurs, 5.5%, medium (3.2%) and micro enterprises (1.5%), while small enterprises recorded a decline of 0.6%. In 2018, SMEs recorded a deficit growth of 18.4%, which is a consequence of high growth in micro (23.4%) and small enterprises (19.2%). The trade balance of large companies in 2018 is balanced.

The coverage of imports by exports of economic entities decreased in 2018 (74.8%, and amounted to 78.6% in 2017). While in large companies a balanced trade balance is noticeable, in economic entities from the SME sector the coverage of imports by exports is 53.3% and decreased by 2.7 structural points compared to 2017.

Table 3. Export competitiveness indicators

		2008	2010	2012	2014	2016	2018
Foreign trade balance, in mil. din.	SMEs	-477.311	-340.704	-474.490	-436.458	-511.004	-639.272
	A big	-166.339	-180.059	-166.740	-52.265	54.749	510
	In total	-643.651	-520.764	-641.230	-488.724	-456.255	-638.762
Coverage of imports by exports, %	SMEs	36,5	49,9	51,3	57,0	56,7	53
	A big	66,1	68,6	74,1	93,2	106,0	100
	In total	48,2	58,5	60,4	72,5	78,2	74,8
Share of exporters in the total number of enterprises, %	SMEs	4,3	3,9	4,1	4,2	4,3	4,0
	A big	64,8	63,7	61,1	60,7	65,1	67,0
	In total	4,4	4,0	4,2	4,3	4,4	4,1
Share of importers in the total number of enterprises, %	SMEs	7,5	6,2	6,5	6,4	6,5	6,2
	A big	79,0	78,6	73,5	74,9	79,6	79,3
	In total	7,6	6,3	6,6	6,5	6,6	6,3
Share of exports in turnover, %	SMEs	5,9	7,3	8,8	9,6	10,1	9,4
	A big	13,8	15,8	15,9	22,5	27,4	29,0
	In total	8,5	10,2	11,2	14,1	16,1	16,1
Exports per employee, in thousands dinars	SMEs	292,0	417,2	637,9	758,7	799,1	796,7
	A big	706,3	952,2	1.136,9	1.397,7	2.213,2	2.441,7
	In total	427,8	597,2	812,3	1.098,9	1.284,6	1.360,8
Imports per employee, in thousands dinars	SMEs	799,7	835,5	1.244,7	1.331,9	1.409,2	1.493,7
	A big	1.069,0	1.388,2	1.533,8	1.851,9	2.088,2	2.440,6
	In total	888,0	1.021,4	1.345,7	1.514,8	1.642,3	1.818,4

Source: Ministry of Economy based on SBS data

The increased foreign trade orientation of the economy is indicated by the increased percentage of the total turnover realized by exports. The constant growth of the share of exports in turnover is noticeable in large companies and the SME sector, but the doubled value of the coefficient in large companies indicate the increased export orientation of large companies in relation to the SME sector (Republic Secretariat for Public Policy, 2020, p. 19).

The relative goods balance of the total manufacturing industry in 2018 decreased when observed compared to 2017 (8.2% vs. 9.5%) and indicates a slight weakening of industrial competitiveness. Greater impact on industrial competitiveness was achieved through trade between large companies and SMEs in the manufacturing industry, as both groups operated with a surplus in 2018. The manufacturing industry recorded a surplus only in low-tech industries, especially food production companies and to some extent wood products (including furniture). Also, export competitive are SMEs engaged in the production of base metals (medium-lowtech), as well as companies in the field of production of unmentioned machinery and equipment (medium-hightech) (Ministry of Economy, 2020, p. 31).

The SME sector of the manufacturing industry achieved a positive relative balance of goods in 2017 in the amount of 4.0%, but the surplus in trade was recorded only by SMEs in the field of low-tech production (10% of trade). In 2018, compared to 2017, in the SME sector, the total volume of foreign trade increased by 6.5% (in the Manufacturing industry, growth was 7.7%). If we look at the technological intensity, all analyzed sectors are growing. Large enterprises recorded the total volume of trade with an increase of 8.9% (6.7% in the manufacturing industry).

In the SME sector, growth in foreign trade was recorded by: entrepreneurs (by 6.4%), micro-enterprises (by 7.9%), small enterprises (by 7.2%) and medium-sized enterprises (by 5.3%). The overall results of foreign trade activities in 2018 of all technological groups collectively are significantly more favorable compared to 2017. Nevertheless, SMEs operating within the man-

ufacturing sector grew by 7.7% in total foreign trade activity. The growth of exports indicates that the analyzed sector has a trend of improving its own export position compared to other sectors of the economy.

Table 4. Real growth/decline rates 2018/2017.

	Foreign trade			Export			Import		
	In total	SMEs	A big	In total	SMEs	A big	In total	SMEs	A big
ECONOMY Total	7,7	6,5	8,9	-4,5	-1,9	-6,1	-9,2	-8,3	-10,2
Manufacturing industry	7,0	7,7	6,7	-5,4	-7,0	-4,8	-7,9	-7,2	-8,2
Low-tech	2,7	5,7	0,7	-2,0	-4,8	0,0	-3,5	-6,2	-1,7
Medium-low-tech	14,7	11,2	15,9	-10,3	-10,9	-10,1	-15,1	-9,3	-17,2
Medium-high-tech	3,8	3,8	3,8	-4,2	-2,9	-4,4	-3,1	-4,4	-2,6
High-tech	3,0	17,6	-5,4	-2,6	-25,0	6,3	-3,3	-10,4	5,0

Source: Ministry of Economy based on SBS data

During 2018, the export competitiveness of the SME sector is still at an unsatisfactory level. Even the indicators of the processing industry do not show us an improvement: the coverage of imports by exports, when viewed in terms of technological complexity, has decreased to a lesser extent.

Table 5. Coverage of exports by imports by size of enterprise and technological complexity in%

	2017			2018		
	In total	SMEs	A big	In total	SMEs	A big
TOTAL ECONOMY	78,6	57	104,5	74,8	53	100,0
Manufacturing industry	120,9	108,5	126,5	117,8	108,3	122,0
Low-tech	140,9	146,5	137,4	138,7	144,3	135,1
Medium-low-tech	97,6	91,4	100	92,7	93,0	92,6
Medium-high-tech	135,9	97,4	149,2	137,9	96,7	152,5
High-tech	78,6	57	104,5	88,0	46,0	137,7

Source: Ministry of Economy based on SBS data

Thanks to the export competitiveness of large companies, the processing industry has a surplus in foreign trade. However, the structure of total trade, and especially exports, is not favorable. In the transition period, the growth of Serbian exports is largely not accompanied by significant increases in its quality structure but is realized on the basis of production based on low technology, low-skilled labor and a large percentage of primary raw materials. The unfavorable level of low competitiveness of Serbian exports continues in 2018, which still reflects the structure of exports according to factor intensity. In the export of the SME sector, a large percentage is occupied by products with a low finalization phase and with less added value (raw materials and labor and resource-intensive products), which is a characteristic of less developed countries.

In order to improve the competitiveness of exports, it is necessary to transform the structure of exports in favor of more cost and quality competitive products of higher levels of processing (finalization), which can only be achieved by investing in modern technologies resulting in increased supply, minimized production costs. products and growth in export earnings.

3. COMPARATIVE ANALYSIS OF SMALL AND MEDIUM ENTERPRISE SECTOR DEVELOPMENT IN THE REPUBLIC OF SERBIA AND THE EUROPEAN UNION

Comparative performance indicators of the SME sector (level of employment per enterprise and productivity) are significantly lower compared to the EU average and most of the analyzed countries in the region. In 2018, SMEs in Serbia employ an average of 2.4 workers per company, which is lower than the EU-28 average (3.9 workers) and all neighboring countries. The pro-

ductivity of SMEs in Serbia is 3.4 times lower than the EU-28 average (2.5 times lower than in Slovenia), and it is higher than the surrounding countries only in Bulgaria and Romania (Ministry of Economy, 2020, p. 35).

Table 6. Comparative indicators of SME sector business with the EU and countries in the region

Country	Year	Number	Number of employees	GVA, billion	Participation of SMEs in the non-financial sector		
		companies, thousands	workers, thousands	EUR	Company number	Employment	GVA
EU – 28	2017	24.291,4	94.599,4	4.045,4	99,6	65,1	57,4
	2016	23.172,3	91.738,8	4.045,4	99,8	66,8	57,4
Bulgaria	2017	339,8	1.491,3	17,3	99,8	74,7	63,1
	2016	336,0	1.467,7	15,7	99,8	74,8	63,3
Croatia	2017	148,9	707,6	14,1	99,7	69,1	60,6
	2016	147,5	692,3	13,5	99,7	69,4	61,4
Hungary	2017	569,1	1.869,7	34,4	99,8	68,9	53,9
	2016	551,2	1.860,4	30,3	99,8	69,6	53,5
Romania	2017	483,6	2.609,3	23,1	99,7	64,9	34,6
	2016	465,6	2.600,1	31,9	99,6	65,4	52,8
Slovenia	2017	141,9	455,6	14,4	99,8	72,5	64,1
	2016	138,9	440,7	13,3	99,8	72,9	64,6
Serbia	2018	375,8	917,1	12,6	99,9	67,8	60,8
	2017	357,2	873,5	10,9	99,9	66,0	56,7
	2016	340,1	837,5	9,9	99,9	65,7	56,2

Source: Ministry of Economy, based on EUROSTAT and SBS data for Serbia

On the well-known world ranking list of countries classified according to business conditions (World Bank, 2020), the Republic of Serbia improved its place in 2020 by four positions and is in 44th place out of almost 200 analyzed countries.

According to the surrounding countries, which are direct competitors of the Republic of Serbia when it comes to attracting foreign investment, and according to the aggregate index that evaluates business conditions, in 2020 Serbia is 44th ahead of Montenegro (50th place), Croatia (51st place), Hungary (52nd place), Romania (55th place), Bulgaria (61st place), Albania (82nd place) and Bosnia and Herzegovina (90th place).

Of the countries in the region, Northern Macedonia (17th place) and Slovenia (37th place) have better business conditions than Serbia.

Of the total number of areas that define the business conditions in the economy in the DB 2020 Report, Serbia has made significant progress in the areas of Minority Shareholder Protection (now 37th place) and Solving Insolvency (now 41st place), but has made worse result and is now in 85th place.

The indicator that measures the issuance of construction permits (ranking 9th place) has the highest value of 85.3. which is the result of the implemented reforms and whose effects have become visible in the past five years, which shows us the high level of this indicator. In the previous year, Serbia significantly improved the regulations and efficiency of the administration, thus improving the conditions for doing business at the absolute level. The number of points that evaluate the ease of doing business increased from 73.5 in 2018 to 75.7 in 2019.

According to the Ease of Doing Business (EDBS) indicator, the areas in which Serbia lags significantly behind and in which future improvements are needed are: execution of contracts (63.1), obtaining loans (65.0), resolving solvency (67.0).

According to the World Bank, it is clear that there are conditions in Serbia for the improvement of several areas that have an impact on better placement on the Doing Business ranking list, which certainly encourages foreign investors and has a favorable effect on foreign investment.

When it comes to the world ranking list of competitiveness, Serbia broke the ranking by 7 positions and reached 72nd place. The realized value of the Global Competitiveness Index (GCI) of 61 (the theoretical value of the index ranges from 0, which is the worst value to the maximum value – 100) is, however, slightly better than in the previous report. The result, however, is quite modest, because Serbia, in relation to the surrounding countries, is only more competitive, according to this report, than Albania (76th place), Northern Macedonia (84th), and Bosnia and Herzegovina (91st) (World Economic Forum, 2020).

When looking at the analysis of the competitiveness index by individual pillars, it is clear that of the 12 pillars of competitiveness, Serbia, compared to the previous year, improved the value of the GCI index in the case of the pillar that measures business dynamics (better by 2.2 points) and in the financial system (+1.5 points). On the other hand, Serbia recorded a much worse result when it comes to the pillars used to evaluate the adoption of ICT (-4.3 points), health (-2.5 points) and the goods market (-1.9 points).

The last, 12th pillar of The Global Competitiveness Index (GCI) is the Ability to Innovate. In this regard, Serbia is mostly making progress, which is why this sub-index recorded a growth of 0.5 points during 2019. In addition, the level of the innovative capacity of the Serbian economy remains quite low, as is the case with most other economies in the region.

Serbia is ahead of most countries in the region in terms of value (40.2 points) and rank (59th place) within the indicator Ability to innovate in 2019, such as Montenegro (69th place), Croatia (73), and Albania (114) and BiH (117). According to the current position, Serbia is in the rank of Romania (55th place) and Bulgaria (48th place), and it is much weaker than Slovenia (28th) and Hungary (41st).

Innovation is the most important factor important for economic, intellectual and social development. Today, they represent a global phenomenon that affects the overall economy and are considered the engine of economic growth and the basis of sustainable economic development. Cornell University, INSTEAD and the World Intellectual Property Organization (WIPO) in partnership with some other organizations and institutions in the annual report (The Global Innovation Index) since 2007 monitor and rank about 130 countries by their innovation performance and innovation performance. These countries account for over 90% of the world's population and GDP.

The Global Innovation Index (GII) includes 84 indicators. The results are obtained by applying the average of the results of two sub-indices, the Innovation Output Sub-Index, which speaks about the innovative potential of the economy, and the Innovation Sub-Index, which evaluates the innovativeness of the output. GII can have a value from 0 to 100, where a higher value of the index means greater innovation of the economy.

The innovation capacity sub-index represents an average of five pillars: Institutions; Human capital and research; Infrastructure; Market Sophistication and Business Sophistication. The innovation result sub-index includes two pillars: Knowledge and technological ability and Creative ability. Each of these pillars determines the attribute of innovation and contains from 9 to 15 indicators, and their evaluation is obtained by the method of weighted averages.

Despite the fact that innovations are becoming more global, the latest annual GII report in 2019 allows us to see significant differences in the innovative capacity and activities of highly developed and developing countries. Of the 126 countries included in the report, developed countries are in the top 30-40 in terms of innovative performance in 2019, while countries with a medium level of development lag far behind the most developed economies, instead of reducing the observed differences.

Nevertheless, some large developing countries occupy significantly better places in this ranking compared to their own level of economic development. Such an example is China, which in the report for 2019 took a very high 14th position, ahead of economies such as Japan, France, Canada or Norway. Apart from China, only a few other middle-income countries – such as Bulgaria, Vietnam, Thailand, or Croatia – occupy one of the top fifty places in The Global Innovation Index, World Intellectual Property Organization (WIPO). 2017, 2018, 2019).

All countries in the region show relatively stable GII values during the analyzed period. Developing countries, such as the Western Balkans, are significantly worse off than developed countries in terms of GII. The best placed countries in the region in the analyzed period are Slovenia (31st place), Hungary (33), Slovakia (42), Bulgaria (40) and Croatia (44). Northern Macedonia (59), Bosnia and Herzegovina (76) and Albania (83) have a weaker position. According to the Global Innovation Index in 2019, Serbia is in 57th place (out of 126 countries), which is 2 places worse than in 2018.

Table 7. Global Innovation Index (GII) of the surrounding countries, 2014-2019.

Country	2014 (143)		2016 (128)		2018 (126)		2019 (129)	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
The leader - Switzerland	64,78	1	66,28	1	68,41	1	67,2	1
Slovenia	47,23	28	45,97	32	46,97	30	45,3	31
Bulgaria	40,74	44	41,42	38	42,7	37	40,4	40
Hungary	44,61	35	44,71	33	44,9	33	44,5	33
Croatia	40,75	42	38,29	47	40,7	41	37,8	44
Romania	38,08	55	37,9	48	37,6	49	36,8	50
Montenegro	37,01	59	37,36	51	36,5	52	37,7	45
Macedonia	36,93	60	35,4	58	29,9	84	35,3	59
Serbia	35,89	67	33,75	65	35,5	55	35,7	57
Bosnia and Herzegovina	32,43	81	29,62	87	31,1	77	31,4	76
Albania	30,47	94	28,38	92	30	83	30,3	83

Source: The Global Innovation Index, Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) Reports: 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

The greatest progress (in terms of score) of the seven basic pillars that determine the Global Innovation Index in Serbia in the Report for 2019 was achieved in the area of Business Sophistication and Institutions, while in the area of Creativity there was a slight decline compared to 2018.

Innovation around the world is a fundamental element of technological development, economic growth, progress and prosperity. Therefore, innovation is very important for companies that show a desire to progress, develop and grow. The size and quality of innovation potentials char-

acterize the ability to create innovations, and the speed and success in the implementation of innovations determine the speed of the country's transition to a knowledge-based society.

The innovative characteristics of the Republic of Serbia are below the EU average in many innovation indicators, but they are growing. The best results concerning the EU in 2018 were achieved by Serbia for the components Innovators (96.3), and Investments of companies (79.7). On the other hand, the worst innovative dimensions are Intellectual Property (24.5) and Attractive Research Systems (31.3).

Table 8. Innovation indicators of the Republic of Serbia

		Performance in relation to the EU 2010 – 2018		In relation to the EU 2018
		2011	2018	2018
Group	Total innovation index	43,7	63,7	58,5
I	Human Resources	29,2	66,8	54,7
	Attractive research systems	31,7	35,2	31,3
	An environment conducive to innovation	27	63	39,9
II	Funding and support	38,5	40,1	36,7
	Company investments	80,4	95	79,7
III	Innovators	50,9	87,4	96,3
	Connecting	35,3	65,6	63,2
	Intellectual property	25,1	23,8	24,5
IV	Impacts on employment	36,6	39,8	38,1
	Sales effects	46,9	69,3	67,3

Source: MP – research according to the European Innovation Score board 2018

Four indicators evaluate the innovative performance of small and medium enterprises (Ministry of Economy, 2020, p. 43):

- (1) SME innovation in products and processes – number of SMEs that have involved a new product or new process in one of their markets. Technological innovations valued by the establishment of new products (goods or services) and processes are fundamental to innovation in production activities;
- (2) Marketing and/or organizational innovation of SMEs – number of SMEs that have activated a new marketing innovation and/or organizational innovation in one of their markets. This indicator speaks to the extent to which SMEs innovate through non-technological forms of innovation;
- (3) Innovation activities of SMEs within the enterprise – This indicator evaluates the level to which SMEs that have activated a new or significantly improved product or production process have innovated internally;
- (4) Cooperation of innovative SMEs with others – this indicator evaluates the level to which SMEs are involved in cooperation in the field of innovation. It values the flow of knowledge between public research institutions and companies, as well as between different companies.

Based on four indicators that evaluate the innovative characteristics of SME business, Serbia lags behind the EU-28 average and Slovenia but shows better performance than all other countries in the region. The low level of innovation of SMEs in the Republic of Serbia is reflected in the low level of technological innovation and the loose connection and cooperation between education, research institutes and the commercial sector. Non-technological innovations, which refer to the improvement of organization and marketing, advanced use of information and communication technologies, etc., are also not sufficiently applied in these companies.

4. CONCLUSION

The structure of the world economy has changed significantly since the beginning of the twentieth century. The change in the economic structure, at the global level, in the last few decades is characterized by a change in the participation of employees in the economic sectors, where there is an overflow of labor from the primary and secondary in the tertiary sector. The key development trend is the transition from an industrial to an information society. The most profitable branches are no longer the production of steel and textiles, but those for whom knowledge is more important than capital. These are the main reasons for the current expansion of entrepreneurship and the establishment of small and medium enterprises.

It can be said that SMEs have a long history. However, they are experiencing the greatest expansion in recent times, with large companies becoming more competitive and, increasingly successful, engaging in modern globalization of business. After the 1990s, special attention was paid to this sector in Serbia, while encouraging its development was defined as one of the priority goals of economic policy.

In general, all indicators point to a more modest position of Serbia compared to EU countries. Comparative analysis shows that, in the observed period, the performance indicators of the SME sector (level of employment per enterprise and productivity) are significantly lower compared to the EU average and more analyzed countries in the region. According to the Global Competitiveness Index, for example, in relation to the surrounding countries, Serbia is only more competitive than Albania, Northern Macedonia and Bosnia and Herzegovina.

The competitiveness of small and medium enterprises is of great importance, not only for those enterprises but also for the state. For this reason, it is necessary to identify economic activities based on the reputation of countries with successful SMEs.

REFERENCES

- Kostadinović, I. (2018), Karakteristike i perspektive razvoja malih i srednjih preduzeća u Republici Srbiji, *Leadership & Management: Integrated Politics of Research and Innovations, Fourth International Scientific-Business Conference LIMEN*, Beograd, str. 96-102.
- Mićić, V. (2010). Konkurentnost industrije Srbije kao pretpostavka njenog efikasnog razvoja, *doktorska disertacija*, Ekonomski fakultet, Kragujevac.
- Ministarstvo privrede, (2020). *Izveštaj o malim i srednjim preduzećima i preduzetništvu za 2018. godinu*, Sektor za razvoj malih i srednjih preduzeća i preduzetništva, Beograd.
- Republički sekretarijat za javne politike, Vlada Republike Srbije, (2020). *Izveštaj o konkurentnosti i privrednom razvoju Republike Srbije*, Beograd.
- The Global Innovation Index, Cornell University, INSEAD, and the *World Intellectual Property Organization (WIPO) Reports: 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019*.
- World Bank, (2020). *Doing Business – Comparing Business Regulation in 190 Economies*, International Bank for Reconstruction and Development, Washington.
- World Economic Forum, (2020). *The Global Competitiveness Report 2019*, WEF, Geneva, Switzerland.



Basic Components and Indicators in Assessing Country Risk (Selected CEFTA Countries)

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Abstract: Country risk analysis has become extremely important in contemporary conditions. This paper briefly discusses concepts, definitions, basic components, and some quantitative methods used to address various issues related to country risk in selected CEFTA countries. The paper also presents the indicative calculation of some of the elements and indicators for the selected countries, based on relevant available data, and in order to make a comparative analysis. Having in mind that country risk is a specific and complex macroeconomic risk, its determination and analysis is additionally complicated in terms of contemporary global changes. In fact, that is a risk of a country as a whole, its macroeconomic policy and economic balance or unbalance, political stability or instability of a country, political disturbances and democratic processes, political system and legal system, etc. Therefore, country risk involves several kinds of risks, such as political risk, economic risk, foreign payments risk, financial transfers risk, etc. Globally, all those risks can be divided in three biggest groups: risks of macroeconomic unbalance of the country; risks of the political instability of the country; and risks of the system of the country (system risks). Due to its complexity, the paper will elaborate and quantify some of the basic indicators related to country risk, mostly related to trade exchange between selected countries in the CEFTA agreement. The procedures and methods of country risk analysis and measurement have similarities with those used for individual economic entities, but techniques for the country risk analysis are less developed and there was no generally accepted analysis method. The final assessment may be a combination of many external and internal models that are not mutually exclusive, and in that process can be analyzed a number of different factors that determine country risk. Among the factors that condition the country risk and that are necessary to be included in the analyses can be: country's foreign-financial position; external debt; debt management; assessment of the natural resources; the degree of technique and technology development, industrialization and automation of production, and so on. The paper will stress as most important indicators in assessing country risk: The Debt Service Ratio, Import ratio, Investment Ratio, Domestic Money Supply Growth, etc., which will be calculated using selected macro-economic data such as: GDP, GDP per capita, Real GDP grow, Inflation (CPI), Fiscal balance (% of GDP), Current account balance (% of GDP), Public debt/GDP (%), External debt/Exports of goods & services (%), Debt-service ratio (%), Foreign exchange reserves, Foreign direct investments (% of GDP), Exchange rate etc. The methodology of collecting and processing information and the degree of reliability of collected data greatly depends on the promptness and accuracy of the national institutions that present those data.

The goal of the paper is: to point out the importance of country risk assessment, to determine and compute the basic indicators of country risk in some of the Southeastern Europe countries, to determine conditions and trends of country risk in selected countries, and to suggest some strategies for its reduction in conditions of the unstable environment and crisis disturbances.



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1. INTRODUCTION

The assessment, identification and analysis of this complex risk are significantly important in contemporary conditions of business internationalization and exposure to global competition. Any economic subject in the creation of an effective strategy must begin with understanding and determination of infinite interactive forces that are constantly reshaping and changing the context in which the global concurrent strategies are functioning. Many external factors influence global business strategies, and generally four main spheres of influence can be differentiated – economic, technical, political and cultural. All of them directly or indirectly affect the country's risk, and the country's risk has a direct interaction with the inflow and outflow of goods and capital in the national economy.

Financial investments of any kind need continuous monitoring of standard business risks which are further multiplied by the country risk. The risk of the country as an additional factor must be taken into consideration by the companies' financial management when performing their investment function. The data of certain institutions that monitor the additional risk factors for a country are analyzed and published as final results in special reports and research papers with easy access for potential users. This data can be used to analyze and determine country risk. If necessary, the mentioned institutions undertake special activities for risk assessment by processing all relevant markers related to the risk assessment in case of investments in a certain national economy or certain economic branches and industries.

Country risk refers to the problems faced by financial and non-financial entities operating outside the borders of their country. In doing so, they face a complex and specific risk related to the country in which they export, lend or have receivables of any kind. Receivables from foreign entities are in any case riskier than receivables in the home country for many reasons of legal, economic, security or any other nature. Although the complexity of these risks may be covered by the term country risk, another form of risk related to foreign claims, although similar but not completely identical to country risk, can be identified as a sovereign risk. This form of risk occurs when a country's government takes measures that jeopardize the repayment of international obligations, which may include non-recognition of external debt obligations, suspension of payments of external obligations for a certain period to preserve the country's foreign exchange reserves, and similar. It is a risk arising from foreign government restrictions or preventing domestic debtors from repaying principal and interest on debts to foreign creditors. All business transactions involve a certain degree of risk. When business transactions occur across international borders, they have additional risks that are not present in domestic transactions. These additional risks, called country risks, usually involve risks arising from national differences in economic structures, policies, socio-political institutions, currencies, etc. The Country Risk Assessment (CRA) seeks to identify the potential for these risks to reduce the expected return on cross-border transfers of goods and capital.

The country's risk assessment has micro and macroeconomic aspects. The first case is to assess the risk of a financial transaction or investment, where the debtor is an economic entity from a particular country, while the other has to determine the risk of investing in a particular country or the creditworthiness and security of the country as a debtor. The main purpose of the risk assessment of business activities with entities in another national economy is to provide the most comprehensive and accurate assessment of the country in which goods or capital will be placed. Therefore, when analyzing the risk of transactions between business entities of different countries, a substantial distinction should be made between: credit risk, country risk, sovereign risk and transfer risk. Risk

of state sovereignty is a specific aspect of a country's risk that combines the country's functions as a debtor or guarantor of debts incurred by its economic entities, according to which there is a possibility of its immunity from any court proceedings to settle liabilities. Of course, sanctions for such things exist and may arise in the form of restrictions and sanctions on the country in the international goods and capital markets. Risk transfer occurs in situations in which, despite its solvency in general business and financial terms, the borrower is unable to reconcile the debt in a particular currency (for remittances) due to systemic and other general restrictions on the availability of that currency (general moratorium on payments abroad, prohibition on certain cash transfers) which implies the inability to reach the foreign currency required to repay the debt or to fulfill any other obligation (dividend transfer, repatriation of capital, etc.).

As the composite Country Risk is made up of the mean average of several risk index components, the paper stresses the economic components of the Country Risk. Despite the differentials in the ranking systems (from different international organizations), the paper analyses and compares the main economic aspects of the selected CEFTA countries and despite the complexity of the country's risk, the paper tends to focus only on the economic issues, i.e. macroeconomic stability of the analyzed countries.

2. METHODOLOGY OF DATA ANALYSIS

Among the significant factors that condition the Country risk and it is necessary to be included in the analyses can be mentioned:

- country's foreign-financial position;
- external debt;
- debt management;
- assessment of the natural resources;
- the degree of technique and technology development,
- industrialization and automation of production, and so on.

According to Saunders, A., & Cornett, M. M. (2006), "The credit rating of the country is an assessment of the future economic and political stability. It is determined by a great number of internal and external factors, so its systematization in the summary assessment requires a complex methodology procedure. One national economy could wholly or partly intervene about the internal factors that determine this category, but remains over the galaxy of external factors to which can not affect" (p. 441).

Due to its complexity, the paper elaborates and quantifies some of the basic indicators related to that risk, mostly related to trade exchange between selected countries in the CEFTA agreement. The procedures and methods of Country risk analysis and measurement have similarities with those used for individual economic entities, but techniques for the Country risk analysis are less developed and there was no generally accepted analysis method.

The final assessment may be a combination of many external and internal models that are not mutually exclusive, and in that process can be analyzed a number of different factors that determine Country Risk. Methodology of collecting and processing information and the degree of reliability of collected data greatly depends on the promptness and accuracy of the national institutions that present those data. The analyzes, estimates and assessments in the paper are mostly based on official data from the World Bank database (<https://data.worldbank.org/indicator/>).

3. A BRIEF HISTORY OF CEFTA

The Central European Free Trade Agreement (CEFTA) is an international trade agreement between countries, now mostly located in the Southeastern part of Europe. It was founded by representatives of Poland, Hungary and Czechoslovakia and later expanded to Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Moldova, Montenegro, North Macedonia, Romania, Serbia, Slovenia and the UNMIK (on behalf of Kosovo, following United Nations Security Council Resolution 1244).

The original CEFTA agreement was signed on 21 December 1992 in Kraków, Poland and came into force in July 1994. The agreement was initially signed by Poland, Hungary and Czechia and Slovakia (at the time parts of Czechoslovakia), i.e. by the Visegrád Group countries. The purpose of the CEFTA Agreement was to harmonize the economies of the participating countries with the market principles, to integrate into the Western European institutions and to join the European political, economic, security and legal systems. The agreement was to offer facilitation of trade between the signatory countries, facilitation of the flow of goods and capital, i.e. a kind of preparation for economic integration by respecting free-market principles.

The agreement was amended by the agreements signed on 11 September 1995 in Brno and on 4 July 2003 in Bled. Slovenia joined CEFTA in 1996, Romania in 1997, Bulgaria in 1999, Croatia in 2003 and Macedonia in 2006. We are currently talking about the 2006 CEFTA Agreement, taking into consideration the changes that have taken place in the meantime. Namely, all of the parties of the original agreement have now joined the EU and thus left CEFTA. Poland, the Czech Republic, Hungary, Slovakia, Slovenia joined the EU on 1 May 2004, Bulgaria and Romania on 1 January 2007. Croatia joined the EU on 1 July 2013. Therefore, it was decided to extend CEFTA to cover the rest of the Balkan states, which have already completed a matrix of bilateral free trade agreements in the framework of the Stability Pact for South Eastern Europe.

On 6 April 2006, at the South East Europe Prime Ministers Summit in Bucharest, a joint declaration on expansion of CEFTA to Albania, Bosnia and Herzegovina, Moldova, Serbia, Montenegro and UNMIK (on behalf of Kosovo) was adopted. The new enlarged agreement was initialed on 9 November 2006 in Brussels. On December 19, 2006 at the South East European Prime Ministers Summit in Bucharest, Albania, Bosnia and Herzegovina, Croatia, Macedonia, Moldova, Montenegro, Serbia and UNMIK (on behalf of Kosovo) signed an Agreement to amend and enlarge the Central European Free Trade – CEFTA 2006. Following the necessary ratification processes, CEFTA 2006 entered into force on 26 July 2007 for before mentioned five signatories, for Croatia on 22 August 2007, Serbia on 24 October 2007 and for Bosnia and Herzegovina on 22 November 2007. The agreement aimed to establish a free trade zone in the region by 31 December 2010. The speed with which the Parties ratified this ambitious agreement indicates the importance of this Agreement to economic development in the region.

This comprehensive Agreement's main objectives are, inter alia, to expand trade in goods and services and foster investment by means of fair, stable and predictable rules, eliminate barriers to trade between the Parties, provide appropriate protection of intellectual property rights in accordance with international standards and harmonize provisions on modern trade policy issues such as competition rules and state aid. It also includes clear and effective procedures for dispute settlement and facilitates the gradual establishment of the EU-Western Balkan countries zone of diagonal cumulation of origin, as envisaged in the European Commission's Communication

of 27 January 2006. The Agreement fully conforms to the WTO rules and procedures and EU regulations. Effectively implemented, the Agreement provides an excellent framework for the Parties to prepare for EU accession, thus continuing the tradition of the original CEFTA, whose founding members are now in the EU (<https://cefta.int/cefta-parties/>).

Having in mind that a large part of CEFTA countries' foreign trade is with EU countries, the Country risk assessment for the CEFTA 2006 Member States is extremely important. So, the paper has the intention to present indicative calculation of some of the elements and indicators for the selected countries, based on relevant available data, and in order to make a comparative analysis. The analysis in the paper refers to Albania, Bosnia and Herzegovina, N. Macedonia, Montenegro and Serbia.

4. MAIN COMPONENTS AND INDICATORS OF COUNTRY RISK

Financial institutions that measure country risk analyzed groups of factors through the appropriate methodology for collecting data and qualitative and quantitative processing and publish an index or rating of the analyzed countries. In the paper *Country risk – conditions and trends in Macedonia, proposals for reduction in conditions of unstable environment*, the author stated, “The final assessment may be a combination of many external and internal models that are not mutually exclusive. In that process can be analyzed a number of different factors that determine country risk, and which will be the starting basis and which of them will be especially stressed depend on the analyzed country and on the institution that performs the analysis” (Karadjova, 2012, p. 472). The most commonly used approach for assessing the country risk by the largest financial institutions is to develop models based on key economic ratios for each country, similar to models for assessing the credit risk of individual entities (having in mind that models for a country as a whole are much more complex). Data for the components of Country risk which are an integral part in the assessing models' origin from the national institutions that present those data, and also can be used data and information published by international institutions that with their credibility stand behind their quality, such as the World Bank, IMF, Bank for International Settlements in Basel and other international financial institutions. The collected data are processed by any of the methods available, and according to Arsovski (1998), include: “quantitative method; qualitative methods; method of lists (check list); and structural qualitative method” (p. 82).

Risk assessment of individual countries by specialized institutions is done by using some of the above methods, but mostly through the combined use of two or three of them, where decisive moment is the right choice of parameters that should be assessed and inserted in the model. In doing so, factors belonging to the three basic components of country risk are taken into account: factors that determine *macroeconomic unbalance*; factors that influence *the risk of political instability of the country*; and factors that determine *the risk of the system of the country* (system risk) as third component of the country risk.

There are numerous indicators used in assessing the country risk and the analysis of many of them far outweigh the spatial capacity of a paper of this kind. Because of that, we stress our attention on some of the variables that are commonly included in models for the country risk assessment and form the basic indicators of country risk.

The Debt Service Ratio: Total debt service (% of exports of goods, services and income) is the sum of principal repayments and interest actually paid in foreign currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF. Export as a primary mean of generating foreign currencies is correlated with the ability to settle debts. Karadjova (2012) found “the amount of repayment of debt in relation to earnings from export indicates the probability of payment delay” (p. 474).

$$DSR = \frac{\text{interest+debt amortization}}{\text{export}} \quad (1)$$

Import ratio: as a ratio of total import in the country and total foreign currency reserves.

$$IR = \frac{\text{total import}}{\text{total foreign currency reserves}} \quad (2)$$

Investment Ratio: The rate of investment determines the ratio of productive investments in relation to GDP, as opposed to consumption. Higher rate of investment implies more productive economy in future, and thus less risk of delay in payment of the debts. This implies a negative relationship between InvR and country risk. There is also an opposite view, that the high rate of investment may impose an atmosphere of borrowing of the country from domestic and foreign institutions in order to continue the trend of investment, which raises the threat of untimely debt payments. According to Acharya, S., & Diwan, I. (1993) “this view is an argument for a positive correlation between investment rates and the probability of reprogramming of debts, especially if the less developed countries (LDC) significantly invest in industries that are import competing” (p. 795-815).

$$InvR = \frac{\text{investment in fixed assets}}{\text{GDP}} \quad (3)$$

VAREX – Variance of Export Revenue: The variability of revenue from export is positively correlated with the probability for delay of payments

$$VAREX = \sigma^2 ER \quad (4)$$

Domestic Money Supply Growth: Rapid growth of money supply in the country (ΔM) in relation to the initial level (M) indicates the occurrence of inflation and depreciation of the domestic currency. Inflation refers to a positive correlation between money supply growth and the probability of delay of payments.

$$MG = \frac{\Delta M}{M} \quad (5)$$

Once we consider the following key variables, follows their summing, and the calculated probability of postponing repayment of liabilities (p). Generally, it would look like this:

$$p = f \frac{DSR \quad IR \quad InvR \quad VAREX \quad MG...}{+ \quad ... + \quad ... \quad + \text{ or } - \quad ... \quad + \quad ... \quad + \quad ...} \quad (6)$$

As a result, we get a summary indicator of the risk exposure of a national economy. For more accurate decision-making, it is desirable to compare this indicator with the indicators of risk exposure, i.e. the country risk ranking according to several agencies that perform ranking by different methodology.

5. ANALYSIS RESULTS

The analysis of the results of the country risk assessment for the five selected countries from the CEFTA 2006 Agreement refers to the assessment of the most important factors, variables and indicators needed to measure the country risk. The paper does not intend to calculate an integral indicator through which a single measure of country risk will be presented, because of two reasons: (1) it is too complex process and methodology that goes beyond the scope of such a paper, both in methodological and spatial content; (2) such a calculation with a partially different methodology, but still based on the same database is made by large credible international financial institutions and publishes a list of available credit ratings of countries in the world. It is a sufficient basis for comparative analysis and analysis of the factors and variables that affected the results obtained. In that sense, the paper proposes some of the basic indicators with which parallel observation of the existing credit ratings of the analyzed countries can be compared, primarily by emphasizing only the economic variables among three basic components that form the overall credit rating of countries. All this in order to focus even more precisely on that part of the economic variables that have a direct impact on trade and capital flows.

In the *Barometer country and sector risks barometer Q3 2021* as a Coface economic publication dated on October 2021, it is stated: “The CEE region is among the regions experiencing a surge in investment. Indeed, the CEE region could benefit from near-shoring trends thanks to competitive labor costs, educated and skilled workforce as well as the geographical proximity to Western Europe” (p. 4).

6. MAJOR MACROECONOMIC INDICATORS (SELECTED CEFTA COUNTRIES)

Follows an overview of the major macroeconomic indicators for the five selected CEFTA countries (Albania, Bosnia and Herzegovina, N. Macedonia, Montenegro and Serbia) during the period 2018-2021. Those indicators are included in the calculation of the country risk rang and through them tendency of the rang can be followed and the changes in risk exposure can be predicted. Data presented covers major macroeconomic indicators for the analyzed countries where 2020 data are estimated, and 2021 are forecast (adapted from <https://www.coface.com/Economic-Studies-and-Country-Risks/North-Macedonia>).

In addition to this ranking, the rankings of other economic analyzes show a similar rating of the analyzed countries. Considering that they all calculate the rating based on the same relevant input information and differ greatly in the detail of the methodology and in the markings for individual ratings, previously mentioned is only the rating given by the Coface group. Among other things, the choice of Coface is due to the fact that since its establishment in 1946 the company has been engaged in export credit insurance and undertaking risks in the international movement of goods and it is a European company (French company) which is among the top 10% of insurance companies in the world. According to them, 80% of businesses are faced with unpaid receivables, and 25% of insolvencies are due to unpaid invoices. So, the connection is among the missions of the company to protect from different forms of defaulting (risk increases dramatically in international trade, having in mind the country risk in addition) and the need to facilitate trade between CEFTA countries. Another global leader in trade credit insurance whose rating can be mentioned and compared to others is Euler Hermes. According to them (2021), Country Risk Ratings for the five selected countries are: Albania D 3 (Sensitive); Bosnia and Herzegovina D 3 (Sensitive); North Macedonia C 2 (Medium); Montenegro D 4 (High); and Serbia B 2 (Medium). (https://www.eulerhermes.com/en_global/discover-euler-hermes/our-strategy.html).

Table 1. Country risk assessment and Business climate for selected countries

Albania		2018	2019	2020 (e)	2021 (f)
POPULATION 2.9 MILLION	GDP growth (%)	4.1	2.2	-7.5	3.5
GDP PER CAPITA 5,323 US\$	Inflation (yearly average, %)	2.0	1.4	1.4	1.7
COUNTRY RISK ASSESSMENT D	Budget balance (% GDP)	-1.3	-2.0	-8.4	-4.7
BUSINESS CLIMATE C	Current account balance (% GDP)	-6.8	-7.6	-11.7	-8.5
	Public debt (% GDP)	69.5	67.7	83.3	83.2
Bosnia and Herzegovina		2018	2019	2020 (e)	2021 (f)
POPULATION 3.3 MILLION	GDP growth (%)	3.7	2.7	-6.5	3.0
GDP PER CAPITA 6,015 US\$	Inflation (yearly average, %)	1.4	0.6	-0.8	0.4
COUNTRY RISK ASSESSMENT D	Budget balance (% GDP)	1.3	1.3	-4.2	-2.7
BUSINESS CLIMATE B	Current account balance (% GDP)	-3.7	-3.5	-4.4	-5.0
	Public debt (% GDP)	34.3	32.8	38.9	40.4
North Macedonia		2018	2019	2020 (e)	2021 (f)
POPULATION 2.1 MILLION	GDP growth (%)	2.7	3.6	-4.4	5.0
GDP PER CAPITA 6,109 US\$	Inflation (yearly average, %)	1.5	0.8	0.9	1.5
COUNTRY RISK ASSESSMENT C	Budget balance (% GDP)*	-1.8	-2.0	-6.7	-4.5
BUSINESS CLIMATE A4	Current account balance (% GDP)	-0.1	-2.8	-3.4	-2.5
	Public debt (% GDP)**	40.6	40.1	50.2	50.5
Montenegro		2018	2019	2020 (e)	2021 (f)
POPULATION 0.6 MILLION	GDP growth (%)	5.1	3.6	-12.0	5.5
GDP PER CAPITA 8,826 US\$	Inflation (yearly average, %)	2.6	0.4	-0.1	0.7
COUNTRY RISK ASSESSMENT C	Budget balance (% GDP)	-6.2	-2.4	-10.4	-4.9
BUSINESS CLIMATE A4	Current account balance (% GDP)	-17.0	-15.2	-14.2	-13.6
	Public debt (% GDP)	71.9	79.3	90.8	88.1
Serbia		2018	2019	2020 (e)	2021 (f)
POPULATION 7.0 MILLION	GDP growth (%)	4.4	4.2	-2.5	5.5
GDP PER CAPITA 7,382 US\$	Inflation (yearly average, %)	2.0	1.9	1.5	1.9
COUNTRY RISK ASSESSMENT B	Budget balance (% GDP)	0.8	0.0	-8.1	-1.6
BUSINESS CLIMATE A4	Current account balance (% GDP)	-4.8	-6.9	-6.4	-6.5
	Public debt (% GDP)	54.5	52.8	59.5	57

Source: adapted from

<https://www.coface.com/Economic-Studies-and-Country-Risks/North-Macedonia>

By the Ratings Table of KnowYourCountry as a global research tool designed to provide the data and information for Compliance or Business Development, among 245 countries the position of our group of five is: 225th – Albania – score 46.11; 194th – Bosnia and Herzegovina – score 60.81; 138th – Macedonia, North – score 67.57; 158th Montenegro – score 65.56; and 166th – Serbia – score 64.75 (where score means lower 80-100; lower-med 70-80; medium 60-70; med-higher 50-60; high <50). Four analyzed countries are in a group of medium risk, except Albania which has high risk. (<https://www.knowyourcountry.com/country-ratings-table> (last update 9 January 2022))

It is important to take into consideration OECD and World Bank Country risk ranking. According to OECD Country Risk Classifications of the Participants to the Arrangement on Officially Supported Export Credits (Valid as of: 22 October 2021), Current Prevailing Classification for Albania is 5; for Bosnia and Herzegovina is 7; for North Macedonia is 5; for Montenegro is 7; and for Serbia is 4. (<https://www.oecd.org/trade/topics/export-credits/documents/cre-crc-current-english.pdf>)

According to World Bank 2020, ranking is as follows:

- Albania – Country Risk Rating D3 – GDP USD 14.8bn (World ranking 125),
- Bosnia and Herzegovina – Country Risk Rating D3 – GDP USD 19.8bn (World ranking 113),
- North Macedonia – Country Risk Rating C2 – GDP USD 12.27bn (World ranking 135),
- Montenegro – Country Risk Rating D4 – GDP USD 4.77bn (World ranking 159),
- Serbia – Country Risk Rating B2 – GDP USD 52.96bn (World ranking 84).

All the rankings taken into account show very similar results in terms of the order of the five CEFTA countries whose risk is subject of interest, and on that is a credible and relevant basis for the conclusions in the last part of the paper.

7. METER TENDENCY OF COUNTRY RISK

Following the country risk meter tendency, several indications are taken in consideration: Debt service on external Debt total, Total reserves (% of total external debt), GDP per capita growth (annual %), Unemployment, total (% of total labor force) (national estimate), and Net investment in nonfinancial assets (% of GDP). All data are adopted by the relevant information from the World Bank data service, for a period of more than 10 years (2010-2020).

Table 2. Debt service on external Debt total, (TDS, current, USD)

Year	Country Code				
	ALB	BIH	MKD	MNE	SRB
2010	380521784.7	570387024.2	623959637.6	97616232.8	4306782758
2011	482510828.6	1472876326	941339688.2	879571153.5	5209732021
2012	540687624.6	1157351298	679197473.1	971261965.7	6033289463
2013	551609619.2	1391078048	912532696.9	1178360902	8448744317
2014	732660493.9	1497869359	978775107.3	1144223513	8344161055
2015	1179900721	1930997980	1041199829	1288369843	4261186146
2016	590406592	1230873786	870327901.3	1265127787	5951483189
2017	513040675.9	1352041734	876694124.1	1165275133	4963021656
2018	1086080378	2040536045	1290525945	1696780111	5722062645
2019	649306814.6	1544590351	721883617.8	1530081335	7305323462
2020	1149299977	1667480366	1158246751	1605790251	6225266571

Table 3. Total reserves (% of total external debt)

Year	Country Code				
	ALB	BIH	MKD	MNE	SRB
2010	46.7330053	30.8703906	44.1299888	12.2991339	40.4395759
2011	38.1142608	34.406654	43.5040233	7.10804363	49.2244414
2012	35.2070333	33.773688	44.694591	7.42666093	41.9164212
2013	32.07198	36.1683353	40.784887	8.11813566	42.5371284
2014	31.3096122	37.1508221	40.9828283	10.0081234	36.5291483
2015	37.1552097	41.2513469	36.5124617	10.8703518	36.2445527
2016	36.5021801	44.1619324	36.6290796	12.7622149	36.3964229
2017	36.6127666	49.6888778	32.7921677	14.0766337	34.7334642
2018	39.425063	51.3693258	37.893373	14.9804991	37.6189452
2019	39.3817925	54.4752514	40.6233364	18.3368135	41.7723629
2020	44.3620967	61.0447935	38.9024588	21.9525112	37.4620915

Table 4. GDP per capita growth (annual %)

Year	Country Code				
	ALB	BIH	MKD	MNE	SRB
2010	4.223037747	1.695002033	3.273547673	2.546296431	1.136804338
2011	2.821557928	2.181253882	2.253618657	3.120042697	2.845009607
2012	1.585156475	0.724336969	-0.54213276	-2.80562054	-0.1983789
2013	1.187203907	4.15191548	2.836514677	3.447970213	3.39452352
2014	1.985426103	2.911120618	3.543588015	1.684977575	-1.12639733
2015	2.516852986	4.674687895	3.778198064	3.332361603	2.311015889
2016	3.480117005	4.462656369	2.778461545	2.925518488	3.88118476
2017	3.897710666	4.240509741	1.021084718	4.704660993	2.645985862
2018	4.328395578	4.601625193	2.833131374	5.102520615	5.067594881
2019	2.609888198	3.545337395	3.149341015	4.096247368	4.809425014
2020	-2.75081634	-3.73878437	-4.52842078	-15.1166811	-0.44921072

Table 5. Unemployment, total (% of total labor force) (national estimate)

Year	Country Code				
	ALB	BIH	MKD	MNE	SRB
2010	14.09	27.31	32.02	19.65	19.22
2011	13.48	27.58	31.38	19.7600002	22.97
2012	13.38	28.01	31.02	19.8099995	24
2013	15.87	27.49	29	19.5900002	22.15
2014	18.05	27.52	28.03	18.0499992	19.22
2015	17.19	27.69	26.07	17.5499992	17.66
2016	15.42	25.41	23.72	17.7299995	15.26
2017	13.62	20.53	22.38	16.0799999	13.48
2018	12.3	18.4	20.74	15.1899996	12.73
2019	11.47	15.69	17.26	15.1300001	10.39
2020		15.8699999	17.2	17.8799992	9.01

Table 6. Net investment in nonfinancial assets (% of GDP)

Year	Country Code				
	ALB	BIH	MKD	MNE	SRB
2010		1.567933692	1.707539058	/	1.652087582
2011	5.109592466	2.099763582	2.226047317	/	1.529027647
2012	4.39538996	2.228285957	3.069189613	/	1.742584411
2013	3.912928137	3.396230033	2.542036271	/	/
2014	4.034152026	3.755953757	2.531626538	/	/
2015	4.10938033	1.476230644	2.464562419	/	/
2016	3.877773153	1.818769604	1.938378658	/	/
2017	/	/	/	/	/
2018	/	/	/	/	/
2019	/	/	/	/	/
2020	/	/	/	/	/

Source: adapted from <https://data.worldbank.org/indicator/>

Debt service on external Debt total, (TDS, current, USD) – where total debt service is the sum of principal repayments and interest actually paid in currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF. Data are in current U.S. dollars. International reserves to total external debt stocks – as total reserves (% of total external debt). GDP per capita growth (annual %) – in which annual percentage growth rate of GDP per capita is based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy

plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Unemployment, total (% of total labor force) (national estimate) – where unemployment refers to the share of the labor force that is without job but available for and seeking employment. Definitions of labor force and unemployment differ by country. Net investment in nonfinancial assets (% of GDP) – where net investment in government nonfinancial assets includes fixed assets, inventories, valuables, and non-produced assets. Nonfinancial assets are stores of value and provide benefits either through their use in the production of goods and services or in the form of property income and holding gains. Net investment in nonfinancial assets also includes consumption of fixed capital. The following figures give a comparative graphic overview of the trend of some of the listed indicators for the selected countries.

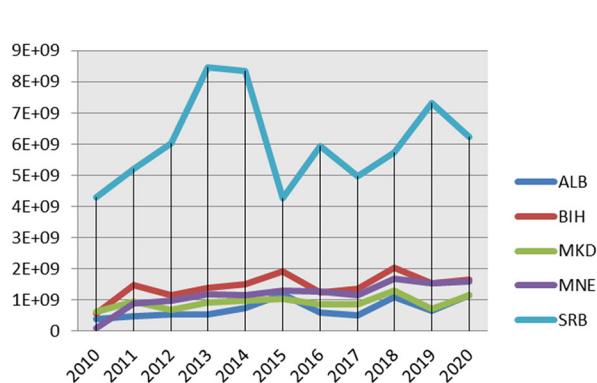


Figure 1. Debt service on external Debt

Source: own comparison

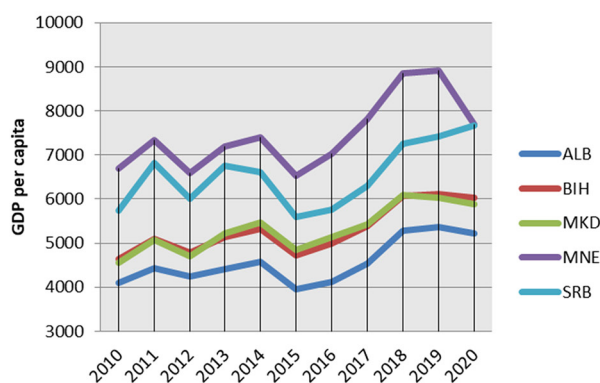


Figure 2. GDP per capita

Source: own comparison

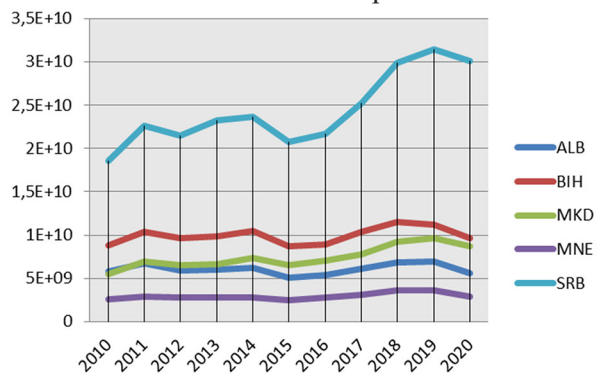


Figure 3. Imports of goods and services

Source: own comparison

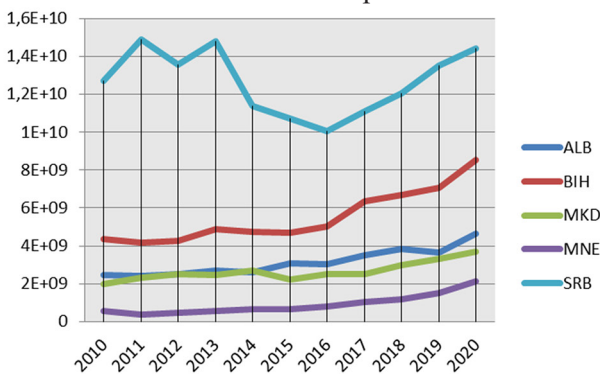


Figure 4. Total reserves minus gold

Source: own comparison

Having in mind the previously presented data and graphical reviews of the tendency of some of the basic indicators for the countries under analysis, it is possible to further analyze and interpret the ratings of the mentioned countries already cited in this paper, as well as the ratings calculated and published by other institutions.

8. CONCLUSION

Considering the extreme complexity of the country risk assessment process and the large number of components that are an integral part of the synthesized result, as well as different ranking systems, the emphasis in this paper is put on the markers: GDP per capita, GDP growth (%), Inflation (yearly average, %), Budget balance (% GDP), Current account balance (% GDP),

Public debt (% GDP), Debt service on external Debt, Total reserves (% of total external debt), Unemployment, total (% of total labor force), net investment in nonfinancial assets (% of GDP), Imports of goods and services.

Numerous combinations of all the listed economic indicators further complicate the assessment, but the intention of this paper is only to make a comparative analysis of the indicated markers in the selected countries and in the direction of strengths/weaknesses analysis. Such a review of strengths/weaknesses is an important basis for developing solutions and strategies to reduce the risk of the country, in order to improve the flow of goods, services and capital. At the same time, it is not out of room to emphasize once again that the already extensive set of components and indicators of the country risk are only those that refer to the macroeconomic balance (un-balance) of the country, completely leaving out of interest other components of the total country risk score (Risk of political instability of the country and Risk of the system of the country – most often referred to as system risk).

Having in mind this approach, all presented relevant data and graphs following a period longer than a decade show that the analyzed countries have many similarities in economic indicators and similar ratings, with a slightly better position of Serbia. Serbia has a significantly better position compared to the other four countries in reference to Debt service on external Debt, despite the fact that from 2020 there is a downward trend in this indicator.

Albania has the lowest GDP per capita, N. Macedonia and Bosnia and Herzegovina are very similar in this indicator, and Serbia and Montenegro are reaching the same point in 2020. Serbia also bounces significantly in comparison to the rest four analyzed countries in reference to Imports of goods and services and Total reserves. In terms of these indicators, the position of Montenegro is the lowest, although all countries except Serbia have the same trend following the corresponding indicator.

In the strengths/weaknesses analysis of the selected countries (according to the economic component of the country risk) on the side of strengths for Albania can be mentioned: low labor costs, moderate level of inflation, flexible exchange rate coupled with a strong lek against the euro and substantial reserves, fiscal deficits in check since 2016, considerable inflow of remittances, long coastline, multi-mineral reserves (oil, chromium, copper, iron-nickel, silicates, coal), hydroelectric and tourism potential. On the side of weaknesses: small, open and poorly diversified economy, unfavorable demography (ageing and immigration), high level of unemployment, low-skilled workforce, large informal economy, low GDP per capita and low living standards, continued large current account deficits, high public and external debt levels.

As strengths/weaknesses for Bosnia and Herzegovina can be mentioned: stable exchange rate and fairly low inflation, significant transfers from expatriate workers, comfortable level of foreign exchange reserves, manageable external debt-service, limited transfer risks, tourism and hydroelectric potential; and as weaknesses – weak business environment, lack of public investment, low diversity and low added value of exports, high external debt stock, large informal sector, widespread poverty and high unemployment, high emigration, high vulnerability to external shocks.

Bosnia and Herzegovina strengths: strong tourism and hydroelectric potential, use of the euro which facilitates trade and contributes to relative financial stability, inflation under control; weaknesses: small economy vulnerable to external shocks, small market, unfavorable demo-

graphics, high unemployment, high poverty, large informal economy, under-diversified economy, heavy dependence on tourism, huge trade deficit, high current account deficits, large fiscal deficits, limited external competitiveness and country's ability to deal with external shocks, very high gross external debt.

Strengths of N. Macedonia are: solid monetary policy, denar pegged to the euro, low inflation, relatively prudent fiscal policy, high levels of remittances from expatriate workers, wage competitiveness, good conditions for attracting foreign investment, low tax rates, easy processes to start a business, position at the meeting point of two European corridors, while as a weaknesses can be listed: high structural unemployment, lack of productivity, large informal economy, sustained emigration by young people, moderate level of foreign exchange reserves, high external debt burden, including arrears, underdeveloped road and rail infrastructure, inadequate transport, energy, health and education infrastructure.

Serbia as a country with the best credit rating in the analyzed group of countries have the following strengths: food self-sufficiency, natural resources (coal, bauxite, copper, zinc, gold), strong growth potential, rising automotive industry, comfortable level of foreign exchange reserves, relative currency stability, low labor cost, generous state subsidies for foreign companies, continued substantial FDI inflows. As for weaknesses, there are: landlocked with poor road infrastructure, deficient infrastructure (roads, railways), massive and inefficient public sector, high rate of unemployment, youth unemployment, large informal sector, increasing public debt, high external debt burden, including external arrear.

This strengths/weaknesses analysis sets out the arguments for the current credit rating and confirms the ranking of the analyzed countries in the CEFTA Agreement, but can also serve as a starting point for developing strategies for long-term and stable addressing of weaknesses in order to increase foreign trade and capital flow.

REFERENCES

- Acharya, S., & Diwan, I. (1993). *Debt Conversion Schemes of Debtor Countries as a Signal of Creditworthiness: Theory and Evidence*: International Economic Review 34.
- Arsovski, D. (1998). *Risks in banking*. Skopje: Economy Press. (in Macedonian language)
- Coface economic publications. (2021). *Country and sector risks barometer Q3 2021*. October 2021, p. 4.
- Euler Hermes. (2021). *Country Risk Ratings*, Economic Research Department. December 2021 Review.
- Karadjova, V. (2012). Country risk – conditions and trends in Macedonia, proposals for reduction in conditions of unstable environment. ELSEVIER, *Procedia – Social and Behavioral Sciences*. 44, 1877-0428, 470 – 481. <https://doi.org/10.1016/j.sbspro.2012.05.052>
- Saunders, A., & Cornett, M. M. (2006). *Financial Institutions Management – A Risk Management Approach*. New York/NY, United States: McGraw – Hill International Edition, (5th ed.). <https://data.worldbank.org/indicator/>
<https://cefta.int/cefta-parties/>
<https://www.coface.com/Economic-Studies-and-Country-Risks/North-Macedonia>
https://www.eulerhermes.com/en_global/discover-euler-hermes/our-strategy.html
<https://www.knowyourcountry.com/country-ratings-table> (last update 9 January 2022)
<https://www.oecd.org/trade/topics/export-credits/documents/cre-crc-current-english.pdf>



Initial Conditions and Monetary Freedom in Former Communist Countries: An Instrumental Variable Approach

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Abstract: *Economic literature has widely discussed the importance of institutions in general, and that of monetary freedom in particular, for economic growth in post-communist countries, yet less is known about the determinants of institutional quality in these countries. While some studies argued that initial social conditions matter for institutional building, not much empirical work has been done to econometrically demonstrate their influence. The present paper fills this void by using regression analysis in order to assess the impact of the strength of civil society right after the fall of communism on monetary freedom in subsequent years, on a sample of former communist countries. As a simple OLS regression is prone to endogeneity problems, the author uses an instrumental variable approach, instrumenting the initial strength of civil society through the number of victims of terror during communism. The paper proves that the initial strength of civil society has a positive, significant and sizeable impact on monetary freedom 5-6 years after the transition process has begun.*

1. INTRODUCTION

The fall of the communist regime in Central and Eastern Europe and Central Asia has left more than 20 countries to rebuild from scratch their political and economic systems. Although they were somehow similar from a cultural or social perspective, some countries managed to progress, growing into well-functioning and prosperous market economies, while others are performing even worse than during communism, striving with poverty and becoming some kind of modern dictatorships. As researchers have tried to explain these divergent evolutions, one of the theories that gained increasing popularity was that of the importance of institutional quality. More precisely, the quality of institutions a country has developed in the first years of transition was shown to have influenced its subsequent political and economic performance: countries that protected private property supported entrepreneurship and, in general, respected the freedom of their citizens have stronger and more performant economies compared to those where these rules were poorly enforced, or completely inexistent.

Once researchers understood the importance of institutions for economic growth in transition, a new question has followed: what influences the quality of institutions? Scientific literature has explored multiple answers, yet an agreement was reached regarding the strong influence of initial conditions. Indeed, a transition country where there were more political opponents of the socialist elite, and these opponents have gathered in stronger pro-market parties, managing to overthrow the old nomenclature in the newly held democratic elections, or a country where

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exponents of the old regime had less resources to pray on, has definitely built better rules. However, initial social conditions have also played an important part, as the strength of civil society and the determinacy of citizens to create and support a democratic, market-oriented system put pressure on the new leaders to establish rules of better quality.

In this paper, we empirically investigate the influence of initial social conditions (measured through the strength of civil society at the beginning of transition) on institutional quality. The focus is on one institutional dimension, i.e. monetary freedom, which measures to what extent a country has a stable currency, that preserves its value over time, and market determined prices. We choose this institutional dimension based on existing literature that emphasizes the importance of a reliable currency as a medium of exchange, unit of account, and store of value for both consumers and producers in a market economy. Without it, there are no incentives to amass capital, invest and create long-term value. We argue that a simple OLS regression of the strength of civil society at the beginning of transition on monetary freedom measured 5-6 years afterward would not suffice, as it would be prone to endogeneity problems, stemming from omitted variable bias. Hence, we apply an instrumental variable approach, using the number of victims of terror during communism as an instrument for the initial strength of civil society, in a cross-section regression on a sample of 27 transition countries in Central and Eastern Europe and Central Asia. We prove that the initial strength of civil society has a positive, significant and sizeable impact on monetary freedom 5-6 years after the transition process has begun.

The second section of this paper presents a review of literature on the importance of institutions for economic growth in transition countries, as well as on the determinants of institutional quality. The third section describes our empirical approach, providing information on data, sample, methodology and results. The last section concludes.

2. THEORETICAL APPROACH

In their process of transition from a planned to a market economy, former communist countries implemented a series of radical reforms meant to reshape from scratch the functioning mechanisms of their economies. Although all the dimensions of these reforms had significant importance, among the essential ones were those that implied price liberalization, monetary stabilization, and the creation of an independent monetary authority. In short, these countries had to let prices for goods and services form freely on the market, as opposed to having them set by the central planner, and to create a politically and economically independent central bank, in charge of monetary policy.

As there was a significant gap between the new prices that were now set freely on the market and the old ones, kept at low levels by the central planner, these countries experienced hyperinflation. Moreover, once the two-digit inflation episode was overcome, prices in these economies continued to be exposed to inflationary influences. Failure to contain this phenomenon hurts economic performance, as price instability discourages investment and erodes savings, stimulating capital flight (Debelle et al., 1998). As explained by De Gregorio (1992), inflation has negative effects on the productivity of capital and on the rate of capital accumulation, as it diverts resources away from productive activities, towards activities meant to reduce the costs of inflation. The evidence of the negative effect of inflation on economic growth is even clearer when the former reaches higher rates, around 8-10 percent (Sarel, 1996, Barro, 1995). In order to mitigate the hyperinflation manifest at the beginning of transition, as well as future inflation episodes, post-communist countries needed an independent central bank, in charge with mone-

tary policy. Legal independence of a central bank helps reduce inflation, once the level of price liberalization is sufficiently high and sustained (Cukierman et al., 2002). Loungani and Sheets (1997) also show that transition economies with more independent central banks managed to achieve lower inflation rates compared to their counterparts.

Apart from suppressing inflation, price controls are also harmful because they distort market information and the system of relative prices, having a negative impact on the efficient allocation of resources, leading to either shortages or surpluses. In other words, prices will no longer reflect the relative scarcity of resources, sending misleading information to entrepreneurs about where should they direct their investment. As De Haan and Sturm (2000) put it, price controls restrict the freedom of buyers and sellers to engage in a mutually agreeable exchange. As such, a monetary environment conducive to growth does not only require low inflation and stable prices, but also the absence of price controls (Cebula et al., 2012).

As we see that not only inflation itself matters for economic performance, the focus of research work that investigates the influence of the monetary environment has shifted from inflation to a broader concept referred to as monetary freedom (Ivanović and Stanišić, 2017), which includes inflation as well as the absence of price controls. A measure of monetary freedom was developed by the Heritage Foundation, as part of a broader Index of Economic Freedom, starting 1995. The monetary freedom dimension looks to what extent a country has a stable currency and market determined prices. As explained by the Heritage Foundation, *with a monetary policy that endeavours to fight inflation, maintain price stability, and preserve the nation's wealth, people can rely on market prices for the foreseeable future*, thus having better incentives to invest, save and carry out longer term plans; on the contrary, an inflationary policy *confiscates wealth like an invisible tax and distorts prices, misallocates resources, and raises the cost of doing business* (Miller et al., 2021).

This measure of monetary freedom has been used in several studies that investigated its effect on economic performance. Among the most recent ones, Ivanović and Stanišić (2017) analyse the relationship between monetary freedom and economic growth in a selected sample of 11 new European Union member states with a 19-year panel data regression covering the period of 1997-2015. They conclude that the degree of monetary freedom significantly influences the growth of real GDP, albeit the relationship weakens after the 2008 global economic crisis. Gurgul and Lach (2011) also perform an empirical estimation on a similar sample of Central and Eastern European countries in transition over 2000-2009, concluding that monetary freedom is among the areas that can be considered especially important for economic growth. The same conclusion is reached also by Peev and Mueller (2012), who find that monetary freedom is among the most significant components of the Index of Economic Freedom for GDP per capita growth in transition countries. However, similar results are obtained also for samples of developed countries, for instance by Cebula et al. (2012) who look at the effect of all the components of the Index of Economic Freedom on per capita real GDP among the OECD countries during 2002-2006, and find that monetary freedom ranks among the dimensions that exert the strongest impact on per capita real GDP. On the same note, Heckelman (2000) uses a wide sample of both developing and developed economies, showing that monetary freedom does Granger-cause growth.

In terms of its channels of influence, McMullen et al. (2008) show that monetary freedom influences the decision to engage in entrepreneurial activities using a sample of 37 developed and developing economies, while Sufian and Habibullah (2010) finds a correlation between monetary freedom

and the good performance of the banking sector in Malaysia. Goel and Nelson (2005) discover that monetary policy has a stronger influence on corruption compared, for instance, to fiscal policy, also using a large sample of both developing and developed economies.

Other studies analyse economic freedom only as a whole (see for instance De Haan & Sturm, 2000, Saha, 2009, Mushtaq and Ali Khan, 2018) without assessing the disaggregate impact of its components. However, these studies also find, as a generally accepted conclusion, that economic freedom exerts a positive influence on economic growth, or on other factors that, in turn, influence or prohibit growth. This is part of a bigger strand of research that investigates the influence of institutions (be they political or economic) on economic performance (see Ugur, 2010; Efendic and Pugh, 2011; or Redek and Sušjan, 2005, among others, for a review). This research interest gained popularity especially in the context of the fall of the communist regime in Central and Eastern Europe and Central Asia, as the quality of institutions has started to be seen as a potential alternative explanation for the different economic paths transition countries have embarked on. As highlighted by Campos and Coricelli (2002), *the role of institutions has largely been neglected in empirical analysis of growth in transition economies*. The main idea is that good institutions lead to constructive policies and create the right incentives for citizens to engage in productive activities, while bad institutions stimulate rent-seeking behaviours and create the premises for extractive rather than inclusive policies (Eydam and Gabriaže, 2021), thus explaining the different economic performance of countries that all started to build from zero a new institutional system.

While there is a significant strand of economic literature acknowledging the crucial role of institutions in general, and of monetary freedom in particular, for economic growth and development of transition countries, a second question arises: what influences the quality of institutions and what makes some countries develop a high degree of monetary freedom? Douglas North, who is considered the founding father of new institutional economics, stated that *institutions are not necessarily or even usually created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to create new rules* (North, 1990). Beck and Laeven (2006) build on this assumption and offer a political economy explanation for the reason why institution building has varied across transition countries. They argue that the incumbent elite who stepped into power at the beginning of transition was (to a greater or lesser extent) formed of older socialist nomenclature, therefore having incentives to create flawed rules that allowed for the extraction of rents and other benefits that served their personal interests, at the expense of the general development of the country. They use the number of years spent under communism as a proxy for the entrenchment of the socialist elite, and the share of natural resources in GDP at the beginning of transition as an indicator of the elite's opportunity to extract rents, showing that countries that spent a larger number of years under communism and rely more on natural resources had a larger presence of the socialist elite in their political structures at the beginning of transition. Further on, they demonstrate that this led to a lower quality of institutions built during the first decade of transition.

The fact that the initial conditions matter for the future institutional path of a transition country was also highlighted by Roland (2002), who argues that to have a broader image of initial conditions, and a more precise idea of their impact on the initial choice of institutions, one needs also to include sociological variables. He suggests that one important variable which has been somehow disregarded until now is the strength of the non-communist politicians at the beginning of transition, while also advocating for the importance of including the strength of civil society. In his view, such differences in initial conditions influence the intensity of political constraints, and thus the initial choice of political institutions and policies.

3. EMPIRICAL APPROACH

While Beck and Laeven (2005) look at initial conditions from a political perspective and demonstrate their importance, using the number of years spent under communism and the resource endowment as proxies for the initial quality of the political structure, Roland (2002) emphasize the role of civil society as an alternative measure of initial conditions. However, from this latter point of view, there is not much empirical research so far, as there are not many measures of sociological status quo at the beginning of transition. Moreover, endogeneity problems in a regression of institutional quality and initial strength of civil society may arise from omitted variable bias, making this hypothesis difficult to be tested in practice. For instance, one can assume that, while civil society has influenced political leaders' choices of institutions, there can be a third, omitted factor that influences both the strength of civil society and the quality of institutions, such as religion: although religious practices were, in theory, banned under communism, religion was de facto practiced at different intensities in different countries; a country with more religious citizens tends to have a stronger civil society, as religion gathers people together and unites them, and also more religious people support democratic values and institutions. In such cases, a simple OLS regression would lead us to biased estimates.

Building on the hypothesis of Roland (2002) about the crucial importance of initial social conditions for institutional building, we try to solve this endogeneity problem by using an instrumental variable approach in order to assess the influence of initial social conditions (measured through the strength of civil society) on monetary freedom in a sample that includes transition countries in Eastern Europe and Central Asia. We choose monetary freedom as a measure of institutional quality given its importance for economic development, as discussed above. We argue that a good instrument for the strength of civil society at the beginning of transition is the number of political victims of the former communist regime. Intuitively, the more oppressive towards dissidents a communist regime was, the lower the number of those who had the courage to publicly manifest their civic spirit, hence the weaker the civil society at the beginning of transition.

For the measure of the number of political victims of the former communist regime, we use the annual rate of victims of terror, that is the average annual percentage of population that was victim to *political or summary executions, murder, and assassinations; death by torture; disappearances; flight dead; These are discriminating murders, aimed at individuals, unlike massacres*. The data comes from professor R. J. Rummel at University of Hawaii, who compiled a database of democide and power kills by governments. Values for every country are displayed in Figure 1.

Data on the strength of civil society at the beginning of transition was obtained from the *Varieties of Democracy V-Dem* Project dataset developed by the University of Gothenburg, V-Dem Institute. This variable measures how do people get involved in civil society organizations. Lower values refer to situations in which either most associations are state-sponsored, and people's participation is not purely voluntary, or voluntary associations exist but few people are active in them, while higher values reflect an environment in which there are many diverse organizations and it is considered normal for people to be at least occasionally active in at least one of them. Therefore, the higher the value, the stronger and more independent civil society is. For every country, we have selected the value for the first year of transition; values are displayed in Figure 2.

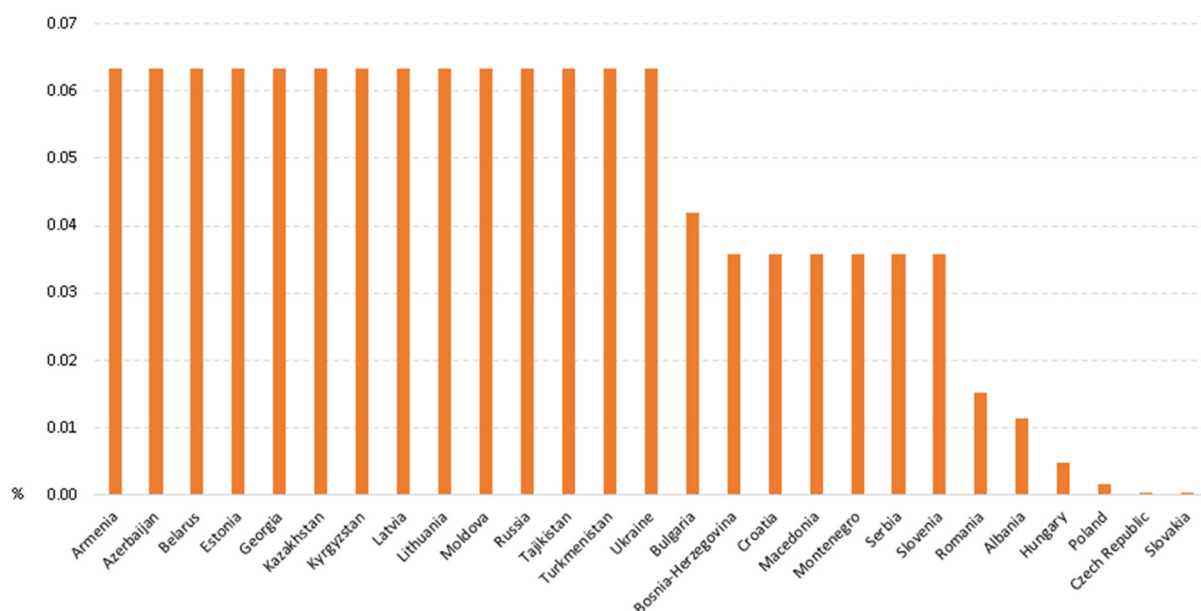


Figure 1. Annual average rate of terror during communism

Source: Professor R. J. Rummel, University of Hawaii

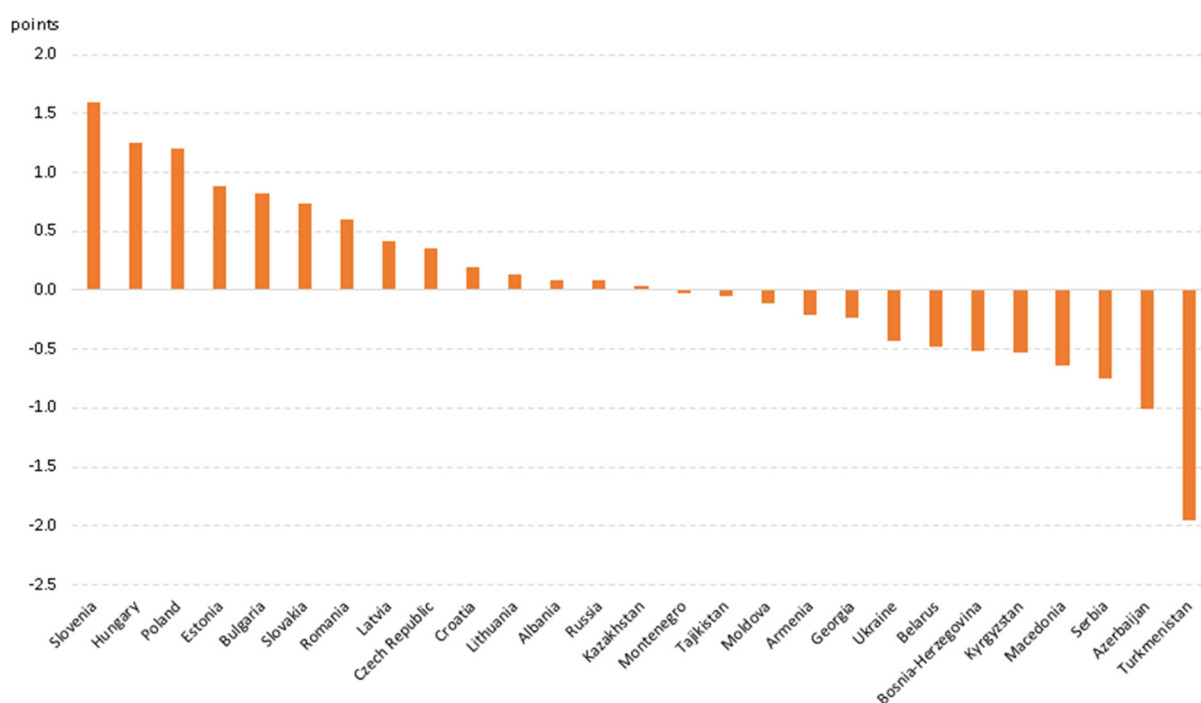


Figure 2. Strength of civil society at the beginning of transition

Source: Varieties of Democracy V-Dem Project, University of Gothenburg, V-Dem Institute

Data on monetary freedom is obtained from the Heritage Foundation, as a part of a broader dataset that measures economic freedom. Their *monetary freedom index* assesses to what extent a country has a stable currency and market determined prices. For every country, we use the index of monetary freedom after 5 or 6 years of transition, depending on data availability. We decided that such a period is longer enough for the newly emerged institutions to reach a mature shape, inspired by Sachs (1996) who considers that five years, or *the first mid-decade of transition*, were enough for some transition countries that went through a rapid systematic transformation to create market institutions and achieve economic growth. Values for each country are displayed in Figure 3.

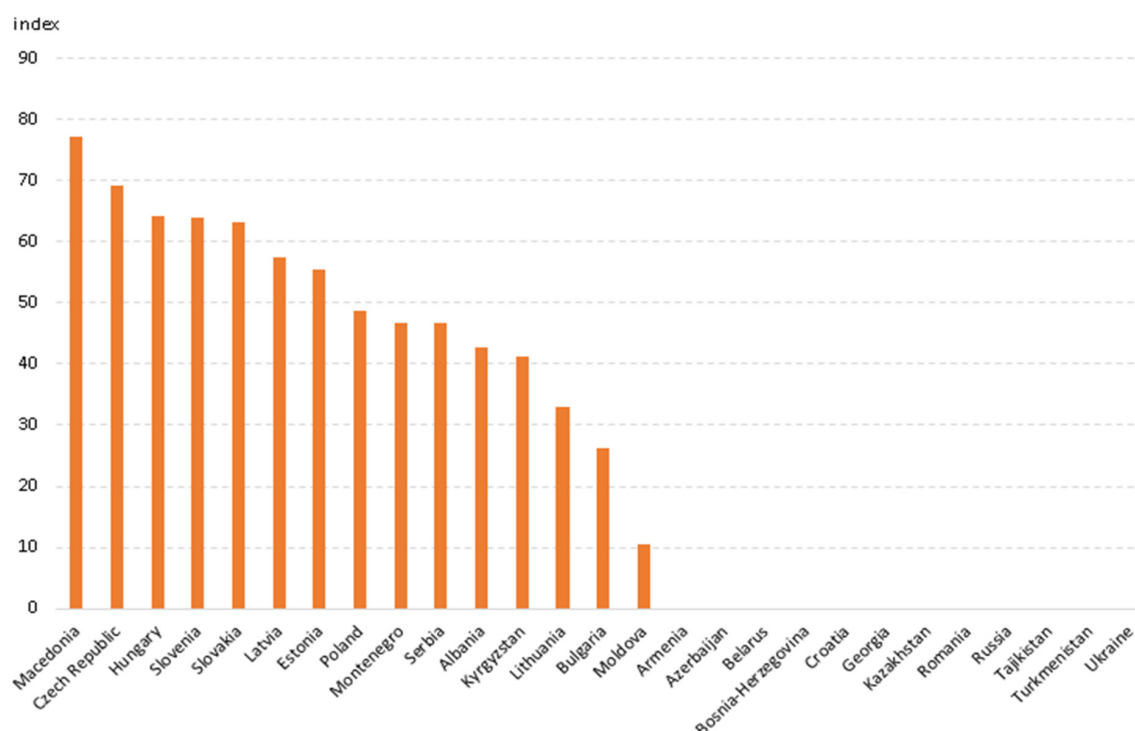


Figure 3. Monetary freedom 5-6 years after the beginning of transition

Source: The Heritage Foundation

In econometric terms, there are two conditions that an IV must meet:

1. Relevance, meaning that the covariance between the instrument (in our case the annual rate of victims of terror) and the endogenous regressor (in our case participation in civil society) should not be null. Intuitively, we argue that the more terror the communist regime instituted throughout population, and the more the former communist regime eliminated possible opponents, the weaker the civil society was right after the fall of the regime. Results of the regression of participation in civil society on the annual rate of victims of terror during communism suggest the existence of a negative and significant causal relationship, as it can be seen in column (2) of Table 1. The F-statistic of this first stage regression is also above the rule of thumb value of 10, indicating the presence of a strong instrument, while the value of the R-squared suggests that the annual rate of victims of terror alone explains one quarter of the variation in the strength of civil society at the beginning of transition.
2. The exclusion restriction, which requires that the covariance between the instrument and the error term of the initial OLS regression is zero. In other words, the instrument should influence the dependent variable (in our case monetary freedom) only through the endogenous regressor (in our case participation in civil society). This cannot be tested in practice, yet intuitively we can argue that the level of terror instituted by the communist regime throughout population cannot influence monetary freedom during transition in other ways but through its influence on the initial state of society at the beginning of transition.

In Table 1 we estimate the effect of the strength of civil society at the beginning of transition, instrumented by the annual rate of victims of terror during communism, on monetary freedom after the first 5-6 years of transition. Column (1) presents the results of a simple OLS regression (without the use of an instrumental variable), which we argue is affected by endogeneity problems and leads to biased estimates. Column (2) presents the results of the first stage regression, while column (3) displays the results of the IV estimation.

Table 1. Estimation results

	(1) OLS	(2) First stage	(3) IV
	monetary_freedom	strength_of_civil_society	monetary_freedom
strength_of_civil_society	17.57** (4.94)	-	41.00** (12.84)
terror_victims	-	-16.02*** (4.42)	-
R ²	0.22	0.25	-
no. of observations	27	27	27
F-stat	-	12.9	-
Wu-Hausman test p-value	-	-	0.036

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: author's calculations

A basic OLS regression with robust standard errors of the *strength of civil society* on *monetary freedom* reveals a positive beta coefficient significant at $p < 0.01$, while the IV regression where we use the annual rate of victims of terror during communism as an instrument also yields a positive beta coefficient, significant at $p < 0.01$, yet greater in magnitude. The difference between the two suggests that the endogeneity problems of the OLS regression lead to biased results, underestimating the influence of initial social conditions on monetary freedom. The Wu-Hausman test also indicates the existence of endogeneity, as it rejects the hypothesis that OLS and IV estimates are equal (its p-value is displayed in the last line of Table 1). All in all, the results of the IV regression show that the strength of civil society at the beginning of transition has a positive, significant and sizeable effect on monetary freedom in subsequent years. Moreover, a simple OLS regression would underestimate this effect.

4. CONCLUSION

In this paper, we have discussed the importance of institutional quality in general, and monetary freedom in particular, for economic growth in transition countries. We have then touched upon the determinants of institutional quality in former communist countries, arguing that, while certain political aspects, such as the entrenchment of the old socialist elite, are important for subsequent institutional building, sociological factors should also be taken into account, more exactly the strength of civil society at the beginning of transition. We have also demonstrated empirically the importance of these sociological factors, in an attempt to fill an existing void in the literature when it comes to econometrical approaches to such political economy questions. More precisely, we have used regression analysis to prove the existence of a causal relationship between the strength of civil society at the beginning of transition and monetary freedom 5-6 years after, in post-communist countries. As a simple OLS regression would lead to biased estimates because of endogeneity problems stemming, for instance, from omitted variable bias, we have used an instrumental variable approach and found that the number of political victims of the former communist regime qualifies as a good instrument. The results prove that the strength of civil society at the beginning of transition has a positive, significant and sizeable effect on monetary freedom.

On the one hand, the results of this paper shed more light on the determinants of institutional quality in transition countries, hence helping explain why some former communist countries ended up with better institutional systems and more prosperous economies, while others stag-

nated or even regressed compared to their communist years. They present an alternative explanation, which complements rather than substitutes previous conclusions: while the political context at the beginning of transition played an important role for subsequent institutional building and economic performance, aspects related to the social fabric of the country and its civil society have also mattered. On the other hand, this paper can be a stepping stone towards more extensive research into the importance of social conditions, and future work may be carried in order to assess whether civil society had an influence also on other institutional dimensions.

REFERENCES

- Barro, R. J. (1995). Inflation and economic growth. *NBER Working Paper 5326*.
- Beck, T., & Laeven, L. (2006). Institution building and growth in transition economies. *Journal of Economic Growth*, 11(2), 157-186.
- Campos, N. F., & Coricelli, A. (2002). Growth in transition: what we know, what we don't, and what we should. *Journal of economic literature*, 40(3), 793-836.
- Cebula, R., Clark, J. R., & Mixon, F. (2012). The impact of economic freedom on per capita real GDP: a study of OECD nation.
- Cukierman, A., Miller, G. P., & Neyapti, B. (2002). Central bank reform, liberalization and inflation in transition economies – an international perspective. *Journal of monetary economics*, 49(2), 237-264.
- De Gregorio, J. (1992). The effects of inflation on economic growth: Lessons from Latin America. *European Economic Review*, 36(2-3), 417-425.
- De Haan, J., & Sturm, J. E. (2000). On the relationship between economic freedom and economic growth. *European journal of political economy*, 16(2), 215-241.
- Debelle, G., Savastano, M. A., Masson, P. R., & Sharma, S. (1998). *Inflation targeting as a framework for monetary policy*. International Monetary Fund.
- Efendic, A., Pugh, G., & Adnett, N. (2011). Institutions and economic performance: A meta-regression analysis. *European Journal of Political Economy*, 27(3), 586-599.
- Eydam, U., & Gabriadze, I. (2021). Institutional development in transition economies—the role of institutional experience. *Post-Soviet Affairs*, 37(2), 99-118.
- Goel, R. K., & Nelson, M. A. (2005). Economic freedom versus political freedom: cross-country influences on corruption. *Australian Economic Papers*, 44(2), 121-133.
- Gurgul, H., & Lach, Ł. (2011). The nexus between economic freedom and growth: Evidence from CEE countries in transition. *MPRA Paper No. 37434*.
- Heckelman, J. C. (2000). Economic freedom and economic growth: A short-run causal investigation. *Journal of Applied Economics*, 3(1), 71-91.
- Ivanović, V., & Stanišić, N. (2017). Monetary freedom and economic growth in new European Union member states. *Economic research-Ekonomska istraživanja*, 30(1), 453-463.
- Loungani, P., & Sheets, N. (1997). Central bank independence, inflation, and growth in transition economies. *Journal of Money, Credit, and Banking*, 381-399.
- McMullen, J. S., Bagby, D. R., & Palich, L. E. (2008). Economic freedom and the motivation to engage in entrepreneurial action. *Entrepreneurship Theory and Practice*, 32(5), 875-895.
- Miller, T., Kim A. B., & Roberts, J. M. (2021). *2021 Index of Economic Freedom*. The Heritage Foundation.
- Mushtaq, S., & Ali Khan, R. E. (2018). Economic freedom and sustainable development: A Panel Data Analysis. *The Pakistan Journal of Social Issues. Special Issue*, 89-97.
- North, D. C. (1990). *Political economy of institutions and decisions: Institutions, institutional change and economic performance*. United Kingdom, Cambridge: Cambridge University Press.

- Peev, E., & Mueller, D. C. (2012). Democracy, economic freedom and growth in transition economies. *Kyklos*, 65(3), 371-407.
- Redek, T., & Sušjan, A. (2005). The impact of institutions on economic growth: The case of transition economies. *Journal of Economic Issues*, 39(4), 995-1027.
- Roland, G. (2002). The political economy of transition. *Journal of economic Perspectives*, 16(1), 29-50.
- Sachs, J. D. (1996). The Transition at Mid Decade. *The American Economic Review*, 86(2), 128-133.
- Saha, S., Gounder, R., & Su, J. J. (2009). The interaction effect of economic freedom and democracy on corruption: A panel cross-country analysis. *Economics Letters*, 105(2), 173-176.
- Sarel, M. (1996). Nonlinear effects of inflation on economic growth. *Staff Papers*, 43(1), 199-215.
- Sufian, F., & Habibullah, M. S. (2010). Does economic freedom fosters banks' performance? Panel evidence from Malaysia. *Journal of Contemporary Accounting & Economics*, 6(2), 77-91.
- Ugur, M. (2010). Institutions and economic performance: a review of the theory and evidence. *Available at SSRN 2102746*.



Trends of the International Oil and Gas Market within the Waves of Internationalization and Globalization

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Abstract: *This paper analyses and presents the possible trends in the international oil and gas market under the waves of globalization; the study and research show the reforms and confrontation of the international energetic platform within the globalization of the International market. The road towards independent energies and economic growth to build and maintain the economy strong can be balanced differently from time to time between energy production and consumption. The necessity for such a global growth in economy and profits has led in particular most oil and gas companies to find new ways to dominate again the international oil and gas market by enhancing their investments to sustain their energy businesses. Furthermore, the sharp rise in energy prices poses major risks in the short term to global inflation and if it continues it may also affect the energy importing countries. The conclusions show that the sharp rise in commodity prices has turned out to be more pronounced than previously expected, moreover, the price fluctuation are finally complicating the policy options as different countries emerge from the global recession, so adapting production strategies for the future requirements to satisfy the needs of the international market rely more on new energy insights and sustainable possibilities.*

1. INTRODUCTION

Moving towards independent energies and economic growth to build and maintain the economy strong can be balanced differently from time to time between energy production and consumption. The necessity for such a global growth in economy and profits has led in particular most oil and gas companies to find new ways to dominate again the international oil and gas market. Furthermore, in the recent period sharp rise in energy prices poses major risks in the short term to global inflation, the fact that could also affect the energy importing countries.

The sharp rise in commodity prices has turned out to be more pronounced than previously expected, moreover, the price fluctuations are finally complicating policy options as different countries emerge from the global recession they witnessed last year. The use of crude oil as a substitute for natural gas poses significant risks to the demand outlook, although higher energy prices may begin to affect global growth. The population increases compared to resources thus with globalization, it demands the use of more and more energy, so it is necessary to sustain the activities of the country. On the other hand, environmental problems became more and more severe which further require the use of energy.

The macro-environment environment is made to be more challenging, so the growth in demand in oil and gas will particularly peak again in 2030 like every 10 years; in addition, the excess ability in refining and production may put pressure again on benefits conducted by the pricing change and the demand market.

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The fact that geopolitical risks will keep being major factors in affecting Oil & Gas prices and stability and when prices go high, so from an economic perspective the energy demand weakens in parallel.

2. BACKGROUND AND ANALYSIS

2.1. The Supply of Energy Transition as a New Wave of Globalization

Since oil is a strategic commodity, the world oil markets are rebalancing after the pandemic crisis spurred such a collapse in demand, but they never return to normal due to geopolitical conflicts and changes in global demand. That is why it is very important to balance energy production and consumption.

If financial development is negatively related to energy demand, economic growth and globalization are the key factors leading to the increase in energy demand in the long run.

These results have policy implications for sustainable development and in particular globalization and financial development provide a win-win solution to increase its economic growth in the long run; the increasing concentration in population in cities has resulted in an increased demand for energy consumption as energy is a required input to various activities such as manufacturing, transportation, construction and other services.

Globalization opens up the economy via the expansions of trade, investment activities and technological inflows which help in the acceleration of economic growth. However, this can be in parallel with the increase in the consumption of substantial amounts; globalization can result also in new technology and knowledge transfers that have the potential to impact the economy. In fact, the ups and downs in the economy and energy lead always to further negotiations to balance more between the demand and the consumption; the increase in demand makes the commodity prices go high, the thing that appeals to understand more how far oil prices affect the energy prices and the economy.

The current study on the issue of the relationship between energy consumption and economic growth was first considered by Kraft (1978) who found the link between the gross energy input and the gross national product for the united states of America by analysing data for the interval between 1947 and 1974, and it was found that the economic activity may impact the energy consumption, but the energy consumption doesn't impact directly the economic growth.

James G Speight (2007) clarifies more than natural gas represents the quarter of the world energy and it is necessary for plastic, medicines and paints since it is taken to be the cleanest type of all commodities and this why it is hit from time to time and from one period to another by such a rise in price according to the global demand.

JP Morgan (2022) confirms by predicting that Oil demand will pass the 2019 lines in the next 10 years by assuming that the combination of underinvestment within OPEC and the post-pandemic rising oil demand may conduct the global market to a potential energy crisis.

3. AIMS, METHODOLOGY AND METHODS OF RESEARCH

This paper analyses and presents the possible trends in the international oil and gas market under the waves of globalization. The study and research show the reforms and confrontation of the international energetic platform within the globalization of the International market.

It provides an interesting research analysis on how oil prices can impact the economy and economic growth. The paper focuses more on how much is relevant the importance of commodity prices to the potential market under the waves of globalization and internationalization processes and what impact they might have on the oil and gas trends, energy consumption and economic growth.

The research methods related to the issue and topic off research are mainly the study and review of relevant books together with the review of other internet resources and previous technical knowledge in the field of oil and gas that should be relevant as well in the structure of the paper.

4. RESULTS

4.1. Challenges to Balance and Save the Energy

Indeed, it is super costly to move to hydrogen energy or for example nuclear energy which is considered to be less expensive but full of future risks. On the other hand, analysing well the situation of the energy market today makes sure that it lays on oil and gas as major bases since both could be sustainable and used in proper way compared to the use of coal. In other words, if we store the emitted Co2 and transform it again to fuels (see figure 2) or just keep it stored under the ground, the results can be strongly higher for applying such alternative sustainable ways to save the use of energy for the present and the future. Economically & financially processing the emitted Co2 is related and goes through different hard steps & processes to be safely stored but it can save the energy mark in case the transportation & crude oil development gets higher in prices.

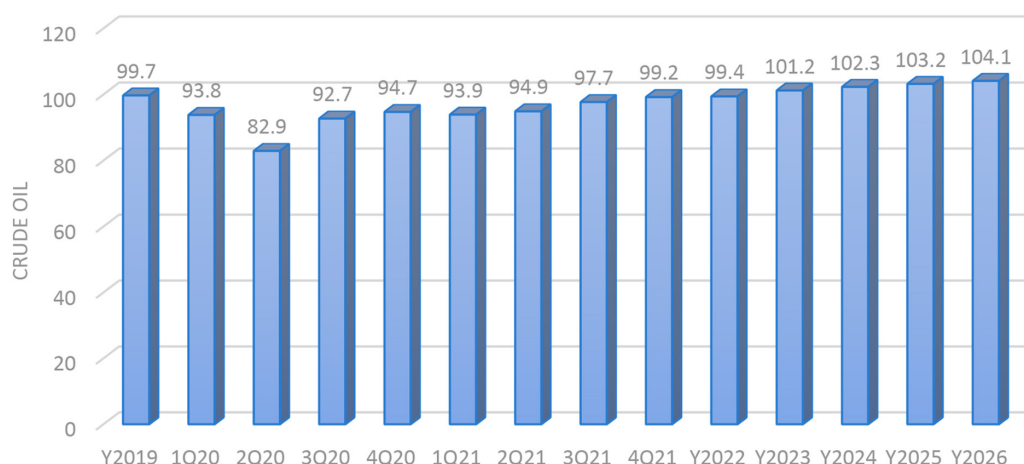


Figure 1. World crude oil demand 2019-2026

Source: Adapted from OECD data, 2021

The application and implication of oil and gas energy financially provide a win-win solution to long-run global economic growth. Given that globalization has led to the extension of trade and economic activities and when we talk about the economy, we think about energy and how

we trade or buy it; thus, since the industrial sector needs to rely on more energy day by day, it is necessary to globalize as well the technological inflows that accelerate and keep the energy under control from a perspective of sustaining the losses of energy and that is why we move to a circular economy that is one of the highest secured ways to corporate well the major oil and gas and the energy market.

The rise in natural gas prices affects directly the production of other primary commodities and poses risks to the price expectations. As natural gas has been strongly necessary and in high demand, the increase of its prices has led the global market to Oil more than gas; the fact is that it has increased the price to 83.54 dollars (72.90 Euro) during the last two months of 2021, so this has a negative effect on at least fertilizer production and decreases as well the production of some minerals such as aluminum and zinc due to higher energy costs as well. (See figure 1).

The need to globalize the energy market has been through hard processes since the first hit of the pandemic; even though more applications and suggestions for sustainable energy have been taken into consideration before and within the pandemic, there is no way to leave the benefits and strong use of oil and gas.

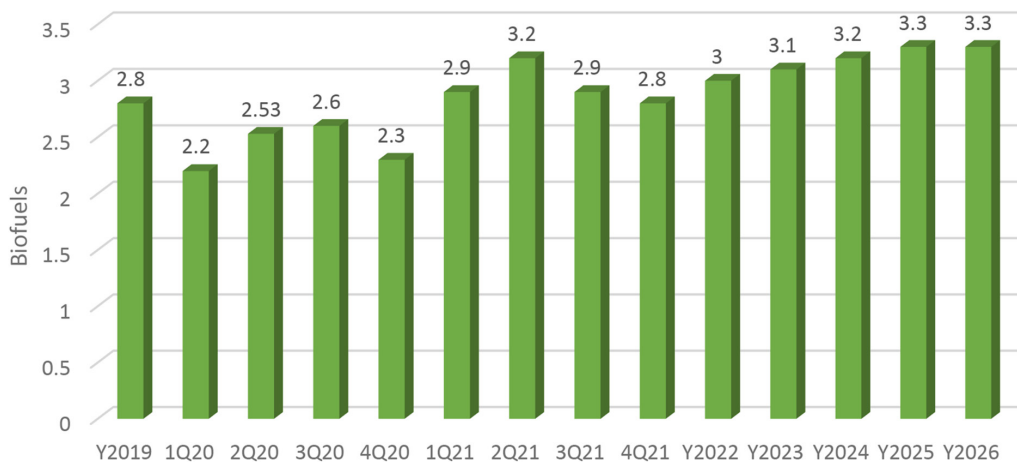


Figure 2. World biofuels supply 2019-2026

Source: Adapted from OECD data, 2021

There is a seasonal tailwind that generates higher crude oil prices (see figure 1 and figure 3) and when we talk about commodities there are seasonal tailwinds compared to natural gas, so for the upcoming years and seasons we suspect a little bit of downturn in demand for natural gas due to the economizing processes of the post-pandemic and in terms of prices, when the demand rises, the prices go high and the contrary is true.

Indeed, the main part of crude oil is used logically for fuels and more exactly for a barrel of crude oil about 71.4 % is used for gasoline, Diesel, heavy fuel and Kerosene whereas the rest is 28.6 % of the barrel approximately can be used for: 22.2% for waxes, lubricants and polishes but 2.3% is used for asphalt and 4.1% is directed to petrochemical feedstock. Besides, from petrochemicals, so many useful elements such as plastics, fabrics and detergents to industrial chemicals are derived. In a parallel way, transportation is a driving key to commodity prices. It is clear that oil plays a big role in the manufacturing processes of several products and elements, this is why it is taken into consideration to be a key resource to impact the economic growth by its demand; furthermore, it is a bargaining element in geopolitical conflicts.

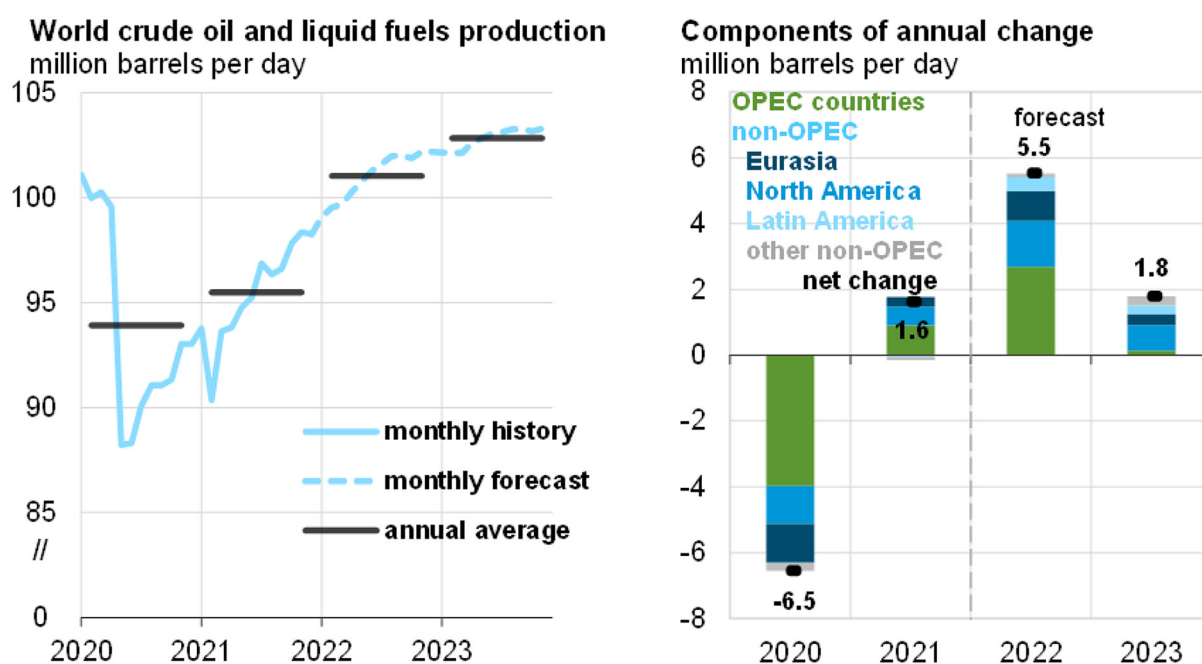


Figure 3. World crude oil and fuels production

Source: US Energy information administration – short term Energy 2022

5. CONCLUSION

The price of Oil is tracked per barrel and is based on both major benchmarks Brent and WTI, and interestingly the price has a direct link with the supply and demand; more or less when the pandemic hit in early 2020, the oil demand and commodity prices went low but as the world economy began to refresh in 2021, the demand rose again and highlighted how much politics can impact the prices as well.

The economic activity affects the supply and demand for Oil which impacts oil prices and can in turn affect the economic activity; mainly, the relationship is circular and the starting point is not usually clear but since crude oil is good to produce a lot of other raw materials and transport goods, it gets more expensive and may conduct the global market to potential inflation, so high oil prices can be irresistible anyway. The price of oil has a big impact on the economy, markets and as possible outcomes we may highlight the fact that the global economic transition away from oil may not be relevant to many countries and companies due to so many transport goods and raw materials should always come from oil or gas.

The use of crude oil as a substitute for natural gas poses significant risks to the demand outlook, although higher energy prices may begin to affect global growth.

The conclusions show that the sharp rise in commodity prices has turned out to be more pronounced than previously expected, moreover, the price fluctuations are finally complicating the policy options as different countries emerge from the global recession, so adapting production strategies for the future requirements to satisfy the needs of the international market rely more on new energy insights and sustainable possibilities.

REFERENCES

- Xiaobing, L & Molina M. (2014). *Oil: A cultural and Geographic Encyclopedia of Black Gold*. Santa Barbara, California, USA
- Palo A., & Author, B. B. (2001). *Global oil trends*. Canada, Cambridge, Mass: Cambridge Energy Research Associates.
- Inkpen & Andrew C. (2005). *The global oil & gas industry: management, strategy & finance*, Tulsa, Okla: PennWell.
- Bjørndal E. (2010), *Energy, natural resources and environmental economics*, Heidelberg, New York, Springer
- Warner M (2011), *Local content in procurement: creating local jobs and competitive domestic industries in supply chains*, Sheffield, UK, Greenleaf Publishing
- Fogarty T and Lamb R (2012), *Investing in the renewable power market: how to profit from energy transformation*, Hoboken, N.J.: John Wiley & Sons
- Richardson, TX (1998), *Oil & Gas executive*, United States, Society of Petroleum Engineers
- OECD. (2005). *Environment and the OECD guidelines for multinational enterprises*, Paris, Organisation for Economic Co-operation and Development, 1 (1), 2-5 <https://doi.org/10.1787/9789264009394-en>
- Shivaprasad A., (2022), *JP Morgan sees OPEC spare capacity falling through 2022*, Bengaluru, Reuters, <https://www.reuters.com/business/jp-morgan-sees-opec-spare-capacity-falling-through-2022-2022-01-12/>



Globalization Effects in the Republic of Croatia

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Abstract: Globalization processes create new organizational, economic and many other changes within society. There are many positive and negative social effects, and globalization is treated as an important part of the new world order and as a way of adapting and promoting new social values. It is increasingly turning into a new concept within the action of social relations as it encourages the opening of a new era of development. Under the influence of globalization, new directions of economic development in Croatia have been opened and this is an important scientific issue. There are numerous benefits of globalization and differences in speed and approach have often been driven by regional trends, policy opportunities and economic factors. Croatia has a continuous and constant development of globalization parameters measured according to the KOF globalization index with occasional turbulent periods that resulted in short-term declines in correlations. The Covid-19 pandemic has turned into a major disaster for the global economy and it is clear that the further development of global relations will take some new dimensions. This paper aims to establish the correlation between the globalization effects and related integration processes in the world with the detection of the situation in the Republic of Croatia. The scientific contribution is manifested through knowledge of the laws that govern globalization processes and inclusive forms of their further development.

1. INTRODUCTION

The Covid-19 virus has turned into a major disaster for the world's global economy. The health aspect of the Covid-19 virus is reflected in the global economy threatened by an acute global economic crisis. The pandemic has brought about many diplomatic disputes related to the exact origin of the COVID-19 crisis (Dingel and Neiman, 2020). The issue of free trade and movement of people, especially in EU countries where national governments have given priority to their citizens and some European Union countries have turned their backs on each other by closing their borders and cutting off almost all interactions, and closing borders is the biggest blow to globalization. The EU has already failed the exam in the migrant crisis by closing the borders of nation-states. The fact that trade volumes fell much less than expected and then began to rebound quickly reflects the fact that the globally interconnected economy helped in dealing with the corona epidemic. Regardless of the forces of geopolitics or the desire of executives to increase their perceived control by re-localizing supply or bringing it in-house, the principles of comparative advantage enunciated by David Ricardo still apply (Rathke and O'Connell, 2020). The Covid-19 virus pandemic has caused companies and industries to review their supply chains and branch operations and calculate risk factors based on emerging costs. Given the complex implications of "peak globalization", companies will need to plan for a new order; one that is likely to be characterized by tariffs and other trade barriers, more rigorous legislation, greater exposure to overseas direct investments to political and trade credit risks and increased restrictions on movement between countries, all with important implications for their labor force (Freely, Kay and Macy-Dare, 2017). There were two major crises in this cen-

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tury – The Great Recession of 2008/09 and the Covid-19 crisis of 2020 and they represent an introduction to a new century in which markets and technological advances will grow but fluctuations around the long-term trend will increase (Šonje and Kotarski, 2020). Under the influence of world globalization processes, integrations are being developed that influence and direct economic development in their area. To serve the many needs that affect and help global development various organizations have developed such as government bodies, NGOs, that direct economic development at the local, national, and global levels of activity (Gowdy, 2000). The interconnection of the economic systems of individual countries comes from the need to connect the growing economic demands, and the necessity to connect a particular industry with other parts of the national economic system. In particular, this connection is emphasized and developed in developed countries in order to better connect the economic space within the integration. Knowledge and application of globalization processes is a condition for finding new development directions necessary for further successful economic development and the need to find one's own place in the world market (Thurow 2008). After the transition and the process of transformation and privatization, Croatia is joining the world and European integrations and today is a member of all relevant organizations. Under this strong influence of integration globalization processes, it is developing intensively. Croatia became a member of the EU at a really awkward moment in the global economic and financial crisis. Membership in the integration has brought member states long-term political and democratic stability, an opportunity for new economic growth and development, a higher standard and a better social environment. These advantages can be successfully reflected and are clearly visible, and the processes so far have already transformed Croatian society and the system as a whole. Therefore, new phases of development should be viewed with optimism, as Croatia will now, as part of many worlds and European integrations, reap the benefits and cope more successfully with the effects of the crisis. We also have to decide for ourselves what we want to achieve within certain integration policies and how much we are willing to invest and how to accept the upcoming challenges.

2. METHODOLOGY

Globalization processes is a current topic that aims to analyze the state of affairs today. The paper gives a brief overview of the concept through the analysis of economic, political, cultural and social features with the help of the KOF Globalization Index. Special attention is paid to the importance of the activities of the globalization process through the prism of the Republic of Croatia today as an EU member which is a generator of many changes. We are all stakeholders and are viewed as active determinants of the concept. The paper is based on a systematic analysis of previously published relevant international scientific papers in the field of globalization, international and political economy. Methods of time feature analysis and KOF globalization index of a given topic with implications of influence on further development through the applied aspect were used. The deduction method was used in concluding the importance of globalization influences in order to establish the multiplicative effect of positive changes on society as a whole.

3. DEVELOPMENT OF GLOBALIZATION PROCESSES IN THE WORLD

The process of globalization can be viewed as the socialization of labor and the development of productive forces. Answers to questions related to the concept of globalization and the concept of integration, as well as their solution, can be given only if the essence and phenomena are considered in the totality of social relations. The development of individual economic systems

and new forms of economic flows in the sphere of globalization has opened various questions, which has set a new form of economic influence at a higher level. Globalization has made the most significant progress in the freer flow of capital. The modern financial market is immeasurably more important than trade in goods, it is about two thousand billion dollars that circulate daily between individual stock exchanges, banks, monetary institutions (Jovančević, 2005, 9). Depending on the strength of the policy pursued by developed countries as dominant over less developed economies, the exploitation of individual regions was very successful and was defined as economic benefit, with unclear economic consequences. All this happened because international mechanisms for controlling the development of the economy at the global level were not established (Hardin, 2008, 163). It happened that some countries did not achieve the desired direction of their economic development. Under the influence of newly established international organizations, such adverse events are decreasing, and the further successful operation of economic organizations is constantly monitored. Depending on these processes, the specifics that significantly affect further economic development as well as the negatives that hinder further development should be analyzed. Economic development has gone through several stages, but its specifics still need to advance. Many changes in supply and consumption are expected on a global scale to expand consumerism and availability, all of which will stimulate new user needs and contribute to the development of industry and new technologies. In addition, the new situation with the COVID-19 pandemic will largely determine the further course of the development of the economy, and it has already left great consequences that have affected the supply chains.

Financial globalization can be looked at from different aspects: as internationalization which is an easier way to access foreign capital, then international credit activity with international diversification of portfolio capital with significant reduction of common risks, cheaper and more efficient services of national financial institutions, but also as a creation of a better and more stable national financial system and financial infrastructure. The higher level and speed of the financial process do not lead to greater systemic business risk because various problems are reflected in the stronger influence of institutions on the national market and this is not desirable. In such cases, the state itself, as the most important regulator on the national market, may fail and not perform its legal role as determined by legal acts, and thus fails to ensure the stability of its financial system. This situation results in excessive risk-taking on the part of national institutions, all of which threatens the entire national financial system. Too much international competition can negatively affect national or local relations and put them in a subordinate position in relation to foreign ones. Foreigners operate only in those segments that benefit them, and this is achieved through the outflow of national capital (Čečuk 2002, 191).

4. GLOBALIZATION RELATIONS AND INTEGRATION PROCESSES

The beginning of the emergence and functioning of globalization as a new economic system have not been historically determined and some of its initial activities can be detected in various geopolitical processes. There is a need to integrate economic systems and harmonize the economic systems of individual members in order to speed up and facilitate the frequency of circulation of goods, people, capital and information. Today, when a new social, sociological and economic space is being created, the process of globalization and integration provides guidelines for further development. It is an extended form of the full economic integration of member countries. It brings together all the essential components of economic life, including the fiscal and monetary spheres, as well as elements of social security. Decisions here are no longer made by consensus as in the first forms of integration but by a majority vote. The Union is thus taking on a form of “su-

pranational” character. It also constitutes appropriate bodies and authorities that have social and political characteristics in addition to economic ones. All these active processes cannot be viewed separately, but integrally as an organizational and functional whole. Although many integrations were formed long before the first formal beginnings of globalization, today they are developing in parallel with it. Considerations on globalization are based on three principles of the operation of general globalization processes, reflection on real globalization processes and the connection between globalization and integration processes (Andrews, 2005). Today, there is almost no continent on which, apart from smaller ones, larger and even large integration formations have grown up. Among them, the most prominent are: the European Union; European Free Trade Association (EFTA); Economic Community of West African States (ECOWAS); Latin American Economic System (LAES); Pacific Economic Community (PEC); North American Economic Community (NAEC). In addition to these and similar economic integrations, there are many other partly specialized integrations of world importance: alliances, communities, institutions, etc. Among them are: the Organization for Economic Cooperation and Development (OECD); the International Monetary Fund (IMF); the International Bank for Reconstruction and Development (IBRD); United Nations Conference on Trade and Development (UNCTAD); Food and Agriculture Organization (FAO) and many other specialized international organizations. The world’s strongest universal integration is the United Nations with a large number of its organizations and those associated with it, which are of great importance for the overall integration processes in the world.

In order to understand the processes of globalization, it is necessary to understand the political and economic processes that took place during the twentieth century. Without entering into the geopolitical polarization of development, but only into the current contemporary processes of globalization, it is impossible to avoid not mentioning the stability of geoeconomic history. Researchers of global development accept the permanence of political and economic logic within the world economy which has significantly influenced the development of the connection and interrelationship of social development. The connection between globalization took place in close connection with geoeconomics and geopolitics, but the economic situation in the world has not changed much, unlike the political one. The transfer and accumulation of wealth took place for the most part one-way, from underdeveloped to developed countries, which was compared to a new form of colonialism. The economic strength of developed countries and their superior relationship allowed them to dominate. Characterized as economic exploitation, economic benefit with imprecise non-economic consequences is defined. The meaning of integration is to connect and unite the economic functions of economic organizations or parts or entire national economies into a single unit (Dragičević 1991). Due to the lack of control mechanisms in the development of the economy in less developed countries, the strategy was questionable and regularly undefined. Some countries deviated from the desired direction of development. Today, the situation has changed significantly, and actions have been placed under organizational and functional principles and control. The development of globalization processes encourages (Zoellick, 2004):

- development of highly developed organizational, economic and business connections,
- development of directed processes,
- development of full, integrated and global capitalism,
- creates social compression,
- creates dependence or determinism.

Globalization today is said to be a comprehensive and inevitable process as it touches on political, geographical, spatial and organizational all the way to social and legal regulations. Globalization is born from the desire to select from the inventory of cultural and other elements

that make up a particular identity those that are considered original or original features of a particular group or space and to combine with those that are considered global. Thus, the process of glocalization eliminates the fear of losing one's own identity (Kalapoš, 2000). With the influence of media and technology "the world has shrunk", and human tastes have leveled off, creating a single global market dominated by the world's most successful brands. Technology is turning the world towards the unique and unison, and it no longer matters what race, religion or culture we belong to. The processes of globalization include and affect the globalization of culture. The fact is that culture strongly connects individuals and groups. It is often pointed out that culture has a specific spatial pattern because language is an important factor. Globalization has no borders but culture on the other hand has them. Since the 2000s, the degree (index) of globalization in the world has been determined, covering as much as 85% of the world's population. The globalization index shows the degree of development.

To measure globalization, different indices are used. The KOF Index Globalization, The World Market Research Center G-Index and A.T. Kearney / Foreign Policy Magazine Globalization Index. The AT Kearney / Foreign Policy Globalization Index tracks and assesses changes in four key components of global integration, namely trade and financial flows, the movement of people across borders, international telephone traffic, Internet use, and participation in international treaties and peacekeeping operations. The KOF Globalization Index is a complex index that measures globalization with an economic, social and political dimension for almost every country in the world on a scale from 1 (least) to 100 (most globalized). The World Market Research Center G-Index is primarily an economically based index with a calculation percentage of 90% while the remaining 10% is dedicated to technology more specifically telephone traffic and the number of internet hosts of each account by 5%. In addition to the above categories that examine the process of globalization, the level of development, organization, investment benefits and the like are determined for each country. This determines the flexibility of individual economic and political systems in the country concerned as well as investment opportunities in its economy. The quality of social resources and geopolitical risk is also involved in this process. Experience to date in researching the globalization index in Europe shows that there have been some changes in Europe, including economic and political transformation. In Eastern Europe, the Czech Republic has the highest attractiveness index. All countries have an ever-growing curve, and in this respect, Croatia is following an affirmative trend, but it has not yet positioned itself enough. Slovenia has a dominant position in the region. The further process of globalization development is accompanied by deterritorialization and reterritorialization, which are important indicators and factors within the development of spatial structure and other changes that take place according to the territorial principle.

5. KOF GLOBALIZATION INDEX IN THE REPUBLIC OF CROATIA

The KOF Globalization Index measures the degree of globalization according to economic, social and political parameters. According to IMF's yearly report, economic globalization refers to the flow of money, capital and transactions, real flows (trade, FDI and portfolio investment) and constraints (hidden barriers). Social parameters include accessibility and flow of information (use of the Internet, newspapers), interaction with people from other countries, and cultural similarities (McDonalds, Nike, IKEA). Political include implementation in international politics and relations and the Failed States Index (vulnerability index). The base year of observation is the year 1990, when the Republic of Croatia gained independence and thus positioned itself on the world map. The Globalization Index for Croatia for 2020 was 81.19 points. Figures 1 and 2 show the KOF Globalization Index for Croatia from 2011-2018.

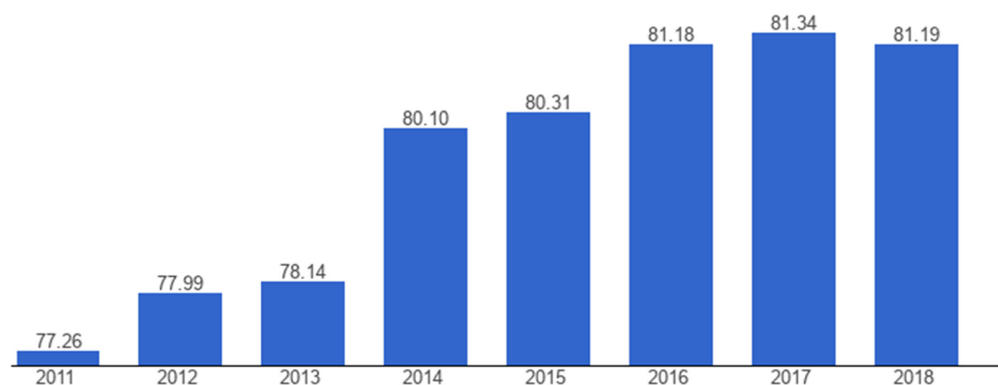


Figure 1. Graphic representation of the KOF index for Croatia from 2011-2018.

Source: KOF-The global economy

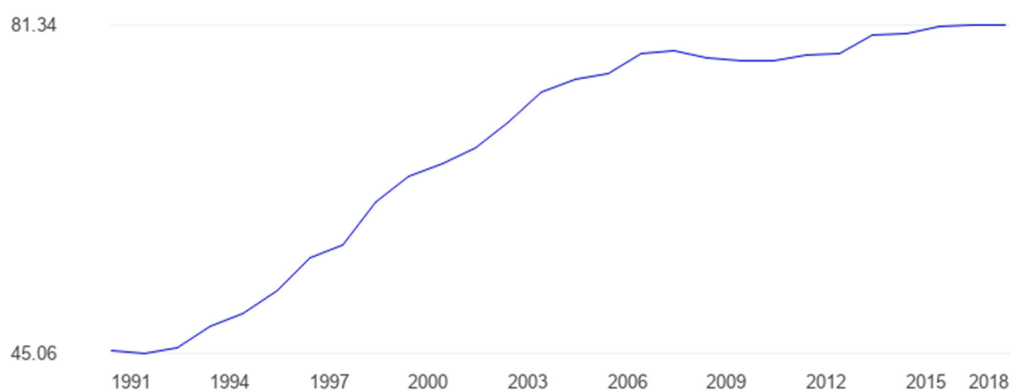


Figure 2. Graphic representation of the KOF index for Croatia from 1991-2018.

Source: KOF-The global economy

According to the index of globalization of economic indicators, there is a continuous growth with several turbulent phases that result from socio-political changes or the impact of world events. In the 1990s, Croatia was affected by the events of the war, which directly affected the decline in the implications of the applied globalization parameters. The next negative trend was recorded at the beginning of the new century under the influence of recessionary effects which were reflected in Croatia. The transitional economy such as Croatian was significantly slower to recover and systematize than those of more powerful in terms of volume.

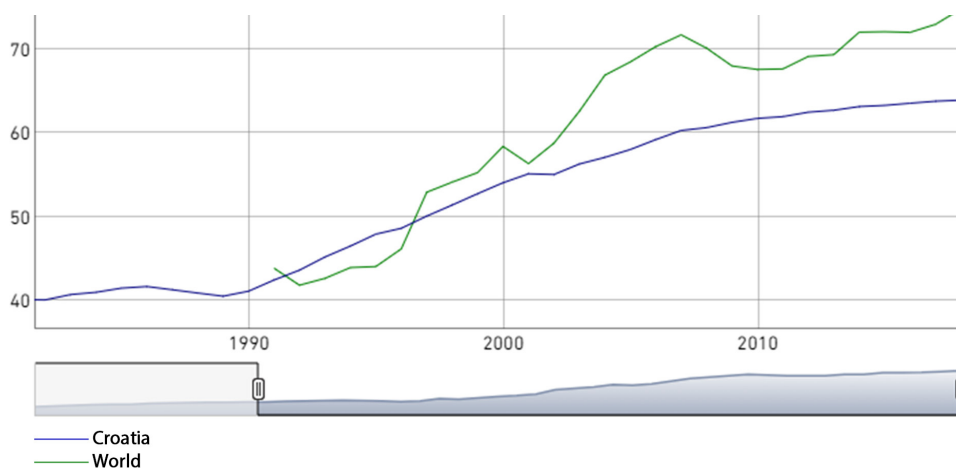


Figure 3. Index of globalization according to economic indicators

Source: KOF-The global economy

According to the political indicators, the globalization index is growing continuously with a few minor turbulences. They are related to the effects of independence, the creation of the new state and the transition to capitalist social relations of Western settings. The end of the 1990s and the beginning of the century for Croatia means intensive integration into all important world organizations and the creation of preconditions for joining the EU, which finally happened in 2013. Croatia joined the World Trade Organization in 2000. The IMF in 1992. Negotiations between the Croatian authorities and EU representatives on accession began in 1995, when the first meetings were held. The technical negotiations under the Trade and Cooperation Agreement included three important agreements: the Trade and Cooperation Agreement, the Transport Agreement and the Coal and Steel Agreement. Great efforts are continuously made in integrations, which is supported by the graph curve.

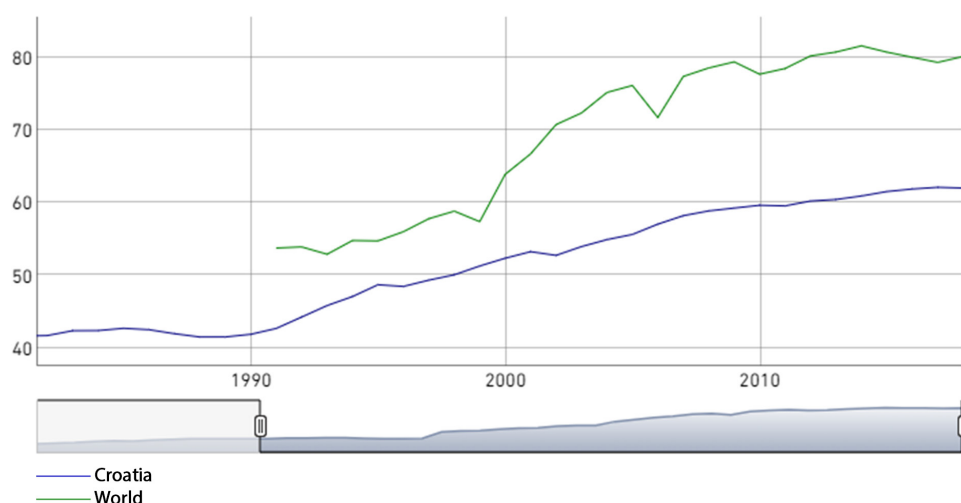


Figure 4. Index of globalization according to political indicators

Source: KOF-The global economy

The index of globalization according to social indicators shows continuous growth since independence with minimal turbulence that is similar to those of a political nature. Croatia is systematically developing and following the trends of positive social and cultural indicators and has always strived for the values of the achievements of Western European society.

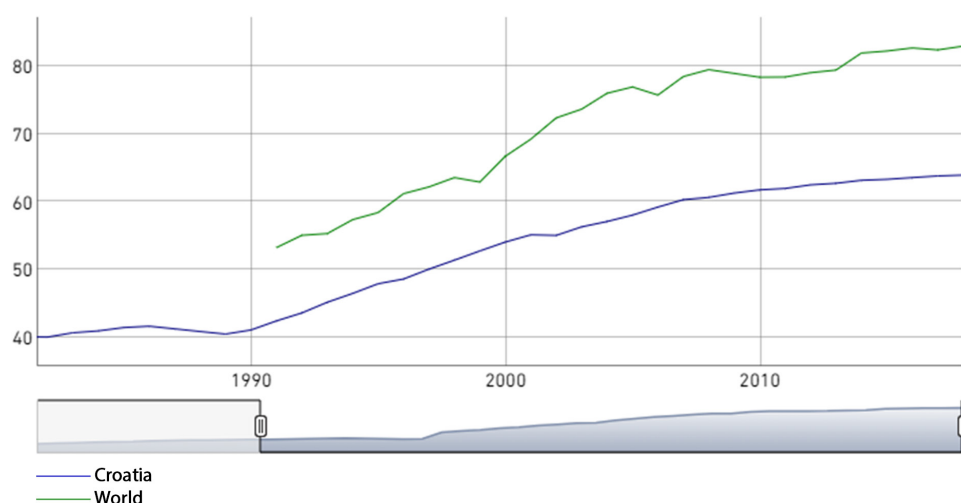


Figure 5. Index of globalization according to social indicators

Source: KOF-The global economy

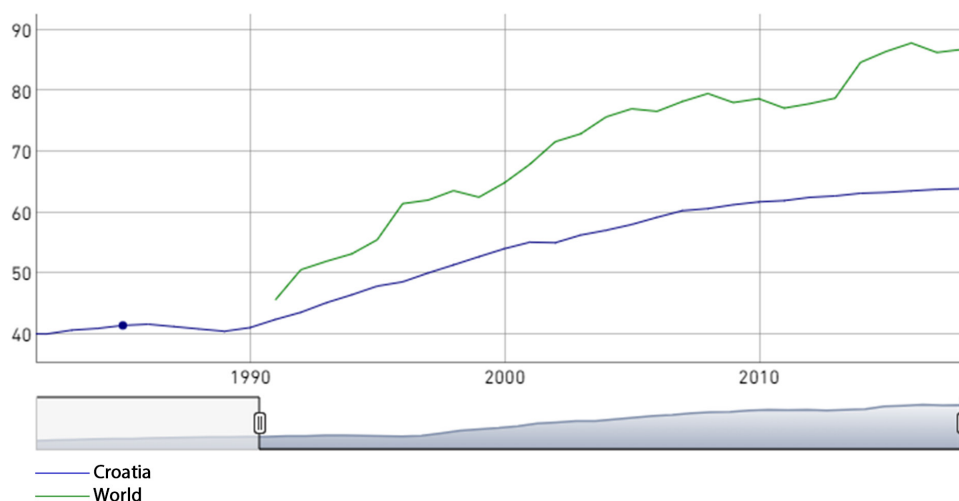


Figure 6. Index of globalization according to cultural indicators

Source: KOF-The global economy

6. CONCLUSION

To successfully understand modern globalization processes, it is necessary to study the development of social, political and economic processes that took place during the twentieth century. Globalization itself is a process developed in close connection with geoeconomics and geopolitics. Today, we view Croatia as a sovereign part of these processes and measure global effects. Every social action is a reflection of the interests of certain social influences. In today's modern society, all interests and conflicts are economically motivated and interesting. The successful use of world achievements and the effects of globalization while limiting the excessive power of world financial institutions and multinational companies as holders of the largest capital would be ideal. The methodology in the analysis of this paper is the analysis of economic, political, cultural and social characteristics with the help of the KOF Globalization Index. The scientific contribution of this paper is evident in the presentation and analysis of contemporary trends related to globalization and integration activities as the starting point of all contemporary economic trends in the modern world and positioning Croatia as an integral part of the system.

REFERENCES

- Andrews, E.L. (2005). Pleas and promises by GOP as Trade Pact Wins by 2 Votes, New York: *New York Times*.
- Dingel, J. I., & Brent N (2020). "How Many Jobs Can Be Done at Home?" *NBER Working Paper No. 26948*.
- Dragičević, A. (1991). *Ekonomski leksikon*, Zagreb: Informator.
- Čečuk, A. (2002). *Financijska globalizacija*, Split: Graf form Split.
- Hardin, H. (2008). *Tragedija zajedničkog vlasništva*, Washington: Sciece AS.
- Gowdy, J. M. (2000). Terms and Concepts in Ecological Economics, *Wildlife Society Bulletin*, Bruxelles.
- Jovančević, R. (2005). *Ekonomski učinci globalizacije I EU*, Zagreb: Mekren promet d.o.o.
- Kalapoš, S. (2000). Cijeli svijet u mom selu, globana naspram lokalne kulture, lokaliziranje globalnog i globaliziranje lokalnog. *Etnološka tribina: Godišnjak Hrvatskog etnološkog društva*, Vol. 30 No. 23.

- Rathke, S. & O'Connell, J. E. (2020). *Global supply chains in the wake of COVID-19 in socially critical industries – Is it time to reshore?* Lexology, available from URL: <https://www.lexology.com/library/detail.aspx?g=40c6d60a-2794-44ec-8311-27b1649f9962>
- Šonje, V. & Kotarski, K. (2020.) *Coronaeconomics: Five Riders of the Apocalypse*. 1st ed. Zagreb: Arhivanalitika d.o.o.
- Thurow, L. C. (2008). *The Zero-Sum Solution, Building a World Class American Economy*, New York: Simon & Schuster.
- KOF-The global economy, available at https://www.theglobaleconomy.com/Croatia/kof_overall_glob/
- Zoellick, R. B. (2004). When Trade Leads to Tolerance, New York: *New York Times*.
- Freely, E., Kay, S. & Macy-Dare, J. (2017) *Is This the End of Globalization?*, Marsh and BMI Research available at file:///C:/Users/Home-PC/Downloads/Political%20Risk%20Map%202017%20Globalization-02-2017.pdf



Industrial Policy as a Precondition for Dynamic and Sustainable Development of Serbia

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Abstract: Industrial policy refers to the policy of industrial development, where the term “industry” encompasses the organization and strategic management of human and material resources. The aim of this policy is primarily to stimulate and secure the tracking of structural adjustments and restructuring of companies in order to empower them to grasp the changes within the business environment and to face the economic challenges and increased competition on a global scale. Inclusive and sustainable industrial development means that all parts of society have equal benefits from industrial progress, which, in addition, enables the satisfaction of basic social and human needs. Such industrial development enables a continuous increase in the living standard for all people and new technological solutions for environmentally friendly industrialization. Successful implementation of inclusive and sustainable industrial development in the age of globalization requires approaches that use globally available knowledge, technology, innovation and capital. The determination of the Republic of Serbia to join the EU entails the obligation to respect inclusive and sustainable industrial development.

In order to achieve sustainable industrial development in the Republic of Serbia, it is necessary to promote the circular economy and educate business entities. Business entities must be introduced to the importance of more efficient use of material resources and possible savings in industrial processes, through the organization of promotional and educational gatherings and the use of services of centers that are active in this sector.

1. INTRODUCTION

There is no consensus on the definition of industrial policy. The Japanese Ministry of Economy, Trade and Industry (METI) describes the industrial policy as a vision of future industrial development (Savić, 2017, p. 143). In defining industrial policy, it starts from the necessary adjustment of the industrial structure to changes in human needs and modern technology. In the literature on development, industrial policy is often referred to as the “industrialization policy”. For those whose primary concern is the decline in production in OECD countries, industrial policy is identified with a production strategy (Savić, Lutovac, 2019, p.262.). However, for others, industrial policy implies a sector-oriented policy that is not necessarily focused on the whole production. Some people link industrial policy with a set of government policies focused only on the development of the productive sector. According to the definition given by the World Bank (1993), industrial policy is: “government efforts to alter industrial structure to promote productivity-based growth.” (World Bank, 1993, p. 354). Pack (2000) defines industrial policy as a “variety of actions designed to target specific sectors to increase their productivity and their relative importance within the manufacturing sector” (Di Maio, 2014, p. 5).

In a broader sense, the definition includes multiple goals, such as increasing productivity, competitiveness and economic growth. Audretsch defines it as a set of measures to increase the productivity and competitiveness of industry and its individual sectors (Audretsch, 1993, p. 68). Thus, in-

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ustrial policy is set by government measures aimed at certain or companies – intended to support the development of industry and the improvement of industrial production (Di Maio, 2014, p.7). Finally, sometimes, more ambitious goal is given to industrial policy, to shape structural change in ways that are socially inclusive and environmentally sustainable (UNIDO, 2011, pp.1-3).

Industrial policy was most often used to protect or promote certain industrial sectors and structural change. Over the past decades, there has been a gradual shift to horizontal industrial policy, which improves overall industrial competitiveness (Singh, 2016; Andreoni, 2016; European Commission, 2010; Tarr, 2005). With significant technological changes, which herald the beginning of a new technological paradigm, many economies have begun to focus on improving their capabilities and competitiveness in this area. Thus, new industrial policies include a range that implies inclusion in the global value chain, a knowledge-based economy, sustainable development, and the Fourth Industrial Revolution.

The basis of prosperity in Serbia and the determinant of future growth is the increase of productivity and competitiveness of the Serbian industry. In drafting the new industrial policy of Serbia, the factors taken into account are the current macroeconomic situation and the obligations imposed by the status of candidates for EU accession, especially those in line with the *acquis communautaire* in this area.

The new industrial policy of Serbia is based on activities aimed at improving the competitiveness of the Serbian industry, building sectors related to sustainable development goals and competitive positioning for the new industrial revolution (priority sectors), and encouraging entrepreneurship and innovation to increase economic growth, productivity and employment.

The subject of research in this paper is industrial policy as a precondition for the dynamic and sustainable development of Serbia. The work has four parts. The first begins by describing the different possible definitions of industrial policy. The second defines the concept of industrial policy. Finally, elements of the so-called “new industrial policy” of Serbia are discussed. The last part of the paper summarizes and provides some suggestions for future research.

2. WHY INDUSTRIAL POLICY? CHANGING GLOBAL ENVIRONMENT

Perceptions of the role and importance of industrial policy have evolved over time. From World War II to the 1980s, industrial policy was a policy of state intervention aimed at building national industry and protecting young industry. Government programs were rarely based on feedback. The period during the 80's and early 90's was marked by a gradual reduction of state intervention, putting an end to the old approach to industrial policy (Lutovac, 2020, p. 10). A new approach to industrial development policies has been adopted, with an emphasis on opening up the economy, privatizing state-owned enterprises and deregulating economic activities. The neoliberal revolution significantly influenced the actions of international institutions, national and regional governments. Free market economies were on the rise, creating what was called the Washington Consensus. This new vision emphasized that any obstacle of free trade must be removed. From the “maid” of economic growth, the state has become the main obstacle that blocks it. The international division of labor has been transformed from a threat into an opportunity. During the 1990s, enthusiasm for the free movement of capital was added to this package (Rodrik, 2013, p. 143). However, experience has shown that this approach is not perfect by itself, in other words, did not lead to the expected growth and development. A large number of papers on this topic

show this: Lall (Lall, 2006) in the case of East Asia, Bellandi and Di Tommaso (Belliandi and Di Tommaso, 2006) regarding local industrial policies in developing countries. The evidence cited in the papers shows that liberalization has not always provided the expected results.

Nowadays, there is a need to reconsider the importance of industrial policy. The global economic crisis, as well as the economic and health crisis caused by the coronavirus, which has seriously affected countries around the world, has greatly contributed to this. As a result, there is a renewed interest in industrial policy, which is seen as a potentially effective instrument in inducing structural change and output growth. Hausmann and Rodrik (2003), Rodrik (2008), Wade (2012), Greenwold and Stiglitz (2013), Worvik (2013), Di Maio (2014) in their works, wrote about the importance of industrial policy in modern conditions. A significant study on industrial policy was given by Cimoli, Dosi and Stiglitz (2009). The cases of Asia and Korea were particularly investigated by Lim (2013). Analyzing the experiences of the USA and Europe, Mazzucato and Tancioni (2012) pointed out the need to conduct public actions in the field of innovation and industrial change. In European countries, the importance of industrial policy was pointed out by Aiginger and Rodrik (2020). In their works, the authors agreed that the question is no longer why is industrial policy needed, but how to implement it. The most commonly accepted argument in favor of industrial policy economic theory sees in the presence of market imperfections that are exacerbated by significant international and climate change in the world. “Policymakers are increasingly embracing the idea of using industrial and innovation policy to tackle societal ‘grand challenges’ such as climate emergency” (Mazzucato, 2020). In her article, Mazzucato argues that “challenge-led policies require a new conceptual and analytical framework that has at its core the idea of confronting the direction of growth — growth that is, for example, more inclusive and sustainable” (Mazzucato, 2020). Industrial policies will have a renewed role in shaping the road towards recovery from the COVID-19 crisis and in ‘building back better.’

3. NEW INDUSTRIAL POLICY FOR A SUSTAINABLE GROWTH PATH OF SERBIA

The new industrial policy of Serbia is based on activities aimed at improving the competitiveness of the Serbian industry, building sectors related to sustainable development goals and competitive positioning for the new industrial revolution (priority sectors), and encouraging entrepreneurship and innovation to increase economic growth, productivity and employment. At the same time, it will ensure the development of infrastructure, simplification of trade procedures, better integration into the international market, improvement of the tax system and education, investment environment, as well as cluster development, research and development.

The new industrial policy of Serbia must propose a new framework to better position Serbia’s industry for a new industrial revolution while ensuring competitiveness. In line with EU standards, the transition to a circular economy and respect for sustainable development goals is required.

The transition of Serbian companies to sustainable business models will contribute to environmental protection, but will also contribute to the competitive advantage of the industry due to greater savings. The tendency is to reduce the pressure on natural resources and turn to environmentally sustainable industrial production. Pollution control and ecosystem conservation measures will ensure that workers, the community and consumers are safe. Promoting the sustainable development of the industry will open up opportunities for new jobs and entrepreneurs. At the same time, more efficient and cleaner production improves competitiveness. The development of business operations of companies based on the principles of energy efficiency will

enable the use of funds from EU programs. The EU strives for sustainable development and is the initiator of the Paris Agreement also called the Paris Climate Accords and the „Sustainable Development Goals – Agenda 2030“ (COM, 2017, p.10). Agreement is one of the main guidelines in the transition to a circular economy and the reduction of carbon dioxide emissions. An example can be the modern EU automotive industry, which is increasingly based on automation, digitalization and the highest environmental standards. In order to fit into the global value chains, the automotive industry of Serbia, as well as all related industries, must understand the importance of switching to sustainable technologies and new business models. The challenges facing our industry are also opportunities. By using these opportunities properly, sustainable jobs would be created and living standards improved. Setting up charging stations and manufacturing batteries are just some of the options.

In order to be more effective, Serbia's new industrial policy should be guided by the new goals of sustainable development that came into force on January 1, 2016 as a reference point for developing policies to promote sustainable development in all three dimensions – economic, environmental and social – by 2030.

While industrialization was not factored into the Millennium Development Goals framework, inclusive and sustainable industrialization now features strongly in the 2030 Agenda for Sustainable Development.

UNIDO's mandate is reflected in Sustainable Development Goal (SDG) 9: “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”. SDG 9 includes the following targets:

- 9.1. Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all (UNIDO, 2022).
- 9.2. Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries (UNIDO, 2022).
- 9.3. Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets (UNIDO, 2022).
- 9.4. By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities (UNIDO, 2022).
- 9.5. Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending (UNIDO, 2022).

SDG 9 confirms the provisions of the Lima Declaration and the relevance of ISID for the new global development architecture. ISID is a primary source of income generation, allows for rapid and sustained increases in living standards for all people, and provides the technological solutions to environmentally sound industrialization.

4. FUTURE RESEARCH DIRECTIONS

Serbia's commitment to join the EU creates an obligation to accept the "Europe 2020" strategy, which explicitly states that the document is not only relevant for EU countries but also for membership candidates. At the end of 2010, Serbia prepared a draft strategy "Serbia 2020", relying on the appropriate EU strategy, which respects national specifics, but this document has not been officially adopted (Jovanović Gavrilović et al. 2019, p. 24).

In order to better meet the goals of sustainable development, close cooperation between the Ministry of Economy, which is responsible for industrial policy, and the Ministry of Environmental Protection is necessary. Existing legislation in this area needs to be revised. In addition, clear standards should be set for industrial products that would be accredited by domestic control laboratories.

One of the preconditions for a sustainable industry is the promotion of the circular economy and the education of economic entities. Economic entities must be acquainted with the importance of more efficient use of material resources and possible savings in industrial processes. This will be done through the organization of promotional and educational gatherings and the use of the services of centers that are active in this sector (Republic of Serbia, 2020, p.39).

To promote the concept of cleaner production in companies in Serbia, the "Cleaner Production Center of Serbia" was established. (CPC Serbia, 2022).

For investors who are interested in buying companies that need to be privatized, the problem is the inherited responsibility for the damage caused to the environment. In order to solve this, it is necessary to introduce independent auditors for the analysis of the state of the environment in companies that are being privatized – *environmental due diligence*.

5. CONCLUSION

Recently, there has been a need to reconsider the importance of industrial policy. The global economic crisis, as well as the economic and health crisis caused by the coronavirus, have greatly contributed to this. Renewed industrial policies can have a significant role in shaping the road to overcome the crisis and set countries back on the path of economic development.

Sustainable development was defined in the World Commission on Environment and Development's 1987. Brundtland report "Our Common Future" as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It seeks to reconcile economic development with the protection of social and environmental balance.

"Inclusive" in this context means "that industrial development must include all countries and all people, as well as the private sector, civil society organizations, multinational development institutions, and all parts of the UN system, and offer equal opportunities and an equitable distribution of the benefits of industrialization to all stakeholders". The term "sustainable" addresses the need to decouple the prosperity generated from industrial activities from excessive natural resource use and negative environmental impacts.

Having in mind the importance that a well-conducted industrial policy has for dynamic, balanced and sustainable economic development, it must be developed in Serbia in the coming period in accordance with the new circumstances. The classical model of industrial policy was based on the concept of defining priority branches of production and supporting their development, through various forms of direct and indirect subsidies. The new industrial policy of Republic of Serbia must be based on activities aimed at creating a favorable business environment and strengthening industrial competitiveness, meeting the specific needs of strategic sectors related to the goals of sustainable development.

REFERENCES

- Aiginger, K, Rodrik, D. (2020). Rebirth of Industrial Policy and an Agenda for the Twenty-First Century. *Journal of Industry, Competition and Trade*. Springer.
- Cimoli, M., G., Dosi, and J. Stiglitz (eds.), (2009). „*Industrial Policy and Development: The Political Economy of Capabilities Accumulation*”, Oxford: Oxford University Press, pp. 19-39.
- COM (2017) 479 final. Komunikacija Komisije europskom parlamentu, vijeću, europskom gospodarskom i socijalnom odboru i odboru regija i evropskoj investicionoj banci. *Ulaganje u pametnu, inovativnu i održivu industriju. Obnovljena strategija industrijske politike EU*. Brisel: Evropska komisija.
- Devetaković, S., B. Jovanović Gavrilović, G. Rikalović, (2019). *Nacionalna ekonomija*. Beograd: CID Ekonomski fakultet.
- Di Maio, M. (2014). Industrial policy. In: *International Development: ideas, experience & prospects*, Currie, B., Kandur, R., Malone, D. & Medhora, R. (eds.), Oxford: Oxford Scholarship Online, University Press Scholarship Online.
- Greenwald B., Stiglitz J.E. (2013) Industrial Policies, the Creation of a Learning Society, and Economic Development. In: Stiglitz J.E., Lin J.Y. (eds) *The Industrial Policy Revolution I*. International Economic Association Series. Palgrave Macmillan, London, pp.43-71.
- Hausmann, R., Rodrik, D. (2003), “Economic development as self-discovery”. *Journal of Development Economics*, 72, Cambridge, MA: Cambridge University Press, pp. 603–633.
- Lall, S. (2006). “Industrial Policy in Developing Countries: What Can We Learn from East Asia?,” Chapters, in: Patrizio Bianchi & Sandrine Labory (ed.), *International Handbook on Industrial Policy*, chapter 4, Edward Elgar Publishing.
- Lim, W. (2013). The Chaebol and Industrial Policy in Korea. *The Industrial Policy Revolution I, The Role of Government Beyond Ideology*, eds. J. Stiglitz and J. Yifu Lin. New York: Palgrave Macmillan.
- Lutovac, M. (2020), *Nova industrijska politika kao pretpostavka efikasnog razvoja industrije Srbije*, doktorska disertacija, Ekonomski fakultet, Beograd.
- Mazzucato, M. and Tancioni, M. (2012), “R&D, Patents and Stock Return Volatility”, *Journal of Evolutionary Economics*, Vol. 22 (4):811-832.
- Mazzucato, M., Kattel, R. (2020). Grand Challenges, Industrial Policy, and Public Value. The Oxford Handbook of Industrial Policy. Edited by Arkebe Oqubay, Christopher Cramer, Ha-Joon Chang, and Richard Kozul-Wright.
- Republika Srbija (2020). *Strategija industrijske politike Republike Srbije od 2021. do 2030. godine*. Beograd: Republika Srbija
- Rodrik D. (2013). *Paradoks globalizacije*. Beograd: Službeni glasnik
- Rodrik, D. (2008). “Normalizing Industrial Policy”, *Commission on Growth and Development Working Paper No. 3*, Washington DC: World Bank

- Savić, Lj. (2017). *Ekonomika industrije*. Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.
- Savić, Lj., Lutovac, M. (2019). Industrial policy and state incentives in Serbia. *Ekonomika preduzeća*. Beograd: Savez ekonomista Srbije.
- United Nations Industrial Development Organization (UNIDO), (2011), *Industrial Policy for Prosperity: Reasoning and Approach (Development Policy, Statistics and Research Branch Working Paper 02/2011)*, Vienna: UNIDO, pp.1-3.
- Warwick, K. (2013). "Beyond Industrial Policy: Emerging Issues and New Trends". *OECD Science, Technology and Industry Policy Papers*, No. 2, Paris: OECD Publishing.
- World Bank (1993). *The East Asian Miracle*, Washington DC: The World Bank.
- <https://www.cpc-serbia.org/o-nama.html>, accessed on 10.9.2019.
- <https://www.unido.org/inclusive-and-sustainable-industrial-development>, accessed on 18.9.2019.



Implications of Technology Development on the Labor Market

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Abstract: *The level of resources invested in STEM, innovation and R&D has never been higher, resulting in new technologies that are promising higher return rates and a new competitive edge. Technology development is influencing the way the work is performed, thus changing the structure of the organization, content of work and demand for workers' skills. Thus, technology development changes industries, organizations and occupations. When occupations are displaced, many workers are forced to reconsider their possibilities at the labor market and to broaden their job perspectives by upgrading their skills portfolio. At the same time, due to the increase in production productivity, new products and services are offered, and new markets emerge. Thus, new jobs are instated and new skills for performing them are required. Technology development led by automation (including AI, ML, etc) and digitalization have found creative and efficient ways to change traditional business models, not necessarily through resource internalization and standard employment agreements. This paper is elaborating on the concept of job and employment, and the effect technology advancements have on labor markets. Findings are related to newly emerging forms of employment and their implications for organizations and workers.*

1. INTRODUCTION

The concept of what was until recently dominantly considered a standard job, where an employee did work according to an on-going employer-employee agreement, usually at a specific fixed time, at the employer's premises and for a relatively constant monthly pay, was rare until the Industrial Revolution. Until the 19th century, the predominant standard job was in agriculture. In the agriculture society, the breakthroughs in technology (plow, use of animals and fertilizers, etc.) led to improvements in agricultural production efficiency. Efficiency increase resulted in producing beyond individual/family needs. Thus, people were able to make surpluses, i.e. gains additional to covering existential needs, which could be used as additional consumption, investments or savings. Those surpluses had a distinctive impact on civilization; they provided the economic foundation for capitalism; they led to the development of business organizations as the main providers of work (including their operational consequences such as division of labor and occupational specialization); they encouraged the foundation of urban areas; they had spillover effects on supportive production activities, and consequently, they were responsible for the social and economic development of the modern states.

In the agriculture society, capital gains not only stimulated investments in technology development in the agriculture domain, but in the domain of support activities, such as transportation or artisan crafts (potters, smiths, spinners and weavers, brewers, and other specialized artisans) (Volti, 2011). People started to specialize (train, educate, master) in a (set of) specific skill(s), distinctive to skills of others and crucial to perform a narrow set of tasks leading to the production of unique product tradable for other existentially important goods. Artisan work was predominantly a small-scale activity, usually performed from home, involving family members and a few apprentices, until the

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technology advancements and business creativity of entrepreneurs allowed for the development of firms and new business models with additional capital gains. That led to new investments, additional efficiency increases and innovations. For example, until the 20th century, textile workers often worked from home, buying raw cotton from a merchant, weaving it into the fabric and selling it on from their doorsteps; in the 1970s, cotton mills began to appear in Lancashire, England, using spinners powered by water wheels, enabling establishments of the first textile manufactures. In those manufactures, workers were hired and paid but not employed based on continuity. This specific arrangement would not provide for any kind of security: they would often work in twelve-hour shifts, six days a week; still, they would be paid per unit of work (hourly), with no entitled work-related rights, nor social or health security (on top of that, penalties for damage to machinery would be deducted from their salary). Individuality gave them no power to fight for better working conditions nor to prevent exploitation by their employers. However, the realization that all workers have similar requirements, especially regarding working conditions, led to the recognition of the power of collective bargaining and the formation of workers' unions in the 20th century. As unions grew larger, their sphere of influence increased and began to involve political lobbying, public advocacy and networking, resulting in a labor law and employment contracts enforced to protect labor rights.

During the late 20th century, a cheaper labor force in (East) Asia caused the decline in traditional production in Europe and USA. Advanced economies were forced to employ alternative strategies to compete with lower production costs in emerging economies, and one of the rational solutions was to lessen the proportion of labor costs in total production costs. Along with moving their production to the East, they invested their money and efforts in technological systems to compensate for higher costs of human resources. Increased focus on automation and digitalization processes has led to the increase in production followed by efficiency gains, as well as labour market structural changes. In the EU, in recent decades, the decline in employment in primary industries and basic manufacturing (basic metals, wood, shipbuilding, textiles and clothing, etc.) is accompanied by a rise in employment in higher value-added manufacturing activities (computers, electronics, naval equipment, etc.) and services (tourism, retail, research, etc.). As economies increasingly turn to tech-based solutions (automation, artificial intelligence, and digitalization), low skilled workers have to reconsider their position on the labor market, especially since cheap labor is no longer a guarantee of firms' sustainability and economic growth. Another phenomenon related to increased industrial investments (particularly in R&D, machinery and equipment) results in rising costs of high skilled labour (IT, health care), while at the same time technology becomes cheaper due to scalability and imitability. Therefore, at a quantitative level, jobs in production are replaced with machines, but new jobs in supporting and service industries arise, thus increasing the aggregate demand on labour market. In reality, gaps in skills result in labour market inefficiencies and are responsible for structural unemployment phenomena.

In this paper, we start with presenting technology development as the main force behind developments in the labor market and continue with implications of technology advancements on the labour market. In the last part of the paper, we discuss the effects of the new forms of employment for working conditions and labour market.

2. TECHNOLOGY AS A CHANGING FORCE

The most prominent technology developments that are changing work around the world nowadays are digitalization (Eurofound, 2020), automation (Ford, 2016; Manyika et al., 2017; Acemoglu and Restrepo, 2020) and platforms (Eurofound, 2021) (Figure 1). These technology developments pri-

marily aim to increase productivity, but while digitization refers to supporting processes and tasks digitally, automation refers to performing processes and tasks autonomously and automatically, thus serving as a replacement for human work with technical solutions (Satchell, 1998). Platforms serve as coordination mechanisms and consequently they replace former (physical) markets. They use digital networks and algorithms to coordinate economic transactions (Eurofound, 2021). Artificial intelligence (AI), depending on how we define the term, is at the intercept of automation, platforms and digitalization. It represents technologies, systems or even processes that mimic how human beings function. AI aims to replace complex and sophisticated human work in the area of decision making, planning, understanding and creating new information. A very important subset of AI for understanding the future of work is machine learning (ML). It enables systems and processes to learn from data, identify patterns and recommend decisions without human involvement. It uses algorithms to find patterns in large quantities of data (Big Data).

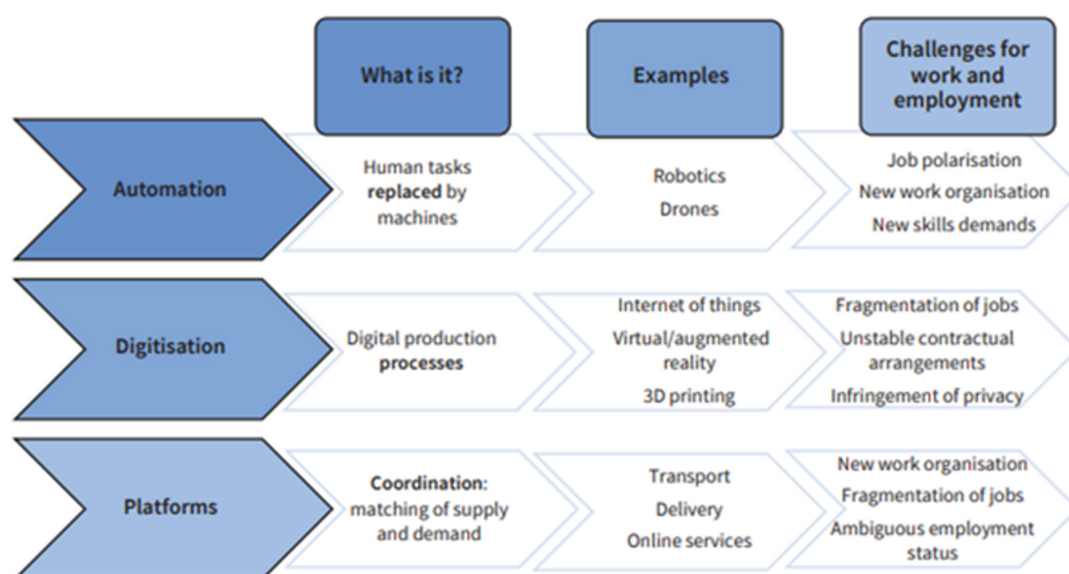


Figure 1. Overview of the expected challenges for work and employment by vector of change

Source: Eurofound, 2021.

The combination of technology development and restrictions in the pandemics Covid 19 put additional pressure on the digitalization of the economies and required from citizens all over the world sudden and fast improvements in digital literacy. Adoption and upgrading of digital skills became crucial for successful participation in the global digital transformation (Eurofound, 2021).

Automation includes a wide range of technology solutions from enterprise resource planning software (ERP) through scanners used in automatic billing of parking lots, robots in manufacturing or logistics operations, augmented reality in the entertainment, to artificial intelligence in the healthcare industry or financial consulting services. Thus, automation substitutes for human labor. However, automation as well as other technological advancements, does not diminish the need for the human factor in the organization. Rather, it changes the content of the job by substituting for both physical and cognitive tasks that are part of an existing occupation, and therefore creates new occupations, transforms existing ones, or makes whole occupations obsolete.

Until recently, studies predicted that the innovation in automation would mostly substitute routine tasks, and thus would especially affect lower-wage, lower-educated workers in occupations characterized by routine work (Muro et al., 2019). With the development of AI (including ML

and deep learning) not only repetitive menial jobs are about to become obsolete. Higher educated white collars with high-wage jobs working in more cognitive-intense occupations (such as managers, leaders, healthcare professionals) are also becoming replaceable to a certain extent.

A vibrant dilemma about the effects of technological trends on labor demand, productivity, wages, and employment has brought out two dominant streams of thought: researchers who are looking into the negative effects of automation on employment, and the phenomenon of unemployment as a direct consequence of human labor being replaced by machines (Brynjolfsson and McAfee, 2014; Frey and Osborne, 2017; Author and Salomons, 2018); and the ones who advocate automation as a growth factor that will consequently introduce more jobs (Harari, 2018; Acemoglu and Restrepo, 2019). All of them agree on the importance of individual and collective skills upgrading speed for the balance of demand and supply in the labor market.

3. IMPLICATIONS OF TECHNOLOGY ADVANCEMENTS ON WORK AS AN ECONOMIC RESOURCE

Technology developments are affecting all parties on the labor market: employers (i.e. organizations), employees (i.e. work content and skills) and regulators (through labor law and employment policies). In other words, new technologies are intervening in the organization structure, affecting value formation and appropriation, work content, work organization and work patterns, distribution of time, requirements related to workplace or working hours; they are influencing workers' employability and desirability on the labor market.

3.1. Structure of the organization

Technology advances are changing whole industries (Babić et al., 2019), forcing products/services out of the market, and therefore rendering tasks and skills leading to their production obsolete. Due to lower labor costs in developing countries, many western hemisphere large manufacturing organizations had to downsize their European and USA business and rely on either relocating their production to emerging economies or on outsourcing. The restructuring was based on changes in strategic focus and new perceptions of sources of competitive advantage. Competitive advantage was no longer related to internalization of resources. In other words, the boundaries of organizations started to blur, and vertical hierarchies and bureaucracies were replaced with flat organizations, collaborations, agile teams and networking, dependent on cost efficiencies. In many cases, the competitive advantage consists of production according to cost strategies and economies of scope, and when applicable, differentiation based on distinctive higher added-value product/services features.

Since the pace of changes is accelerated in a globalized world, in order to stay competitive and sustainable, firms are focused on becoming flexible and adaptable. For that reason, employers advocate for flexible hiring and firing policies. The logic of flexibility is to acquire workers quickly when in need and release them from a payroll even faster in downturn cycles. In the meantime, while waiting for regulator/institutions to accommodate business needs, employers seek loopholes in labor law regarding employment policies, as well as for employment options that allow them to circumvent regulations agreed/lobbied by unions. These experiments, which are aiming to achieve more flexibility in managing the business, do not necessarily represent illegal business behavior. Rather, they are resulting in establishing new forms of employment and finding new sources of competitiveness, either derived from labor market surpluses (contin-

gent work) or boosted by ensuring access to scarce resources (specific expertise). On the other hand, flexibility is not necessarily required only by employers; employees nowadays appreciate more time for their private lives, desire more autonomy in choosing a workplace, work projects and/or worktime, and thus also from their side they push forward more non-standard forms of employment. As the human resource factor has become truly global, organizations are forced to transform once again to accommodate those changes and to find alternative ways of organizing work, such as in a full remote organization or hybrid organization models.

3.2. Content of work

Changes in the content of production affect the (re)allocation of production factors (i.e. capital and labor). New technologies introduce alterations in human activities by modifying tasks that need to be done in order to support the production of products and services. According to the task-based approach (Acemoglu and Restrepo, 2018), new technologies increase the productivity of factors of production. At first, new technologies increase the efficiency of the capital since (part of) human work is automated or otherwise replaced. This substitution of human work with machines changes the content of the work, and thus alters the job requirements as well as the skills needed for an occupation.

Replacement of human work with new technologies is known as a *displacement effect*, which means that capital is taking over tasks (and entire jobs) previously performed by labor. Automated tasks achieve a higher level of efficiency (faster, unified, with fewer mistakes), which results in increased productivity, and in turn adds more capital to the production system (Acemoglu and Restrepo, 2017). More capital leads to new investments, spillovers to related, supporting or non-related industries, creation of new markets for products and services, and consequently to the creation of new jobs – a phenomenon called *reinstatement effect*.

3.3. Workers skills

Technology advancements greatly affect labour force. Contrary to the mainstream forecasts in the 20th century, more recent studies elaborate that not only routine tasks are in jeopardy of being substituted with technology; while jobs of blue-collars are replaceable with industrial robots (Graetz and Michaels, 2018; Acemoglu and Restrepo, 2018), jobs of white-collar workers are in danger of artificial intelligence development (apps, chat-bots, counseling) and machine learning. Contrary to robotics, which replaces routine work defined as (set of) repetitive and predefined tasks, AI endangers cognitive and socio-emotional work by introducing solutions for replacing interpersonal tasks such as human resource management, decision-making, problem-solving, etc. Studies show that highly skilled workers are more resistant to changes in technology and content of work (Dahlin, 2019), while low-skilled workers are less adaptable to changes and therefore tend to stay on the labor market longer (Acemoglu and Restrepo, 2018).

Job-relevant skills are task-related (such as computer use) and are built on a combination of cognitive and socio-emotional skills. Cognitive skills are defined as “the ability to understand complex ideas, adapt effectively to the environment, learn from experience, engage in various forms of reasoning, and overcome obstacles to thinking” (World Bank, 2014). Literacy, arithmetic and the ability to solve abstract problems are all cognitive skills. Socio-emotional skills, sometimes referred to in the literature as non-cognitive skills or soft skills, refer to traits that cover multiple domains (such as social, emotional, personality, behavior, and attitudes). Given

the dynamics of technology development and the speed of jobs change, contemporary labor policies emphasize the development of transferable skills, generic and non-cognitive skills. In that way, workers regardless of formal education and profession could become more flexible to change jobs and acquire new knowledge and skills. Non-cognitive skills, including communication, planning and team working, are becoming increasingly important, equally as problem solving (Gonzalez Vazquez, I. et al., 2019). There is a growing demand for workers with creative and social intelligence, such as entrepreneurs, leaders or managers.

Changing requirements and better skills-job alignment require adjustments of the training and education system, which often require social effort and significant investment (Kastelan Mrak and Sokolic, 2017). Countries that adopted their education and training systems are making visible progress towards a more balanced labor market, economic growth and prosperity (Cvecic et al., 2018).

4. FUTURE RESEARCH DIRECTIONS

Technology development, together with the rigidity of national labor markets, led to emerging of new forms of employment. They differ in many ways from standard work arrangements between employer and employee. Some change the relationship between employer and employee, some change the organization of work and patterns of work, and some both (Eurofound, 2015). The drivers for their presence in the labor market are different, from the necessity to opportunity reasons on both employer and employee sides. However, the one thing they all have in common are aspirations towards flexibility. Even though some of the forms are present for a longer time and research is available for policy makers, some of them are still relatively new in practice, and there is no consistent research on their effects on labour market or working conditions. For illustration, Figure 2 compares the implications which some of the new forms of employment have on employees with the implications they have on labour market.

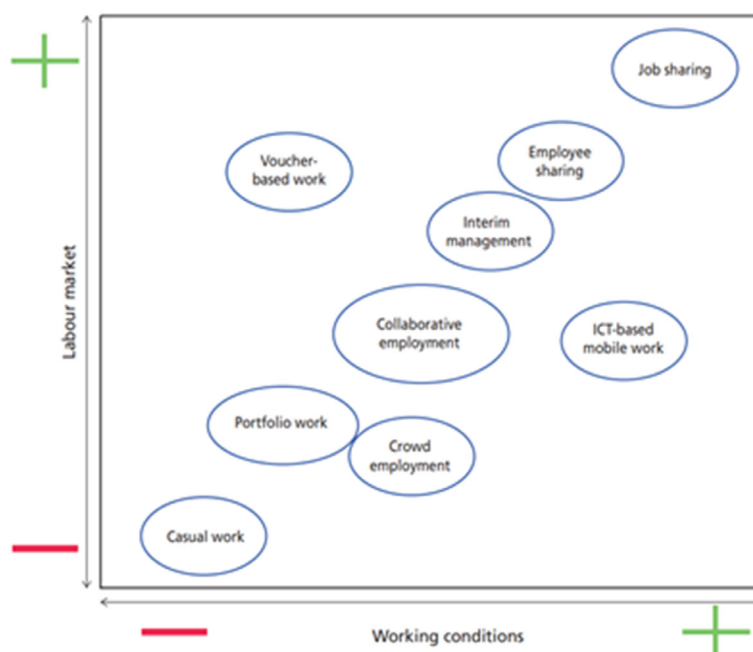


Figure 2. Assessment of implications of new forms of employment for working conditions and the labor market

Source: Eurofound, 2015

However, there are some indications that not all of them are equally beneficial for employees and labour market. For example, contingent employment practices (gig workers) do not ensure standard workers' rights (social protection, health security, integration in organization, career development opportunities). They also affect segregation on the labor market (low skilled workers whose skills are in low demand experience difficulties in changing their career paths), and broaden the gap between the low and high end of the labor market (Eurofound, 2020). Further research should be oriented towards a better understanding of the effects that specific forms have on labour market, economic growth and well-being.

5. CONCLUSION

The transforming nature of new technologies changes organizations and their business models, occupations, as well as workers' position in the labor market and their work-related possibilities and preferences. In the era of the rapid advancements in technology, conditions on the labor market are greatly affected by the following processes: a) replacing existing tasks with machines that makes contingent of workers redundant, b) introducing new tasks for whose performance new skills are needed and usually scarce, at least in the beginning phase.

It might be the case that capital fully replaces labor in some occupations (for example, sales force in automated self-check out stores), while it replaces labor only partially in some other occupations, or create spillover effects for which new occupations have to be designed (broadening of products and services portfolio). Since in any case occupations either disappear or change to include new tasks, workers are forced to upgrade their skills.

Acquiring new skills can bring higher employability, versatile career possibilities and higher income for the employee, as well as higher creativity and innovation potential for organizations. Additional training and education require additional resources, time being a prominent one. For that reason, even though technology eventually increases labour demand, the requirement for new competencies can cause problems of impeded employability and ultimately structural unemployment. Therefore, technology development can have a large impact on productivity and labor demand.

As the content of work is changing professions and occupations, acquiring new skills has become essential to staying employable and/or developing a career. In addition, due to market uncertainty and cost efficiency pressure, employers are negotiating with regulators on more flexible employment policies. Employees' agenda is twofold: while some of them are struggling to stay in employment, others are eager to achieve a more favorable work-life balance. On top of all that, pandemics is hitting hard on demanding higher levels of digital literacy, as well as skills in online communication, managing virtual teams, self-organizing skills, etc. The velocity of technological changes, industry/market context and rigidity of labor market policies stimulate employers and employees to search for alternatives to standard employment schemes, resulting in new forms of employment. Due to their different nature and socio-economic rational of their appearance, some of them are beneficial for employees, organizations and labour market, while some of them contribute to additional labor market segmentation and further polarization of wealth and well-being.

REFERENCES

- Acemoglu, D. & Restrepo, P. (2017). *Robots and Jobs: Evidence from US Labor Markets*. NBER Working Paper No. 23285
- Acemoglu, D. & Restrepo, P. (2018). *Artificial Intelligence, Automation and Work*. NBER Working Paper No. 24196
- Acemoglu, D. & Restrepo, P. (2019). *Automation and New Tasks: How Technology Displaces and Reinstates Labor*. *Journal of Economic Perspectives*, Vol. 33, No. 2, pg. 3-30
- Acemoglu, D. & Restrepo, P. (2020). The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society*, Cambridge Political Economy Society, vol. 13(1), pg. 25-35
- Autor, D. & Salomons, A. (2018). *Is Automation Labor Share–Displacing? Productivity Growth, Employment, and the Labor Share*. Brookings Papers on Economic Activity, The Brookings Institution Press
- Babić, A.; Vlačić, E. and Sokolić, D. (2019). Strategic Positioning of Emerging 5G Technology – Barriers and Perspectives. *Journal of Corporate Governance, Insurance, and Risk Management (JCGIRM)*, 2019, Volume 6, Series 1, pp. 10-22
- Brynjolfsson, E. & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York: W. W. Norton
- Cvecic, I., Sokolic, D. & Kastelan Mrak, M. (2018). *Higher education and economic prosperity at regional level*. *Revista Portuguesa de Estudos Regionais*, no. 52, pp. 9-25, 2019.
- Dahlin, E. (2019). Are Robots Stealing Our Jobs?. *Socius: Sociological Research for a Dynamic World*, Volume 5: 1–14
- Eurofound (2021). *The digital age: Implications of automation, digitisation and platforms for work and employment*. Challenges and prospects in the EU series, Publications Office of the European Union, Luxembourg.
- Eurofound (2020). *New forms of employment: 2020 update*. New forms of employment series, Publications Office of the European Union, Luxembourg.
- Eurofound (2015). *New forms of employment*. Publications Office of the European Union, Luxembourg.
- Ford, M. (2016). *Rise of the Robots: Technology and the Threat of a Jobless Future*. Basic Books, New York
- Frey, C. B. & Osborne, M. A. (2017). The Future of Employment: How Susceptible Are Jobs to Computerisation?. *Technological Forecasting and Social Change*, Vol. 114: 254–80
- Gonzalez Vazquez, I., Milasi, S., Carretero Gomez, S., Napierala, J., Robledo Bottcher, N., Jonkers, K., Goenaga, X. (eds.), Arregui Pabollet, E., Bacigalupo, M., Biagi, F., Cabrera Giraldez, M., Caena, F., Castano Munoz, J., Centeno Mediavilla, C., Edwards, J., Fernandez Macias, E., Gomez Gutierrez, E., Gomez Herrera, E., Inamorato Dos Santos, A., Kampylis, P., Klenert, D., López Cobo, M., Marschinski, R., Pesole, A., Punie, Y., Tolan, S., Torrejon Perez, S., Urzi Brancati, C., Vuorikari, R. (2019). *The changing nature of work and skills in the digital age*. Publications Office of the European Union, EUR 29823 EN, Luxembourg, ISBN 978-92-76-09206-3, doi:10.2760/679150, JRC 117505
- Graetz, G. & Michaels, G. (2018). Robots at Work. *Review of Economics and Statistics*, Vol. 100, Issue 5
- Harari, Y. N. (2018). *21 Lessons for the 21st Century*. Penguin Random House, UK
- Kastelan Mrak, M. & Sokolic, D. (2017). *The Evolution of Work Organization and its Implication for Educational Policies and Managerial Practices*. Proceedings of the 6th International Scientific Symposium Economy of Eastern Croatia – Vision and Growth (Anka

- Masek Tonkovic, ed.), ISSN: 1848-9559, University J.J. Strossmayera Osijek, Croatia, pp. 335-344.
- Manyika, J. et al. (2017). *A Future That Works: Automation, Employment and Productivity*". McKinsey Global Institute, McKinsey & Company, Available at: www.mckinsey.com/mgi
- Muro, M., Maxim, R. & Whiton, J. (2019). *Automation and Artificial Intelligence: How machines are affecting people and places*. Metropolitan Policy Program at Brookings.
- Satchell, P. (1998). *Innovation and Automation*. Aldershot, UK: Ashgate
- STEP Skills Measurement Surveys: Innovative Tools for Assessing Skills, World Bank, 2014
- Volti, R. (2011). *An Introduction to the Sociology of Work and Occupations*. SAGE Publications, Inc; 2nd edition.



Changes in the Economic Performance and Labour Market Situation in Slovakia during the COVID-19 Pandemic

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Abstract: *The main purpose of economic research is to monitor the performance of a particular national economy and analyse the factors that determine its growth and fluctuations. Gross domestic product is primarily used to assess the performance of the economy. It is, however, also necessary to look at the labour market situation. COVID-19 pandemic is one of the factors that have impacted the Slovak economy and the labour market situation. The purpose of the paper is to evaluate the changes in the labour market and the performance of the Slovak economy in connection with the COVID-19 pandemic. The pandemic has resulted in lower economic performance. Particularly affected were the accommodation and food service activities, wholesale and retail trade as well as the manufacturing industry. Consequently, the labour market situation reflected these phenomena in decreased employment and increased unemployment rates.*

1. INTRODUCTION

The COVID-19 pandemic has fundamentally altered every aspect of the life of citizens around the world and had a negative impact on the health and lives of citizens. The economies around the world have been struggling with its economic and social ramifications. The impacts of the COVID-19 pandemic will be felt for many years to come in all areas of human activity. To mitigate the negative effects of the pandemic on the economy and health of the population, national governments introduced many measures to protect vulnerable groups and reduce the spread of disease. The measures taken have led to a decline in economic performance and disrupted national labour markets. Global economic effects of the COVID-19 pandemic include lower GDP growth rates, employment rates, and rising unemployment rates. The Slovak economy is an open economy which makes it more vulnerable. The high share of the automotive industry, which has been affected by supply disruptions of key components and deteriorating employee health necessitated limiting economic activity, which damped demand. In the paper, we focused on economic research and monitored the performance of the Slovak economy and analysed the factors that determine its growth and volatility.

2. LITERATURE REVIEW

COVID-19 began to spread across the world in early 2020. The pandemic has affected almost every aspect of daily life. Various support programmes, payments, subsidies and funds were introduced to maintain employment at the required level (Dvořák et al., 2020). The pandemic itself

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and the measures adopted to contain the spread of COVID-19 hit hard public and private lives of all people. The COVID-19 pandemic has brought about a decline in economic, business and other activities, social challenges, changed working practices, reduced consumption of transport services and energy, etc. The COVID-19 pandemic has affected economic and social relations as well as the labour market. Due to globalization, the virus spread across and hit the globe rapidly. Globalisation is advantageous in terms of progress, but it can also lead to job losses, deprivation and downturn as shown in many examples (Kalyugina et al., 2020). As a matter of fact, many scientists think that the COVID-19 pandemic – an unprecedented shock of the 21st century, could slow down or even halt the ongoing globalization (Dvořák et al., 2020). Restrictions on some activities and workforce have brought a widespread shock to the supply side of the economy. However, the unused labour force meant limited household income and the resulting negative shock for the demand side of the economy as well (Frank, Morvay et al. 2021). From the macro-economic point of view, the crisis was first a negative supply shock, which produced a demand shock (Šuster, 2020). On the one hand, there is the income shortfall effect, which spreads through the whole economy with a multiplier effect and reduces demand in all sectors. On the other hand, there is a loss of confidence. Uncertain future makes households with income and/or savings hold most of their accumulated excess money. To make the situation even worse, the second negative supply shock came through global value chains. Due to supply-chain disruptions, either for logistical reasons or quarantining measures, industrial companies had to halt their production.

According to Lemieux et al. (2020), the COVID-19 crisis has had a key impact on the labour market, household incomes and changes in gross domestic product. The labour market and human capital were the first to experience rising unemployment, job insecurity and shrinking career opportunities as a result of the spread of COVID-19 around the world (Costa Dias et al., 2020). The EU economy and labour markets have deteriorated dramatically under the containment measures against COVID-19. Because of the policy measures taken to contain the pandemic's effects on employment, this decline translated mostly to a reduction in the number of hours worked, and less in the number of people employed or unemployed (Römisches, 2020). This is the first time that human society has faced such a large-scale virus attack (Sukharev, 2020). In the labour market, some groups of people became unemployed due to the pandemic. According to Pouliakas and Branko (2020), the most vulnerable segments of the working population were those who could not work from home. They were mostly women, foreign workers, workers with temporary contracts, and low-skilled workers. Many economists compare the COVID-19 crisis with the crisis of 2009 (Jeris and Nath, 2020, Sokol and Pataccini, 2020, Sukharev, 2020) and foresee even greater problems. Trends in the evolution of unemployment differ from those in prior recessions. Michálek (2021) maintains that, unlike prior recessions, the coronavirus recession exhibited a sharp increase in unemployment rates, but the situation rebounded quickly. The Labour market situation worsened again when the epidemiological situation deteriorated and containment measures were adopted. The facts show that unemployment went hand in hand with the severity of measures adopted. Frank, Morvay et al. (2021) note that a relatively modest increase in unemployment in 2020 is not attributable only to the governmental measures to maintain employment, but also the demographic change, i.e. the decline in the number of working-age population.

The coronavirus lockdown measures, implemented all over Europe, had massive effects on the economy, putting it in a state of 'hibernation'. As factories were shut down, supply chains were cut or the services industries, especially restaurants, hotels and retail trade, were forced to close temporarily, economic activity dropped by an unprecedented amount (Römisches, 2020). The impact of restrictive measures was not uniform across the economy, with some sectors more

heavily affected than others. Following the restrictive measures, governments took measures to support the economy, aimed primarily at mitigating the negative effects of the pandemic.

While introducing emergency measures that restrict people's labour and social mobility, the existing rate of development of the digital economy and society is proving to be a key factor in adapting to sudden changes in conditions. The forced or voluntary limitation of immediate social contacts, the transition of part of the service sector to the home office, the widespread shift of pupils and students to distance learning, the change in purchasing behaviour, business models and leisure time represent a positive external shock not only for the ICT sector but also for the public sector (education, health, public administration), households and the corporate sector (Frank, Morvay et al., 2021).

3. METHODOLOGY

In the paper, the impact of the COVID-19 pandemic on Slovakia is examined. The evolution of real GDP and its growth rate, the evolution of the employment rate and the unemployment rate in the quarters 2007-2021 (up to Q3 2021) are examined.

In the paper, a time series analysis for the given indicators is made and absolute changes are calculated. In addition, the methods of comparison and synthesis are used. The data were acquired from the Statistical Office of the Slovak Republic, DataCUBE database.

4. RESULTS

Slovakia's economic performance prior to the COVID-19 pandemic was favourable: unemployment rates were low and job vacancy rates reached record highs. Already in 2019, the economic growth was slow, the employment rate was increasing slowly and the unemployment rate was also decreasing slowly. The key event of 2020 in the Slovak economy was the COVID-19 pandemic, which triggered the need to introduce highly restrictive measures that directly or indirectly affected all actors in the Slovak economy (Frank, Morvay et al., 2021).

4.1. Gross domestic product

The current epidemiological crisis and its impact are markedly different from previous types of crises and recessions. The effects of the repeated lockdowns imposed and measures taken to mitigate the pandemic far outweigh the impacts of the initial restrictions put in place shortly after the outbreak of the pandemic. Restrictions on the activities of business operations/shops had primarily sectoral impacts on non-essential services and production (Michálek, 2021). In Slovakia, the pandemic-related restriction resulted in the gross domestic product decline and increased unemployment. Figure 1 shows the evolution of GDP at constant prices and the GDP growth rate from 1Q 2008 to 3Q 2021.

The chart shows positive GDP evolution in the Slovak Republic since the recession in 2009, and its fluctuations in individual quarters. During the coronavirus pandemic, GDP declined in every quarter of 2020 (compared to the same period in 2019). At the beginning of the first quarter of 2020, the Slovak economy was still doing well, primarily because of the contribution of the automotive industry to GDP growth. A considerable decline occurred in Q2 2020, by as much as 10.5%, which was a much larger quarterly decline in GDP than that of the economic recession of 2009. In subsequent quarters, the decline in GDP was more moderate. In 2020, the total an-

nual decline in real GDP was 4.6%, compared to 5.5% in 2009, when quarterly declines ranged from 4.1 to 6%. In 2021, however, real GDP growth was recorded in every quarter. Although the second wave of the pandemic lasted longer, the impact on the economy was milder. According to NBS data (2021), global trade was affected by almost no restrictions during the second wave of the pandemic. Thus, the industry was able to produce and satisfy the demand for goods. In fact, the pandemic lifted the demand for goods while the demand for services fell sharply. The improved epidemic situation during the summer months and spending of accumulated savings continued to increase household consumption. The industry's component supply, however, deteriorated. Businesses were struggling with rapidly rising input prices. As a result, automotive production dropped by almost a third. As the automotive industry makes up a substantial portion of the Slovak economy, the drop in production made it impossible to achieve pre-pandemic growth levels. The economic growth in Slovakia was among the lowest in the Euro area in Q3 2021.

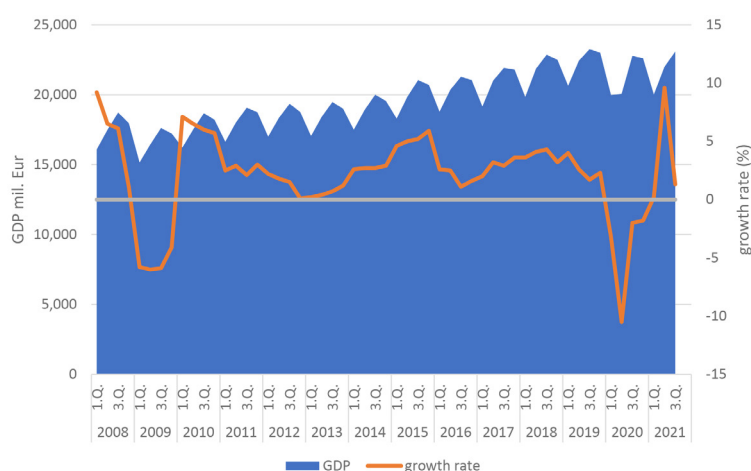


Figure 1. Evolution of GDP in Slovakia

Source: Statistical Office of the Slovak Republic, own elaboration

4.2. Labour market

The changes in economic performance, which were related to the containment measures, had also a negative impact on the labour market (Švábová et al., 2021). The evolution of the employment rate and its change compared to the previous quarter is shown in Figure 2.

After a decline in employment in 2009, the employment rate has fluctuated with an upward trend since 2010. More significant growth has been recorded since 2014. However, a slowdown in employment growth was recorded in 2019. In Q3 2019 the employment rate declined. The decline was attributable to the measures to stop the spread of the coronavirus in 2020, and the decline was the biggest in Q2. Since then, the employment rate has been on the rise, most significantly in Q3 2021.

Figure 2 shows that the largest quarter-on-quarter decline in the employment rate occurred in Q1 2009, namely by 2 percentage points. Comparing the decline in employment during the 2009-2010 recession and the coronavirus pandemic, we find that while employment declined in 6 consecutive quarters during the 2009-2010 recession, during the coronavirus pandemic the employment rate declined only in two quarters, and the decline was milder. The COVID-19 pandemic caused employment losses mainly in the following sectors: accommodation and food services, manufacturing, transport and storage, administrative and support services, and agriculture. In contrast, employment increased in the sectors of Information & Communication and Education.

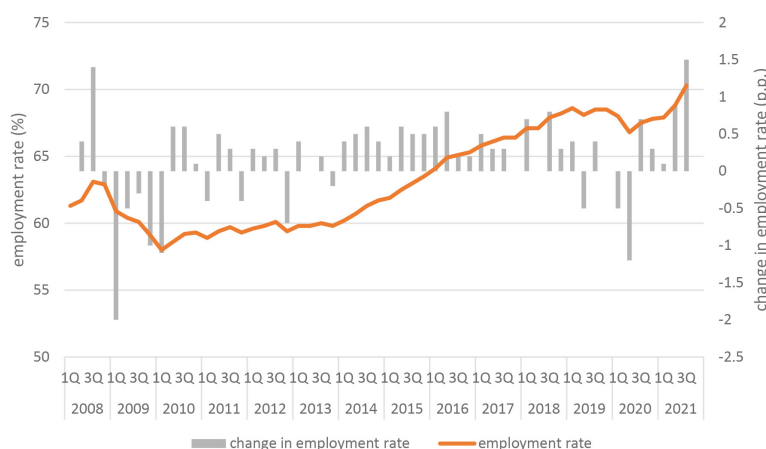


Figure 2. Evolution of employment in Slovakia

Source: Statistical Office of the Slovak Republic, own calculations, own elaboration

The COVID-19 crisis has dramatically increased unemployment in Slovakia. Pre-pandemic unemployment shows a favourable trend. The good labour market situation was the result of the previous periods of GDP growth and high global demand for Slovak products. In 2019, there was a shortage of skilled workers in the labour market. The number of persons employed even increased in the last quarter of 2019 (SBA, 2021). The containment measures led to a sharp rise in the unemployment rate in 2020. The COVID-19 pandemic affected certain groups in the economy: lower wages and less qualified workers who could not work from home. These groups were more at risk of job loss (Dujava, Peciar, 2020). Figure 3 shows the evolution of unemployment in Slovakia.

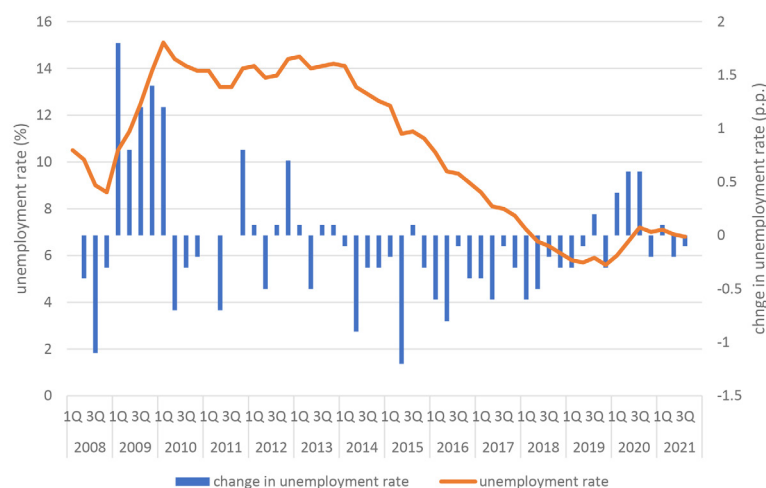


Figure 3. Evolution of unemployment in Slovakia

Source: Statistical Office of the Slovak Republic, own calculations, own elaboration

There was a downward trend in unemployment from 2014 to 2019, but the coronavirus pandemic reversed this trend. Already in the first quarter of 2020, there was a rise in unemployment as a result of the measures taken, but it was not that high. Many employers allowed their staff to work from home, so they were not forced to lay people off immediately, and the government also facilitated access to sickness and nursing benefits. Unemployment also rose in Q2 and Q3 2020, but the increase was moderate due to the easing of containment measures. Overall, the rise in unemployment was much milder than in the recession of 2009.

In the depression in 2020, on the other hand, the number of people in working-age fell sharply, which dampened the rise in unemployment. This demographic factor had the opposite effect on the actual economic depression as on earlier ones (Frank, Morvay et al., 2021). In Q4 2020, the unemployment rate declined, and despite a slight increase in the first quarter of 2021, unemployment declined in subsequent quarters. Economic policy should ensure income stability for vulnerable groups and encourage their return to work once the health situation in Slovakia stabilises. Measures that would help achieve these objectives include the short work short-time working support scheme, the extension of unemployment benefits, child care allowances or the extension of active labour market policies. There is a risk that the coronavirus crisis will lead to permanent structural changes and not all those who have lost their jobs can perform their previous jobs. Therefore, retraining programmes and adult education will play an important role (Dujava, Peciar, 2020).

5. CONCLUSION

The COVID-19 pandemic has severely affected the economic and social situation and lives of people around the world. Countries have taken various measures in an attempt to stop the spread of the disease, which has negatively impacted several sectors and resulted in massive job losses. Michálek (2021) claims that while previous recessions typically evolved with a gradual increase in economic distress, the current “pandemic recession” came suddenly, spread across countries even more rapidly, and delivered an exogenous shock to the global economy and national economies. Examining the evolution of the main macroeconomic indicator of GDP in the Slovak Republic, it can be concluded that there was a positive GDP evolution since the recession in 2009, but in 2020 it declined in each quarter. The biggest drop was in Q2 2020, by 10.5%, which was a much larger quarterly decline in GDP than that of the economic recession in 2009. In 2021, however, real GDP growth was recorded in every quarter and the economy began to recover. During the second wave of the pandemic, global trade functioned almost without restrictions. Thus, the domestic industry was able to produce and meet the demand for goods. Labour market changes were strongly linked to the containment measures adopted. In the employment indicator monitored, there was a decline in the first two quarters of 2020. Since then, however, the employment rate was increasing, most significantly in Q3 2021, reaching 70.3%. Rising employment was reflected in the evolution of the unemployment rate. Already in the first quarter of 2020, there was a rise in unemployment, which continued to rise in the second and third quarters of 2020. Overall, the rise in unemployment was much more moderate compared to that of the recession in 2009. Since 2020, the trend in unemployment was favourable, and in Q2 and Q3 2021 the unemployment rate declined to 6.8%. In conclusion, the current recession, which was not caused by economic factors, has dramatically changed the labour market in an extremely short time. The recession of today is evolving differently than that of 2009. After the containment measures were eased, employment increased. Unemployment rose in parallel with the level of severity of the pandemic measures adopted. Although the effects of the COVID-19 pandemic were negative on both economic performance and the labour market, Dvořák et al. (2020) argue that the world can learn a lesson, get ready for similar unexpected changes and respond with agility to prevent serious negative impacts on the economy and society to happen.

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REFERENCES

- Costa Dias, M., Joyce, R., Postel-Vinay, F., & Xu, X. (2020). The challenges for labour market policy during the Covid-19 pandemic. *Fiscal Studies*, 41(2), 371-382. <https://doi.org/10.1111/1475-5890.12233>
- Dujava, D., & Peciar, V. (2020). *Trh práce v karanténe. Vplyv koronakrízy na trh práce na Slovensku*. Bratislava: Inštitút finančnej politiky, Ministerstvo financií SR.
- Dvořák, M., Rovný, P., Grebennikova, V., & Faminskaya, M. (2020). Economic impacts of Covid-19 on the labor market and human capital. *Terra Economicus*, 18(4), 78-96. <https://doi.org/10.18522/2073-6606-2020-18-4-78-96>
- Frank, K., Morvay, K. et al. (2021). *Economic development of Slovakia in 2020. Focus on: How Corona Crisis Has Changed Economy*. Bratislava: Ekonomický ústav SAV.
- Kalyugina, S., Pyanov, A., & Strielkowski, W. (2020). Threats and risks of intellectual security in Russia in the conditions of world globalization. *Journal of Institutional Studies*, 12(1), 117-127. <https://doi.org/10.17835/2076-6297.2020.12.1.117-127>
- Lemieux, T., Milligan, K., Schirle, T., & Skuterud, M. (2020). Initial impacts of the COVID-19 pandemic on the Canadian labour market. *Canadian Public Policy*, 46(S1), S55-S65. <https://doi.org/10.3138/cpp.2020-049>
- Michálek, A. (2021). Nezamestnanosť obyvateľstva počas pandémie Covid-19 na Slovensku v roku 2020. *Acta Geographica Universitatis Comenianae*, 65(1), 23-42. http://actageographica.sk/stiahnutie/65_1_02_Michalek.pdf
- NBS. (2021). *Ekonomický a menový vývoj, zima 2021*. https://www.nbs.sk/_img/Documents/_Publikacie/ekonomicky_menovy_vyvoj/2021/protected/emv_zima-2021.pdf
- Pouliakas, K., & Branka, J (2020). EU jobs at highest risk of Covid-19 social distancing: Is the pandemic exacerbating the labour market divide? Luxembourg: Publications Office of the European Union. Cedefop working paper; No 1. <http://data.europa.eu/doi/10.2801/968483>
- Römisch, R. (2020). *Covid-19 effects on Central Europe*. <https://www.interreg-central.eu/Content.Node/discover/Covid-19-effects-on-Central-Europe.pdf>
- Slovak Business Agency (2021). *Nepriaznivý vplyv pandémie koronavírusu na podnikovú ekonomiku SR*. Bratislava: SBA.
- Statistical Office of the Slovak Republic. (2021). *DATAcube*. [online] [cit. 2021-12-23]. <http://datacube.statistics.sk/>
- Sukharev, O.S. (2020). Economic crisis as a consequence COVID-19 virus attack: risk and damage assessment. *Quantitative Finance and Economics*, 4(2), 274-293. <https://doi.org/10.3934/QFE.2020013>
- Švábová, L., Nahalková Tesárová, E., Ďurica, M., & Straková, L. (2021). Evaluation of the impacts of the COVID-19 pandemic on the development of the unemployment rate in Slovakia: counterfactual before-after comparison. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 16 (2), 261-284. <https://doi.org/10.24136/eq.2021.010>
- Jeris, S.S., & Nath, R.D. (2020). Covid-19, oil price and UK economic policy uncertainty: evidence from the ARDL approach. <https://www.aimspress.com/article/10.3934/QFE.2020023/fulltext.html>
- Sokol, M., & Pataccini, L. (2020). Winners and losers in coronavirus times: financialisation, financial chains and emerging economic geographies of the Covid-19 pandemic. *Tijdschrift voor Economische en Sociale Geografie*, 111(3), 401-415. <https://doi.org/10.1111/tesg.12433>
- Šuster, M. (2020). Darí sa nám proti vírusu? *Monitor hospodárskej politiky*, 2, 8-10. https://nhf.euba.sk/www_write/files/veda-a-vyskum/casopisy/monitor-hospodarskej-politiky/mhp_06_20_final.pdf



Macroeconomic Consequences Caused by the COVID-19 Pandemic – Case Study of the Automotive Industry

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Abstract: As a synonym for the industrial development of the 20th century, the automobile industry is considered the “industry of all industries” and the backbone of the development of mass production. It is one of the pillars of the global economy and a significant driver of macroeconomic growth, stability and technological development. The core of the industry (production of cars, parts, assemblies and components) interacts with a wide range of business actors in the value chain, which multiplies the positive impact on economic growth and development. The economic importance of the automotive industry far exceeds its quantitative dimensions. The automotive industry has significantly contributed to the introduction of the concept of integrated supply chains and modular procurement, so all changes in the automotive industry have a specific “echo” in the entire economy. The Covid-19 pandemic caused major problems in the functioning of supply chains, which had unprecedented consequences for the automotive industry. Currently, the biggest problem is the months-long shortage of semiconductors, caused by the reorientation of manufacturers to semiconductors for mobile phones, video game consoles and laptops. The paper analyzes the decline in car production and sales, lower-income, layoffs and problems with car delivery.

1. INTRODUCTION

During the Covid-19 pandemic, the decline in automobile production and sales is more than obvious. The gradual recovery before the end of 2020 and in the first half of 2021 indicates that the trend of returning to the level from 2019 will not be jumpy but moderate. Also, the problems that occur with the prolongation of the pandemic and the appearance of new strains of the virus, prevent a faster recovery of this extremely important branch of industry. Moreover, the situation with the spread of the virus in various regions (Asia, Europe, North America) is changing almost daily. This, of course, does not allow optimistic forecasts of recovery even in 2022, because the uncertainty about the relaxation of the pandemic continues.

The initial “impact” of the pandemic on the automotive industry was manifested by an unexpected disruption of supply chains (primarily from Chinese suppliers), temporary shutdowns, lack of necessary parts, assemblies and components, layoffs, declining interest in new automobiles and inability to deliver finished automobiles. A further “shock” was felt in the form of interruptions in transport from Asia (China, Japan, South Korea, Taiwan, Thailand), rising transport prices and a lack of semiconductors. This issue is not expected during 2022 (Radić, 2021). The third “shock” was felt with the increase in the price of energy, especially oil and gas, which further complicates the already complicated situation. Thus, the macroeconomic consequences of the Covid-19 pandemic are multiple, not only health, medical and environmental, but most economic and political. Consultants, industry experts and experts in long-term forecasts do not dare to express a reliable and information-based attitude. Simply, in this domain fore-

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casts are very limited, limited for a month or two, for a maximum of one quarter. Any change in the extension of the pandemic and the introduction of restrictions of any kind (gatherings, travel, circulation from region to region) leads to greater uncertainty and bigger problems, so automobile manufacturers in the world have the same problem – how to attract those interested to buy automobiles and how to prevent the collapse of the industry that is the driver of growth and development in every country.

In light of the events during the Covid-19 pandemic, the automotive sector is under the influence of several disruptive forces, such as the transition to electric cars, autonomous and connected vehicles, and transport as a service. Since the orientation towards Industry 4.0, the application of the Internet of Things (IoT) and digital transformation is the direction of action in this sector, any disruption in this environment has unforeseeable consequences for existing business models of manufacturers and suppliers.

It is estimated that in the economies of developed countries, the growth of the automotive industry of 1% causes growth of GDP of 1.5%. The automotive industry in developed countries is the leading branch of mechanical engineering and there is no large economy that does not have an automotive industry. Thus, the share of the automotive industry in the GDP of developed countries ranges from 5 to 10%. One dollar invested in the automotive industry increases GDP by \$ 3 (average multiplier). According to this indicator, the automotive industry is unrivaled among other sectors (Klink, 2014, Saberi, 2018, Radić, 2019).

2. PRODUCTION AND SALE OF AUTOMOBILES

Global production used to involve a triad with three major powers: Japan, Germany and the United States. However, not only globalization but also the overall political and economic trends in the last 20-30 years, have made a new, largest player in the market – China. The total production of automobiles of all kinds in China is higher than the total production of Japan, Germany and the United States combined. This undoubtedly speaks of China's extremely rapid technological progress, which is unprecedented, and its position as the most developed country in terms of production of parts, assemblies, components and finished products.

The world's most important supply-oriented car manufacturers are from China. The reason is more than simple – lower labor costs and the highest quality achieved in factories of Chinese suppliers. The city of Wuhan, from which the Covid-19 epidemic spread, is the largest industrial center for the delivery of parts, assemblies or components to all manufacturers, especially those in Europe (Volkswagen, Audi, Mercedes, BMW, Fiat), so the introduction of lockdown caused not only the interruption of supply chains but also production in general (Global Data, 2021, Eurostat, 2021).

If the study of the situation in the automotive sector is limited to Europe or the European Union, several key data can be provided to illustrate the situation in the sector (ACEA, 2021):

- there are currently 243 million passenger cars on EU roads,
- the average age of cars in the EU is 11.5 years,
- in 2020, 22 cars were registered per 1000 inhabitants in the EU,
- 9.9 million cars were sold in 2020, which is 23.7% less than in 2019,
- there are 185 plants for the production of all types of cars in the EU, and 290 in the whole of Europe,

- 2.6 million people are directly employed in car production, which is 8.5% of those employed in EU production,
- the automotive industry provides jobs for 13.8 million people (direct production, indirect production, sales and maintenance, transport and construction related to cars – roads, tunnels, bridges), which is 6.1% of total employment in the EU,
- 10.8 million cars were produced in the EU in 2020,
- in 2020, 5.138 million European cars worth 121 billion euros were exported,
- 25% of all cars produced in the world come from Europe,
- taxes on motor vehicles on the European market amount to 440.4 billion euros,
- with R&D investments of € 62 billion per year, the automotive sector makes the largest contribution to innovation.

The Covid-19 pandemic has brought economies into a deep economic crisis as international trade has plummeted. Closing measures in the spring of 2020 forced many sectors to close or work with part of their capacity. International travel restrictions and increased border controls have increased the cost of international trade. The re-emergence of the virus in the fall of 2020 led to new control measures, which affected the slower economic recovery. Moreover, demand for goods and services has fallen, with more uncertainty and lower revenues. World trade in 2020 fell by 10% (Klein et al., 2021, Radić, 2021).

Although it has recovered somewhat after initial blockades and reopens, the automobile industry has been hit hard. In many Central and Eastern European (CEE) countries, including the Czech Republic, Hungary, Poland, Slovenia, Slovakia and Romania, the automotive sector plays an important role in economic growth and employment. Faced with the prospects of a protracted crisis, as well as the challenges posed by technological change, the prospects of the industry in each country depending on demand, resilience to supply chain disruptions and the ability to seize new opportunities to adapt and transform the industry.

According to the International Automobile Manufacturers Organization OICA (2021), automobile production in 2021 is higher than in 2020, but still lower than in 2019, before the Covid-19 pandemic (Figure 1). Automobile production refers to passenger cars, light commercial vehicles, trucks and buses.

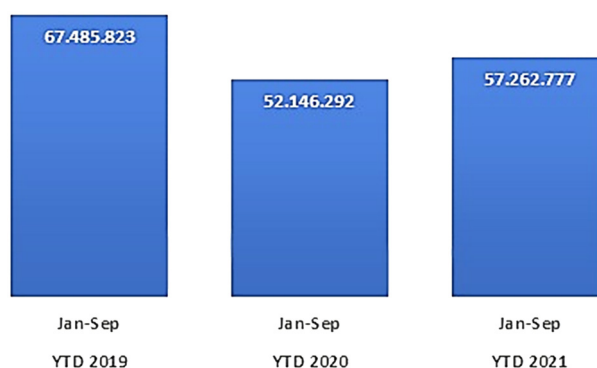


Figure 1. Global automobile production in 2019-2021.

Source: OICA, 2021.

It is obvious that the decline in global production in 2020 is 22.7%, and that the increase in production in 2021 is 9% (which is 15% less than in 2019). Since there are no consolidated data for production in 2021, the data for 2019 and 2020 were analyzed. In the main producer countries,

the largest fluctuations were recorded in France (–44.6%), Brazil (–34.3%), Mexico (–30%), Great Britain (–29.3%), Germany (–24.6%), USA (–23.3%), India (–21.3%), Spain (–19, 9%) and the Czech Republic (–19.2%). China, for example, in 2020, had a production shortfall of only 6.4%, while Russia had 17.3%, Japan 16.4%, Turkey 13% and South Korea 11.1%. On the other hand, data on the number of sold/registered vehicles indicate even greater deviations compared to the “base” 2019. year (Figure 2).

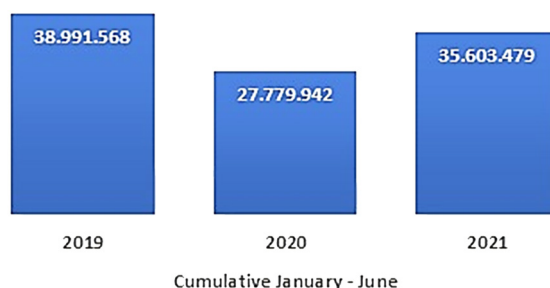


Figure 2. Global automobile sales in 2019-2021.

Source: OICA, 2021.

The decline in global sales in 2020 was 71.2%, and the increase in 2021 was 22% (which, again, is 8.7% less than in 2019).

3. DEFICIENCY OF SEMICONDUCTORS FOR AUTOMOBILES

The automotive industry uses a wide range of very different materials, such as steel, aluminium, magnesium, copper, plastic, glass, rubber, paints and varnishes, floor coverings, textiles, semi-conductors, etc. According to statistics, about half of the world’s oil and rubber consumption, 1/4 of glass production and 1/6 of steel production are used in the automotive industry, so after the aviation industry, the automotive industry is the second-largest consumer of other industries (Radić, 2019).

It is obvious that the consumption of these and other materials implies a well-designed, balanced and reliable supply chain. Disruption in one link of the chain will cause problems in the entire chain, which complicates the situation regarding the completion and delivery of finished products. Another problem is the increase in the price of not only materials and transport costs, but also finished automobiles. In the United States, there has even been a large increase in the price of used automobiles of 37%. The biggest problem is, of course, the chronic lack of certain vital components, which makes installation impossible and leads to the creation of stocks of incomplete cars.

The semiconductor industry has experienced a large increase in demand. Revenues from global semiconductor sales have nearly doubled in the past decade, and Asian economies have consolidated their market dominance in this regard. At the start of the Covid-19 pandemic, when semiconductor shipments to the automotive industry declined globally in the second quarter of 2020, this shortfall was offset by high demand for computer and electronic equipment due to the transition from work to home and distance learning. After the global recovery, semiconductor production was not enough to meet the jump in demand in the automotive industry (Radić, 2021, Everstream Analytics, 2021). The production of semiconductors is very profitable, and the number of companies engaged in this production in the world is very small concerning the growing needs. Regional distribution is concentrated in Asia, the USA and partly in Europe (Table 1).

Table 1. Top-15 leaders in semiconductor sales (millions \$)

Rang 1Q21	Rang 1Q20	Company	Country	1Q20	1Q21	% changes 1Q21 / 1Q20
1	1	Intel	USA	19.508	18.676	– 4%
2	2	Samsung	S. Korea	14.797	17.072	13%
3	3	TSMC	Taiwan	10.319	12.911	20%
4	4	SK-Hynix	S. Korea	6.039	7.628	20%
5	5	Micron	USA	5.004	6.580	24%
6	7	Qualcomm	USA	4.050	6.281	36%
7	6	Broadcom	USA	4.082	4.840	16%
8	9	Nvidia	USA	3.074	4.630	34%
9	8	TI	USA	3.164	4.028	21%
10	16	MediaTek	Taiwan	2.022	3.849	48%
11	18	AMD	USA	1.786	3.445	48%
12	11	Infineon	Germany	2.704	3.253	20%
13	10	Apple	USA	2.770	3.080	17%
14	14	ST	Switzerland	2.228	3.005	26%
15	13	Kioxia	Japan	2.567	2.585	1%
Top-15 TOTAL				84.114	101.863	~ 23%

Source: IC Insight, 2021.

Typically, top semiconductor companies are focused on one product segment or one step in the value chain, as intensive effort is needed to research and develop and maintain leadership in manufacturing. Examples of companies and markets they occupy are (Bauer et al., 2020):

- Intel dominates the CPU (Central Processing Unit) market for desktops and laptops,
- Qualcomm is the market leader in SOC (System-On-a-Chip) for smartphones,
- TSMC in Taiwan is the most well-known semiconductor manufacturer of 10 nm and below,
- the Dutch company ASML is best known for the production of lithography equipment,
- Samsung dominates the memory market,
- NVIDIA dominates the graphics card (Graphics Processing Unit) market,
- specialty chemicals used in semiconductor technology originate in Japan,
- Japanese and South Korean companies are the largest producers of semiconductor boards.

The semiconductor market exceeded \$ 100 billion for the first time, thanks to a strong increase in revenue from semiconductors for mobile phones. Sales in 2021 increased by 16% compared to 2020 due to the global crisis caused by the Covid-19 pandemic (IC Insight, 2021).

4. MACROECONOMIC INDICATORS IN THE AUTOMOTIVE INDUSTRY

The EU economy ended 2020 in the deepest recession since World War II, with GDP down 6.3%. Analysts expect that the return to the levels of economic activity before the pandemic will happen by the end of 2021 or the beginning of 2022. The European Commission forecasts GDP growth in the EU of 3.7% in 2021 and 3.9% in 2022 (Table 2).

Inflation remained dampened in 2020 (0.7%), due to a significant decline in energy and service prices. However, according to the latest forecast of the European Commission, the strengthening of economic activity in the second half of 2021 should lead to a year-on-year inflation rate of 1.5% during 2021 and 2022.

Table 2. GDP growth in the period of 2019-2021.

Country	Jan. 2019.	Jan. 2020.	Jan. 2021.	Dec. 2021.
Czech Republic	2,6%	2,0%	-4,8%	2,8%
France	1,5%	0,9%	-4,3%	3,3%
Germany	0,1%	0,9%	-2,9%	2,5%
Hungary	5,5%	4,1%	-3,0%	6,1%
Italy	0,3%	-0,2%	-6,5%	3,9%
Poland	5,1%	3,7%	-2,5%	5,3%
Romania	4,1%	4,4%	-1,5%	7,4%
Slovakia	3,5%	2,1%	-2,1%	1,3%
Spain	2,2%	1,7%	-8,8%	3,4%
UK	1,8%	1,2%	-6,4%	6,8%

Source: <https://tradingeconomics.com>

Table 3. Inflation and unemployment rate

Country	Inflation rate		Unemployment rate	
	1Q21	4Q21	1Q21	4Q21
Czech Republic	2,2%	6,6%	4,3%	3,5%
France	0,6%	2,8%	8,7%	8,1%
Germany	1,0%	5,3%	6,0%	5,2%
Hungary	2,7%	7,4%	4,3%	3,6%
Italy	0,4%	3,9%	9,8%	9,2%
Poland	2,6%	8,6%	6,5%	5,4%
Romania	3,0%	8,19%	5,9%	5,2%
Slovakia	0,7%	5,8%	7,81%	6,6%
Spain	0,5%	6,5%	16,13%	14,57%
UK	0,7%	5,1%	5,1%	4,2%

Source: <https://tradingeconomics.com>

Table 4. Average salary in the automotive industry (2021)

Country	Average salary in € (Assembly Manager)	Average salary in country in €
Czech Republic	2880	2480
France	4790	4125
Germany	4420	3810
Hungary	1620	1390
Italy	4230	3650
Poland	1930	1663
Romania	2100	1820
Slovakia	2530	2180
Spain	3120	2710
UK	8220	7090

Source: <http://www.salaryexplorer.com/>

The inflation wave has hit almost the whole world, and in addition to the EU and countries with significant car manufacturers, a similar situation is in the United States. Inflation in the United States reached its highest level in almost 40 years in December. Prices increased by as much as 7% compared to the same month in 2020. Such high inflation increases the costs of households, bites the growth of wages and creates pressure because it is the biggest threat to the US economy. Compared to November 2021, prices increased by 0.5 percent. The prices of cars, food and clothes have risen the most, while the prices of energy (fuel, electricity, ...) have even fallen. The fact that inflation is still rising monthly, and energy prices are falling, is particularly worrying

because energy prices have been the main source of inflation in previous months. At the annual level, the main sources of inflation are energy and cars, although food price growth of 6.3 per cent is not far from the general inflation rate (Pickert, 2022).

In addition to many economic indicators, special attention is paid to salaries in the automotive sector. Since the production process has many activities and phases, planned in detail by the assembly manager, procurement manager or maintenance manager, salary deviations in this regard are large, both in some companies and in countries where there are production facilities. Table 4 shows the average salaries of assembly managers in several European countries.

If observed, e.g. so-called countries The Visegrad groups – the Czech Republic, Slovakia, Poland and Hungary, as well as Romania, are clearly waning in the Czech Republic and Slovakia from Poland, Hungary and Romania. However, although these countries together produce more than 3 million passenger cars and other vehicles annually, the salaries of employees in the automotive industry in the same pay grade in Germany, France or Italy are much higher. This speaks of the peripheral position of these countries in relation to their principals (Germany, France, Italy).

In 2020, the European Union exported passenger cars worth 110 billion euros, which is 21 billion euros less than in 2019. In the same period, imports amounted to 46.2 billion euros, so the EU achieved a trade surplus of approximately 64 billion euros, which is also 13.2% less compared to the same period in 2019. The UK is the EU's most valuable export market (23.3% share), ahead of the US (19.1%) and China (15.1%). The number of European cars delivered to Turkey and Ukraine increased sharply (by 115.7% and 29.4%, respectively). The volume of cars exported from the EU to China in 2020 also increased, albeit at a much more modest rate (+ 3.2%). With a share of 20% during 2020, the United States was the largest market for car imports from the EU, which is 13.0% more than in 2019. Together with the UK and Japan, these three markets accounted for more than half of the total value of EU passenger car imports. With the exception of the United States (12.0%), the number of cars imported into the EU from its main trading partners in 2020 fell significantly. The largest decline was observed in the import of cars from the United Kingdom, with quantities more than halved (–57.7%) compared to 2019. As a result, the volume of passenger cars imported into the EU in 2020 fell by 32.0% (ACEA, 2021).

The pandemic had a direct impact on 1,073,108 employees in the EU automotive industry, and consequently on lower production by 2,183,629 units. The average number of lost working days due to “locking” and other anti-epidemic measures is 30, the highest in Italy (41 days) and the lowest in Sweden (15 days). Job losses during the quarantine period in the first half of 2020 were unprecedented. The unemployment rate in the EU during 2021 increased to 8.6% (compared to 7.7% in 2020), and is assumed to fall to 8.0% in 2022 (ACEA, 2021).

5. CONCLUSION

The automotive industry in Europe is one of the most important industries and a significant generator of employment, investment and exports. In recent years, the global share of the automotive industry in the structure of GDP has increased, and the dynamics of growth are contributing to the creation of new jobs and an increase in average wages. Therefore, the efficient functioning and development of the automotive industry is important not only for the economy but also for the social progress of each country.

It can be concluded that the two-year Covid-19 pandemic has dealt the strongest economic blow since the end of World War II. The consequences it left on car manufacturers around the world cannot be overcome in a few years, and pessimistic forecasts indicate that the normalization and consolidation of car production and sales can be expected only in 2023. Apart from the lack of semiconductors, there has been a lack of magnesium, plastics, glass and some other materials lately. Dependence on imports of individual components from China and Asian countries cannot be reduced at once. In addition to large investments for the transfer of production to the domicile countries of car manufacturers, it is necessary to build facilities, install machinery and equipment, and train people in order to achieve the required quality and competitiveness.

Since the dependence on certain raw materials, semi-finished products, parts and components are almost complete (as in the case of semiconductors), EU or US strategies to balance macroeconomic indicators are not short-term, but strategies for 2030 are being made. There is an effort to strengthen their position in relation to rivals from China, Taiwan, South Korea, Malaysia and other Asian countries. The decline in car production has caused lower sales, lower tax revenues, taxes, customs duties, higher inflation and lower GDP, higher unemployment, lower exports and the like. Even a one-year decline in all values is a great burden, while in the long run, it can jeopardize the survival of car production in some countries.

According to the European Automobile Manufacturers Association (ACEA), in 2020 the European passenger car market recorded a significant decline (−20.6%). The region's results were affected by strong losses in the EU (−23.7%), the United Kingdom (−29.4%) and the EFTA countries (−16.7%). The impact of Covid-19 in Eastern Europe was smaller, with Russia (−8.1%) and Ukraine (−4.8%) declining more modestly, while passenger car sales in Turkey jumped sharply (+57.5 %). Throughout 2020, production in the EU fell by 23.3% or about 3.3 million cars less than in 2019. Passenger car production fell in all key EU producing countries, with France suffering the biggest drop. The other two markets with the biggest declines are Germany and Spain. However, these countries have retained the positions of the two largest passenger car manufacturers in the EU.

A special problem are the so-called countries peripheries in the EU, such as Slovakia, the Czech Republic, Hungary or Romania, which depend heavily on their principals (Volkswagen, Kia, Hyundai, Renault, Peugeot, Suzuki). Although they collectively produce more than two million cars, Slovakia and the Czech Republic are maximally oriented towards exports to European countries, especially Germany. Secondly, as the parent company, Volkswagen manages the development policy in Škoda, which puts the so-called “domestic” manufacturer. Because, all the events regarding the reduction of production and sales, dismissals and sending employees on temporary leave or reorganization due to reduced consumer interest, have direct repercussions on the Czech Republic and Slovakia. The majority orientation of the Czech Republic and Slovakia towards the automobile industry is a “double-edged sword”, because the decisions made by the companies that opened production plants in these countries can have unforeseeable consequences and, eventually, lead to their closure. After all, such a scenario is not impossible, because it already happened a few years ago, when Chevrolet decided to withdraw from the European car market.

REFERENCES

- ACEA (2021). *The Automobile Industry*. Pocket Guide, Brussels.
- Bauer H., Burkacky O., Kenevan P., Lingemann S., Pototzky K., Wiseman B. (2020). *Semiconductor design and manufacturing: Achieving leading-edge capabilities*. McKinsey, New York.
- Everstream Analytics (2021). Global Semiconductor Shortage Triggering Production Delays for Automakers. Available at <https://www.everstream.ai/risk-center/semiconductor-shortage-report/>
- Eurostat (2021). Passenger cars in the EU. Available at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU/
- Global Data (2021). Coronavirus (COVID-19): Executive Briefing report. London. Available at <https://www.globaldata.com/covid-19/>
- IC Insight (2021). Research Bulletin, Microprocessor Sales Will Continue Double-Digit Growth in 2021. Available at <https://www.icinsights.com/news/bulletins/Microprocessor-Sales-Will-Continue-DoubleDigit-Growth-In-2021/>.
- IC Insight (2021). Research Bulletin, Top-15 Semi Companies Log Year-Over-Year Growth of 21% in 1Q21, May 25, 2021. Available at <https://www.icinsights.com/news/bulletins/Top15-Semi-Companies-Log-YearOverYear-Growth-Of-21-In-1Q21/>.
- IC Insights (2021). The McClean Report, Global Wafer Production Capacity 2020-2024.
- Klein, C., Høj, J., Machlica, G. (2021). *The impacts of the COVID-19 crisis on the automotive sector in Central and Eastern European Countries*. OECD Economics Department Working Papers No. 1658, Paris.
- Klink, G., Mathur, M., Kidambi, R., Sen, K. (2014). *The Contribution of the Automobile Industry to Technology and Value Creation*, A.T. Kearney, Chicago.
- OICA (2021). Production statistics. Available at <https://www.oica.net/production-statistics/>
- OICA (2021). Sales statistics. Available at <https://www.oica.net/category/sales-statistics/>
- Pickert, R. (2022). U.S. Inflation Hits 39-Year High of 7%, Sets Stage for Fed Hike. Available at <https://www.bloomberg.com/news/articles/2022-01-12/inflation-in-u-s-registers-biggest-annual-gain-since-1982/>
- Radić N. (2019). *Strane direktne investicije kao katalizator ekonomskog rasta: slučaj automobilske industrije zemalja Centralne i Istočne Evrope*. Doktorska disertacija, Univerzitet Educons, Sremska Kamenica.
- Radić, N., Radić, V., Stevanović, M. (2020). Ekonomski uticaj pandemije korona virusa na automobilsku industriju. *Oditor*, 6(3), 55-88.
- Radić, N. (2021). *Nestašica poluprovodnika za automobile – makroekonomske implikacije po zemlje Evropske unije*. Konferencija “Trendovi u poslovanju”, Kruševac, Zbornik radova, 111-122.
- Saberi, B. (2018). The role of the automobile industry in the economy of developed countries. *International Robotics and Automation Journal*, 4(3): 179-180.



Successful Businesses during a Pandemic. How to Thrive

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Abstract: *The world suffered a huge loss since the first quarter of 2020 when the COVID-19 crisis started. Most of the businesses' activity collapsed and the economy fell dramatically down. Other businesses have been struggling over the past months due to the coronavirus pandemic – temporarily closing in the face of lockdowns, or keeping their doors open while drastically scaling back operations. However, even in this unpleasant environment, in which reined the uncertainty and many entrepreneurs had to shut down their companies, multiple businesses managed not only to survive but to flourish during the last couple of years, despite the circumstances. This paper's objective is to analyze this tendency of some of the world's biggest multinational corporations headquartered in different continents, namely North America, Europe and Asia. There are several sectors well represented in the process, such as e-commerce, courier, stock exchange, gambling and subscription streaming services (e.g. Amazon, AliExpress, DHL, Netflix). Such multinational corporations succeeded to be adaptable and resilient in order to stay afloat in these ever-changing times and, in this way, to increase their revenues during the pandemic, but also to expand their reach or even grow their market, getting to new customers right in the middle of the chaos generated by the COVID-19 pandemic. The study is based on the financial results of the successful businesses – top companies in their field.*

1. INTRODUCTION

COVID-19 pandemic has come unexpectedly in the first quarter of 2020 and brought many challenges not only to the health system but also to the economic one. Most of the businesses' activity collapsed and the economy fell dramatically down. Other businesses have been struggling over the past months due to the coronavirus pandemic – temporarily closing in the face of lockdowns, or keeping their doors open while drastically scaling back operations.

However, even in this unpleasant environment, in which reined the uncertainty and many entrepreneurs had to shut down their companies, multiple businesses managed not only to survive, but to flourish during the last couple of years, despite the circumstances. The power of the internet changed the rules of the “game”, making it indispensable.

People started to massively place orders online for whatever they needed, from essential goods, such as food and clothes, to electronics and other products used for hobbies or all kinds of activities. Furthermore, considering that they worked from home and were limited to go outside, because of boredom those orders were happening more often than usual, being also more consistent.

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This paper's objective is to analyze this tendency of some of the world's biggest multinational corporations headquartered in different continents, namely North America, Europe and Asia. There are several sectors well represented in the process, such as e-commerce, courier, stock exchange, gambling and subscription streaming services (e.g. Amazon, AliExpress, DHL, Netflix).

Such multinational corporations succeeded to be adaptable and resilient in order to stay afloat in these ever-changing times and, in this way, to increase their revenues during pandemic, but also to expand their reach or even grow their market, getting to new customers right in the middle of the chaos generated by the COVID-19 pandemic.

2. BUSINESSES THAT IMPROVED THEIR RESULTS DURING THE COVID-19 PANDEMIC

2.1. E-Commerce

E-commerce represents the abbreviation of electronic commerce and refers to the process of selling/buying products or services via the internet (online shopping). This exchange may happen between businesses, businesses and final consumers or even between individual persons when it is used on a special platform. However, the main idea of e-commerce is that it uses technology to accomplish at least one step of the entire process.

a. Amazon

Amazon is a multinational technology company based in the USA, which is extremely appreciated globally in the e-commerce field. It is very popular for fast products delivery and competitive prices. According to Kantar (2021), in 2021, "Amazon maintained its position as the world's most valuable brand, growing 64% to US\$684bn (or the equivalent GDP of Poland)."

When the pandemic stroke, people had no other choice but to buy everything they needed online. So, they oriented to trustworthy companies and Amazon was their first choice, considering it become a strong player in the market since 1994 when Jeff Bezos founded it in his garage.

Only in the first nine months of 2020, Amazon obtained no less than a 70% increase in earnings compared to the same period of the previous year. This value represents 5.5 billion US dollars. As for the profits, a New York Times study explained that Amazon registered an increase of almost 200% (6.3 billion US dollars). Also, the giant company used more than 25 billion US dollars to expand its reach, building warehouses, improving the research tech and making the business as cost-efficient as possible. (Takefman, 2021)

"Progressive Policy Institute finds that over the last 12 months, Amazon invested more in the U.S. than any other American company. In 2020 alone, Amazon invested \$34 billion in American infrastructure and created more than 400,000 jobs." (Amazon, 2021)

Amazon is the best example of adaptation during a crisis while keeping the main focus on customer satisfaction. The company chose to explore all the opportunities offered by the internet and realized that this difficult period will eventually pass and, in order to remain at the top, Amazon must continue to be competitive.

b. AliExpress (Alibaba)

AliExpress is a part of the Alibaba wholesale marketplace group, being an online retail service. It is a Chinese company that was launched in 2010 and in the beginning facilitated transactions only between small local businesses and people all around the world. Nowadays, it accepts on the platform sellers from different parts of the globe.

The company offers very cheap products from multiple sellers, this is why people decided to buy its products in a large amount after the COVID-19 pandemic has installed. At the end of June 2021, the quarter results of Alibaba Group announced a total number of 1.18 billion annual active customers. (Alibaba Group Announces June Quarter 2021 Results, 2021)

Alibaba Group obtained an increase of 22% in the turnover in the second half of 2020 compared to the same period in 2019. In addition, “just for Singles’ Day (the Chinese equivalent of Black Friday) in November 2020, Alibaba Group’s sales exploded. Indeed, the turnover generated by this event amounted to 30.8 billion in 2018. This was already 37% more than in 2017. Then, to \$38.4 billion in 2019. In 2020, Alibaba far surpasses its previous records with \$74.1 billion, nearly doubling its previous turnover.” (Leroy, 2021)

Despite the obstacles that appeared in China, where the virus hit at first, AliExpress managed to overcome them and get huge profits. They are putting their extra profit and capital to work supporting the merchants and investing in strategic aspects in order to better serve the consumers and expand into new regions. (Alibaba Group Announces June Quarter 2021 Results, 2021)

2.2. Courier

A courier is a company that transports all sorts of packages and even important documents from one place to another. Depending on the firm and distance, it can be national or international transportation. In today’s world, couriers are strongly linked to e-commerce, delivering orders to customers.

a. DHL

DHL is an American company, which is a division of the German firm Deutsche Post, specialized in logistics, particularly courier services, helping businesses and individuals to deliver packages in more than 220 countries across the world. It was founded in 1969 by a group of friends (Adrian Dalsey, Larry Hillblom and Robert Lynn) from which derives the name: DHL. (DHL, 2021)

During the lockdowns from 2020 and even after that, many traditional bricks-and-mortar brands adapted their business strategy and started offering their products online. This situation influenced the couriers’ companies, DHL included, causing a huge amount of new orders.

Given the impact of Covid-19, the Deutsche Post DHL Group grew in the second quarter of 2020. The Group’s sales climbed by 3.1% to more than 18 billion US dollars in the first quarter of that year, due to its comprehensive portfolio of logistical services and global exposure. As Frank Appel, the CEO of Deutsche Post DHL Group stated, “Especially now, our focus on our profitable core logistics businesses and the digital transformation of the company as part of

Strategy 2025 pays off. We have never been in better shape and I am confident that our company will emerge stronger from the crisis.” (DHL, 2020)

Most divisions of the company, such as Global Forwarding, Freight, Express and eCommerce Solutions, became more profitable since the pandemic started. This is the reason why the Deutsche Post DHL Group invested over 548 million US dollars among all divisions in the second quarter of 2020. (DHL, 2020) The courier services are faster and more accessible.

2.3. Gambling

Gambling (sometimes referred to as betting) is the act of putting money or something else of a certain value (“the stakes”) on an event with an unknown result in the hopes of gaining more money. Gambling, therefore, involves three components: consideration (a stake), risk (a chance), and reward. (Wikipedia, 2021) The gambling industry includes different activities or games, e. g. poker, roulette wheel, or betting on the score of some sport’s teams – even a horse race.

a. Caesars Entertainment

Caesars Entertainment is the merger between Eldorado Resorts, which was founded in 1973 with the development of the Eldorado Hotel in Reno, and its acquisition – Caesars Entertainment Corporation (from 1990) that finished on July 20, 2020. It is an American casino and hotel company, being one of the largest gambling businesses in the world. (Wikipedia, 2021)

If people could not go to physical casinos, they adapted and adopted the online trend of their favorite games. Having even more time at their disposal compared to the life before the COVID-19 pandemic, they invested more money in the activities provided by companies like Caesars Entertainment.

Looking at numbers, according to Porter (2021), “Caesars Entertainment Inc has reported operating results for the second quarter of 2021, declaring net revenues of \$2.5bn – a massive increase on the figures achieved in Q2 2020.” Also, the company reported 2.7 billion US dollars in revenue for the third quarter of 2021, up by 93% than the same period of the previous year. (Lynch, 2021)

The company succeeded to increase its revenues and financial results online during the lockdowns, even though its business operations are usually based on the real experience of a casino. However, after the restrictions were lowered, people got back “on-site” and the multinational corporation extended to new cities.

2.4. Subscription Streaming Services

A streaming service is an online service that allows users to watch movies and TV shows on TV, smartphone, or desktop without having to download them or anything else from the internet.

a. Netflix

Netflix is an American company launched in 1997, that offers a subscription-based streaming service and also a production for watching TV series, documentaries and movies online, without any commercials. The videos can also be downloaded to a computer, tablet, or another device.

The company was at the top of the businesses which massively increased their sales because of the pandemic. People felt trapped at home in lockdown and escaped from reality while they lost some time by watching the productions provided by the leading premium streaming service.

In the first half of 2020, Netflix registered an increase of 25 million in paid subscribers, the value that decreased later, when the nations eased their restrictions and people got vaccinated. (Richter, 2021) “After posting a positive cash flow of \$1.9 billion last year, Netflix expects to break even this year.” (Liedtke, 2021)

It afforded to invest more capital in productions, offering better quality TV series and movies (the competitors are getting stronger and stronger by the day), while succeeding to stay profitable. Before the pandemic, the company used to borrow money for making most of its programs. (Liedtke, 2021)

3. FUTURE RESEARCH DIRECTIONS

The trends in these companies’ revenues tended to descend, but some of them, such as the couriers and online marketplaces, seem to be getting more and more attention. It may happen because of the convenience they offer in this digital world we live in.

However, it would be interesting to analyze and compare the evolution of the results in a few years, as the pandemic goes to an end and we learn how to survive in these conditions and, of course, in a decade, when the new normal will be fully installed. Then, we will be able to affirm which of the businesses presented in this paper were really successful in the long term.

4. CONCLUSION

In conclusion, there are sectors in the global economy that benefited from the rise of the pandemic. The interesting fact is that not only the companies dealing with primary needs or health are included here, but also the ones providing entertainment activities. Digitization influenced these changes and helped businesses to get to their customers.

E-commerce flourished during this uncertain period, as did transportation, which is attached to it. Given that many people learned how simple and fast is to make online shopping, the turnover of Amazon and AliExpress is expected to continue to grow in the following years.

Nevertheless, the online gambling and subscription streaming services may have already reached their maximum point in 2020, because the consumers prefer the real experience, places in which they meet other people and socialize, something that was really missed during the lockdown.

REFERENCES

- Alibaba Group Announces June Quarter 2021 Results (In Press). https://www.alibabagroup.com/en/news/press_pdf/p210803.pdf
- Amazon (2021). Amazon ranked No. 1 investor in America. *US About Amazon*. <https://www.aboutamazon.com/news/job-creation-and-investment/amazon-ranked-no-1-investor-in-america>
- DHL (2020). Deutsche Post DHL Group has successfully weathered the crisis so far. <https://www.dhl.com/global-en/home/press/press-archive/2020/dpdhl-group-has-successfully-weathered-the-crisis-so-far-significant-increase-in-revenue-and-operating-profit-in-the-second-quarter.html>
- DHL (2021). DHL. Logistics for the connected age. <https://www.dhl.com/global-en/home/about-us.html>
- Kantar (2021). What are the most valuable global brands in 2021?. <https://www.kantar.com/inspiration/brands/what-are-the-most-valuable-global-brands-in-2021>
- Leroy, C. (2021). Aliexpress, the Chinese giant that shakes up e-commerce. *BORDEAUX Business*. <https://bordeaux.business/en/aliexpress-the-giant-chinese-who-shopped-the-e-commerce/>
- Liedtke, M. (2021). Netflix's subscriber growth, stock zapped as pandemic eases (In Press). *The Associated Press*. <https://apnews.com/article/health-business-coronavirus-arts-and-entertainment-e8d3f7bcc7f11f4ff726a016e97cb5af>
- Lynch, P. (2021). Caesars Entertainment reports 93% revenue increase for Q3 2021 (In Press). *Gambling Insider*. <https://www.gamblinginsider.com/news/13743/caesars-entertainment-reports-93-revenue-increase-for-q3-2021>
- Porter, C. (2021). Caesars reports massive year-over-year revenue improvement in Q2 2021 (In Press). *SBC Americas*. <https://sbcamericas.com/2021/08/04/caesars-reports-massive-year-over-year-revenue-improvement-in-q2-2021/>
- Richter, F. (2021). Netflix Sees Slowest Growth in Years Following Pandemic Spurt. *Statista*. <https://www.statista.com/chart/21465/global-paid-net-subscriber-additions-by-netflix/>
- Takefman, B. (2021). Amazon profits increased nearly 200% since start of COVID-19 pandemic. *ResearchFDI*. <https://researchfdi.com/amazon-covid-19-pandemic-profits/>
- Wikipedia (2021). Caesars Entertainment (2020). [https://en.wikipedia.org/wiki/Caesars_Entertainment_\(2020\)](https://en.wikipedia.org/wiki/Caesars_Entertainment_(2020))
- Wikipedia (2021). Gambling. <https://en.wikipedia.org/wiki/Gambling>



The Influence of Macroeconomic Factors of the Business Environment on the Development of the Number of SMEs

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Abstract: *The precondition for the development of any economy is the existence of a sufficient number of promising and developing SMEs. The basic element of successful SME development is the socio-economic business environment, which motivates to develop business. The paper analyses the socio-economic factors of the business environment in the regions of the Slovak Republic in the context of the development of SME business activities. The authors used survey methods to identify and better understand the socio-economic factors that stimulate business development, as well as barriers to the development of SME business activities in the regions of the Slovak Republic. To assess the relationship between the socio-economic level of the regions and the development of business in the regions, the authors constructed a composite indicator, which made it possible to compare and monitor the development of selected indicators. The authors used more complex multidimensional statistical methods for the calculation.*

1. INTRODUCTION

Small and medium-sized enterprises in the Slovak Republic represent a key segment of the business sector and are a basic building block of the economy. In a market economy, micro, small and medium-sized enterprises play a key role in creating jobs, developing the economy and growing the country's competitiveness. Micro, small and medium-sized enterprises make up 99.9% of the total number of registered business entities in the Slovak Republic. They provide employment in the corporate economy to almost three-quarters (74%) of the active workforce and contribute more than half (55%) to the creation of added value in the economy. Within developed economies, the SME sector is considered to be the most flexible, most efficient, most progressive, most innovative and thus also the most important element of the national economy. An important factor in the development of SMEs is the creation of a suitable business environment. Juríčková (2006) calls the business environment everything that surrounds a company. According to her, this is a very complex and dynamic economic category. Strážovská (2007) also agrees with this opinion. She characterizes the business environment as everything that surrounds a company and influences its activities in either a positive or a negative way. According to Mikulič (2015), the business environment consists of a set of conditions that, as a whole, have the ability to improve the use of the growth potential of individual business entities. According to Kubátová et al. (2012), a quality business environment is considered one of the factors that affect the long-term competitiveness of the economy. However, a good business environment is not only important from the point of view of the national economy, but according

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to Buček (2007), it also has a regional dimension, because it also has certain very specific components that relate to individual regions and their competitiveness. The business environment includes the economic, social, political, legal, institutional, technological, ethical and cultural conditions in which entrepreneurial activity takes place. We divide the business environment into external and internal environments. The external environment is, in a broader sense, a set of economic entities, social and natural conditions, national and interstate institutional structures and other external conditions. Depending on the nature of the impact on the business entity, we can divide the external environment into microenvironment and macroenvironment. It is characteristic of the macro-environment that it is the same environment for all companies operating in a given economy, but the impact on their business activities is different. This is because there are many more factors in a relatively complex macroenvironment than in a microenvironment. And these factors are characterized by a high degree of variability, uncertainty and unpredictability of possible consequences. Our goal was to find out whether the socio-economic factors of the business environment have a significant, positive and stimulating impact on the development of small and medium-sized enterprises in individual regions of the Slovak Republic. Whether there is a certain dependence between the development of the number of micro, small and medium-sized enterprises in the regions of the Slovak Republic and changes in the business environment. We directed our research to the regions of the Slovak Republic, because the development of business activities is the basis of the development and growth of each region. Factors in the development of business activities in the regions are subject to variability over time and thus significantly affect the establishment or demise of business entities in the region. In defining the factors whose impact on the development of the number of SMEs we will be analyzed in our research, we based on the findings of Butorac, Šindlery, Morovská (2009) that the conditions that support business development in the environment of regions in Slovakia can be summarized in four key areas:

- The presence of quality human capital,
- Proximity of relevant institutions,
- Presence of demand,
- And competition.

We divide these conditions into active and passive. An active condition for business development is human capital, which actively participates in the transformation of other sources of development, or is a necessary part of their functioning. Human capital is the basic driving force of development; its quality is an important factor for dynamically developing business entities. (Kuzmišinová, 2010) Factors of development of a passive nature are characterized by the fact that they do not in themselves participate in change through their activities, but by their presence and development, they have an impact on the target state, e.g. proximity of relevant institutions. The current business environment in the Slovak Republic is characterized by a high administrative burden and thus the proximity of institutions with which business entities must communicate relieves them to some extent of this burden of administrative complexity of business and thus supports its development. The presence of market demand is one of the basic factors in business development. The demand for the given products and services is created by consumers and thus they decide what and to what extent it will be produced. (Jurečka, 2010). If consumers are interested in products and services, businesses will produce them. The existence of consumers is therefore a condition for the development of business. Another and important condition for the effective development of business activities in the regions is competition. A good competitive environment forces and motivates business entities to use all elements of the regional business environment in order to strengthen their competitiveness. Of course, the

precondition for this is that the region has an adequately built basic infrastructure to ensure the growth and development of innovative activities of SMEs. Moreover, the quality infrastructure equipment of the regions of the Slovak Republic contributes to the accessibility of these regions and thus to the development of business activities in the regions. Based on the above facts, we chose a set of the following macroeconomic indicators for the analysis:

- Regional gross domestic product per capita,
- Population density,
- The level of economic activity of the population of the region,
- Registered unemployment rate in the region,
- Average gross nominal monthly wage of employees in the region,
- Fixed capital formation,
- Net cash income of households in the region,
- Net monetary expenditure of households in the region,
- Number of high school graduates in the region,
- Violent and property crimes,
- The amount of municipal waste produced in the region
- Length of roads in the region.

Why did we choose the given socio-economic indicators of the region for the analysis? We aimed to find out to what extent the socio-economic environment influences the development of business activities in individual regions of the Slovak Republic and whether there is a demonstrable dependence between the socio-economic conditions of the region and the number of SMEs in the regions. For this reason, we have chosen these 12 indicators, which characterize the socio-economic conditions that support the development of business in the environment of regions in Slovakia. The regional gross domestic product expresses the size of the value of the final production of goods and services created for the current marketing year in a given region. It expresses the use of resources and economic potential of the region. It is an indicator, which despite some reservations, shows the most accurate performance of the region's economy. Other indicators such as the rate of economic activity of the population, the unemployment rate tell us about the use, respectively failure to use one of the sources of economic growth in the region. In essence, the higher the economic activity of the population and the lower the unemployment rate, the higher the regional gross domestic product per capita and the higher the earnings and household income. The opposite is also true. Indicators of economic activity of the population, population density, or the number of graduates in the region characterize an active factor in the development of business activity in the region - human resources, which are a basic prerequisite for the development of business in the region. The average monthly wage in the region and the net cash income of the household are important indicators for assessing the socio-economic situation of the region's population. The average monthly wage in the region is influenced by several factors, e.g. the structure of the sectoral economic activity (industry and its individual branches, agriculture, tourism, the monetary sector, state administration, informatics,...), or the achieved labor productivity. Household income consists of net employment income t adjusted for income tax and compulsory contributions to insurance companies, social income and other income. The amount of household income in the region affects the total demand of the inhabitants of the region for goods and services of business entities. As he writes (Jurečka, 2010): "The existence of market demand is one of the basic factors in business development." Finally, we included in our analysis indicators that at least partially characterize the level of infrastructure in the region in terms of security (crime rate) in terms of ecology (waste production) and in terms of accessibility of the region (length of 1st and 2nd class roads in the region).

2. MATERIALS AND METHODS

Multidimensional statistical methods were used to evaluate the influence of business environment factors on the development of the number of SMEs in the regions of Slovakia. Due to the nature of the business environment, 12 indicators were selected from the official database of the Statistical Office of the Slovak Republic (DataCube, 2021). To compare the regions in terms of the impact of the business environment on the development of the number of SMEs, it is necessary to quantify this phenomenon. At present, the methodology of construction of the aggregated indicator, called the composite indicator (CI), is preferred. The OECD has published a detailed methodology for its construction. The OECD Handbook on the Construction of Compound Indicators (Nardo et al., 2005) describes various methodologies that can be used to combine different information into this index and the problems associated with each part of the process. A composite indicator is an indicator that is composed of several indicators and evaluates the region from different perspectives. The composite indicator should enable a more comprehensive, coherent and synthesizing view of the level of the region (Minařík, 2013). The evaluation of the conditions for the development of business activities in the region is diverse concerning the intended purpose, the choice of method and its correct application. The selection of indicators for their evaluation is also important. Their integration into one indicator and subsequent correct interpretation of the results play a key role. The indicator must be significant, relevant, comprehensible, transparent, analytical, complete, internally comparable and externally comparable. These requirements must be respected when selecting. The construction of CI can be described by the following steps: the creation of a theoretical framework, selection and combination of input indicators, evaluation of their material significance, statistical characteristics, weight, normalization, aggregation, relation to input indicators, visualization of results. Aggregate indicators have both advantages and disadvantages. They are discussed in detail by Saisana and Tarantola (2002). The composite indicator was calculated for each region using a linear aggregation method based on the following formula:

$$CI_r^t = \frac{\sum_{i=1}^n I_{i,r}^t W_i}{\frac{1}{R} \sum_{i=1}^n \sum_{r=1}^R I_{i,r}^t W_i} \quad (1)$$

The composite indicator constructed in this way acquires values from 0 to 1. The higher the value of the composite indicator, the more demonstrable the dependence of the development of the number of micro, small and medium-sized enterprises in the region on selected economic and social factors of the business environment of the given region.

3. RESULTS

Small and medium-sized enterprises are defined in this chapter according to the criteria determined by the recommendation of the European Commission no. 2003/361 / EC on small and medium-sized enterprises. According to it, micro, small and medium-sized enterprises include business entities that employ less than 250 people, their annual turnover does not exceed EUR 50 million and their total annual balance sheet does not exceed EUR 43 million. From the point of view of the territorial-administrative organization, the Slovak Republic currently consists of eight regions, respectively higher territorial units, which perform not only self-governing but also a statistical function. At the same time, the administrative boundaries of the regions represent territorial statistical units of the NUTS 3 level in the official nomenclature of the Statistical Office and Eurostat.

The overall development of the number of SMEs in the years 2010 to 2019 in the Slovak Republic had a growing trend, except for 2015, when a more significant year-on-year decrease of 5.77% was recorded. After 2015, we no longer record such a significant decline in the development of the number of SMEs. The selection of suitable indicators for further analysis was based on the ILO database (2016). For our purposes, the relevant indicators were selected (Statistical Office of the Slovak Republic), which were officially published at the regional level of Slovakia, NUTS III. As we write above in the article. The comparison period was 2010 and 2019. The input indicators are: Economic activity rate (total, higher education, secondary education), Average nominal monthly wage (total, industry, higher education, secondary education, technicians, operators and fitters), Unemployment rate, Available Number of jobseekers, Regional gross domestic product per capita and other indicators. All indicators are calculated per capita in the region Input data were originally subjected to statistical analysis Data consistency and multicollinearity were excluded Normalization of indicators performed by the Min-Max method.

Table 1. Calculated values of the composite indicator in individual regions of the Slovak Republic for the years 2010 to 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BA	0,86	0,85	0,85	0,85	0,85	0,85	0,86	0,85	0,87	0,89
TT	0,43	0,37	0,36	0,36	0,40	0,44	0,42	0,41	0,37	0,38
TN	0,33	0,32	0,30	0,29	0,31	0,36	0,38	0,39	0,39	0,40
NR	0,27	0,23	0,21	0,22	0,25	0,23	0,26	0,26	0,26	0,29
ZA	0,29	0,29	0,29	0,27	0,29	0,31	0,33	0,30	0,30	0,31
BB	0,21	0,20	0,21	0,23	0,22	0,26	0,24	0,24	0,23	0,25
PO	0,20	0,17	0,16	0,18	0,19	0,19	0,19	0,19	0,17	0,18
KE	0,23	0,19	0,19	0,20	0,20	0,20	0,22	0,20	0,22	0,22

Source: own processing

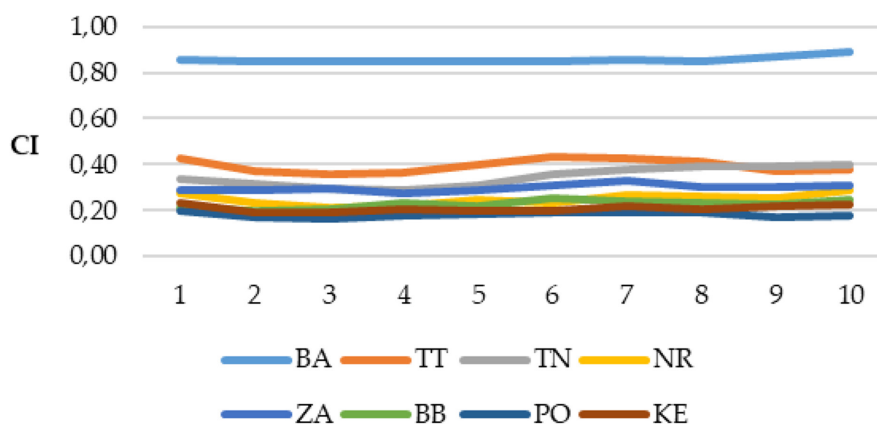


Figure 1. Development of the value of the composite indicator in individual regions of the Slovak Republic

Source: own processing

Based on the methodology described in the previous part of the paper and data from the Statistical Office database, we calculated the values of the composite indicator for individual regions in the Slovak Republic for 2010 to 2019, which are recorded in Table 1. The values of the composite indicator are relatively low and approach 0. the fact that there is no demonstrable dependence between the development of the number of micro, small and medium-sized enterprises in the region and the development of selected economic and social factors of the region's business environment. This means that the socio-economic indicators we have chosen do not have a sig-

nificant impact on the creation or demise of micro, small and medium-sized enterprises in the regions, with the exception of the Bratislava region, where the values of the composite indicator are significantly lower. For the entire analyzed period, the values are close to 1. In the Bratislava region, ie socio-economic indicators significantly affect the development of the number of micro, small and medium-sized enterprises in comparison with other regions of the Slovak Republic. The lowest values of the composite indicator in the observed period are reported by the Prešov Region. The development of the value of the composite indicator in the individual regions of the Slovak Republic is better seen in Figure 1, where we can clearly see that only the Bratislava region is approaching the value of 1.

4. CONCLUSION

In our analysis, we based on the assumptions we described above in the article that a quality economic and social background in the region would encourage the emergence and development of business activities. Our assumptions have not been confirmed, except for the Bratislava region. What does it mean? Let us assume that in the conditions of the Slovak Republic, other factors than the macroeconomic indicators selected by us have a more significant influence on the development of the number of SMEs in the regions. Although the economic situation in the regions of the Slovak Republic is developing favorably, it is not increasing the number of business entities in the given region. Thus, certain barriers hinder the emergence of businesses. According to analyzes and results carried out by international institutions (World Bank - Doing Business Report, CPI index, BCI index, GCI index, etc.), we can consider the quality of the legislative environment or the administrative burden on business entities as barriers to the establishment and development of business entities. As a result of these facts, despite the appropriate economic and social conditions, there are not enough SMEs in the regions than we might expect. Thus, these barriers prevent the use of the economic potential available to individual regions of the Slovak Republic. Of course, this is just one look at the problem of the creation and disappearance of SMEs in the regions. Many other factors affect the emergence of business entities in the regions of the Slovak Republic. These are, for example, local traditions, customs, culture, the influence of religious education, ethnic problems, natural conditions, etc. These factors will be the subject of further analysis. And subjective factors also significantly influence people's involvement in entrepreneurial activity, because the whole business is based on people, their abilities, qualities and skills. Another interesting finding in our analysis is that in the Prešov region, which showed the lowest values of the composite indicator, the growth of SMEs in the observed period was relatively high, more than 6.9%. It is more than in economically more developed regions such as Košice or Trenčín. Why is that so? One of the reasons may be the regional policy of the state, which in recent years has focused on supporting and developing the competitiveness of regions and reducing regional disparities in the Slovak Republic. There are 9 of the 20 least developed areas of Slovakia in the Prešov Region, and therefore increased subsidies from the state are directed to solve this problem. This fact could also be reflected in the growth of business activities that were subsidized by the state. The impact of the state subsidy policy on the establishment of business entities in the regions of the Slovak Republic will also be the subject of further analysis. State interventions in the economy through the provision of subsidies, tax benefits, etc. represent non-systemic interventions in the market economy. This fact distorts the real impact of the economic environment on the development of the number of SMEs in the regions. We can consider this inefficient because it is artificially maintained business entities that would not be maintained for a long time under the influence of the competitive environment on the market. But on the other hand, there are also opinions

that in order to support the development of business activities in lagging regions and in an effort to eliminate regional disparities and start economic growth in the regions, it is necessary to release part of the funds the form of subsidies. So there is another interesting stimulus for the analysis of the effectiveness of public funds spent on the development of business activities in the regions of the Slovak Republic. In conclusion, we can state that the research revealed many other questions that would be appropriate to subject to a thorough analysis and clarify the facts that affect the conditions of the establishment and demise of business entities in the regions of the Slovak Republic.

REFERENCES

- Buček et al. (2007) *Analýza podnikateľského prostredia a bariér absorpčnej schopnosti regiónov*, Bratislava: Ekonóm, ISBN 978-80-225-2358-5
- Butoracová Šindleriová, I., Morovská, I. (2009). Podnikateľské prostredie v Slovenskej republike z pohľadu inovačných príležitostí a bariér regionálneho rozvoja. In *Zborník vedeckých prác katedry ekonómie a ekonomiky ANNO 2009*. Prešov : Prešovská univerzita v Prešove, 2009. s. 27 – 44. ISBN 978-80-555-0005-8.
- Hudec, O. et al. (2009). *Podoby regionálneho a miestneho rozvoja*. 1. vyd. Košice : EF Technickej univerzity v Košiciach, 2009. 344 s. ISBN 978-80-553-0117-4.
- Juríčková, V. et al. (2006). *Podnikateľské prostredie a firemné stratégie*. Bratislava: Ekonomický ústav SAV. ISBN 80-7144-154-6. 8
- Krošáková, M. (2011). Podnikateľské prostredie pre MSP v etape prekonávania krízy. In *Vedecké state obchodnej fakulty 2011*. Bratislava: EKONÓM. ISBN 978-80-225-3326-3.
- Kubátová, K. et al. (2012) *Podnikateľské prostredie v EU z hľadiska verejných financií*, Bratislava: EUROKÓDEX Paneurópska vysoká škola, ISBN 978-80-89447-91-6
- Kuzmišinová, I. (2010). Vzdelanostná charakteristika ľudských zdrojov na Slovensku. In *Sociálny kapitál, ľudský kapitál a chudoba v regiónoch Slovenska*. Košice : Ekonomická fakulta TU v Košiciach, 2010. 1.vyd. s. 92 – 98. ISBN 978-80-553-0573-8.
- Mikulič, K. (2015) *Firma a jej prostredie*, Bratislava: VEDA vydavateľstvo Slovenskej akadémie vied, ISBN 978-80-224-1404-3
- Minařík, K., Borůvková, J., Vystrčil, M. (2013). *Analýzy v regionálním rozvoji*. Professional Publishing, Příbram
- Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., Giovannini, E. (2005). *Handbook on constructing composite indicators: methodology and user guide*. OECD Statistics Working Paper, Paris
- OECD. (2008). *Handbook on Constructing Composite Indicators. Methodology and User Guide*. Paris: Organisation for Economic Co-operation and development.
- Saisana, M., Tarantola, S. (2002). *State-of-the-art report on current methodologies and practices for composite indicator development*, EUR 20408 EN, European Commission-JRC: Italy
- Strážovská, H. et al. (2007) *Malé a stredné podniky*, Bratislava: Sprint, ISBN 808-90-8564-4
- Viturka, M. et al. (2010). *Kvalita podnikateľského prostredia, regionální konkurenceschopnost a strategie regionálního rozvoje České republiky*. 1. vyd. Praha : Grada Publishing, 2010. 232 s. ISBN 978-80-247-3638-9.



Business Environment in Bosnia and Herzegovina

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Abstract: *The economy of Bosnia and Herzegovina (BiH) is facing multiple problems, such as the outflow of young and capable personnel, unfavorable economic, legal and political environment for starting and running a business, unadapted education system to the requirements of the labor market, etc. The subject of the research is the overall business environment and factors that are of key importance for the entrepreneurial sector. The aim of this paper is to identify the situation, problems and needs of the business sector in BiH and establish measures that can contribute to economic recovery.*

The results of the research, which presents the views of 52 business entities in BiH, show that entrepreneurs face many obstacles in their business. The paper proposes measures to ensure a more efficient business that would encourage entrepreneurs to start and run a business. This would increase competitiveness and contribute to the overall economic development of BiH.

1. INTRODUCTION

Bosnia and Herzegovina (BiH) has faced three major problems: economic devastation, the consequences of war events and the transition from a planned to a market economy. Large companies stopped working, and their place was taken by small and medium enterprises. For this reason, Bosnia and Herzegovina relies heavily on small business entities, i.e. sole proprietors and small and medium enterprises. Thus, in 2019, there were about 51,000 active sole proprietors in BiH, while the number of companies with up to 10 employees was almost twice smaller – about 22,000 (talas.rs, 2021).

The legal framework in BiH is not stimulating for starting new businesses because it does not provide a quick and cheap way to start a business. The fact that, when it comes to the ease of starting a business, BiH ranks 184th out of 190 countries in the world (Doing Business 2018-2020, p.149) shows what problems companies face.

An unfavorable business environment results in a low level of foreign direct investment.

In order to gain insight into the key problems and obstacles faced by entrepreneurs, a primary survey of entrepreneurs' attitudes regarding the business environment was conducted.

2. METHODOLOGY

To gather information, desk and field surveys were used. The key sources of information collected by the desk survey are agencies for statistics of BiH, labor and employment agencies, international agencies, as well as professional articles. As part of the primary research, a survey of 56 business entities was conducted, in order to identify the main problems that employers face.

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In the preparatory activities, a list of indicators was created and their grouping was performed on the basis of similarity and the possibility of simpler systematization. Talks were also held with entrepreneurs and representatives of institutions.

Significant differences were observed between the information obtained from the census from the agencies for statistics and the Employment Institute and the information obtained from the labor force survey, and the agencies' estimates based on a comparison of different parameters on trends.

3. LITERATURE REVIEW

In October 2019, the World Bank published its 17th annual Ease of Doing Business Report (Doing Business, 2020). The data in the report refer to the period from June 2018 to May 2019.

Bosnia and Herzegovina (BiH) still remains the least ranked country in our region and Europe. Within the property registration of BiH, it is on the 96th position, and in the area of starting a business, BiH is on 184th place. In order to start a business in Bosnia and Herzegovina, it is necessary to conduct 13 procedures that last 80 days.

In the field of obtaining building permits, it ranks 173rd. The cost of obtaining a building permit is 20.3% of the value of the building.

Figure 1 shows the ranking for Bosnia and Herzegovina based on the report Doing Business 2018 – 2020, which refers to the period 2017 – 2019.

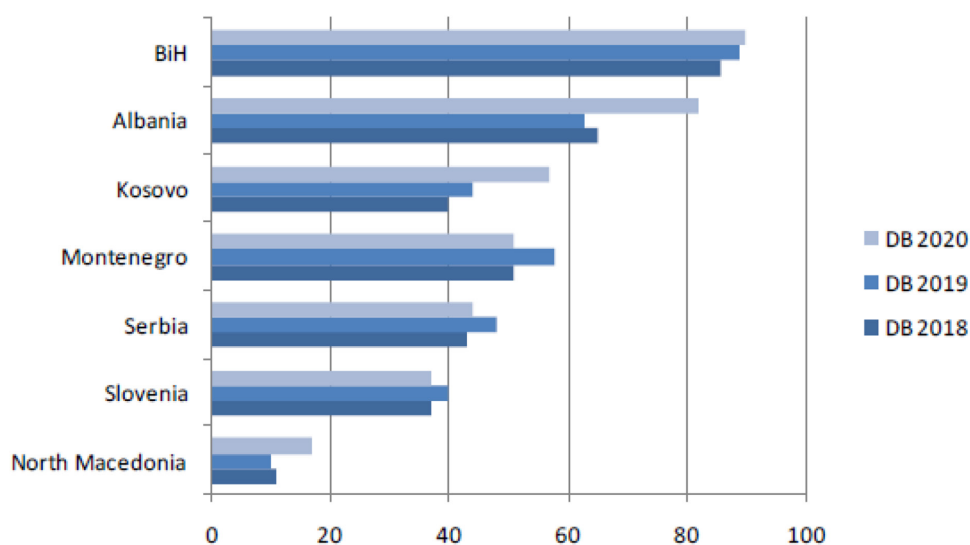


Figure 1. Display ranking in ease of doing business

Source:

<https://www.uhy-ba.com/wp-content/uploads/2020/09/Doing-Business-Bosnia-Herzegovina-hrv.pdf>, p.16

BiH does not have its own missing funds to invest in development, which is why foreign funds are needed. From the table below, it can be seen that BiH has not found a way to attract foreign funds. We can look for the causes of this situation in an unfavorable business environment and uncertainty due to the bad political situation, inadequate legal regulations, tax policy, etc.

Table 1. Investments in millions of \$

	Number of inhabitants × 1000	2015	2016	2017	2018	2019	2020	Investments per 1,000 inhabitants
BiH	2700	361	350	492	574	400	371	137.4
Montenegro	622	699	226	559	490	417	529	850.5
Serbia	6900	2348	2352	2878	4091	4270	3440	498.6
North Macedonia	2115	240	375	205	725	446	274	129.6
Croatia	4050	84	273	540	1171	1336	1304	321.9

Source: World investment report, 2021

4. EMPIRICAL RESEARCH: THE INFLUENCE OF SMALL AND MEDIUM ENTERPRISES ON ECONOMIC DEVELOPMENT

Subject of research: The research deals with the economic sector in BiH in relation to the environment. The question is: what are the causes of this condition? The second question is: what needs to be changed in order to improve the entrepreneurial environment and raise the level of economic activity. In that sense, a questionnaire was created in order to obtain the views of entrepreneurs, regarding the conditions of their business. 56 business entities were surveyed. Entrepreneurs presented their views on competitiveness factors, negative impacts on business, sources of financing, the gray economy and business conditions.

Research time: May – August 2021

Number of surveyed companies: 56

Research location: Bosnia and Herzegovina

Fields of research: employees/products/services; negative impacts on business; competitiveness factors; types of financing used; business conditions; gray economy

The aim of the research: to determine the problems that employers encounter in their business.

Research problem: the analysis of the reports of the Statistical Office and international organizations shows that the economy of BiH is uncompetitive and that it lags behind in development in relation to the economies of the surrounding countries. The economy is mostly burdened with non-tax payments in the region (<https://www.paragraf.ba>). According to the report on ease of doing business, BiH has a very unfavorable business environment.

Expected result: based on the information obtained, measures would be identified to mitigate and solve problems and improve the entrepreneurial environment to increase economic activity, and thus employment.

Average number of employees per enterprise: 78. Out of the total number, 34% or 61% are small and micro enterprises, 18% or 32% are medium enterprises or 4% or 7% are small enterprises. 82% of companies applied for incentives. 29% of companies plan to increase the number of employees and 82% of companies plan their dismissal. 39% plan to offer new products/services and 38% their export. Table 1 shows the views on the impact of negative factors on business.

Table 2. Impact of negative factors on business

Intensity rate	1 – I do not agree at all	2 – I mostly disagree	3 – I can't decide	4 – I mostly agree	5 – I totally agree
1) Taxes and contributions on earnings	6	14	18	14	2
2) Taxes and value added contributions	6	14	8	14	8
3) Tax administration	2	16	14	14	4
4) Non-tax levies, fees and charges	14	14	6	10	6
5) Administrative procedures	10	14	14	12	4
6) Inspection supervision	6	6	22	12	4
7) Time and costs related to procedures	8	10	14	16	2
8) Regulations and procedures related to labor relations	6	4	16	20	2
9) Obtaining licenses to perform activities	6	6	28	8	2
10) Time and costs related to court proceedings	8	14	16	12	4
11) Something else (specify)	0	0	0	0	0

Source: Own research

As negative factors, respondents also cite administrative problems (53%), tax burdens (47%), as well as high non-productive costs. Table 3 lists the views on competitiveness.

Table 3. Economic factors affecting competitiveness

	Positive	Neutral	Negative	No answer
Inflation	0	34	10	12
Earnings Taxes	8	10	28	10
VAT Rates	8	20	20	8
Exchange Rate Volatility	2	32	10	12
Interest Rate Volatility	4	28	16	8
Poor Access to Funding Sources	6	18	27	5
Insolvency	4	27	15	10
Changes in Property Prices	2	32	14	8
Customs Duties	6	30	14	6
Excise Taxes	4	26	18	8

Source: Own research

58% of respondents believe that business conditions have deteriorated compared to the previous year, and 31% of them believe that they have remained the same.

Regarding the improvement of business conditions, 21% indicated the introduction of e-government and e-business, and 14% indicated the simplification of the procedure for construction (e-permits).

One-third of the respondents believe that the volume of the gray economy has decreased in the previous year and 37% of the respondents that it has increased. They believe that the largest share of the gray economy is in construction (38%), followed by trade (11%), followed by catering (10%), attorney services (9%), health services (9%).

According to entrepreneurs, the biggest damage caused by the gray economy is: falling prices due to unfair competition from the informal sector, inability to invest in technological development due to reduced income, reduced turnover and difficulty placing products on the market and inability to employ new workers.

Taxes and contributions on salaries, local and republic taxes, profit tax and VAT are most often avoided.

5. INTERPRETATION

56 enterprises were surveyed, of which, 34% or 61% are small and micro enterprises, 18% or 32% are medium and 4% or 7% are large enterprises. The average number of employees is 78. About 82% of entities applied for incentives. A high percentage of businessmen (85%) said they did not intend to increase the number of employees. On the other hand, almost the same percentage (82%) intend to lay off workers. Nearly 2/3 of the respondents do not plan to offer new products/services on the market or export their products.

Regarding the impact of the *Taxes and Contributions on Earnings* factor, most employers have a neutral attitude or their responses are close to a neutral attitude. When it comes to the *Taxes and Value Added Contributions* factor, the answers are bipolar. On the one hand, they mostly disagree, and on the other hand, they mostly agree.

Regarding the influence of the *Tax Administration*, the answers are uniform and concentrated around the average value, in the range of *I do not agree at all* and *I mostly agree*. The majority of respondents do not agree that the attitudes of the respondents are divided and when it comes to the factor *Non-Tax Levies, Fees and Charges* have a significant impact on business.

Respondents generally agree that *Administrative Procedures* have a major negative impact on business. When it comes to *Inspection Supervision*, most businessmen agree that it has a negative impact on business. Most respondents agree that *Time and Costs Related to Procedures* have a strong impact on business. Respondents are unanimous in their opinion that *Regulations and Procedures Related to Labor Relations* have a great impact on business.

The same attitude is regarding the influence of the factor *Obtaining Licenses to Perform Activities*. When it comes to the factor *Time and Costs Related to Court Proceedings*, the answers are quite homogeneous and concentrated around a neutral position. In the item *Something Else*, as an obstacle, undeclared work was listed.

Just over half of the respondents believe that administrative problems are a key obstacle to exports, and close to half that the main obstacle is the tax burden. Barriers to exports also include high non-production costs, as well as lack of laboratory.

Almost all respondents have a negative attitude towards economic factors that affect competitiveness. Neutral attitude is expressed in the factors: Inflation, VAT Rates, Exchange Rate Volatility, Interest Rate Volatility, Insolvency, Changes in Property Prices, Customs Duties and Excise Taxes.

There is a negative attitude towards the following factors: Earnings Taxes, Poor Access to Funding Sources and to some extent VAT rates, Insolvency and Customs Duties.

Two-thirds of respondents in the period 2018-2020 did not use the sources of funding that are common in developed economies (Table 4).

Respondents generally state that they use loans in no way or infrequently. Among the used loans, the most common are *Dedicated Loan* and *Permitted Overdrafts*. Dedicated Loan is listed as permanently used loans. A review by year shows that there are no major fluctuations by year, depending on funding sources.

Table 4. Types of financing and frequency of their use

	Year	Not used	Rarely	Occasionally	Often	Constantly
Dedicated Loan	2018	32	2	4	8	6
	2019	32	0	6	8	6
	2020	34	2	6	8	2
Permitted Overdrafts	2018	38	2	4	8	2
	2019	40	0	4	8	2
	2020	38	2	6	4	4
Credit Allowed	2018	40	2	4	4	4
	2019	40	2	4	4	4
	2020	44	0	2	8	2
Guarantee	2018	44	2	2	6	2
	2019	42	0	2	6	4
	2020	44	0	6	2	2
Leasing	2018	44	0	4	2	4
	2019	50	0	2	2	0
	2020	54	0	0	0	0
Letters of Credit	2018	32	2	4	8	6
	2019	32	0	6	8	6
	2020	34	2	6	8	2
Factoring (sale of receivables to third parties)	2018	38	2	4	8	2
	2019	40	0	4	8	2
	2020	38	2	6	4	4
Corporate Bonds	2018	40	2	4	4	4
	2019	40	2	4	4	4
	2020	44	0	2	8	2
Issuance of Shares	2018	44	2	2	6	2
	2019	42	0	2	6	4
	2020	44	0	6	2	2

Source: Own research

The prevailing view is that business conditions are bad or somewhat bad. Nearly 60% of respondents believe that business conditions have deteriorated in the last year, while a third of respondents believe that conditions have remained the same.

When it comes to *Fields in which the most progress was achieved in the previous year*, the most positively assessed fields are *Introduction of e-government and e-business*, *Improving the business environment at the local level* and *Simplification of building procedures (e-permits)*. Respondents believe that the gray economy is one of the key obstacles to economic development and that it is most represented in construction, followed by trade and catering. This includes legal services and health and craft services, as well as repairs. Nearly half of those surveyed believe that high taxes and contributions on earnings are the main cause of the gray economy.

Respondents state that the main negative consequences of competitors' business in the gray zone are falling prices due to unfair competition from the informal sector. They also mention the *Reduction of turnover* and *Difficulties in placing the product on the market*, the *Inability to invest in technological development due to reduced revenues*, and the *Inability to employ new workers*. Lack of professional strength has been stated as a consequence.

Employers state that taxes and contributions on salaries, profit tax and local and national taxes, economic taxes, communal taxes, taxes for construction land are mostly avoided as costs. Most respondents believe that only 50% of employers pay salary contributions.

6. DISCUSSION

The fact that 82% of companies intend to dismiss workers in the next year is worrying. The main reasons are the unfavorable entrepreneurial environment and the Covid-19 pandemic.

The low export orientation of local companies is indicated by the fact that 2/3 of the respondents do not plan to offer new products/services on the market or export their products. Entrepreneurs believe that the main obstacles to exports are administrative problems, high non-productive costs and tax burdens. On the factor of the negative influence of the tax administration, attitudes are not uniform, in the range of *I do not agree at all* and *I mostly agree*. Respondents generally believe that administrative procedures have a major impact on business and that time and costs associated with procedures have a strong impact on business. Also, respondents are united in the view that regulations and procedures related to employment relationships have a great impact on business, as well as the factor of *Obtaining Licenses to Conduct Business*. The answers are quite homogeneous when it comes to the factor *Time and Costs Related to Court Proceedings*. According to the above, the respondents believe that their business is negatively affected by factors: *Earnings Taxes*, *Poor access to Funding Sources* and to some extent *VAT Rates*, *Insolvency and Customs Duties*. As a rule, respondents do not or rarely use loans. If they use them, they are mainly *Dedicated Loan*, *Permitted Overdrafts* and *Permitted Credit*. Entrepreneurs believe that business conditions in RS / BiH are either poor or somewhat poor. This is confirmed by other sources of information obtained by desk research. Entrepreneurs recognized the progress in the fields of *Introducing e-government and e-business*, *Improving the business environment at the local level* and *Simplifying the procedure for construction (e-permits)*.

The gray economy is recognized as a brake on survival and development. The absolute majority of respondents believe that the level of the gray economy has increased significantly. The unique view is that it is one of the key obstacles to business. The consequence of unfair competition is falling prices. Nearly half of the respondents believe that high taxes and contributions on earnings are the main cause of the gray economy. Employers also state that unregistered entrepreneurs are recruiting their labor force. Respondents are aware that the payment of earnings obligations is largely avoided, ranging from 50% (for formal enterprises) to 100% (for informal enterprises).

7. CONCLUSION

The BiH economy is facing a number of problems that hinder its functioning and development. The problems are multi-layered and present in different sectors, and all together have an impact on the competitiveness of the BiH economy. Depopulation and the outflow of competent young people affect the labor market, which is unable to offer a competent workforce to the companies. Highly educated and competent staff cannot be offered to investors, which is why BiH cannot attract companies dealing with high technologies.

Unfavorable legal framework, tax policy, inadequate incentives, inadequate infrastructure, administrative barriers, etc., unfavorably affect the entrepreneurial environment. The economy is burdened by parafiscal levies, corruption and clientelism, which makes healthy competition impossible.

Existing legislation is not stimulating for starting and developing companies. The disparity between demand and labor force availability is increasing. There is an increasingly visible difference between employees in professional knowledge, caused by acquired diplomas without

adequate competencies. The gray economy is widespread in the sphere of labor market and labor relations. This, among other things, leads to a reduction in income for pension and disability insurance, health insurance and unemployment insurance.

To revive economic activity, governments must ensure macro-stability through investment in the infrastructure of small and medium enterprises, export incentives, assistance to small and medium enterprises in accessing financial resources, networking of enterprises through clusters and other forms, etc.


Credit resources should be more accessible and affordable, in which the authorities have a key role to play through the provision of guarantee funds. This is one of the basic conditions for economic development. It is necessary to simplify the administrative procedures for starting and running a business. The time required to obtain operating licenses should be significantly reduced. The number of parafiscal levies needs to be drastically reduced. Inspection bodies should take a more active role in the fight against the gray economy.

REFERENCES

- Agency for the Promotion of Foreign Investments in Bosnia and Herzegovina (2019). Ease of Doing Business Report, October 2019
- BiH Agency for Statistics (2018). "Labor Force Survey 2018." ISSN 1840-104X
- BiH Agency for Statistics (2020). Bosnia and Herzegovina in issues 2020. ISSN 1986-8510
- Federal Bureau of Statistics (2020). Statistical Yearbook. 2020
- Hasić D. (2006). Potencijali malih i srednjih poduzeća: izvor ekonomskog progressa Bosne i Hercegovine. EKONOMSKI PREGLED, 57 (3-4) 243-269
- ILO (2008). Gray book. FBiH employers on drivers of informal economy <http://www.upfbih.ba/uimages/dokumenti/Siva20ekonomija1.pdf>, October, 2021.
- International Monetary Fund, World Economic Outlook Database, April 2021. Data for 2020.
- UNCTAD/WIR/ (2021.). World investment report 2021. p. 269. United Nations Publications. ISBN 9789211130171 https://unctad.org/system/files/official-document/wir2021_en.pdf
- USAID BiH. (2020). Strategy for Development and Cooperation with BiH – December 2020 – December, 2025.
- Urbach Hacker Young – UHY (2020). DOING BUSINESS IN BOSNIA AND HERZEGOVINA <https://www.uhy-ba.com/wp-content/uploads/2020/09/Doing-Business-Bosnia-Herzegovina-hrv.pdf>, p.16
- World Bank (2020). Economy Profile of Bosnia and Herzegovina Doing Business 2020 Indicators <https://www.doingbusiness.org/>, October, 2021.
- <https://talas.rs/2021/03/05/problemi-samostalnih-preduzetnika-u-bih-kako-se-slama-kicma-ekonomije/>, 16.8.2021.
- <https://www.paragraf.ba>, 16.8.2021.



The Importance of Financial Management for the Success of the Organization in a Challenging Business Environment

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Abstract: *The current economic environment poses challenges for the function of financial management and the financial function in general, on several levels. Organizations are required to change existing priorities, with an emphasis on cash management and forecasting activities, as well as risk management. Challenges in the business environment require organizations to raise additional capital. They need efficient financial management that will create an adequate capital structure, in order to react positively to changes in the business environment and use the available financial resources optimally and better meet the requirements in terms of obligations. The COVID-19 pandemic poses a challenge to organizations around the world, forcing them to rethink their existing business models as they struggle to survive. The paper first examines the impact of the COVID-19 pandemic on organizations and their business, and especially on finances and the process of financial management, and then points out the importance and techniques of financial management that are necessary for the success of organizations. This paper aims to point out the importance of efficient financial management and the application of its essential concepts in order to achieve the success and development of business organizations, especially in a challenging environment.*

1. INTRODUCTION

Finance is focused on decisions about money or cash flows, while financial decisions are about how companies, individuals, and governments collect and use money. Three basic principles are key to making adequate financial decisions, and they include the following: 1) more value is desirable in relation to less value, 2) money is worth more the sooner it is reached, and 3) less risky assets are desirable than risky assets. By considering these principles when making decisions, companies become able to provide consumers with better products at lower prices, higher salaries for employees, as well as higher returns to investors who have provided their funds to start a business (Besley & Brigham, 2015, p. 3).

Good financial management contributes to well-being of both individuals and the general population. It covers the decisions made by all companies regarding their cash flows, including inflows and outflows. With this in mind, financial management is important for all types of companies, with responsibilities involving moving from the process of deciding on the expansion of factory capacity to selecting the type of financial instrument that should be issued to finance such expansion. The responsibility of financial management is also on deciding on credit conditions, the amount of stock that the company should have, the amount of cash held, analysis of mergers, as well as deciding on how much to reinvest and how much of the annual profit to

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pay to dividend owners. Given that each company operates with limited resources, financial management involves process of planning and monitoring the use of financial resources by a company. In order to efficiently use resources to achieve the goals of the organization, it is necessary to implement adequate financial practice. Financial management activities may include cash flow management, profitability analysis, as well as risk management.

Financial management includes planning, organizing, directing and controlling company's financial resources. It includes the activities of procurement and distribution of funds, as well as the application of general principles and methods of managing the financial resources of a project and estimating the value of project returns. Thanks to financial management techniques, company can monitor future cash flow and achieve business goals. The basic goals of financial management are reflected in creating the company's wealth, generating revenue, and ensuring a sufficient return on investment (Jayashree & Carmel Mercy Priya, 2016).

Good financial management is key to success of any organization, where an organization can be viewed as a whole composed of the following interrelated elements, namely: 1) people (employees, contractors, owners), 2) architecture (reporting lines, responsibilities, structures) governance and informal relationships), 3) routines (processes, policies, reward structures, and decision-making approaches) and 4) culture (values, beliefs, and norms of behavior). These elements of the organization are shown in Figure 1.



Figure 1. Business environment

Source: ICAEW, 2009, p. 3.

2. IMPACT OF COVID-19 PANDEMIC ON ORGANIZATION AND FINANCIAL FUNCTION

Organizations around the world are facing the challenges posed by the COVID-19 pandemic, and they are forced to reshape their business models while struggling to survive. There are many issues and challenges facing companies in changing business conditions, from supply chain disruptions to changes in consumer behavior, employee safety and issues related to the new work environment. To examine the impact of the pandemic on financial function in organizations, the Institute of Management Accountants (IMA) conducted a global study on the impact of the pandemic on financial function, focusing on changes in staff, compensation and skills required (Lawson, 2020). The research covered the impact of the pandemic on organizations as a whole, following changes in income and staffing levels, with an emphasis on the impact on staff in finance and the priorities

of the finance function. In addition, areas related to the improvement of skills by financial experts and their retraining were pointed out. The research is based on a survey of 1,481 experts in the field of accounting and finance and includes companies from five countries: India, Saudi Arabia, the United Arab Emirates, China and the United States. More than a third of the respondents were women, and the percentage varied by country (from 51% in China to 18% in Saudi Arabia).

The fact is that organizations of all sizes are facing extreme financial difficulties and the risk of shutting down due to the COVID-19 pandemic. Large companies like airlines turn to the state asking for help, while small companies, like restaurants, do not have the financial resources of larger companies and are also struggling to survive. The results of the survey indicate a larger drop in revenue, with very large companies (with more than \$10 billion in revenue) most likely to experience a significant drop in revenue. Despite the decline in revenue among organizations of all sizes, a third of respondents think they are doing better than the competition, while less than 10% think they are lagging behind the competition. The belief of companies regarding business in relation to competitors varies depending on their size. Thus, larger organizations with more than 1,000 employees more often believe that they are better than the competition (39% of them), compared to smaller ones (less than 100 employees) which believe that only 29% of them are better than the competition.

When it comes to the impact of the pandemic on employment, the results are unsatisfactory, i.e. about half of the companies have laid off part of their staff. Companies' reactions to the pandemic on these issues have varied by region. For example, in the United States, companies were least likely to reduce their staff (36.6% of respondents said the organization laid off part or most of its staff), followed by China (42.4%) and India (59.8%), while companies in the Middle East and Saudi Arabia (60.3%) and the UAE (61.1%) were likely to have fewer staff.

The impact of the pandemic is also significant on the compensation of those who are still employed, with the majority of respondents having reduced benefits (salary, bonus or both). In this case, too, the impact of the pandemic varied from country to country. Thus, in the USA, companies are the least likely to change the amount of compensation to employees, Chinese companies will not change salaries, but will reduce the amount of bonuses, while companies in India, Saudi Arabia and the UEA are most likely to reduce employees' salaries. In addition, the impact of the COVID 19 pandemic varied depending on the industry, with some experiencing a gradual closure initially, with the gradual reopening, while other industries remained open and little affected.

When it comes to the impact of the pandemic by industry, the most affected are experts in tourism and hospitality (13% were fired and 58% work with reduced wages), followed by experts in government, education and non-profit activities (5% were absent and 52% of them experienced a reduction in salaries), while the smallest impact was in the field of accounting and finance. The change in the number of employees was also reflected in changes in the compensation of individuals, i.e. the companies that reduced their staff have also reduced the compensation of employees. Respondents who stated that the company fired part of its staff, stated that they also experienced a reduction in salaries, bonuses or that they were fired (80.3%). This result was 55.9% for respondents in companies where there was no decrease in number of employees, and 35% for those who worked in companies where the staff was increased.

When it comes to the impact of the pandemic on financial function, the focus is on risk management, i.e. 43.7% of companies spend a lot of time in this area, followed by forecasting and cash

management. With this in mind, less time was spent on business partnership and decision support, i.e. 33.5% of companies spend less time in this area compared to 22.2% who spend more time.

Based on research by IMA and the Association of Chartered Certified Accountants (ACCA), The CFO of the Future, the financial director is seen as a strategic business partner who has a leading role in formulating business strategy, its validation and execution, and has a broad view of performance of various stakeholder groups, while providing insight into the organization's future business activities. When it comes to industries, especially in the fields of tourism, travel and hospitality, the pandemic is having a significant impact, with companies reducing staff to survive, and focusing on core functions to survive.

Many organizations also face the challenge of maintaining employee productivity while doing jobs from home, with the pandemic setting new challenges in terms of human resources for the finance function. The key challenges are enabling staff to work from home (37.5% of respondents) and creating a safe environment for those who go to work (36.7%). In addition, there is a need to train staff for tools that allow them to work from home (26.3%).

When it comes to retraining, there was interest even before the pandemic (78% of respondents) – of which the highest percentage was in Saudi Arabia (89%), China (88%), and the lowest in the United States (58%). When it comes to belief in the relevance of existing professional skills, the results vary from country to country, with respondents in the US being most confident in the relevance of skills after a pandemic, and those in India being the least certain (69%). In companies with less than 100 employees, there was greater concern about skills (14%), compared to organizations with 100-999 employees (9%) and large organizations with more than 1000 employees (8%).

In addition, due to the high level of unemployment at the global level, there was a greater interest of financial experts in acquiring new skills (68%), with the highest percentage of them in China (78%) and the lowest in the US (49%). A challenging business environment imposes on financial professionals the need to maintain and improve business skills. In this regard, there is a wide range in the field of knowledge in which respondents worked on improving or planning to improve their skills – Figure 2. In addition to the desire for training, financial resources and support of companies in this field are needed. When it comes to real support, 49% of employers supported training and retraining of employees, mostly (57%) in China, 55% in the US, 45% in Saudi Arabia, and least in the UAE (39%).

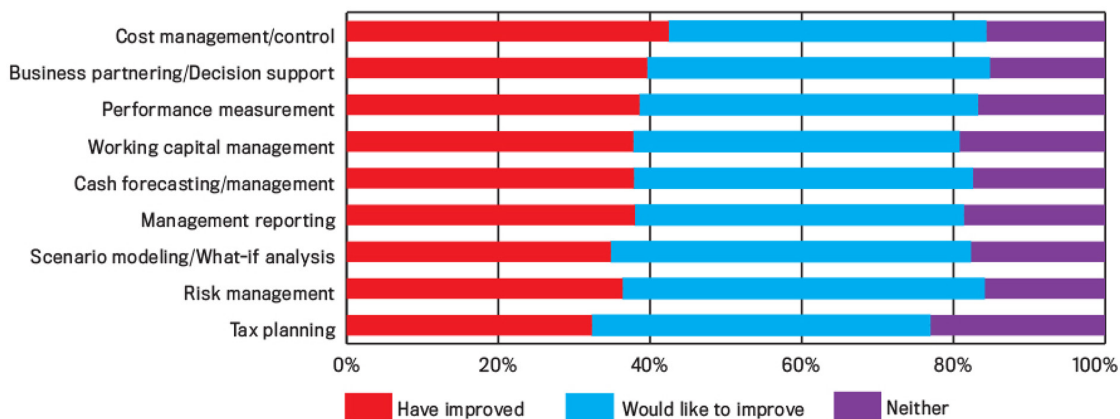


Figure 2. Improved skills during the COVID19 pandemic

Source: Lawson, 2020

3. THE IMPORTANCE OF FINANCIAL MANAGEMENT IN A CHALLENGING BUSINESS ENVIRONMENT

Based on the CBIZ Main Street Index survey, it can be observed that 43% of SMEs in the US reported a significant or serious impact of the COVID-19 pandemic on business. Many companies were operating at a loss or reporting lower cash balances. The research was conducted by CBIZ, Inc. (NYSE: CBZ), a leading provider of financial, advisory and insurance services from August to September 2020. The analysis included over 1,600 companies across the United States and within more than 30 industries. The data were estimated as a whole, as well as depending on the size of the company, regional and industrial level. The following are key research findings (Boyd, 2021): 1) drastic impact on overall enterprise health, 2) impact on current value estimates, where future growth potential is uncertain, 3) smaller enterprises were disproportionately affected, 4) impacts were felt within all industries, 5) smaller companies took advantage of lifelines, and 6) although the path is uncertain, there are signs of optimism.

First, over 51% of respondents stated that there was a significant reduction in sales during the pandemic, more than 17% requested an extension based on periodic payments (e.g. rents), and less than 60% received these extensions. According to the results, geographical differences can also be noticed, i.e. companies in the West were more strongly influenced, compared to companies in the Midwest. Second, 22% of respondents said there was a change in the valuation of businesses due to the pandemic, while 68% of respondents expressed concern about declining revenue and 32% about the extended sales cycle. Third, close to 48% of companies with 1-4 employees felt significant or serious impact, while for companies with 20-49 employees, 37% of them experienced significant or serious impact. Fourth, the analysis by industry level showed that the most affected sectors were accommodation and food, arts and entertainment, education services and transport, while professional services, insurance, financial services, government and construction sectors were the least affected by the pandemic. Fifth, close to 85% of respondents took advantage of payroll protection programs, enabling them to improve their business during the crisis and retain team members for the recovery period. Finally, about 27% of SMEs indicated that they will reduce staff in the next six months, and 17% believe that they need applications for additional loans and external financing. Some companies have invested in their business, with 40% planning to increase investment in marketing, and close to 20% to invest in increasing the workforce.

Good financial management can create such a capital structure that will enable companies to react positively to changes in a challenging business environment. In addition to a large number of challenges and questions, the research included the impact of the pandemic on the health of companies, sales and revenues, staff and number of employees, as well as participation in the salary protection program. Companies need resources to create and deliver a product to consumers. Capital budgeting is a process that involves creating a plan to procure or replace fixed assets and becomes more complicated in cases where companies are not profitable and raise less money. In these conditions, financial management becomes important. A challenging business environment requires companies to raise additional capital. The two decisions of financial management related to the capital structure include the following: a) debt financing and b) dividend payment or retained earnings.

Significant concepts of financial management that are applied to grow the business of organizations are the following: 1) budgeting and forecasting, i.e. creating a formal budgeting process and completing the budget before the beginning of next year, 2) cash flow management, 3) debt

monitoring and payment, 4) inventory management, 5) efficient use of funds, and 6) assessment of profitability and rewarding shareholders.

In case of a manufacturing company, budgeting would include the following: a) sales – forecasting annual sales units for each product, b) production – determining labor and raw material costs and overheads based on sales forecasts, while procurement costs depend on sales, c) management cash – design of cash inflows and outflows based on cash receipts from customers and cash payments for production and other costs, and e) inclusion of details on marketing, sales and office management costs.

A company must produce enough cash inflows to procure raw materials, make financial payments and pay marketing costs. The receivables turnover ratio is a significant indicator of cash flow management. A common problem in business is that sales are growing, but it is impossible to collect receivables quickly enough, and there may be a shortage of money. In order to adequately manage cash, it is necessary to monitor the receivables turnover ratio (net annual sales on credit / average receivables). If the business is adequately managed, sales on credit can be increased and the balance of receivables can be maintained at a reasonable level, i.e. if the turnover ratio is increased, it is possible to collect receivables faster. By applying the concept of financial management in business, adequate debt management, efficient use of funds, control of inventory costs and achieving profitability are achieved.

Financial management provides risk management assistance including the risk of incurring excessive debt. Some companies cannot generate enough money to pay interest on debt. In order to avoid this problem, it is necessary to use the debt-to-equity ratio (total liabilities / total capital). The indicator monitors the increase and decrease in liabilities as a percentage of equity, and if liabilities increase faster than equity, it is a signal that the company may be taking on too much debt.

If you manage retail or wholesale, inventories can make up the bulk of the assets in the balance sheet and may require a lot of money to invest. In this case, it is necessary to use the inventory turnover ratio to monitor them and collect cash. This coefficient is the ratio of the cost of goods sold and the average stock.

In order to assess the efficiency of the use of funds, it is necessary to apply the formula of return on assets (ROA), which shows the ratio (net income/average total assets). Well-managed companies can increase the profit generated from each monetary unit of funds. If there is a good understanding of the use of funds, it is possible to make better investment decisions.

Profitability can be assessed using earnings per share (EPS), which is calculated as the ratio (net income available to common shareholders) / (average common stock shares outstanding). If it is possible to earn higher earnings per share, ordinary shares are more valuable. By increasing earnings per share, part of the earnings can be paid as a dividend to shareholders, or part of the earnings for business can be retained.

4. CONCLUSION

Every company plans and implements business activities to make a profit. Profit means growth, sustainability and successful business of the organization. The financial manager has a key role to play in maintaining the success of the organization. His main responsibilities relate to fund-

raising, resource allocation, capital market operations, and profit planning. The challenge for every organization is to choose an efficient financial manager, who will make right decisions in managing the company's financial resources. Concepts and methods of financial management help managers in making adequate decisions to effectively achieve organizational goals.

The COVID-19 pandemic has posed challenges to the business of organizations, with the impact being global and affecting all countries and organizations of all sizes. When it comes to the impact on financial function, many companies have reduced their staff or compensation for them. In addition, a challenging economic environment requires a shift in priorities with a focus on risk management processes, forecasting and cash management. It is necessary to enable employees to work from home, as well as to provide safety measures if they work in offices. In addition, financial professionals are required to constantly work on improving their skills to advance and sustain their careers.

REFERENCES

- Besley, S., & Brigham, E.F. (2015). *Poslovne finansije – CFIN*, Beograd, Data status.
- Boyd, K. (2021). What does financial management mean for business owners? <https://quickbooks.intuit.com/r/growing-complex-businesses/financial-management/>
- Business wire (2020). Small Businesses Feel Biggest Impact of Coronavirus Pandemic, CBIZ, Inc. <https://www.businesswire.com/news/home/20201008005232/en/Small-Businesses-Feel-Biggest-Impact-of-Coronavirus-Pandemic>
- ICAEW (2009). Finance's role in the organization – Finance direction initiative, Chartered Accountants' Hall Moorgate Place, London, UK, 1-12. <https://www.icaew.com/-/media/corporate/files/technical/business-and-financial-management/finance-direction/finance-s-role-in-the-organisation-finance-direction.ashx?la=en>
- Jayashree, G., & Carmel Mercy Priya, I. (2016). A Study on the Financial Management Concepts for Organizational Success, *Imperial Journal of Interdisciplinary Research (IJIR)*, 2(12), 1201-1204. <http://www.onlinejournal.in>
- Lawson, R. (2020). The impact of COVID-19 on the finance function, *Strategic Finance – SF Magazine*. <https://sfmagazine.com/post-entry/november-2020-the-impact-of-covid-19-on-the-finance-function/>



FinTech: Should We Accelerate Their Development?

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Abstract: *Technological development has played an integral role in the transformation and progress of the financial sector. Reductions in time, costs, efficiency, are some of the opportunities that the Fintech sector stimulates. In this paper we will examine the advantages of technology integration in finance and FinTech's interaction with other sectors such as banking but also the risks it carries. We will analyze Fintech implementation in Albania market and the challenges faced for development.*

If we take into consideration how quickly the economic, social, cultural and natural conditions are changing, of course finding, applying and developing new alternatives is the right solution. FinTech is therefore seen as the future of the financial sector.

In conclusion, Albania as a developing economy and unknown with new technologies, regardless of all the difficulties, is open to innovations and can be seen as a new market for the development of FinTechs.

1. INTRODUCTION

Financial globalization, global crises and the need to overcome them, consumer behavior changing over years and lately the Covid-19 pandemic has brought to focus the absolute need to develop new sectors. FinTech as a sector that applies technological solutions in various financial services areas is seen as a support and choice in the transformation and modification of business models, applications, processes, and products (Feyen, Erik; Frost, Jon; Gambacorta, Leonardo; et al, 2021). Services offered by FinTech companies vary from payment applications, lending and money transfers, advancing to digital lending and cash management, robo-advisory, social integration and trade, indicating the growth of its spread.

Fintech has gone through three transition stages, with each one having great importance. The development of Fintech dates since 1866 where the first phase of this sector is thought to have begun. On the other hand, the changes that have driven the transformations in the financial sector have mainly come as a result of the 2008 Global Financial Crisis (The World Bank Group, 2020), where the brand image of banks was deeply shaken (W. Arner, Barberis, & P. Buck, 2017). Nowadays FinTech has been characterized by the rapid growth of companies and startups by expanding in scope and covering the full spectrum of financial services and finance.

The benefits of financial sectors that have been driven by FinTechs are numerous, some of which are faster operative processes, cost efficiency, lower information asymmetries. At the same time, the growth of Fintech faces different typologies of risks, such as money laundering, information theft, fraud, and cyber-risk (Nino, Langthaler, Fabian, & Mayorga, 2017), which are being more and more an obstacle to the development of this sector.

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In Western Balkan, the FinTech sector remains unexplored despite the high growth in the use of cards and digital payments. The barriers have been and still are high cash-use, low accessibility to payment and information systems, limited access to capital and finance (Odorović, McKain, Garvey, & al, 2020). Albania as an economy in development and compared to the possibilities given to startups and innovation is paving its way toward FinTech development, however not enough information is available for this sector to give and determine the importance of its implication in the economy.

2. AN OVERALL VIEW TO FINTECH – LITERATURE REVIEW

2.1. FinTech Sector Presentation

The separation between Finance and Technology is now almost non-existent with financial technology companies (FinTechs) (Leong & Sung, 2018). FinTech as an industry representing the advanced technology that benefits finance is seen as a wave of companies affecting and changing the way consumers and businesses, investors, and regulators lend, invest, pay and send money.⁴ They are start-up companies with a variety of business propositions and were firstly developed in the US with a fast spreading out to the East Coast, Europe, Hong Kong, Singapore, Australia, and much of Asia (Sironi, 2016).

2.2. FinTech Companies Services

The financial technology industry includes technology firms offering financial services, in order to support financial transactions (Chishti & Barberis, 2016). FinTech companies are setting up new and innovative services that are changing the way customers expect overtime and not just taking advantage of the gaps left by traditional players (Riemer, Hafermalz, Roosen, & et al, 2017).

Managing business/consumers financial cash flows and optimizing their spending structure, providing financial accounting solutions for SMEs⁵, robotization, innovative forms of electronic payments, are some of the services offered by FinTech companies (Stern, 2017).

Payment sector. The innovation that FinTech brings in the payment sector consists in not including by necessity of having a bank account to make a transaction, decreasing transaction fees, giving companies more control over whether transactions are approved. Different companies come with different payment services, below we will present some of them (Kauflin, 2021):

- Marqeta⁶ – Through its services in debit card transactions, it gives more control over whether transactions are approved to the companies that issue cards to employees and customers.
- Arcus – Offers online payments and maintaining digital wallets to companies' end customers in Latin America. An example is Walmart's digital banking app Cash.⁷
- Wise (formerly TransferWise)⁸ – With Wise, online international money transfers costs for consumers are reduced to an average of 0.7% compared with 3-4% from U.S. banks, by matching currency orders within a country.

⁴ Rebecca Menat – Director of Communications of the Assets

⁵ SME – Small and medium-sized enterprises

⁶ Marqeta Official Website – <https://www.marqeta.com/uk>

⁷ Arcus Official Website – <https://www.arcusfi.com/>

⁸ Wise Official Website – <https://wise.com/>

- Paysera⁹ – Helps clients to transfer money quickly and easily in many different currencies across the world, available to everyone, anytime at a fairer price than banks.

Finance Management

- Spendee¹⁰ – Helps its users to sort their transactions into different categories by connecting the user's mobile phone with the customer's bank account and downloading all transactions.

Lending. Dropping all obstacles faced in loaning from banks, FinTech is making it easier for small business and startups.

- OppLoans¹¹ – Insures middle-income consumers a better financial path, by choosing a loan with rates that work best for them (Daley, 2021).

2.3. FinTech Benefits and Risks

Benefits

- Cost Efficiency – Strengthening business models of financial institutions with Robo-advice and RegTech. Lowering transaction costs and providing better capital allocation via FinTech lending (FSB, 2017).
- Transparency/Lower information asymmetries – By providing transparency and clarity on fees and charges (KPMG, 2017).
- Faster and personalized operative processes through online or mobile platforms – Personalizing services and significantly enhancing customer engagement and experience (KPMG, 2017). With the improvement of financial services across all participating companies, visibility and access to FinTech services is at the easiest (Vučinić, 2020).

Risks

- Lack of regulation – Supervisory authorities and regulatory frameworks must be adapted to the rapid expansion of FinTech (Gu, 2021).
- Cyber-risk – Financial organizations accumulate a lot of data and the security of it is top priority of the companies using and participating in this sector as hackers can access and use this information for financial fraud¹² (Burak, 2021).
- Technology failure – Includes problems due to poor or lack of internet signal resulting in wrong data entry, process management failures, error in systems' maintenance, delivery failures and execution failures.

2.4 Development through years – FinTech Phases

The evolution of Fintech has gone through three different stages of evolution (W. Arner, Barberis, & P. Buck, 2017), each one having great importance.

- FinTech First Phase – 1866 to 1967
In 1866 financial globalization was successfully possible through the laying of the first transatlantic cable. In 1918 a transfer system was developed enabling the movement of

⁹ <https://www.paysera.com/v2/en/index>

¹⁰ Spendee Official Website – <https://www.spendee.com/>

¹¹ Opploans Official Website <https://www.opploans.com/>

¹² Financial Fraud – Cooking the books, making false insurance claims, fraud schemes, and identity theft leading to unauthorized purchases (<https://www.investopedia.com/terms/f/fraud.asp>)

funds electronically to member banks, Fedwire. In 1950, Diner's Club Inc. offered the first universal credit card which could be used in different establishments (C2FO, 2021).

FinTech Second Phase – 1967 to 2008

In 1967, the first ATM¹³ was installed by Barclays Bank. In the 1990s Internet development led to digital banking platforms giving customers flexibility in managing their expenses and incomes. In 1973 was established SWIFT¹⁴. In 1998 the first online payment system was launched, PayPal. This phase ended with the Global Financial Crisis in 2008.

– FinTech Third Phase – 2008 to Present

After the Global Crisis, the trust of customers toward banks was heavily shaken leading people to trust far more technology firms to manage their money rather than banks. What has characterized this phase with rapid growth was the development of technology. In 2011 was the introduction of Google Wallet, followed then by Apple pay in 2014¹⁵.

3. METHODOLOGY

3.1. FinTech In Albania

Albania in Banking Sector (e-banking, payment sector). What we will study in this paper, with a brief view, is how much do the current payments transaction and money transfers cost and where they stand compared with transactions held through FinTech companies. The following table will show three second-level Albanian banks and their incomes from commissions and fees.

Table 1. Incomes from commissions and fees (lek currency)

Banks	2019	2020
Intesa Sanpaolo Bank	1,208,021	1,092,457
Credins Bank	1,131,895	1,169,700
BKT	1,752,372	1,932,044

Source: Banks Income Statements¹⁶

Table 2. Albanian Banks commissions and fees

	Raiffeisen Bank	BKT Bank
Transfers within bank from individual clients	50 ALL from the bank branch / 0 ALL online	100ALL from bank branch
Transfers within bank from business clients	100 ALL from the bank branch / 0 ALL online	
Transfers outside bank from individual clients	0.033% Min.500 – Max.1.500 ALL & 0.17% Min.10€ – Max.150€ from the bank branch / 50% discount from branch commission for ALL and 10% to 20% discount for EUR online. For Eur transfers + 6€ Swift Commission + OUR Commission 10€ – 25€ (when specified so)	200ALL for transactions till 300,000 ALL, 300000 – 1499999ALLfee 1200ALL, over 1500000ALL fee 1500ALL / for other currencies 0.15% fee (min 8EUR – max 200EUR) + Swift Commission 8EUR / 1000ALL

Source: raiffeisen.al & bkt.com.al

Money Transmitter Fees in Albania. Remittances have a great impact on the Albanian economy; Albanians, on the other hand, are traditional in decision making when it comes to the safety of their cash by choosing what they are more familiar with. MoneyGram and Western Union are two of the

¹³ ATM – Automated Teller Machine

¹⁴ SWIFT – Society For Worldwide Interbank Financial Telecommunications

¹⁵ Evolution of Fintech – Zigurat, Innovation & Technology Business School (<https://www.e-zigurat.com/innovation-school/blog/evolution-of-fintech/>)

¹⁶ Income statements source – <https://qkb.gov.al/kerko/kerko-ne-regjistrin-tregtar/kerko-per-subjekt/>

biggest operators in this sector. According to the World Bank transferring a value of 200 USD in Albania costs 9.39%, whereas the average global cost is 7.25% (The World Bank, 2017).

Table 3. MoneyGram Transfer Fees Worldwide

Value Transferred	Fees
0.01 – 100	8
100.01-200	16
200.01-300	21
300.01-400	26
400.01-600	32
600.01-800	38
800.01-1100	45
1100.01-1400	52
1400.01-1700	62
1700.01 – 2100	77
2100.01 – 2500	95
2500.01 – 3000	116

Source – AKInvest¹⁷

FinTech Development in Albania. Albania is still in the first steps into FinTech development, Central Bank is supporting this sector by incorporating PSD2¹⁸ into the Albanian law to facilitate this process, and also software development companies have been eligible for tax relief since January 2019¹⁹.

In this section, we will take a look at FinTech companies' services fees so that we can compare them with the above platforms.

EasyPay. Deposit to EasyPay electronic account is FREE. Electronic cash transfers from one EasyPay client to another EasyPay client are FREE. Electronic money transfers, withdrawn in cash at EasyPay Authorized Agents are subject to a service fee as above.

Table 4. EasyPay Money Transfers Fees

Value	With EasyPay account	With its agents
200-2000	0 – All	60 – All
>2001	0 – All	3% of value

Source: EasyPay Website²⁰

Core functions are:

- Payment system for the exchange transactions,
- Transfer system,
- Lending etc.

These are services widely offered by banks in Albania. What Fintechs offer more is cost and time transaction reduction, efficiency, faster and more accurate technology. Albanian banks as banks worldwide are adapting to the new changes, transforming profoundly and partnering with the Fintech start-ups (Raiffeisen Bank in Albania, 2021).

¹⁷ AKInvest – <https://ak-invest.com/MoneyGram>

¹⁸ Revised Payment Services Directive 2 – aims to better align payment regulation with the market and technology's current state

¹⁹ <https://www.discover-cee.com/the-albanian-fintech-scene-in-the-spotlight/>

²⁰ <https://easypay.al/llogaria-easypay/#tarifat-dhe-limitet>

3.2. Survey Results

This survey is addressed to bank employees in Albania. It aims to obtain general information on the position of Albanian banks regarding the development of FinTech. The survey was drafted after analyzing the strong relationship between banks and FinTechs as potential opponent or collaborator, as well as e-banking representing the more advanced technology used from banks in order to adapt with market requests. The survey is structured in five parts, to gather different information. The survey was completed by 14 bank branches in Albania in one week. The results of the survey are given below.

Survey analyzes and results:

1. Referring to the first question is important to know the position of the interviewees because it establishes the importance of the answers given. The answer of the bank employees in a higher position is more valuable due to its decision-making possibility and participation in overtaking the steps toward structure changes. To a considerable extent the answers from this questionnaire are from the intermediate level of management with 92.9% and only 7.1% are from the high level of management.
2. The second and fourth question give information regarding the use of e-banking and the sector in which it is used the most. Even though Albania is thought to have moved forward in the adaptation of e-banking and technology in general, there are still many gaps that need to get over. Compared to the promotion made from banks, even though e-banking is a necessary tool when dealing with a new field, according to banks it is not used enough. 46.2% of the answers state that e-banking is sufficiently used and 23.1% state that it is considerably used, showing in this way not a very widespread usage. Further support for this answer from banks, is the conclusion from the fourth question (see appendix). Payment sector is the most used by bank's clients with a percentage of 85.7% and, bank's income from commission is one of the most profitable services for them. This implies that e-banking is the most common service, comparing to other services offered by banks online.
3. Understanding the difficulties and dysfunctions of the existing systems used in e-banking helps us understand more Albanian customers and technologies used by banks. Albanian users of e-banking with 50% of the answers, are more predisposed in finding difficulties related to the use of the services offered online, showing in this way lack of technology and innovation embracement. Problems and difficulties derived from problems of bank's systems, as results of malfunctions with 35.7% and technology problems with 64.3% and therefore bringing complaints from customers. Although FinTech is widely seen as an opponent of the banking system, Albanian banking employees claim the opposite. They see FinTech as a future collaborator and partner of banks, accepting in this way the importance, innovation and benefits that companies of the FinTech sector are bringing. On the other hand, agreeing that payment services are the most used in those offered by FinTechs, indicates a collision between two sectors.
4. To conclude, the representatives of banks were asked if they have a plan for FinTech development, 64.3% of them did not have any information. Although in a small percentage 28.6% of the answers confirmed to have a plan toward the latest changes in technology and innovations.

4. CONCLUSION

Conclusions from this paper are divided into five key points relying on the reviewed literature and the results from the questionnaire answers.

FinTech Development is a Necessity. FinTechs companies provide to financial institutions, banks and companies, advanced technologies and tools (Crouhy, Galai, & Wiene, 2021). Offering cost reduction, time reduction, innovative, personalized processes, FinTechs are being more appealing to less-lucrative retail clients and to SMEs (Crouhy, Galai, & Wiene, 2021). On the other hand, supporting FinTech is a necessity, as seen from the developed questionnaire, customers are dissatisfied with e-banking (as the most competitive form of FinTechs) resulting from technical problems, being not innovative in technology, or not adapting the customer needs relating with the latest changings.

FinTech Difficulties. Being a new sector, FinTech companies are seen to have a lack of regulations and supervision organizations (Narváez, 2021), unlike banks that have a well-structured control system operating for years. This encourages distrust of customers toward choosing FinTechs over banks. Representing developed technology, FinTech can suffer also from lack of customer understanding, bringing difficulties in adaptation with the offered services (KPMG, 2019). Albanian customers according to our questionnaire have had problems in using e-banking as the closest form of technology advancement, implying a gap between customers and the use of online platforms. This shows a major problem that FinTech faces and a reason why companies in this sector are not developed and are not considered a choice for customers.

FinTech in Albania. FinTech development in Albania faces various obstacles, lack of financial inclusion is one of these difficulties. Albania compared to other SEE²¹ countries or even upper-middle-income countries has the lowest share of adults with a transaction account. This indicator in upper middle income is at 73.1%, while in Albania it is at 40% (The Global Findex Database, 2017). This underdevelopment in Albania might come mainly as a result of the poor information and lack of financial education. A conclusion drawn from our questionnaire is that in order to adapt more quickly to the Albanian market, FinTechs should focus on sectors that are mostly used such as payments, transaction costs, followed by the lending or financing sector and data management.

Albanian banks toward FinTech development. 28.6% of the answers from the last question directed to Albanian banks implied that they had a strategy to deal with technology and FinTech development. This low percentage is a result of the low number of interviewers or the fact of not being part of leadership level, but certainly all interviewed levels agree on the benefits that the embracement of new technology would bring and all banks must boost it.

FinTech & Banks. In banking institutions, all services offered by FinTechs are fully integrated (Crouhy, Galai, & Wiene, 2021), but the problem remains in the efficiency of those services. Banks have been operating for a much longer time gaining in this way the trust and reputation of many loyal customers. They also are managed under a regulatory umbrella being safer and more trustful (Crouhy, Galai, & Wiene, 2021). Being aware of these advantages banks are now trying to embrace the new and modern technologies and also partnering with FinTechs. As far as partnering, banks and FinTechs are also seen as opposing. Payment sector is the most used in e-banking and in the same way the most preferred and successful in FinTech, due to low-cost transaction. In this way, transferring money through EasyPay would not add extra cost whereas using different money transmitter in Albania would cost a minimum of EUR 8 to EUR 116; banks also apply different fees depending on the amount transferred.

²¹ SEE- Southeastern Europe countries

The number of banks partnering with FinTechs or adapting the newest technologies is a recognition of the need to keep up with the innovations coming with financial globalization and help to accelerate benefits from technology improvement. According to research from Tink,²² it was found that 69% of the financial institutions in Europe in 2019 increased their number of financial technology partnerships. From this partnership, banks can access emerging technology and innovative new ways of working is in this way more competitive and able to meet the consumer needs (Giesecke & Devrient, 2021).

REFERENCES

- Chishti, S., & Barberis, J. (2016). *The FinTech Book*. John Wiley & Sons Ltd.
- Crouhy, M., Galai, D., & Wiene, Z. (2021). *The impact of FinTechs on Financial Intermediation: A Functional Approach*. The Journal of FinTech.
- Leong, K., & Sung, A. (2018). *FinTech (Financial Technology): What is It and How to Use Technologies to Create Business Value in Fintech Way?*
- The World Bank. (2017). *Nje Pasqyre e Tregut te Remitancave ne Shqiperi*.
- W. Arner, D., Barberis, J., & P. Buck, R. (2017). *Fintech and Regtech in a nutshell and the future in a sandbox*. CFA Institute Research Foundation.
- Burak, A. (2021). *CyberSecurity in FinTech: how to develop a secure FinTech App*. Retrieved from Relevant: <https://relevant.software/blog/cybersecurity-in-fintech/>
- C2FO. (2021, July 13). *The History and Evolution of the Fintech Industry*. Retrieved from C2FO: <https://www.c2fo.com/amer/us/en-us/resource-center/article/07212021/the-history-and-evolution-of-the-fintech-industry>
- Daley, S. (2021, August 11). *22 Fintech Lending Companies Upending the Credit Card, Mortgage and Loan Industries*. Retrieved from built in Beta: <https://builtin.com/fintech/fintech-lending-applications>
- Douglas W. Arner, Dirk A. Zetzsche, Ross P. Buckley and Janos N. Barberis. (2017). FinTech and RegTech: Enabling Innovation While Preserving Financial Stability. *Georgetown Journal of International Affairs*, 47-58.
- Feyen, Erik; Frost, Jon; Gambacorta, Leonardo; et al. (2021). *Fintech and the digital transformation of financial services: implications for market structure and public policy*.
- BIS Papers. FSB. (2017). *Financial Stability Implications from FinTech Supervisory and Regulatory Issues that Merit Authorities' Attention*. Financial Stability Board.
- Giesecke & Devrient, (2021). Fintechs vs. traditional banking: friends or foes? <https://www.gide.com/en/spotlight/payment/fintechs-vs-traditional-banking>.
- Gu, A. (2021, May 6). *FinTech's opportunities and risks, and the importance of regulation for the protection of human rights*. Retrieved from Universal Rights Group Geneva: <https://www.universal-rights.org/universal-rights-group-nyc-2/fintechs-opportunities-and-risks-and-the-importance-of-regulation-for-the-protection-of-human-rights/>
- Hill, J. (2018). *Fintech and the Remaking of Financial Institutions*. Elsevier Inc.
- Kauflin, J. (2021). *The Future Of Payments: Fintech 50 2021*. Forbes.
- KPMG. (2017). *Value of Fintech*.
- KPMG. (2019). *Regulation and supervision of FinTech*.
- Mikolaj Rogowski. (2013). *Harnessing Central and Eastern Europe's innovative potential*. WIPO Magazine.

²² Tink – An opening banking platform that enables banks, fintechs and startups across Europe to develop data-driven financial services (Open Banking).

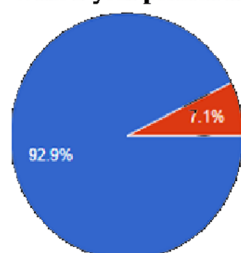
- Monei. (2021, May 13). *Fintech vs Traditional Banks: Competition or Collaboration?* Retrieved from Monei: <https://monei.com/blog/fintech-vs-traditional-banks/>
- Narváez, M. I. (2021). *Necessity of a fintech global regulation*. <https://revistascientificas.cuc.edu.co/juridicascuc/article/view/2923>.
- Nino, J. L., Langthaler, J., Fabian, M., & Mayorga, J. (2017). *AN OVERVIEW OF FINTECHS: THEIR BENEFITS AND RISKS*. Association of Supervisors of Banks of the Americas.
- Odorović, A., McKain, G., Garvey, K., & al, e. (2020). *Fintech innovation in the Western Balkans: policy and regulatory implications & potential interventions*. International Bank for Reconstruction and Development / The World Bank Group.
- Open Banking. (n.d.). <https://www.openbanking.org.uk/regulated-providers/tink/>.
- Raiffeisen Bank in Albania. (2021). The bank that makes innovation part of its culture. *CEE FinTech Atlas*, <https://www.cee-fintechatlas.com/2021/08/27/the-bank-makes-innovation-part-of-its-culture/>.
- Riemer, K., Hafermalz, E., Roosen, A., & et al. (2017). The Fintech Advantage – Harnessing digital technology, keeping the customer in focus. *e Australian Digital Transformation Lab*.
- Sironi, P. (2016). *FinTech Innovation*. 2016 John Wiley & Sons, Ltd.
- Stern, C. (2017). *Fintechs and their emergence in banking services in CESEE*. Oesterreichische Nationalbank.
- The Global Findex Database. (2017). <https://globalfindex.worldbank.org/>.
- The World Bank Group. (2020). *A Roadmap to SupTech Solutions for Low Income (IDA) Countries*. Finance, Competitiveness & Innovation Global Practice.
- Vučinić, M. (2020). *Fintech and Financial Stability Potential Influence of FinTech on Financial Stability, Risks and Benefits*.

ANNEX

1. What is your position in bank:
 - a) Intermediate level of management
 - b) High level of management
 - c) Leadership level
2. How developed/used is e-banking by your bank customers:
 - a) Compared to the promotion made by bank, sufficiently used
 - b) Compared to the promotion made by bank, considerably used
 - c) Compared to the promotion made by bank, widely used
3. Have customers encountered difficulties in adapting / accepting / using e-banking:
 - a) Yes, they have had difficulties in use
 - b) Yes, they have had difficulties in acceptance
 - c) No, they were easily adapted
4. What are the services that according to the use have the most frequent e-banking:
 - a) Saving
 - b) Funding
 - c) Payments
 - d) Exchange
 - e) Balance verification and payment
5. Are there frequent customer complaints due to the system used in your bank:
 - a) Yes, there is often dissatisfaction towards system malfunction
 - b) Dissatisfactions are rare and come mainly from technical problems
 - c) No, there are no complaints from customers
6. Do you think that the absorption of new technologies by banks would bring:
 - a) Providing services at the lowest cost
 - b) Shorten time of banking procedures
 - c) Increased customer satisfaction
 - d) It would not make a big difference
7. Do you see FinTech as a potential opponent or partner of the bank:
 - a) Opponent
 - b) Collaborator
 - c) Both
8. In which sector do you think FinTech will be most successful:
 - a) Payment
 - b) Remittances
 - c) Lending / Financing
 - d) Data management
 - e) Transaction cost
 - f) other
9. Does the bank that you represent have a strategy to deal with FinTech development
 - a) Yes
 - b) No
 - c) Do not have information

APPENDIX – RESULTS FROM THE SURVEY

1- What is your position in bank:

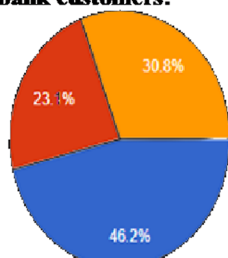


Intermediate level of management

High level of management

Leadership level

2- How developed / used is e-banking by your bank customers:

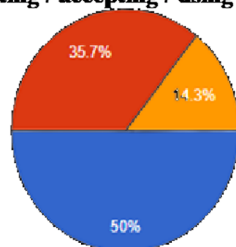


Compared to the promotion made by bank, sufficiently used

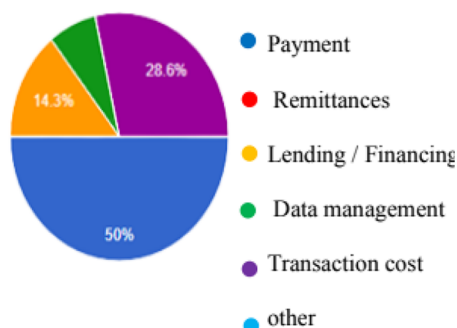
Compared to the promotion made by bank, considerably used

Compared to the promotion made by bank, widely used

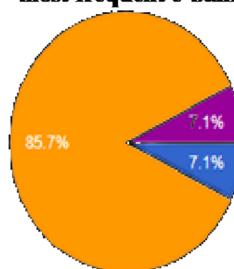
3- Have customers' encountered difficulties in adapting / accepting / using e-banking:



8-In which sector do you think FinTech will be most successful:



4-What are the services that according to the use have the most frequent e-banking:



Saving

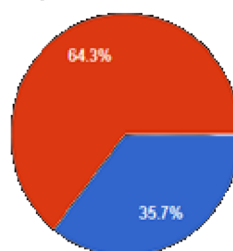
Funding

Payments

Exchange

Balance verification and payment

5-Are frequent customer complaints due to the system used in your bank:

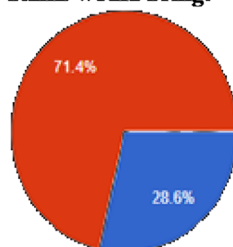


Yes, there is often dissatisfaction towards system malfunction

Dissatisfactions are rare and come mainly from technical problems

No, there are no complaints from customers

6-Do you think that the absorption of new technologies by banks would bring:



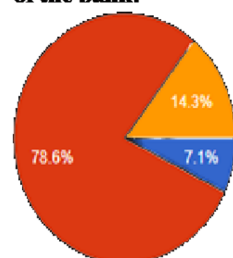
Providing services at the lowest cost

Shorten time of banking procedures

Increased customer satisfaction

It would not make a big difference

7-Do you see FinTech as a potential opponent or partner of the bank:

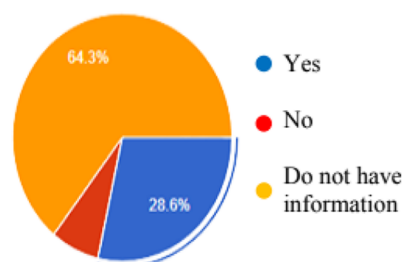


Opponent

Collaborator

Both

9-Does the bank that you represent have a strategy to deal with FinTech development



Yes

No

Do not have information



Evaluating Financial Performance of IT Companies in the Consolidated Group

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Keywords:

Consolidated group;
Financial indicators;
Parent company;
Subsidiary company



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Abstract: *This paper deals with the evaluation of the financial performance and financial position of IT companies in the consolidated group. The subject of the investigation is a consolidated group consisting of a parent company domiciled in Germany and its subsidiary in Slovakia. The article aims to point out the mutual relations within the consolidated group through correlation coefficients. The examined relations are in the area of profitability, indebtedness, liquidity and some macroeconomic indicators. The paper set out two objectives of the research: 1) within the consolidated group, the mutual relations between the parent company and the subsidiary are not significant; 2) within the consolidated group, the mutual relations between the parent company and the subsidiary are significant. Interesting conclusions emerged from the comparison of correlation coefficients.*

1. INTRODUCTION

Currently, one of the promising areas of business is the creation of consolidated groups of companies, economically interconnected, but at the same time remaining separate legal entities. Therefore, issues related to the evaluation of the financial performance of the consolidated group are topical. Owners, investors, creditors and other stakeholders pay special attention to the financial analysis of the consolidated financial statements, which is structured information about the financial situation, financial performance and changes in the group of companies. Consolidated financial statements are a statement prepared by the parent company for the entire set of controlled companies (subsidiaries), which reflects the financial situation and performance of all companies included in the consolidation area as one fictitious economic entity. Consolidated financial statements are not the financial statements of a legally independent business organization. It does not serve to identify taxable profit, it only serves to provide an overview of the company's activities and is an additional source of information. Consolidated reporting is distinguished by a pronounced analytical focus. Its main feature is that any internal corporate financial and business transactions are excluded during consolidation, therefore the formation of consolidated statements requires not only a mechanical set of reporting indicators but also the use of special accounting and settlement actions and techniques. One of the important characteristics of the financial condition is the assessment of financial performance, which makes it possible to understand how the consolidated group is profitable.

A review of modern economic literature has shown that until now there is no consensus about what is meant by the financial stability of an enterprise, and for a consolidated group, this term is not defined at all (Drutskaya, 2018).

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It can be stated that the assessment of financial performance and situation of the consolidated unit depends on the needs of users of its financial statements. In order to evaluate the financial performance of the entities within the consolidated group, the indicators of financial analysis were used in the article.

2. LITERATURE REVIEW

Anderson et al. (2012) researched the innovation culture and economic performance of ICT firms in Tunisia. In the research, they focused on qualitative variables. They found that firms which do not tolerate employees' mistakes are more close to achieving higher performance. They concluded that these firms have lower internal control costs (p. 202). Drutskaya and Karpova (2018) dealt with analytical options of the consolidated financial statements to characterize the financial stability of the consolidated group. They found "analytical possibilities and options of consolidated reporting contribute to the development of strategies and justification of plans for which management decisions are made and the reserves for improving the group's financial status are identified" (p. 1383). However, the authors did not deal with the mutual relations of financial stability between the entities in the consolidated group. Dubyna et al. (2022) analyzed the impact of the ICT sector on the economic development of six Eastern European countries using macroeconomic indicators. Their study showed that the ICT sector plays a key role in the development of the national economies. They came to the results that the share of ICT specialists in companies, the use of ICT in trading, the use of ERP software, positively affect the share of the ICT sector in the GDP of the country (p. 178). Arlandis and Ciriani (2010) divided the ICT sector into an ecosystem consisting of layers according to the type of ICT services provided. They concluded that the intermediation platform operators (e.g. Amazon, Facebook, Yahoo) reached the highest profitability, and after them is a layer of network and telecommunication operators (AT&T, Deutsche Telecom) ranked (p.138). Indicators as debt ratio, growth rate and ROA within ICT firms in the emerging market have been observed by Chon (2015). She stated, "Debt ratio has a significant and positive impact on investment (net capital expenditures) in the emerging market" (p. 1). Hyytinen and Pajarinen (2005) observed a relation between the leverage ratio of ICT firms and R&D investments. They concluded that ICT firms run more conservative leverage ratios than other small firms. Moreover, in the ICT sector, high R&D firms are clearly less leveraged than low R&D firms. Thus, "R&D has a negative effect on the leverage" (p. 124). The group of 38 indicators to evaluate the consolidated unit used Karmańska and Wiśniewska (2020). They evaluated the profitability, cash flow, and indebtedness of the parent company based on consolidated financial statements (p. 177). As only the parent company was the subject of the analysis, they did not extend their research to the subsidiaries. Ganyam and Ivungu (2019) compiled a review of the literature regarding the effect of the accounting information system on the financial performance of companies. In the article, they presented the theoretical foundations for measuring performance: contingency theory, resource-based view theory, and agency theory (p. 43). The main differences between consolidation theories have been described by Nistor (2015). Among several theories (proprietary theory, entity theory, enterprise theory, parent company theory, parent company extension theory, residual equity theory) she prefers "both entity theory and parent company theory" (p. 434). Müller (2012) examined the value relevance of consolidated financial statements from the perspective of entity theory and parent company extension theory. After a statistical comparison, he found a higher relevance of the parent company extension theory (p. 954). Shamim (2007) used a correlation analysis to evaluate the relationship between the use of ICT and macroeconomic indicators of financial development. The results showed "a strong dependence among financial development

indicators and connectivity variables” (p. 360). A review of the literature shows that there is a lack of scientific articles on the mutual influence of the parent and subsidiary companies.

3. METHODOLOGY AND DATA

The article analyzes two companies (Germany, Slovakia) of the consolidated group which operate in the IT sector. The consolidated group consists of the parent company which has set up 525 subsidiaries. It is a telecommunications company that currently has approximately 242 million customers and more than 226 000 employees. The article analyzes two companies – parent and subsidiary. The first company is the parent company, based in Germany. The parent company has set up subsidiaries in Europe, North and South America, Canada, Asia and South Africa. The parent company has thus formed a group that operates mobile connections, fixed networks and other global information technology solutions. The largest number of subsidiaries is located in Europe. One of the subsidiaries is a Slovak company that deals with digital solutions for customers in the global market. This company provides outsourcing services, customer database management, controlling, reporting and accounting. Data for the years 2011 to 2020 were obtained for both companies. The data were obtained from the annual reports and financial statements of the companies. The analyzed data represented net profit, assets, equity, and total debt. These indicators were calculated from them: return on assets as a ratio between net income after tax and average total assets; return on equity as a ratio between net income after tax and average common shareholders’ equity; and debt ratio as a relation between total debt and total assets. Unemployment data of Germany and the Slovak Republic in percentages were obtained from the reports of the statistical offices of the countries. The obtained data – variables, were arranged in a correlation analysis matrix. Each indicator is indicated whether it is a parent company (P) or a subsidiary (S). The net profit is indicated in the table as Profit P or S, total assets as Assets, total debt as TotDebt, debt ratio as DebtRatio, unemployment as Unempl. The results of the correlation analysis are shown in the table using Pearson’s correlation coefficients. Thus, the answers to the research tasks were evaluated, whether, within the consolidated group, the mutual relations between the parent company and the subsidiary are not significant; or, the mutual relations between the parent company and the subsidiary are significant.

4. RESULTS

The results of the correlation analysis are shown in Table 1. Strong positive dependencies between some indicators were expected (EquityS – ProfitS 0,8857; EquityS – AssetsS 0,9170; TotDebtP – AssetsP 0,9629; ROA, ROE with Profit, both parent and subsidiary 0,9944 etc.) The parent company quantified a loss in 2012, which reduced the dependency ratio for several profitability indicators. That apparently caused substantial dependence between indicators EquityP – ProfitP (0,6015) and EquityP – AssetsP (0,7437). The subsidiary did not record a loss in the analyzed period and thus the dependence between EquityS – ProfitS (0,8857) and EquityS – AssetsS (0,9170) is higher than that of the parent company. A substantial part of the parent company’s assets are financial investments in subsidiaries. The subsidiary is linked to the parent mainly with short-term liabilities. This relationship between the parent company and the subsidiary is expressed by a strong dependency between the parent’s assets and the subsidiary’s total debt (AssetsP – TotDebtS 0,8954). The strong dependence between the total debt of parent and subsidiary (TotDebtP – TotDebtS 0,8507) is due to the same procedures for creating short-term provisions for pension plans and remuneration in both companies. The subsidiary is less indebted than the parent company. The lower indebtedness of the subsidiary is documented by

the medium dependence between the debt ratio and total debt (DebtRatioS – TotDebtS 0,3545). On the other hand, the relationship between the debt ratio and total debt showed a higher indebtedness of the parent company (DebtRatioP – TotDebtP 0,9034). The macroeconomic unemployment rate (UnemplP and UnemplS 0,9645) in both countries showed an almost perfect dependence. Although unemployment in both countries is at different levels, its development is in line. An interesting negative dependence is between the increase in assets and debts and the decrease in unemployment in both cases: (AssetsP and UnemplP -0,9208; AssetsS and UnemplP -0,8769; AssetP and UnemplS -0,9365; AssetS and UnemplS -0,8705). Total debts of parent and subsidiary are in similar very strong dependency with unemployment in both cases. It can be assumed that an increase in the balance sheet total is linked to a decline in unemployment in general. The results of the correlation analysis are shown in Table 1.

Table 1. Correlation analysis table

	ProfitP	ProfitS	AssetsP	AssetsS	EquityP	EquityS	TotDebtP	TotDebtS	ROA P	ROA S	ROE P	ROE S	DebtRatio P	DebtRatio S	UnemplP	UnemplS
ProfitP	1															
ProfitS	0,4692	1														
AssetsP	0,5588	0,2988	1													
AssetsS	0,5548	0,7681	0,7931	1												
EquityP	0,6015	0,3156	0,7437	0,5526	1											
EquityS	0,5613	0,8857	0,5612	0,9170	0,3269	1										
TotDebtP	0,4631	0,2500	0,9629	0,7788	0,5358	0,5769	1									
TotDebtS	0,4406	0,4904	0,8954	0,8984	0,6944	0,6485	0,8507	1								
ROA P	0,9944	0,4653	0,4889	0,5126	0,5605	0,5401	0,3913	0,3834	1							
ROA S	0,3240	0,9297	-0,0360	0,4828	0,1233	0,6962	-0,0952	0,1546	0,3434	1						
ROE P	0,9975	0,4609	0,5226	0,5341	0,5634	0,5538	0,4327	0,4093	0,9986	0,3248	1					
ROE S	0,3392	0,9361	0,0924	0,5583	0,3187	0,6702	-0,0119	0,3273	0,3468	0,9596	0,3291	1				
DebtRatio P	0,2620	0,1640	0,7551	0,6517	0,1249	0,5432	0,9034	0,6454	0,1988	-0,1432	0,2457	-0,1513	1			
DebtRatio S	-0,1410	-0,4922	0,3340	-0,0899	0,4558	-0,4777	0,2379	0,3545	-0,1781	-0,6358	-0,1687	-0,3956	0,0093	1		
UnemplP	-0,3616	-0,4472	-0,9208	-0,8769	-0,7014	-0,6288	-0,8800	-0,9809	-0,2944	-0,1131	-0,3236	-0,2788	-0,6774	-0,3523	1	
UnemplS	-0,5111	-0,4576	-0,9365	-0,8705	-0,8043	-0,6539	-0,8583	-0,9408	-0,4478	-0,1347	-0,4730	-0,2842	-0,6076	-0,2927	0,9645	1

Source: Own calculation

The research question was whether or not there were significant relationships between the variables in the consolidated group. Mutually influenced variables (eg. profit and equity) were excluded from the analysis. The relationship between the assets of the parent company and the total debt of the subsidiary showed a very strong dependence. Another interesting strong dependence was the relationship between the total debt of the parent company and the subsidiary. The indirect very strong dependence between the balance sheet total and unemployment confirmed the principle of the favorable impact of investment and the reduction of unemployment.

5. FUTURE RESEARCH DIRECTIONS

Further research could provide more detailed results. The research would need to be expanded with more detailed items: non-current assets, non-current liabilities, working capital, number of employees, number of subsidiaries, EBIT, EBITDA, personal expenses, etc. The range of evaluation indicators will need to be expanded to include profitability, activity and indebtedness of units in the consolidated group. Although the research will be more extensive, it will provide a detailed picture of the relationships in the consolidated group.

6. CONCLUSION

The article aimed to find out if the mutual relations in the consolidated group between the parent company and its subsidiary are not significant; or, the relations are significant. The object of the research was a parent company based in Germany and its subsidiary based in Slovakia. The

indicators showed strong dependence between the assets of the parent company and the total debt of the subsidiary, and between the total debt of the parent company and the total debt of the subsidiary. Strong dependence was demonstrated by the unemployment indicator of Germany and Slovakia. There was a very strong indirect dependence between the balance sheet total indicators of both types of companies and unemployment in both countries.

REFERENCES

- Anderson, A. R., El Harbi, S., & Amamou, M. (2012). Innovation Culture and the Economic Performance of Tunisian ICT Firms. *International Journal of Entrepreneurship and Innovation Management*, 16(3/4), 191-208. DOI: 10.1504/IJEIM.2012.05190
- Arlandis, A., Ciriani, S. (2010). How Firms Interact and Perform in the ICT Ecosystem? *Communications & Strategies*. 79(3), 121-141.
- Chon, M., L. (2015). Investment and Debt Ratio of ICT Firms. *Journal of the Korea Convergence Society*. 6(1), 103-108. <https://doi.org/10.15207/JKCS.2015.6.1.103>
- Drutskaya, M. V., Karpova, N. A. (2018). Analytical Options of Consolidated Financial Statements to Characterize Financial Stability. *International Accounting*, 21(12), 1383-1398. <https://doi.org/10.24891/ia.21.12.1383>
- Dubyna, M., Kholiavko, N., Zhavoronok, A., Safonov, Y., Krylov, D., & Tochylna, Y. (2022). The ICT Sector in Economic Development of the Countries of Eastern Europe: a Comparative Analysis. *WSEAS Transactions on Business and Economics*. 19, 169-185. DOI: 10.37394/23207.2022.19.18
- Ganyam, A., I., Ivungu, J., A. (2019). Effect of Accounting Information System on Financial Performance of Firms: A Review of Literature. *IOSR Journal of Business and Management*. 21(5), 39-49. DOI: 10.9790/487X-2105073949
- Hyytinen, A., Pajarinen, M. (2005). Financing of Technology-Intensive Small Businesses: Some Evidence on the Uniqueness of the ICT Sector. *Information Economics and Policy*. 17(1), 115-132. <https://doi.org/10.1016/j.infoecopol.2004.03.005>
- Karmańska, A., Wiśniewska, D. (2020). The Concept of a Ratio Analysis of Consolidated Financial Statements Applied to Listed Capital Groups on the Example of the Deutsche Börse Group. *Zeszyty Teoretyczne Rachunkowości*. 110(166), 155-180. <http://dx.doi.org/10.5604/01.3001.0014.5555>
- Müller, V., O. (2012). Value Relevance of Group Financial Statements Based on Entity Versus Parent Company Theory: Evidence from the Largest Three European Capital Markets. *The Annals of the University of Oradea*. 21(1), 949-955.
- Nistor, C. (2015). Some Aspects Regarding the Theories of Consolidated Financial Statements. *SEA: Practical Application of Science*. 3(1), 431-436.
- Shamim, F. (2007). The ICT environment, financial sector and economic growth: a cross-country analysis. *Journal of Economic Studies*. 34(4), 352-370. <https://doi.org/10.1108/01443580710817452>
- Annual average unemployment rate in Germany from 2005 to 2021. 2022. [cited 2022-01-25]. Available on: <<https://www.statista.com/statistics/227005/unemployment-rate-in-germany/>>
- Register of Financial Statements: Deutsche Telekom Systems Solutions Slovakia, s.r.o. [online]. 2022 [cited 2022-01-25]. Available on: <<https://registeruz.sk/cruz-public/domain/accountingentity/show/142742>>
- Deutsche Telekom Financial Results. [online]. 2022 [cited 2022-01-25]. Available on: <<https://www.telekom.com/en/investor-relations/publications/financial-results>>



Management and Access Control in Enterprise Resource Planning in an Organizational Context

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Keywords:

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SAP;
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Abstract: Organizations are currently dependent on Information and Communication Technologies. In this sense, Enterprise Resource Planning and Systems, Applications and Products in Data Processing have had great organizational relevance over time, given the ability to aggregate and manage the information underlying the business. The underlying objectives of the paper focus on presenting the importance of ticket management within the scope of a service inserted and supported by the Agile methodology, more specifically in the management of access for ERP SAP users within the scope of an IT project. The methodology adopted is based on Agile SCRUM and the practice established in the organization under study. The main results emphasize that, given the complexity of Enterprise Resource Planning and Systems, Applications and Products in Data Processing, organizations are confronted with the dynamics inherent in the management of Information and Communication Technologies projects.

1. INTRODUCTION

Currently, most organizations are dependent on Information Systems (IS) and Information and Communication Technologies (ICT), as a support to the business and thus creating conditions to delineate competitive strategies.

The Enterprise Resource Planning (ERP) can be constituted as value-added solutions in the sense of aggregating information to support the business, contemplating parameterizations given the specificity of each business and the stakeholders involved. Thus, it is considered that the optimization of ticket management activities, arising from requests from users of Enterprise Resource Planning and Systems, Applications and Products in Data Processing within the scope of the IT project, namely the creation of users, assignment of roles and/or transactions, is of particular interest since it is considered that they should be able to carry out their activities in the context of different projects.

The advantage underlying the use of ERP solutions in an organizational context is of particular relevance given that it allows the optimization of simplified business processes, providing standardizations, making them more simplified and improved (Véstia, 2022).

2. ENTERPRISE RESOURCE PLANNING

The ERP can be considered a set of integrated software, which can be used and when successfully implemented, it can manage and integrate business functions within an organization, contributing to greater agility of processes. Generally, ERP is used strategically, which brings a competitive advantage to the organization. This advantage translates into the integration of pro-

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cesses that facilitates the control and evaluation of efficiency in order to increase productivity, reduce errors, and facilitate decision-making and reduce costs. (Anzilago et al., 2017).

Systems, Applications and Products in Data Processing (SAP) was founded in Germany in 1972 and today remains prominent among business management software manufacturers. The first SAP system was dedicated to the financial component and was called Realtime Financials (RF) and later saw its name was changed to SAP R/1. This was the basis for the software launched by SAP since then, today called modules (Ribeiros, 2018). Over the next decade, SAP created new versions of R/3 to improve it and to integrate new features (Valentim et al., 2014). Later, SAP ERP is launched, which still brings some R/3 system applications, but with more functional solutions and where support for non-implemented processes is contemplated (Costa, 2017). In 2015, SAP S/4 Hana was launched, which brings several innovations such as user experience (Fiori) for mobile devices and combines solutions for local storage as well as in the cloud, intending to run its services online for better communication and facilitating processes. The S/4 also brought advantages such as the optimization of processes so requested by companies (Bradford, 2015).

3. AGILE METHODOLOGY AND TICKETS MANAGEMENT

It is considered that the agile methodology is able to respond to changes in markets and technology, without this it is possible that when projects are developed they are already out of date (Waldock, 2015). According to Massari (2016), being agile is all about simple and direct thinking to achieve a goal with maximum efficiency and minimum waste, being agile is to generate continuous, incremental and valuable deliveries. In this sense, it is essential to understand the real needs of the customer, the value of the product and the solution to the problem. For this, it is necessary to define the needs (preliminary phase of understanding), search for solutions (deconstruct already known answers and explore new options) and generate ideas (Vidal, 2017).

Scrum is an Agile methodology, probably the most used in the field of technology, and that came to answer the problems found in the traditional methodology called Cascade. This was sequential and time-consuming that often resulted in a product not wanted by the customer (Sutherland, 2014; Lei et al. 2015). Thus, Scrum is a project management methodology that makes use of iteration and increment in order to quickly manage changes in requirements and also optimize communication between the various stakeholders (Lei et al, 2015).

The practical application in an organizational context is of particular interest in order to systematize processes. The project is based on the Agile Way of Work (WoW), specifically on the Scrum methodology. As a project naturally has a start and end date, its structure is presented in phases with the objective of building a release. This captures and aggregates all relevant information to build and deliver the solution to the customer. The release is fragmented into sprints in which work items are completed and functionality is built and tested.

The SAP system landscape is characterized by a set of systems, a Development system (Dev), a Production system (Prod) and a Quality assurance system (Qas). In turn, each System is segmented into clients, which are basically portions of each system that are used to perform certain operations. Clients present themselves with a 3-digit numeric set. At the beginning of each project, each system comes by default with the client 000, where a copy is made to the number 100 where, for example, development activities are carried out, then another client is created where tests are carried out (the 200 per ex.) (Véstia, 2021).

The concept of Authorization provides a basis for guaranteeing data security, privacy and integrity. It allows SAP to authorize users to access it through assigned roles, thus ensuring the integrity of accesses, in order to avoid Segregation Of Duties (SOD) conflicts. The SAP Authorization concept protects transactions, programs and services in SAP systems from unauthorized access. Based on the concept of authorization, the administrator assigns authorizations to users, which determine what actions they can perform in the SAP system, after logging on to the system and authenticating themselves. In order to successfully implement the authorization strategy, you need a reliable authorization plan. To produce a plan, you must first decide which users can perform which tasks in the SAP system (ABAP, 2022).

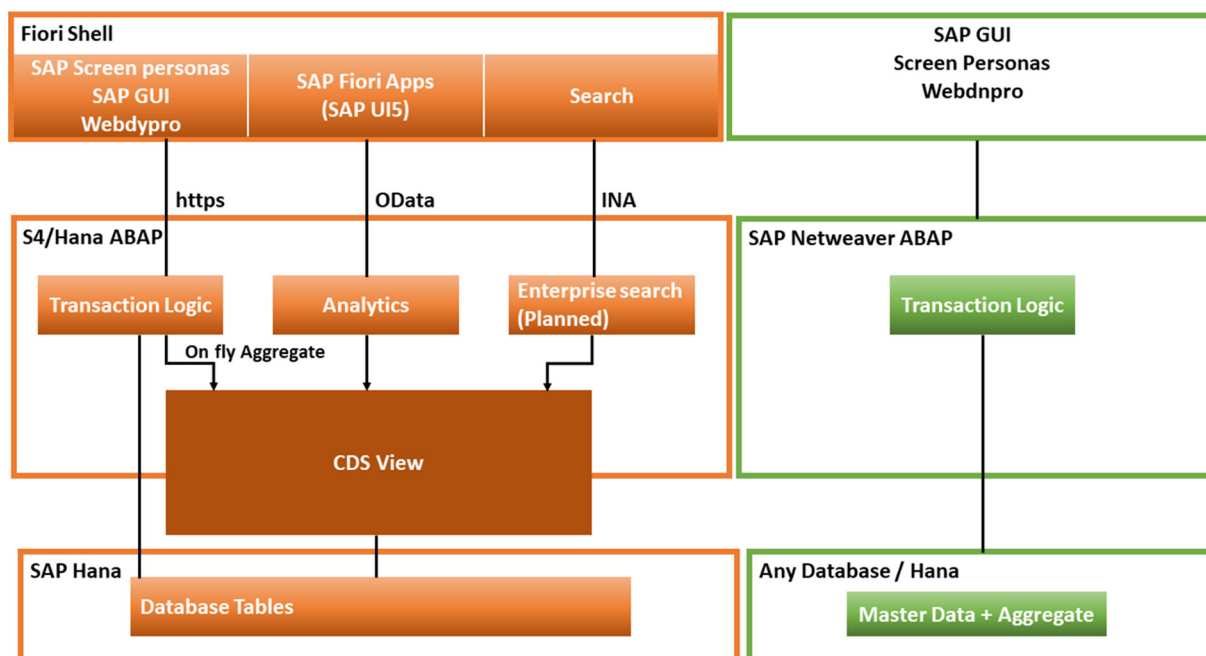


Figure 1. SAP S/4 HANA architecture

Adapted: community.sap.com, 2015

Figure 1 allows us to observe the architecture of SAP S/4 Hana. We can verify that the foundation of the architecture is a database where information is stored in tables. The application layer allows access to information that is stored in the Database. The top layer concerns the visual presentation of information, the Presentation Layer, one of the examples being the SAP Graphical User Interface (SAP GUI). The left side of the figure still presents the same architectural logic, but from the perspective of Fiori and how it presents information. The reason is for the user to enjoy an interface that allows having a different “user experience”.

Thus the SAP S/4 Hana architecture configures a new package of business applications designed to run simply in a digital environment and a connected world. Built on the advanced in-memory platform, SAP Hana®, designed based on one of the most modern user experiences, SAP Fiori® (Wagner & Mathaess, 2015).

4. FUTURE RESEARCH DIRECTIONS

It is considered that in the current context of competitiveness of organizations, the use of ERP SAP can constitute an advantage over business strategies. It is also considered that the adoption of an agile methodology for carrying out ICT projects, as it, by its iterative and incremental

nature, creates conditions to quickly manage changes in requirements and facilitates communication between the various stakeholders. In this sense, it was possible to verify that the adoption of the Scrum methodology promotes the elimination of non-conformities, reducing costs associated with rework, which results in the reduction of additional costs for the projects.

From research perspectives, it is considered that there are conditions to delineate strategies in order to make improvements, and, as an example, one of them may involve the improvement of some processes, specifically in the process of requests to create users for SAP systems, or requests for role assignments and/or transactions. It is also considered that the process of requesting users, roles and transactions is too bureaucratic and complex (Véstia, 2022).

5. CONCLUSION

It is concluded that ICT, assumes a growing role of relevance, specifically in support of ERP SAP. Currently, companies depend on ICT, and in this sense, they define as a strategy to support part of their business on SAP by bringing a competitive advantage that translates into the integration of business processes, bringing efficiency and effectiveness converging in increased productivity, and, consequently, in cost reduction, bringing added value to stakeholders.

In this sense, it is advocated that supported by the Agile Scrum methodology, the Authorizations service is presented as a fundamental guarantee of data security, privacy and integrity of access, in order to avoid conflicts.

It is also considered that the optimized ticket management centered on access management within the scope of an IT project, which entails: Ensuring the integrity of accesses, in order to avoid Segregation of Duties conflicts; Creation of users in Systems, Applications and Products in Data Processing and the Hana Database, thus constituting added value given the specificity of the organization's business.

It is concluded that the combination of the advantages that SAP ERP brings to organizations, with the adoption of Agile methodologies in the pursuit of IT projects, translates into a very positive balance, as they are able to meet the proposed objectives consistently, with minimal errors, reducing costs and offering your customers outputs that match their expectations, creating added value.

REFERENCES

- ABAP (2022). Authorization Concept (SAP Library – Identity Management). https://help.sap.com/saphelp_me60/helpdata/en/52/671285439b11d1896f0000e8322d00/content.htm?no_cache=true. Retrieved 6 January 2022.
- Anzilago, M., Zanin, D., Bezerra, C., (2017). Vantagem Competitiva na utilização de Sistemas de Informação: Enterprise resource planning (ERP), XI Congresso ANPCont.
- Bradford, M. (2015). Modern ERP: Select, Implement, & use today's Advanced Business Systems. North Carolina: Poole College of Management North Carolina.
- Costa, M., (2017). Estudo de dados industriais no contexto de mobility SAP Hana. Faculdade de Engenharia do Porto.
- Lei, H., Ganjezadeh, F., Jayachandran, P. K. & Ozcan. P. (2015). A Statistical Analysis of the effects of Scrum and Kanban on Software Development Projects. Robotics and Computer – Integrated Manufacturing.

- Massari, V. (2016). *Agile Scrum Master no gerenciamento avançado de projetos – Base para certificação EXIN Agile Scrum Master*, Rio de Janeiro, Brasport.
- Ribeiros, D. (2018). *Melhoria no Processo de Gestão de Stocks na empresa Rolear SA – Parametrização e implementação do processo SAP*. Universidade do Algarve, Faculdade de Economia.
- Suthertland, J. (2014). *A Arte de Fazer o Dobro do Trabalho na Metade do Tempo*. São Paulo – SP: Leya.
- Valentim, O., Politano, P., Pereira, N., Filho, T., (2014). Análise comparativa entre a implementação e atualização do sistema ERP R/3 da SAP considerando os fatores críticos de sucesso descritos na literatura: um estudo de caso em uma empresa do segmento de bebidas, *Gest. Prod.*, São Carlos, v. 21, n. 1, p. 111-124.
- Wagner, F. Mathaess, K. (2015). The Road to SAP S/4HANA Transition and deployment options for SAP S/4HANA. https://www.academia.edu/25032666/The_Road_to_SAP_S_4HANA_Transition_and_deployment_options_for_SAP_S_4HANA_Frank_Wagner_Kim_Math%C3%A4%C3%9F_SAP_SE
- Waldock, B. (2015). *Being Agile in Business: Discover Faster, Smarter, Leaner Ways to Work*. Londres: Pearson Education.
- Véstia, J. (2021). *A Importância da Gestão de Autorizações em Sistemas SAP. Relatório de Projeto Organizacional Aplicado*. Escola Superior de Ciências Empresariais. Instituto Politécnico de Setúbal.
- Vidal, A. (2017). *Agile Think Canvas*, Rio de Janeiro, Brasport.



Strategic Relevance of an Information Systems Master Plan in an Organizational Context

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Abstract: Currently, there are organizations dedicated to providing support services to hospitals in order to collaborate to optimize the provision of health care, contributing to increasing the effectiveness and efficiency of the health system. The paper aims to present the problem from a system modeling perspective when developing an Information Systems Master Plan. The research methodology adopted is Design Science Research, given its characteristics and suitability to the field of Information Systems research towards the creation of the artifact. The expected results are centered on the process underlying the development of an Information Systems Master Plan that allows reflecting the organizational reality and creating conditions to outline strategies to guide and optimize the implementation and safe use of Information and Communication Technologies.

1. INTRODUCTION

The organizations that operate in the health support industry, due to their nature as service providers, are highly dependent on Information Systems (IS) and Information and Communication Technologies (ICT) for their services.

They generally integrate large business areas or clusters such as Engineering, Nutrition, Environment, and Services, in which each one is made up of a set of sub-areas. Geographically they are dispersed and located in several regions. Due to the nature of their activities, they have the capacity to offer integrated shared services in health. They integrate specialized teams of thousands of employees. In this sense, they have a technological infrastructure physically dispersed throughout the territory with a complex communications network and with thousands of computers and hundreds of other devices (PDAs, tablets, biometric systems, etc.) in permanent use. It should also be noted that there are dozens of management applications running daily developed in different types of technologies.

The diversity of services provided, the volume of stakeholders involved and the geographical dispersion implies a high complexity due to the nature of the organizational activity. Over the years the organization has been expanding and at this stage it was considered strategic to analyze the current IS/ICT situation. The paper aims to present the problem from a system modeling perspective when developing an Information Systems Master Plan.

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2. TECHNOLOGIES AS HEALTH SUPPORT

ICT can be a differentiating and strategic factor when supporting business. The organization under study operates in the health area and has a communication network physically dispersed throughout the national territory in Portugal. Due to the size of the organization it presents with a complex communication network and with thousands of computers and hundreds of other type devices (PDAs, tablets, biometric systems, etc.) in permanent use.

With regard to application support and given the complexity of the business there are dozens of management applications running daily developed in different types of technologies. In this context it is intended to develop an Information Systems Master Plan to guide and optimize the current state of implementation and use of IS/ICT in the organization, thus enhancing the design of medium and long term strategies.

3. ORGANIZATION

The organization is a private non-profit association. The public service mission, oriented to ensure the self-satisfaction of the needs of its members, gives this association the status of collective person of public administrative utility. The organization has a vast capacity to offer integrated shared services in health, capitalizing on the knowledge, skills, and undeniable experience in providing services in the hospital area for more than 50 years. It integrates a specialized team of more than 3,500 employees who, with their commitment and professionalism, perform hundreds of interventions every day in their different areas of expertise in the service of Health, in a permanent search for quality and efficiency (<https://www.such.pt/pt/apresentacao/>).

The organization's services are divided into four areas: Engineering, Environment, Nutrition, and Services.

The objective in all Engineering competencies is to increase, through a philosophy of shared services, productive efficiency, generating response capacity, and the optimization of human and material means. It has a functional, flexible, and scalable structure, capable of keeping up with the growth of its Associates and Customers in physical and technological dimensions, ensuring integral management of equipment and facilities.

The Environment service ministers the four most critical areas in support services to healthcare institutions, which are developed in a competence center logic focused on hygiene and infection control. This structure, which is oriented towards synergic action in the general context of promoting safe hospital environments, includes: Hospital Linen Management and Treatment, Hospital Waste Management and Treatment, Medical Device Management and Reprocessing, and Hospital Cleaning and Management.

The Nutrition service has vast experience as a food service manager, assuming a relationship of partnership and proximity with health care institutions. It guarantees a specialized food service that keeps up with the evolution of technology and nutritional sciences, contributing effectively to the satisfaction of nutritional needs and the achievement of health gains. The services provided integrate two Delivery Units that are differentiated by their performance typology: Hospital Food, Public Food.

The Services area allows the full dedication of Associates or Clients to the provision of health care, the main goal of a health unit, freeing itself from secondary and peripheral services, but important for the overall good functioning of the institutions.

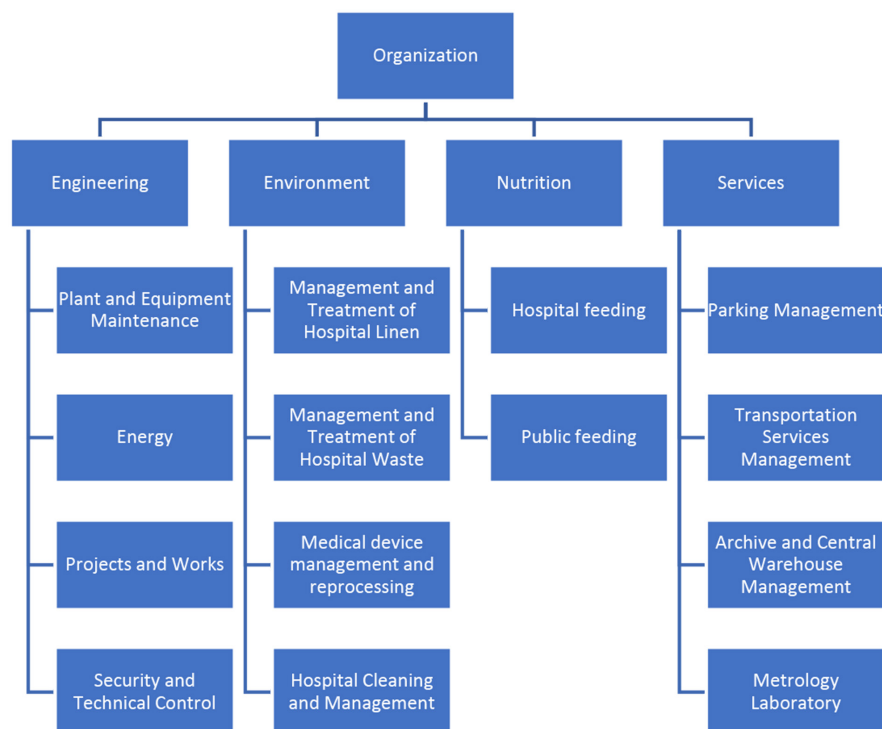


Figure 1. Organizational chart

4. SYSTEM MODELING

The system modeling activity needs to be methodologically supported. In this sense, it is considered that the adopted research methodology is Design Science Research, given its characteristics and suitability to the field of Information Systems research towards the artifact creation.

The DSR methodology is settled on a set of steps to carry out the research in Information Systems (IS). It supports the design of a new artefact and the analysis of its use and performance, in order to understand and improve the behavior of aspects of IS (Vaishnavi & Kuechler, 2004).

The DSR methodology is constituted by six steps: Problem Identification and Motivation, Objective of the Solution, Design and Development, Demonstration, Evaluation and Communication. The Problem Identification and Motivation step consists in defining the precise research problem and substantiate the solution's significance. This can be done by studying literature, findings in another work field, expressing the need for something or new improvements in technology. The Objective of the Solution step entails deducing the objectives of the solution from the problem. Producing an experimental idea of how the research problem might be an approach. The Design and Development step consists of the creation of the artefact from the experimental idea. The artefact could be in the form of constructs, models, methods among others. The Demonstration step exhibits the use of the artefact to solve the problem. This could include experimentation, simulation, case study or other suitable action. The Evaluation step consists in witnessing and measuring how well the artefact could be a solution to the problem. This step can lead to a new awareness of the problem or the conclusion of it. The communication step consists of communi-

cation the of problem significance, the artefact usefulness, innovation and effectiveness to other researchers and other appropriate audiences (Peppers, Tuunanen, Rothenberger, & Chatterjee, 2008) (Hevner, 2004). The next figure illustrates the DSR steps previously described.

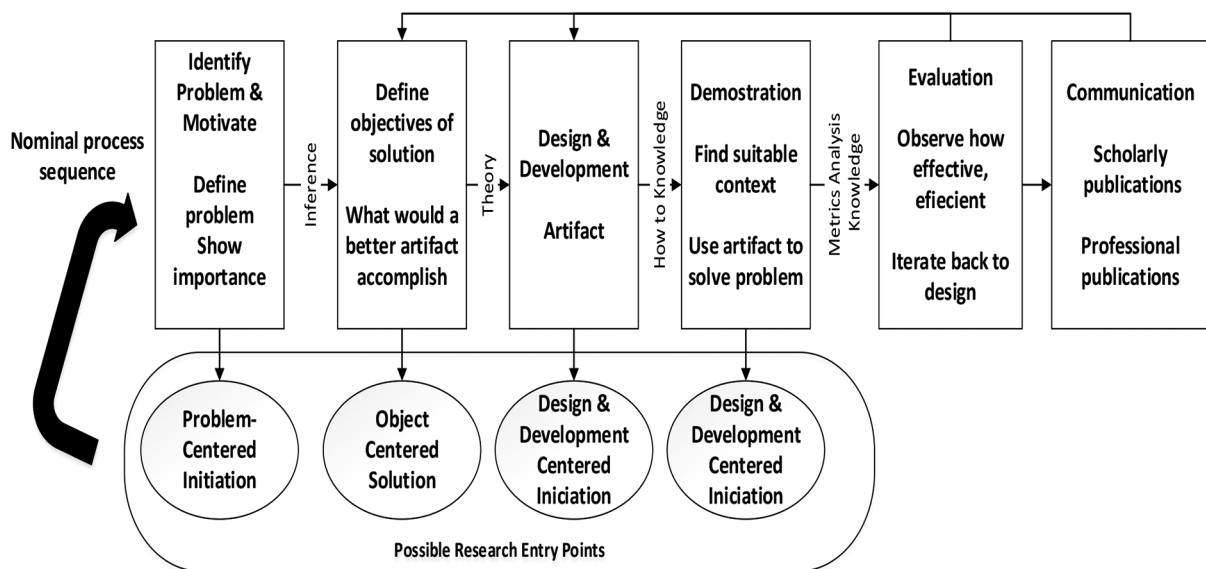


Figure 2. DSR Methodology Process Model

Source: Peppers et al., 2008

Yahia Zare Mehrjerdi, (Mehrjerdi, 2010), states that an IS is capable of having an organization under its control, monitoring materials, orders, schedules, inventory of finished products, and other key management information. That is, IS allows having up-to-date and real information on a wide range of management aspects of an organization, which enables better management of the organization. And this is where Information Systems are of great interest for organizations, since they allow obtaining a general perception of the organization as a whole. However, an adequate adoption of an IS is fundamental, so that the benefits of improving the organization, supported by that IS, can be taken advantage of.

Thus, the modeling of the current IS/ICT situation in the organization is almost non-existent, and this being the problem, our objective is to address the issue of performance improvement for the organization based on the reengineering of organizational processes and the implementation of a strategic plan of information systems.

5. COLLECTION METHODS AND TECHNIQUES AND DATA ANALYSIS

The collection of information for analysis and subsequent formulation of conclusions will be carried out through the following techniques:

Document Analysis. Analysis of the organization procedural documents. This information will be relevant for the prior identification of the main responsibilities and activities developed by each of the areas, as well as the topics to be addressed in the interviews that will later be held with each of the actors. The forms that currently exist on the organization will also be analyzed.

These forms are of particular importance since they allow the flow of information and are the basis of the current workflows. This analysis, namely the one carried out on documents of an

institutional nature, will have pivotal importance in identifying the first three phases of the model: mission and vision, strategic objectives, and critical success factors.

Interviews. In these interviews, a set of guiding questions will be formulated, taking into consideration the topics identified in the document analysis and discussed in the literature review. At the end of each interview, a summary will be made with the aim of recording the main points identified and constituting the basis for the analysis of the organizational processes. Thus, it is intended to retain the information necessary for the understanding of the processes and the construction of the activity diagrams. This type of interview will make it possible to grasp the information necessary for the representation of the current organization processes. These interviews will make it possible to absorb the necessary information about the organizational processes and their interdepartmental relations.

Direct Observation. This technique will complement the information gathered in the semi-directive interviews since it makes it possible to gather information about the routine tasks of the actors that were not conveyed in the interviews. This technique is of utmost importance since some people find it difficult to describe their daily tasks, due to the mechanistic character with which they carry them out. In addition, direct observation will allow us to deepen the “way of doing” some tasks and actions identified in the interviews, thus completing the aspects identified and clarifying points that may have been less explored.

6. FUTURE RESEARCH DIRECTIONS

The future research directions include the elaboration of the plan of a Survey of the current situation, namely, reality, need, potentiality and priority. The Logical design of IS includes data flow diagram, process definition, organizational requirements, technical specifications of systems and investments, software evaluation and selection, and finally, the Equipment configuration project, namely Facilities infrastructure, support, upgrade and hardware maintenance.

The above indicated directions are our main concerns related to the current project and are already being addressed.

7. CONCLUSION

The Information Systems Master Plan is particularly important given its nature as an analysis of the current organizational situation in terms of IS/ICT in relation to the specificity of the business, as well as being fundamental for the consolidation of the strategic vision of the business. The Information Systems Master Plan creates the conditions for the definition of an integrated strategy, projected over time, given the importance of IS/ICT in the specific context of the business.

Considering the relevance of the issue, we emphasize the importance of Information Systems and respective Information and Communication Technologies in an organization of this nature in order to enhance the definition of strategies from a medium and long-term perspective.

REFERENCES

- Hevner, A. R. (2004). Design Science in Information Design Science in Information. *MIS Quarterly*, 28(1), 75–105.
- Mehrjerdi, Y. Z. (2010). *Enterprise resource planning: risk and benefit analysis*. From Business Strategy Series: <https://www.emerald.com/insight/content/doi/10.1108/17515631011080722/full/html>
- Peppers, K., Tuunanen, T., Rothenberger, M. a., & Chatterjee, S. (2008). A Design Science Research Methodology for Information Systems Research. *Journal of Management Information Systems*, 24(3), 45–77. doi:10.2753/MIS0742-1222240302
- Vaishnavi, V. K., & Kuechler, B. (2004). Design Research in Information Systems. *MIS Quarterly*, 28(1), 75–105. doi:10.1007/978-1-4419-5653-8



Impact of Industry 4.0 on Environmental Management Accounting

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Abstract: *The development of industry and technology has brought about changes both in company operations and in the business environment operations. Industry 4.0 is a digital revolution that is based on innovative technological solutions and in which technology occupies an important place in the production process, business entity, but also in the lives of individuals. It encompasses new technologies the implementation of which causes costs, requires time, but also requires knowledge. In accordance with the Industry 4.0 requirements, changes in environmental management accounting ensued, because today most countries strive to achieve a healthy life and do business in a healthy environment. Environmental management accounting allows collecting data and making business decisions that will have an impact on company performance and environmental performance. The aim of this paper is to identify the advantages and disadvantages of Industry 4.0 as well as the impact of Industry 4.0 on environmental management accounting.*

1. INTRODUCTION

The development of information technology requires the integration of operations in order to increase business productivity and the competitive position of companies. Technological development opens issues such as legal regulations, costs, human resources, knowledge, but also the budgeting of part or the entire business. Certainly, the goal of digitalization is the improvement of business conditions, automation, speed of reaction to changes in the environment and communications, but also to justify investment in digitalization.

As taking appropriate action by managers is not always intuitive, there is a need to develop a new method that will answer the question of whether and to what extent the environment affects the company, as well as whether there is a reciprocal impact of the company on the environment. The focus on environmental protection and sustainable development in the 1990s led to the emergence of Environmental Management Accounting (EMA). Compared to conventional management accounting, EMA provides more accurate information for making business decisions. However, although environmental management accounting has been developing and adapting to environmental changes for 30 years, a large number of studies and scientific papers indicate insufficient involvement of economic entities. Lack of feedback on cost drivers by economic entities can have a negative impact on a company's credibility. However, we are on the threshold of a new evolutionary development that will change the nature of environmental management accounting – adaptation to Industry 4.0 requirements.

Industry 4.0 represents the fourth industrial revolution, which implies a new level of organization and control of the supply chain. The focus of the industry is on reducing errors, improving the quality of products/services, delivering products and providing services to consumers on

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time. Industry 4.0 provides reliable analysis, measures the results achieved, and, with the help of software tools, offers increased productivity and flexibility of business operations in the future. Also, understanding the development and implementation of Industry 4.0 is important for company's financial performance.

In this regard, the first part of the paper will give the basic characteristics of Industry 4.0, its focus and identification of advantages and disadvantages. The second part of the paper is dedicated to the impact of Industry 4.0 on environmental management accounting.

2. INDUSTRY 4.0 – DEVELOPMENT, ADVANTAGES AND DISADVANTAGES

In recent years, the attention of the academic community and numerous practitioners has been preoccupied with Industry 4.0. Industry 4.0 is a term derived from the previous three industrial revolutions. The invention of the steam engine by James Watt started the first industrial revolution – Industry 1.0. It caused a turnaround in production, because it came to replace manual production with machine production, and then the introduction of machines with water and steam propulsion. Industrialization with the use of assembly lines, production lines, mass production and production systems using electricity characterizes the second industrial revolution – Industry 2.0. It has enabled the introduction of innovations – conveyor belts that facilitate the transfer of coal, ores and other materials, while the third industrial revolution, Industry 3.0, focused on the use of computers and new technologies. Industry 3.0 began in the second half of the twentieth century and is associated with the emergence of the first electric computer ENIAC.⁴

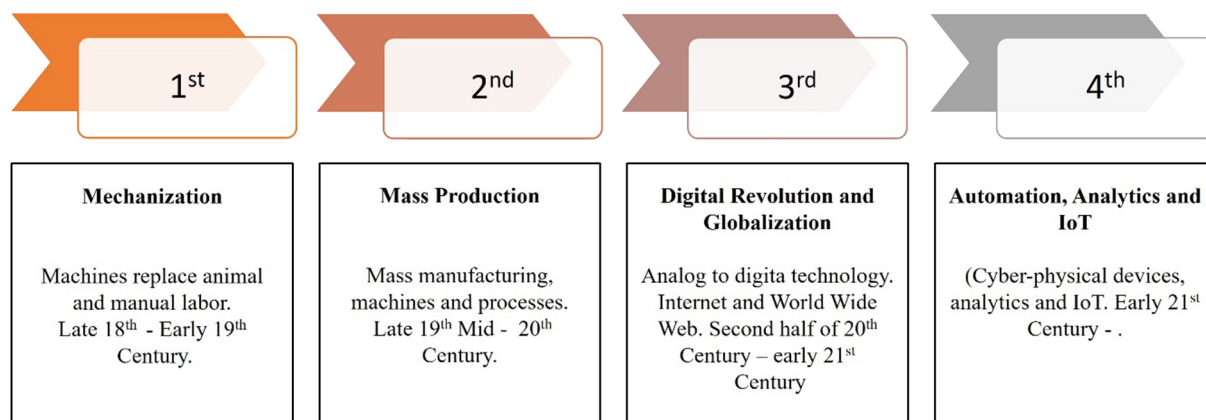


Figure 1. Industrial revolutions

Source: How Will We Work? How Will Your Job Change? <https://www.td.org/insights/2025-how-will-we-work-how-will-your-job-change>

The first indications for Industry 4.0 appeared in literature and practice in 2001, but it was only after 10 years that the Industry working groups were formed and a national high-tech strategy was drafted. Members of the working group formed in Germany are considered the founders and main protagonists of Industry 4.0. Given the many benefits of this revolution, which are reflected in the accelerated production process, automatic process control, simplified activity planning process and possible access to data from anywhere (Schumacher et al., 2016), the European Union plans to invest 1.350 billion euros in its development by 2030 (Dašić & Turmanldze, 2017). Unlike previous industrial revolutions in which the invention of a new technological product affected significant changes in all spheres of business and life in general, Industry 4.0

⁴ It was used to calculate ballistic tables for the US military.

refers to the integration of physical processes, technology and telecommunications to digitize business processes in the enterprise and supply chain (Chiarello et al., 2018). In that sense, it can be said that Industry 4.0 is more of an evolution than a revolution. The revolutions before the fourth had in fact implied pressure on the society to go through a process of adjustment. Industry development and its basic characteristics are shown in Figure 1.

Industry 4.0 affects all aspects of society. Digital technologies such as the Internet of Things (IoT), machine learning, big data science, “blockchain” allow processing large amounts of data and facilitate the decision-making process. Digital technologies enable enterprise resources to be integrated, assist systems in decision-making, and define data-driven strategies (Gamage, 2016, Rubman et al., 2015).

Industry 4.0 is characterized by numerous advantages, such as (Inmmerman, 2018; Sony, 2020):

- *Strategic competitive advantage* – Industry 4.0 offers very precise solutions and services that allow companies to achieve competitive advantage. Industry 4.0 transforms mechanical and electrical products into products that combine sensors, hardware, software, and the like. The implementation of Industry 4.0 creates products in which IT is an integral part of every product (Lichtblau et al., 2015). Thanks to software, companies that can successfully implement offered solutions create new strategies and technologies. Thus, “smart” products lead to product differentiation, customer segmentation, but also help in the pricing process (Porter & Heppelmann, 2014);
- *Increase in operational efficiency* – Using the same amount of resources with the application of Industry 4.0 leads to better results and higher profitability. Operational efficiency can be achieved through vertical and horizontal integration. Vertical integration uses hierarchical subsystems within the enterprise to create flexible production systems (Wang et al., 2016). In this way, companies are able to reduce the loss of resources and improve efficiency. Horizontal integration is achieved in the information system in the entire value chain (Rajni & Kocsis, 2018), which leads to more efficient supply chain management and increases operational efficiency. Both integrations are focused on creating value and achieving efficiency thanks to better management of resources in the value chain;
- *Improved safety and quality of products and services* – Whether we are talking about product quality or customer experience, Industry 4.0 allows us to continue creating value for customers. The safety of products or delivering services is an important factor in production, but also in the retail industry (Chen & Hua, 2017). Customers are willing to pay a higher amount for a product or service if it is safe and of high quality. Thanks to artificial intelligence, companies apply it when testing quality during the production cycle, and thus improve the safety and quality of products/services);
- *Growing the existing market and conquering new ones* – Any revolution creates the need for new services, products and support software. Industry 4.0 creates new product categories, creates new jobs, etc.;
- *Improving life as a whole* – New technologies bring greater profitability and economic growth, people’s lives become better because there is an increase in income, have better health care and protection, gas emissions are lower. Resource use efficiency improves energy efficiency and reduces waste (Muller et al, 2017). Governance and decision-making are becoming transparent and data-based (Kiel et al., 2017).

In addition to the many advantages of Industry 4.0 such as increasing the safety and quality of products/services, facilitating the work of employees and decision-making, and improving

energy efficiency, it is necessary to mention the disadvantages of Industry 4.0. The first drawback is the *high initial costs*. The implementation of Industry 4.0 requires the implementation of vertical and horizontal integration from start to finish (Wang et al, 2016). High initial costs of implementation are caused not only by technology but also by educating employees for implementation. Transition to automation requires the development of a work environment and the creation of a need for highly qualified developers. Having knowledge of new areas such as IoT, Augmented Reality, artificial intelligence leads to budget constraints, but very strongly also to misunderstandings between the parties involved. Businesses should keep in mind that a highly skilled workforce is needed mainly at the beginning, while for later, the need decreases; Another disadvantage of Industry 4.0 is the *high failure rate* that can occur due to the difficulty of initiating and setting goals. Most often, these are inter-functional projects with a large number of stakeholders, which can lead to projects remaining neglected in conflicting goals and their simple failure (Stajić, 2020); *Cybersecurity* is another drawback of Industry 4.0. It enables digital connection of products, people and machines. An increasing number of people are using Internet services, products can be bought online, which causes people to leave data more and more often, thus opening up opportunities for hackers to access networks and data. Various network architectures have been developed. The use of architectures causes exposure to cybersecurity issues such as process manipulation, data product protection; transition to digital business increases the need for highly skilled workforce (Zervoudi, 2020), which may inadvertently reduce the need for low-skilled workforce, so *the need for highly skilled workforce* is also cited as a disadvantage. The last drawback is the difficult functioning of *industry and markets*. This primarily refers to the fact that available new technologies can abolish existing solutions, similar to industry-specific blockbusters that will not survive because of what Industry 4.0 brings to market.

So, summarizing the advantages and disadvantages, we can see that the focus of Industry 4.0 is on digitalization of business, improving business transparency, agility of reaction and speed of communication. It provides reliable analysis and enables future design thanks to new software solutions. Industry 4.0 is a continuation and improvement of the lean business concept (Medved & Jovanović, 2020). It is customer-oriented and focused on product/service improvement. Industry 4.0 strives to design new sources of value creation, market adaptability, improving the efficiency of the business model and employee productivity (Mičić, 2020). The transition to Industry 4.0 involves a long period of development and improvement. Given the above, the link between environmental management accounting and Industry 4.0 should be considered.

3. CORRELATION OF INDUSTRY 4.0 AND ENVIRONMENTAL MANAGEMENT ACCOUNTING

Numerous problems of environmental accounting have limited the interest of stakeholders and made managers undertake various accounting techniques. The problems relate to two related components of accounting (Schaltegger and Burritt, 2000): external environmental accounting and environmental management accounting. The difference is in the users to whom the information is provided. The first provides information to external stakeholders, while the second provides information to company managers. Environmental management accounting is an approach developed to assist internal organizational budgeting and decision-making regarding environmental issues (Gray & Bebbington, 2001). The EMA includes life cycle costing, full-cost accounting, benefit assessment and strategic environmental management planning. EMA is actually a technique for identifying the environmental costs of a company. Environmental accounting is characterized by the need for multidisciplinary, which includes (Grinell, 2000):

positioning environmental policy in the overall business policy and strategy; drafting of environmental accounting reports: audit of compliance with environmental rules. Therefore, multidisciplinary is necessary due to the existence of different users of information. The importance of environmental management accounting is confirmed by its practical application in the business environment (Bebbington, 1997). EMA provides information that is relevant to pricing decisions, overhead cost control, budgeting, but also information that is of public interest. The introduction of environmental management accounting in the company contributes to connecting the company's strategy and environmental protection (Jovanović & Ljubisavljević, 2017).

The emergence of Corporate Social Responsibility (CSR) and the emergence of ISO 14000 standards and their connection with environmental management accounting contribute to better financial reporting and better assessment of environmental costs. Environmental costs are gaining in importance today and are becoming an important category in the company's business. Literature offers numerous classifications of environmental costs. If we look at environmental costs in terms of the type of activity, then we distinguish (Hansen & Mowen 2003, 494-495):

- *Environmental prevention costs* incurred to prevent production that has a negative impact on the environment.
- *Environmental detection costs* incurred in undertaking activities that can determine whether processes and products comply with environmental standards.
- *Environmental costs of internal deficiencies* that occur in order to prevent pollutants and waste materials from being released into the environment, i.e. to bring their quantity in line with standards.
- *Environmental costs of external deficiencies* caused by activities carried out after the release of pollutants and harmful waste into the environment (e.g. cleaning of polluted lakes, restoring the land to its original state, etc.).

In order to establish a correlation between Industry 4.0 and environmental management accounting, it is necessary to consider the limitations of EMA: there is no single accounting method; comparison of companies from different countries is not possible due to the lack of a single accounting method; the necessary inputs for environmental management accounting are not available, because the costs and benefits related to the environment are difficult to measure (immeasurable); a large number of companies do not adequately monitor the consumption of energy and materials, do not adequately manage waste and very often underestimate the cost of environmental performance for the company; environmental management accounting includes costs that are internal in nature, which means that it excludes costs to society; EMA is a long-term process and cannot function in isolation, so it needs to be integrated with financial and management accounting, because environmental costs depend on the results of financial, management and cost accounting; in order for stakeholders to be able to submit the information contained in environmental management accounting, it is necessary to have a good knowledge of its process, rules and environmental regulations applicable in the country of implementation of environmental management accounting.

Development of Industry 4.0, i.e. the implementation of digitalization, can certainly be used to improve the environment and development of environmental management accounting. The potential impact on mitigating and overcoming EMA deficiencies can lead to (Burritt & Christ, 2016):

- Better data quality by improving the timeliness, accuracy, reliability and comparability of environmental accounting data;
- Reducing the possibilities of greenwash and brownwash;

- Reducing the discretion of the company's management in measuring and reporting;
- Greater data reliability, obtaining hard-to-reach data, improving data quality through greater accuracy, efficiency and data security;
- Improving data transfer for management control, facilitating data extraction for all types of decisions and managers, and
- Return to existing production infrastructure that limits investment costs.

The development of Industry 4.0 and the technology within it is proceeding at a high speed. Industry 4.0 enables the application of software that is faster, more accurate in data recording and making work easier for accountants. Also, academics and numerous researchers can participate in achieving the impact of Industry on environmental management accounting. One way is to pay more attention to environmental management accounting issues, such as providing new and more accurate real-time data quality, as well as identifying the sector in which Industry 4.0 will have the greatest impact. They also need to identify in which sector Industry 4.0 will have the greatest impact. For now, the Industry 4.0 focus is on capital-intensive industries such as air transport, electricity generation and distribution, healthcare and mining (Deloitte, 2015). Based on research conducted by Joković (2020), the Republic of Serbia is at a low level of implementation of Industry 4.0 in the manufacturing sector (12.6% of companies have implemented industrial robot technologies). The share of computer-assisted technologies that relate to production planning and management is only 31.6%, while the share of nanotechnology is 2.8%. Researching the sector where Industry 4.0 will have the highest impact would create a good basis for improving environmental management accounting, and thus environmental performance. It is also necessary to point to the size of the companies affected by Industry 4.0 (Burritt & Christ). Davies (2015) points out that Industry 4.0 is aimed at large enterprises, but that small and medium-sized enterprises should also be included. SMEs are the backbone of economic growth and development of a country and have the ability to quickly implement digitalisation in business, but work needs to be done to strengthen networked processes and staff who lack sufficient knowledge of digitization (Olle & Claus, 2015). It is necessary to connect environmental management accounting with the value chain, because in this way the flow of data will be improved and environmental and economic performance will be optimized.

In order to ensure better and more regular reporting on environmental costs, it is necessary to take advantage of all the benefits provided by the application of digital technologies and Industry 4.0. In that way, it will be possible to overcome the perceived shortcomings of the EMA and motivate companies to become socially responsible.

4. CONCLUSION

The implementation of Industry 4.0 in companies ensures competitive advantage, but also achieves synergies through horizontal and vertical integration in the supply chain. Businesses need to implement innovative solutions to maximize productivity and achieve the desired business performance. Industry 4.0 provides agility, reduces overhead costs, increases data transparency, strengthens the connection between different companies, brings greater flexibility and the like.

Industry 4.0 is certainly a step forward for companies and includes technologies that are constantly evolving. With its development, automation in production increases, while the application of new software facilitates the work of company employees. Economically, Industry 4.0

increases value added by about 30%. Industry 4.0 contributes to easier data processing as well as information accuracy.

Environmental management accounting has come a long way, and the shortcomings are the result of dynamic changes in the business environment. Therefore, the application of digitalization and the Internet of Things can affect the business environment, but also the tools used in environmental management accounting. Due to its advantages and the possibility of influencing environmental management accounting, Industry 4.0 sets new business frameworks, but also becomes a basis that provides information on environmental protection and provides decision-making support at all levels of the company hierarchy.

REFERENCES

- Bebbington, J. (1997). A Review Essay on Environmental Accounting. *Accounting, Auditing and Accountability Journal*, 10(3), 365–376.
- Burritt, R., & Christ, K. (2016). Industry 4.0 and environmental accounting: a new revolution? *Asian Journal of Sustainability and Social Responsibility*, 1, 23–38.
- Chiarello, F., Trivelli, L., Bonaccorsi, A., & Fantoni, G. (2018). Extracting and mapping industry 4.0 technologies using Wikipedia. *Computers in Industry*, 100(1), 244–257.
- Chen, Y., & Hua, X. (2017). Competition, product safety, and product liability. *The Journal of Law, Economics, and Organization*, 33(2), 237–267.
- Dašić, P., & Turmanidze, R. (2017). Industrija 4.0: Stvarnost ili predviđanje. *Zbornik radova Ekonomskog fakulteta u Rijeci*, 6(16), 80–89.
- Deloitte. (2015). Industry 4.0. Challenges and solutions for the digital transformation and use of exponential technologies. Deloitte AG, Zurich.
- Davies, R. (2015). Industry 4.0. Digitalisation for productivity and growth, Briefing for the European Parliament. *European Parliamentary Research Service*.
- Gray, R., & Bebbington, J. (2001). *Accounting for the Environment*. Sage.
- Grinell, D. J., Hunt, H. G. (2000). Development of an Integrated Course in Accounting: A Focus on Environmental Issues. *Issues in Accounting Education*, 15(1), 19–42.
- Gamage, P. (2016). Big Data: Are Accounting Educators Ready? *Accounting and Management Information Systems*, 15(3), 588–604.
- How Will We Work? How Will Your Job Change?* <https://www.td.org/insights/2025-how-will-we-work-how-will-your-job-change>
- Hansen, R., & Mowen, M. (2003). *Cornerstones of Cost Management*. South-Western, Cengage Learning.
- Immerman, G. (2018). Industry 4.0 advantages and disadvantages. *The Industrial IoT Dictionary for Manufacturing*. Available at: <https://www.machinemetrics.com/blog/industry-4-0-advantages-and-disadvantages>
- Jovanović, D., & Ljubisavljević, S. (2017). Ekološko računovodstvo i revizija kao alati upravljanja zaštitom životne sredine. *Scientific assembly 2017 "Uticaj globalizacije na upravljanje i ekonomski razvoj Šumadije i Pomoravlja"*, University of Kragujevac, Faculty of Economics, 521–530.
- Joković, J. (2020). Primena koncepta Industrija 4.0 u Republici Srbiji. *Zbornik radova Fakulteta tehničkih nauka*, Novi Sad, 35(10), 1782–1789.
- Kiel, D., Müller, J. M., Arnold, C., & Voigt, K.-I. (2017). Sustainable industrial value creation: Benefits and challenges of industry 4.0. *International Journal of Innovation Management*, 21(8), 231–270.

- Lichtblau, K., Stich, V., Bertenrath, R., Blum, M., Bleider, M., Millack, A., & Schroter, M. (2015). Industrie 4.0-readiness. *Impuls-Stiftung Des VDMA Aachen-Köln*, 52(1), 1-7.
- Medved, I., & Jovanović, D. (2020). Podsticaji industrije 4.0 za ekološko upravljačko računarstvo. *Strategijski menadžment i sistemi podrške odlučivanju u strategijskom menadžmentu*, 290-295.
- Mićić, V. (2020). *Četvrta industrijska revolucija- Strukturne promene industrije Republike Srbije*. Kragujevac: Ekonomski fakultet.
- Müller, J., Dotzauer, V., & Voigt, K. (2017). Industry 4.0 and its impact on reshoring decisions of German manufacturing enterprises. *Supply management research*, 165–179.
- Olle, W., & Claus, D. (2015). Industry 4.0 Needs SMEs. *Chemnitz Automotive Institute (CATI) and CARNET GmbH, Chemnitz Technical University, Chemnitz*
- Porter, M. E., & Heppelmann, J. E. (2014). How smart, connected products are transforming competition. *Harvard Business Review*, 92(11), 64–88.
- Rajnai, Z., & Kocsis, I. (2018). Assessing industry 4.0 readiness of enterprises. *2018 IEEE 16th World Symposium on Applied Machine Intelligence and Informatics (SAMI)*, 225–230.
- Rubman, M., Lorenz, M., Gerbert, P., Waldner, M., Justus, J., Engel, P., & Harnisch, M. (2015). Industry 4.0: The future of productivity and growth in manufacturing industries. *Boston Consulting Group*, 9(1), 54-89.
- Sony, M. (2020). Pros and cons of implementing Industry 4.0 for the organizations: a review and synthesis of evidence. *Production & Manufacturing Research – An Open Access Journal*, 8(1), 244-272.
- Schaltegger, S., & Burritt, R. (2000). *Contemporary Environmental Accounting – Issues, Concepts and Practice*. Greenleaf Publishing Limited, Sheffield.
- Schumacher, A., Erol, S., Sihn, W. A. (2016). A maturity model for assessing Industry 4.0 readiness and maturity of manufacturing enterprises. *Procedia CIRP*, 52, 161–166.
- Stajić, N. (2020). Industrija 4.0 u kontekstu upravljanja odnosima u lancu snabdevanja. *Ekonomске ideje i praksa*. 39, 61-73.
- Wang, S., Wan, J., Li, D., & Zhang, C. (2016). Implementing Smart Factory of Industrie 4.0: An Outlook. *International Journal of Distributed Sensor Networks*, 12(1).
- Zervoudi, E. (2020). Fourth Industrial Revolution: Opportunities, Challenges and Proposed Policies. *In book: Industrial Robotics – New Paradigms*, 1-25.



Empirical Research on the Impact of Intellectual Capital as a Determinant of the Growth of Market Value of Companies

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Abstract: *The development of information and communication technologies and the creation of knowledge bases has resulted in a large number of incremental and radical innovations in various spheres. The condition for the survival of companies in the knowledge economy is to meet the increasingly sophisticated needs of consumers. In order for companies to follow this trend, it is necessary to constantly improve (innovate) their products and/or services and create added value for the consumer, which is a source of creating and maintaining a competitive advantage in the market. As innovations “repose” in the knowledge of individuals, companies invest a significant amount of financial resources in the education of their employees because they represent a part of the intellectual capital of the company. The subject of this paper is the analysis of the relationship between investment in R&D and market cap. The aim is to show how investing in research and development affects the market value of companies.*

1. INTRODUCTION

The fundamental goal of any economic entity is to build and maintain a competitive advantage. The knowledge economy represents a new stage in world economies in which knowledge and intellectual resources take precedence over traditional resources (physical and financial). As a knowledge economy or “new economy” as it is still defined as a follower of an industrial era dominated by resources such as labor, means of labor, land, and capital, in the modern era of business, the success of companies is based on investment in research and development (R&D) and building the quality infrastructure of intellectual capital (IC). The global economy, development of information and communication networks, technical and technological development in all spheres of life have influenced the creation of increasingly sophisticated demand. The basic postulates of the knowledge economy are based on investment in research and development and continuous innovation in all sectors and business segments, which results in the creation of the enterprise’s intangible resources (Milijić & Popović, 2020). The key to a company’s success is meeting a wide range of increasingly sophisticated consumer demands instead of focusing on mass production as in the industrial era.

The concept of IC, a relatively new construct shaped by the demand of modern customers, is becoming a very interesting segment of scientific research. On the other hand, the gap between the market and book value of companies capitalized on world-famous stock exchanges is largely explained by the emergence of intellectual resources within companies that are not reported. Good connections with distribution channels, customer loyalty, well-known brand, good reputation, and image are just some segments of intellectual capital that are partially or entirely excluded from the framework of business and financial reporting. Therefore, efforts are being made to ensure adequate treatment of identification, measurement, balancing, and control of all intellectual resources through legal accounting regulations.

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2. CONCEPT AND ELEMENTS IC

In the knowledge economy, people represent a strategically important resource of the company based on whose competencies and skills other resources are built and used more efficiently. This further argues that the resources that create value in the era of the “new economy” are increasing “physically intangible and invisible” as well as that they appear in the form of different types of knowledge (combined and interconnected), i.e., in the form of organizational competence (Krstic, 2014). There are various definitions of IC due to the large number of theorists who have researched the existence of intellectual resources in organizations, with most theorists agreeing that IC is “knowledge that can be converted into profit” (Sullivan, 1998) or “packaged useful knowledge” (Steward, 1997). Many concepts of IC companies have been differentiated from different definitions and understandings of IC. Some of the better-known concepts are Sullivan’s (1998), Sveiby’s (1997), Edvinsson’s (1997), Steward’s (2001), and Roos et al. (2005) concept of intellectual capital, which essentially distinguishes three dimensions of the company’s intellectual resources: human, structural, and relational capital.

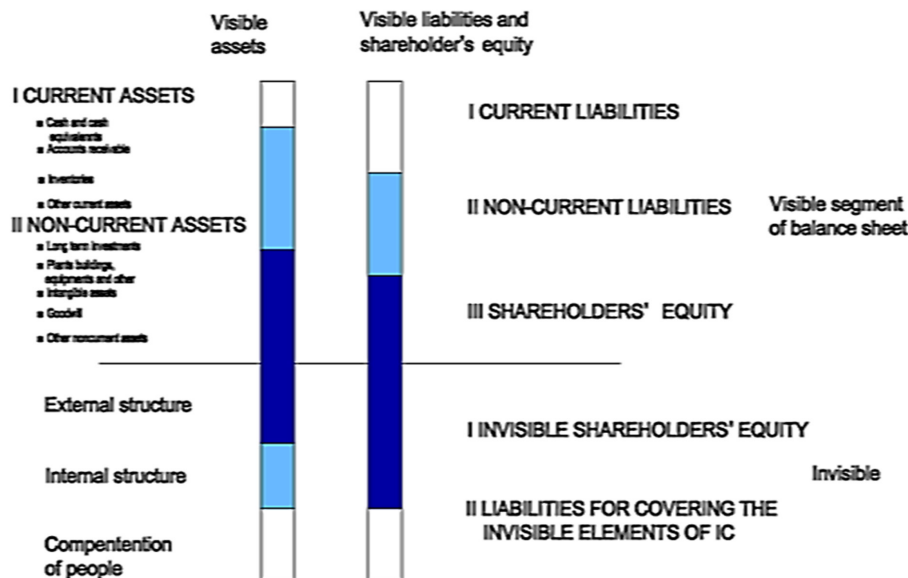


Figure 1.

Source: Krstic, B., (2014) adapted to the idea Sveiby K.E., (1997), *The New Organizational Wealth- Managing and Measuring Knowledge-Based Assets*, Berrett-Koehler Publishers, Inc., p.11

It is considered that the difference between the market and book value of the company arises through the investment in R&D, which creates intellectual capital that is not included in the balance sheet. The result of numerous independent studies by IC theorists Edvinsson (1997); Roos et al. (2005); Sveiby (1997); and Steward (2001) the following formula confirms the above:

$$BV + IC = MV$$

Where:

MV = Market Value

BV = Book Value = (MC + PC)

MC = Monetary Capital

PC = Physical Capital

IC = Intellectual Capital = (HC+IVC+RC+SC)

HC = Human Capital
IVC = Innovation Capital
RC = Relationship Capital/Customer Capital
SC = Structural Capital/Process Capital

Numerous studies testify to the positive impact of IC on the market and financial performance of companies. The Erickson and Rothberg (2009) study of IT companies concluded that adequate and efficient knowledge management in the organization has an impact on increasing the market performance of companies.

3. EMPIRICAL INVESTIGATION OF THE IMPACT OF IC ON THE MARKET VALUE OF COMPANIES

The fundamental problem of the gap between the market and book value of modern companies from intellectually intensive economic spheres, such as information and communication technologies, software design and development, the pharmaceutical industry, and others, is the “invisibility” of all intellectual resources. In addition to accounting-recognized intangible assets that include part of intellectual resources, there is a significant part of intellectual resources that, due to the problem of accounting recognition and measurement, cannot be expressed as part of the company’s capital but only as of the cost of the period. For this reason, according to Hassaneen (2010), IC reporting becomes a promising tool for resource-intensive organizations, managing, communicating, and providing crucial information for investment decision-making and helping to productively use increasingly important intangible resources such as human capital, research, and development, software, and relationships with consumers. This paper aims to show the impact that the company’s intellectual resources have on the creation of added value of the company and the growth of the company’s market value as one of the financial indicators that expresses the existence of that value in the company. The subject of the research will be the investment of companies in intellectual resources, which we will monitor through R&D costs that companies record on an annual basis and see what impact this has on the company’s market capitalization.

4. STATISTICAL ANALYSIS OF THE IMPACT OF RESEARCH AND DEVELOPMENT COSTS ON THE MARKET VALUE OF COMPANIES

For the purposes of the analysis, the statistical program IBM SPSS 22 was used. The research aims to determine whether there is a correlation between companies’ investments in R&D and the growth of the shares market price. Subsequently, a simple linear regression was performed to determine how much the market value of companies changes if the investment in R&D changes by 1%. The analysis was conducted in the five years from 2016 to 2020, and the companies that represented the sample were Alphabet, Apple, Microsoft, Pfizer, Amazon, Johnson & Johnson, Roche.

The interdependence of the variables was examined based on correlation analysis using the Pearson coefficient.

The statistical model and the conducted analysis are based on the previously set hypotheses of the model on the interdependence of two variables (Milijić & Popović, 2021):

- H0 – There is a statistically significant correlation between R&D expenditures and market capitalization as indicators of a company's market performance.
- H1 – There is no statistically significant correlation between R&D expenditures and market capitalization as indicators of a company's market performance.

The coefficient of simple linear correlation, as a relative measure, takes values from -1 to +1. If it takes positive values, the correlation between the phenomena is direct or positive (both phenomena show DC variations). When $r < 0$, the relationship is inverse or negative (when one phenomenon increases, the other decreases, and vice versa). If there is a functional connection between the observed phenomena (all empirical points are exactly on the straight line), we are talking about a perfect (perfect) correlation. Then the correlation coefficient takes the value -1 (if the connection is inverse) or +1 (if the connection is direct). The closer the absolute correlation coefficient is to the unit, the stronger the correlation between the phenomena. In contrast, the closer to zero, the weaker the linear relationship. The following tables (Tables 1-2) analyze the degree of correlation between R&D expenditures and the market capitalization of companies.

Table 1. Normality of data distribution

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MarketCapmil\$	,174	35	,009	,840	35	,000
RDExpensuremil\$	,194	35	,002	,821	35	,000

^a Lilliefors Significance Correction

Source: Results of Authors' Research

If the number of observations in the sample is greater than 30, then each empirical distribution, according to the central limit theorem, tends to be normal, so each empirical distribution, for $n > 30$, can be approximated by normal (Jovetić, 2015).

Table 2. Correlation Analysis

		MarketCapmil\$	RDExpensuremil\$
Pearson Correlation	MarketCapmil\$	1,000	,609
	RDExpensuremil\$	,609	1,000
Sig. (1-tailed)	MarketCapmil\$	.	,000
	RDExpensuremil\$	,000	.
N	MarketCapmil\$	35	35
	RDExpensuremil\$	35	35

Source: Results of Authors' Research

Table 2 clearly shows that there is a statistically significant relationship between the variables. Sig = 0.00, which means that the null hypothesis (H₀) is adopted. Pearson's correlation coefficient is 0.609, which means that there is a significant correlation between R&D investment and the growth of the stock market price.

Table 3. Descriptive Statistics

	Mean	Std. Deviation	N
MarketCapmil\$	656834,8571	490417,47132	35
RDExpensuremil\$	15878,2286	8053,09584	35

Source: Results of Authors' Research

The level of changes in the market price of shares in relation to the 1% change in investment in R&D was determined using simple linear regression.

Table 4. Simple linear regression

Model Summary ^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	,609 ^a	,371	,351	394942,93586	,371	19,425	1	33	,000	1,009

^a Predictors: (Constant), RDExpensituremil\$

^b Dependent Variable: MarketCapmil\$

Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
		B	Std. Error	Beta			Tolerance VIF
1	(Constant)	68235,877	149302,931		,457	,651	
	RDExpensituremil\$	37,070	8,411	,609	4,407	,000	1,000 1,000

^a Dependent Variable: MarketCapmil\$

Source: Results of Authors' Research

The coefficient of determination is 0.371, which means that 37.10% of the variations of the dependent variable (market capitalization) are explained by the influence of the independent variable (R&D expenditures), while the influence of other variables causes the remaining 62.90% of the variations. It should be noted that there were appropriate limitations regarding this research regarding the unavailability of certain data to make the analysis more complete. VIF <10, which means that there is no problem with multicollinearity. There is also no problem of autocorrelation DW = 1.009 because Field (2009) considers that the value of DW statistics below 1 and above 3 is worrying, i.e., if the value of DW statistics is below 1 or above 3 there is a problem of autocorrelation.

Regression model would be:

$$\text{MarketCapmil\$} = 68235,877 + 37,070 \times \text{RDExpensituremil\$}$$

5. CONCLUSION

The analysis shows a strong correlation between investment in R&D as one of the components for building IC and the growth of the market value of companies. However, investments in other forms of IC that are not taken into account in the work also contribute to the growth of the market value of companies as well as many other factors (economic, political, social, and other). What is evident is that in the era of the knowledge economy, intellectual resources take precedence over labor, means of labor, land, and capital due to the increasingly sophisticated desires and needs of consumers. With the development of information and communication technology and the fall in transport costs, people easily gain new knowledge and create demand in the market of products and services, and the world becomes a single economic system. The business philosophy according to which companies should constantly listen to the market and meet the diverse needs of consumers is the ultimatum of survival in modern business conditions. Innovating existing products (incremental innovations) and creating entirely new products (radical innovations) creates added value that is the key to creating and maintaining a competitive advantage in the market. In order for the innovation processes in the company to run smoothly, it is necessary to invest significantly in all components of intellectual capital (human, structural and relational capital), which will result in superior financial and business performance.

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REFERENCES

- Edvinsson, E. (1997). Developing Intellectual Capital at Skandia, Long Range Planning, Vol. 30, No. 3
- Erickson, S. & Rothberg, H. (2009). Intellectual capital in tech industries: a longitudinal study. *Electronic Journal of Knowledge Management*, 7(5), 559–566
- Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd edition, London: Sage.
- Hassaneen, T. (2010). Intellectual Capital Reporting in Knowledge Economy – the relevance of Corporate Governance, VDM Verlag Dr Muller, p. 4.
- Jovetić, S. (2015). Merenje performansi preduzeća. Kragujevac: Ekonomski fakultet Univerziteta u Kragujevcu
- Krstić, B. (2014). *Upravljanje intelektualnim kapitalom*, Ekonomski fakultet u Nišu, Niš
- Milijić, A., Popović, A. (2020). *Measuring Performance of Intellectual Capital as a Determinant of the Innovation Activity in Enterprises*, PaKSoM
- Milijić, A., Popović, A., (2021). *The Impact Of Intellectual Capital On The Market Value And Performance Of The Company*, 5th International Scientific Conference on Economics & Management EMAN 2021.
- Roos G., Pike S., Fernstrom L., (2005). *Managing Intellectual Capital in Practice*, Butterworth-Heinemann
- Steward, T. (1997). Intellectual capital: the new wealth of organizations, p. 10
- Steward, T. (2001). *The Wealth of Knowledge – Intellectual Capital and the Twenty-First Century Organization*, Currency, New York
- Sullivan, P. (1998). Introduction to Intellectual Capital Management, In: Sullivan P., ed. *Profiting from intellectual capital: extracting value from innovation*, John Wiley & Sons, pp. 3-18.
- Sveiby, K. E. (1997) *The New Organizational Wealth – Managing & Measuring Knowledge-Based Assets*, Berrett – Koehler Publishers, Inc., San Francisco



Correlation Aspects of Employee Performance Metrics – Management through Promotion of Non-economic Motivation Factors

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Abstract: *Motivating employees in the company is a challenge for the management and the entire company structure. Motivation factors can be measurable, whether they are internal or external. Also, it is important to point out that internal psychological factors have a great impact on employees, sometimes more than the classic economic factors.*

New, assumed factors in this psychological insight relate to the application of spiritual techniques in the company that can have a motivating effect on employees in the company. This paper aims to show which types of profiles accept changes through a new set of spiritual factors, in order to increase business efficiency, and what are the reasons for their acceptance.

Business efficiency is measured and expressed by the ratio of achieved results and investments required for their realization. The number of factors that determine business efficiency requires careful analysis and a scientific approach in taking into account quantitative factors, as well as their quantification and modeling the consequences of their level of presence in the business system.

Expressing the contribution of qualitative factors to the business result is possible by using adequate statistical analysis, which refers to surveying respondents involved in business activities, quantifying their attitudes, and examining the rank correlation within the selected variables.

1. INTRODUCTION

Business efficiency in economic theory refers to the requirement that business activities take place in the best possible way, with the tendency of rational spending of resources. The traditional approach implies focusing on material and measurable costs, while neglecting intangible spending, such as participants' emotional energy potentials in the business process.

The reason for this approach comes from objective reasons and refers to the fact that the metrics and form of manifestation of these resources are very demanding, and the contribution to the business result is significant. Work demands significantly exceed the needs of servicing funds for work in the business process, work tasks become more complex; it is also required a more complex approach to the realization process of business tasks, with a greater degree of personalities integration into integrated activities and business results.

Following the above, customer expectations are also becoming more complex, including awareness of the company, which gives an approach and public opinion about the company in terms of relationships with different categories of stakeholders.

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Examining non-economic factors that affect business efficiency requires the formalization of scientific research, based on an empirical approach, where the analysis results are relied on adequate empirical material and are processed by an adequate theoretical model.

The results of correlation analysis on specific empirical data show the harmonization of attitudes of different categories of respondents, or the perception form of the business atmosphere and the extent of the impact of certain non-economic factors on their satisfaction with the business process and work organization as a whole.

The results should serve to formalize the approach of introducing non-economic measures that contribute to business efficiency through the participant's satisfaction in the process.

In addition to examining the results of correlation analysis on specific empirical data related to the students' attitudes, the emphasis is on the analysis of non-economic factors in theoretical and practical terms. When it comes to qualitative factors of motivation, it is important to note how much motivation as an internal factor in the company is very important. Motivational factors are internal factors in the company that are still marketing and managerial orientations since they affect all management processes. More precisely, their place and influence on employees within the company, as well as raising their importance, is directly related to the company's success in the external environment and the market.

There are many motivating factors, but here are some psychological factors that are partly in the sphere of energy factors and have an impact on the internal climate of the company. Various techniques are important and can affect the employees' motivation as well as the energy and climate of the company.

Many spiritual techniques can affect the employees' motivation, whether they work in groups or individually. Some of them are the application of the EFT technique, Thetahealing® technique, and Timeline healing technique as well as the application of yoga in companies as a regular activity and all for psychophysical health.

2. REVIEW OF PREVIOUS RESEARCH

Examination of correlation aspects is possible and appropriate in many areas of social activity, where the rank correlation coefficient is used on the problems of examining the level of customer satisfaction with certain intangible aspects of service such as the quality of hotel services (Landika & Bojanić, 2017), where researchers prove that customer satisfaction is not segmented by market categories and a justified approach to strategic action in all areas requires generalization.

Correlation analysis enables the examination of the degree of connection between the motivation level of workers for education and professional training on one hand and business efficiency on the other, where aspects of personal contribution to the work team and personal perception of motivation sources for the same purpose are observed. (Landika et al, 2019)

Examining the degree of conditionality level to which the relevant aspects of health care services satisfy users, on one hand and different respondents categories from the social and educational aspect and age structure, on the other hand, allows correction of the access to perceived laws. (Landika et al., 2020)

3. RESEARCH METHODOLOGY

3.1. Sample size and type for analysis and testing

The estimation of the total population in the territory covered by the survey is 3,290,791 for 2020 (Wikipedija, 2021). The number of employees in the territory of Bosnia and Herzegovina is 832,200, of which 360,918 or 43.37% are women and 471,282 or 56.63% are men. In the total population, the employment rate is 25.29%. In the same period, unemployment is expressed through 398,504 registered people, of which 171,398 are men and 227,106 are women (ARZ, 2020).

It is certainly reasonable to assume that a part of the unemployed population is employed in jobs that provide certain personal income. The unemployment rate in the total population is 12.11%. The number of pensioners in the same period is 416,672 or 12.66% (PIO/MIO, 2020) (Pension and Disability Insurance Fund), while other categories are represented as follows: (KLIX, 2021)

- Children in nursery schools 6,076 or 0.18%,
- Children in preschool institutions 30,587 or 0.93%,
- Children waiting for a place in preschool institutions 4,316 or 0.13%,
- Students in primary schools 274,034 or 8.33%,
- Students in secondary schools 112,796 or 3.43% i
- Students 81,228 or 2.46%.

The remaining 34.48% of the population includes categories that are not visible to statistical agencies and other official indicators and may relate to categories: preschool children, who are in the care of family members, women who are housewives (unemployed but not registered with Employment Bureau), the population that earns personal income abroad, as well as pupils (students) who study abroad. Starting from the assumption that primary education is compulsory, the proportion of certain categories share is set and the remaining 34.48% of the population in the total population is distributed, where it is justified to add another 501,760 to the employed population and 240,266 to the unemployed, or to increase the working-age population by 742,026, resulting in a target population of 1,972,730 inhabitants living in the study area.

3.2. Methodological aspects and statistical analysis of empirical data

The target group of the population is divided into three categories: employed, unemployed and pensioners, whose share in the population estimated based on the presented indicators is approximate: 50, 25 and 25%. The research procedure was conducted by collecting empirical data in the target geographical area, through E survey questionnaire. The questionnaire content was adjusted to the research problem and the structure of the collected answers was adjusted to the estimated population structure, where 625 properly completed questionnaires were collected, and the structure of respondents by employment status can be illustrated by Figure 1.

There are only three variables where the respondent's perception of benefits is below 50%, and these are exposure to noise during work, support from psychologists and management of the work atmosphere. Correlation analysis, specifically testing the statistical significance of Pearson's rank correlation coefficient, clarifies the observed degree and direction of reactivity of certain categories of respondents to the proposed working conditions in the work environment, where the results of the analysis can be clearly presented in Table 2.

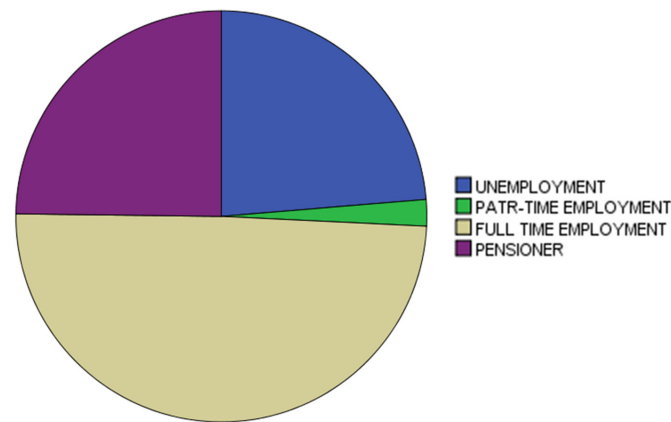


Figure 1. Structure of respondents by employment status

Source: Aleksic & Landika, 2021

Table 1. Percentage of respondents who believe that the proposed measures would have a positive effect on work efficiency

WOULD IT AFFECT YOU IF IT WAS POSSIBLE	COMPLETELY
VV1 – Work shorter for same salary	60,3%
VV2 – To have additional benefits for working conditions	58,7%
VV3 – To have quality healthcare	65,9%
VV4 – To have training that makes your job easier	72,8%
VV5 – To have management support (supervisors)	68,8%
VV6 – To have understanding and support of colleagues	79,4%
VV7 – To have a healthy meal at work with no additional expenses	81,3%
VV8 – To have a pleasant environment	84,1%
VV9 – Not to be exposed to noise during work	49,4%
VV10 – To have recreational activities	62,4%
VV11 – Team building to be organized in order to connect with colleagues	64,5%
VV12 – To have a support of a psychologist	39,8%
VV13 – To have someone to take care of the atmosphere at work	47,0%
VV14 – To have someone to take care of communication among employees	62,9%
VV15 – To have someone to prevent and manage conflicts	51,7%

Source: Aleksic & Landika, 2021

Table 2. Pearson's correlation coefficient³

	V ⁴									
WOULD ⁵	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
VV1 ⁶	-.364	-.030	-.154	-.132	.074	-.122	-.318	-.060	-.240	.178
VV2	-.263	-.023	-.170	-.062	.032	-.003	-.226	-.121	-.231	.086
VV3	-.004	.060	-.033	-.205	.322	.113	-.063	-.302	.087	.268
VV4	.357	.138	-.207	-.036	.371	.029	.287	-.234	.037	-.101
VV5	-.004	.045	.164	-.089	.091	.214	.017	-.246	.010	.321
VV6	.325	.111	-.213	-.157	.426	-.012	.277	-.298	-.002	-.196
VV7	.323	.121	-.237	-.082	.462	.025	.230	-.343	.009	-.157

³ Results generated using IBM SPSS

⁴ Respondents' characteristics – respondents' characteristics are contained in the question's number in the survey questionnaire on which the research was based

⁵ It affect you, if it was possible to.

⁶ The variables have the same content as in the previous table

VV8	.207	.082	-.237	-.139	.405	.076	.103	-.281	-.048	-.213
VV9	.059	.023	.342	-.126	.138	-.201	.017	-.134	.322	.254
VV10	.362	.069	.192	.090	.226	-.267	.276	.010	.340	-.152
VV11	.261	.060	.135	-.108	.220	-.329	.226	-.013	.319	-.059
VV12	.234	.065	.319	-.015	.155	-.091	.203	-.095	.341	.162
VV13	.135	.037	.312	.025	.233	-.205	.092	-.103	.301	.236
VV14	.412	.068	.088	.039	.295	-.247	.320	-.100	.253	-.184
VV15	.050	.017	.349	-.129	.145	-.156	.041	-.157	.205	.256

Source: Aleksic & Landika, 2021

From the Table 2, it is easy to notice that there is no respondents' agreement regarding the proposed measures. Each category of respondents has a different perception of the proposed measures that would affect the work atmosphere. This means that it would be justified to adopt the proposed measures to the groups of respondents and to further investigate which package of measures to propose to certain categories of employees.

3.3. Motivational techniques

The Thetahealing® technique is a technique of working on our unconscious beliefs and emotions. The founder of this technique is Vianna Stibal, who also founded the Institute in America. Theta technique works on beliefs and negative emotions and aims to change our insights and perceptions. The technique changes human negative beliefs that come from the unconscious part that creates a change of mind. This removes the blockages that the unconscious mind creates for each person. Everyone has blockages, whether they are aware of them or not. Individual blockages are system blockages.

EFT technique is a technique of emotional freedom that is transmitted through knowledge to people by Karl Dawson from Great Britain after it originally came from Gary Craig, who developed EFT at Stanford University. This technique is also known as acupuncture without needles because the basis of this technique is tapping the face and body parts known as meridian points. By tapping and saying certain sentences, people acquire positive attitudes or get rid of negative patterns or emotions. These people have some repressed emotions that later turn into physical illnesses. Personality illness- system illness. When a person does these techniques, he becomes better towards himself, towards his work environment, in the private and internal environment of the company.

Timeline healing is a meditative technique that, apart from having the same function as the previous two techniques, also allows a person to deeply relax through a meditative trip to a place in nature that relaxes, restores strength and revitalizes the body. It can also be done individually or in groups.

Yoga is health, and above all back health. The application of yoga enables and produces a healthy back and a calmer mind for any person who applies this type of practice. The effect of yoga is both mental and physical. Yoga can be practiced in companies during breaks or in other weather conditions but through regular practice.

The ideas of a modern company can go in the direction of forming a room for meditation and yoga with professionals that would affect employees' motivation, their psychophysical health and the success of the company in the international market.

4. CONCLUSION

The collected empirical data and the performed analysis indicate that the majority of respondents consider the introduction of non-economic measures in work processes and the work environment as a significant contribution to business efficiency. The research results show that over 70% of respondents' perceptions significantly prefer a pleasant environment, a healthy meal, understanding and support from colleagues and training that facilitates work.

Over 50% of respondents prefer management support, health care, team building to connect with colleagues, care for communication between employees, recreational activities, additional benefits when it comes to conditions in the company, and people in charge of working with other people and preventing conflicts within the company.

A smaller number of respondents, less than 50% are respondents who do not care about noise during work activities, hiring a person who deals with the atmosphere in the company, and about the psychological support as well. This can be explained by the fact that some jobs are performed individually where there is no noise during work, and people themselves create a working atmosphere in most cases. Psychological support is not accepted in the social environment in which the study was conducted, especially under the elderly population.

The research also showed that the proposed measures do not depend on the characteristics of the respondents. The approach to the formulation of strategies for the introduction of non-economic measures should be the same for all categories of respondents. Psychological support should be excluded from a general approach, and given to respondents voluntarily so that 60% of non-eligible respondents are educated in the benefits of this application.

After the introduction of the proposed measures, it is necessary to upgrade the approach and introduce respondents to the benefits of spiritual techniques and other psychological approaches, through the gradual introduction and understanding of the contributions they can make to physical and mental health and thus business efficiency.

REFERENCES

- Aleksić, J., & Landika, M. (2021). *Research and analysis*. Banja Luka: Apeiron.
- ARZ. (2020, 3 31). *Agencija za rad i zapošljavanje BiH*, Retrieved from: <http://www.arz.gov.ba/statistika/mjesecni/default.aspx?id=4636&langTag=bs-BA>
- KLIX. (2021, 2 18). *klix.ba*, Retrieved from: <https://www.klix.ba/vijesti/bih/prosle-godine-smanjio-se-broj-ucenika-i-studenata-u-cijeloj-bosni-i-hercegovini/210218119>
- Landika, M., & Bojanić, R. (2017, Jun/June). Modeliranje interkorelacionih faktora kao platforme upravljanja kvalitetom hotelijerskog poslovanja u BiH (RS). *EMC Review, God./Vol. VII, Br./No. I*, 21–38.
- Landika, M., Sredojević, V., & Bajić, G. (2019, Jun/June). Modeliranje interkorelacionih faktora radne efikasnosti u funkciji stepena motivisanosti za obrazovanje i radno usavršavanje. *EMC Review, God./Vol., Br./No. I*, 18–33.
- Landika, M., Sredojević, V., & Stanišljević, D. (2020, Jun/June). Stohastički aspekti marketing strategije usluge zdravstvene zaštite na teritoriji RS/BiH. *EMC Review, God./Vol. X Br./No. I*, 190–213.
- PIO/MIO. (2020, 3 31). Retrieved from: <http://www.fzmio.io.ba/images/statistika/strrasbos032020.pdf>
- Wikipedija. (2021, 10 21). Retrieved from: https://bs.wikipedia.org/wiki/Bosna_i_Hercegovina



The Role of Agile Leaders in Establishing Effective Internal Communication in Digital Organizations

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Abstract: Fourth industrial revolution and digital economy have affected many organizations and fostered them to become digital in order to survive and succeed. Leaders of digital organizations need to embrace numerous changes not only in organizational structure that becomes flat with minimal hierarchy, control, bureaucracy but also in all organizational processes and activities. One of the most important organizational processes is internal communication which becomes digital due to modern information and communication technologies and tools. This paper shows the role and importance of agile leaders in establishing and nurturing effective internal communication in digital organizations. To achieve the goal of effective digital communication in all directions and through the entire organization, leaders should be agile enough to establish appropriate communication channels, stimulate creative and critical thinking, new ideas, information and knowledge share, real time feedback, build and nurture trust among employees and engage employee participation in decision making.

1. INTRODUCTION

The main purpose of communication in any organization is to facilitate the contribution of employees in daily operations with the aim to achieve organizational goals. Any job position requires employees who have strong communicational skills. The way people communicate has been changed due to development and massive use of modern information and communication tools and technologies. Employers are looking to implement various digital technologies and put them into use in all processes and activities. Besides that, employers want employees who are able to communicate, connect, transmit knowledge and ideas, provide services via digital channels and all of that in real or near-real time.

On the other hand, due to modern technologies, organizations have become digital driven as their effective communication is mostly based on digital technologies and tools. However, to establish and encourage effective digital communication, organizations need agile leadership. Unfortunately, in practice, many leaders believe that by introducing new tools and technologies all employees will embrace them fast and achieve efficiency and effectivity. They forgot or lose sight of the fact that employees must be educated to use new technologies and tools, and they need to feel confident about new channels and methods of digital communication.

The aim of this paper is to point out the role and importance of agile leaders in establishing and fostering effective communication in digital organizations.

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2. DIGITAL ORGANIZATIONS – KEY CHARACTERISTICS NEEDED FOR SUCCESS IN THE DIGITAL ECONOMY

The fourth industrial revolution caused numerous economic changes and the emergence of the digital economy in which data and information are positioned as the key economic resource. Every organization that operates in digital economy is turning to digital aspects and forms of business and becomes focused on data – their collection, processing, analysis, interpretation, and application in the decision-making process. Contemporary organizations expect an unpredictable future that imposes on them very complex task – the integration of digital strategy into overall organizational strategy with a focus on permanent development of digital knowledge and skills of employees (Kane et al., 2016). Organizations have become aware that they must react fast in order to create new business opportunities (Mirković et al., 2019). Furthermore, leaders and managers realized that they need to change their ways and methods of work and to become agile.

Agile organizations, also known as entrepreneurial and resilient organizations, have the ability to quick respond to changes in environment – they react fast and successful to the emergence of new competitors, changing demands of customers and all unexpected shifts in marketplace (MBA Skoll Team, 2016). Some organizations are agile from their first day – they are born agile, while others need a lot of effort to become agile no matter of the phase in their life cycle. Those organizations require transformation to become agile. Regarding the book of Gareth Morgan “Images of organization” and classification of organizational types, agile organizations must be treated as living organisms – they must be able for constant change, growth and development, evolution, adaptation, and survival.

Organizational transformation with the aim to make entire organization agile is complex and challenging because it is difficult and almost impossible to anticipate all internal and external factors and predict all the effects and changes that need to be taken. One thing is for sure – organizational structure needs to be changed and reshaped with new characteristics and forms. Digital organizations must become agile, flexible, learning oriented, networked, collaborative, minimally hierarchical – almost without any hierarchy and control, self-organizing, open for knowledge sharing and open for change (Snow, Fjeldstad & Langer, 2017). In the digital economy, the development of new forms of organizational structure is a necessity because traditional organizational models are rigid, with strong internal and external boundaries, and without flexibility and potential to respond fast to changes in environment (Lukić & Vračar, 2018). Those shortcomings have become barriers to successful functioning of organizations in digital economy. The internal operations and processes in any organization became more complex due to dynamic and changeable environment (Dudić et al., 2018).

3. KEY CHARACTERISTICS OF EFFECTIVE INTERNAL DIGITAL COMMUNICATION

As activity through which employees exchange knowledge, information, ideas and thoughts, communication is very important for successful functioning of any organization and overall results (Lukić Nikolić, 2021). Every employee has the need and wish to be informed about happenings in organization. Internal communication is the process of exchanging information and ideas in a range of formal and informal communication between employers and employees. Table 1 presents dimensions, levels, directions, participants, and content of internal communication. As is it shown in the table, regarding the dimension, internal communication can be team peer, project peer, line management and corporate. Each dimension has its level, direction, participants and content.

Table 1. Internal communication: overview of dimensions, level, direction, participants, and content

Dimensions	Level	Direction	Participants	Content
Team peer	Team colleagues	Two way	Employee-employee	Team tasks and information
Project peer	Project colleagues	Two way	Employee-employee	Project information and issues
Line management	Line managers	Two way	Line managers-employees	Roles, duties, appraisal discussions
Corporate	Top managers	Two way	Top managers-employees	Organizational issues, goals, activities, values and achievements

Source: Adapted from Welch & Jackson, 2007

No matter of dimension and other parameters, it is important to acknowledge that the main goals of internal communication are (Welch & Jackson, 2007):

- To contribute to establishing and nurturing internal relationships among employees;
- To promote a positive sense of belonging and commitment of employees;
- To develop the understanding of employees about the goals and vision of the organization.

Adequate communication helps employees to understand their roles and goals. Unfortunately, a large number of organizations use static approach to communication, as letters and e-mails or use vertical communication in form of strict command and directives. Those approaches are inadequate for effective functioning of organizations and their business results in digital economy. Communication, as process of transferring information and meaning between senders and receivers, may use one or more forms of media (Bovee & Thill, 2020). In digital organizations that operate in fourth industrial revolution it is important to establish and nurture technology-enabled communication, so called digital communication. This type of communication can be defined as interaction among individuals, teams and communities in an online environment. The overall changes in communication and collaboration of employees are largely dependent on the technologization of leadership (Schwarz Müller et al., 2018). Increased work in virtual project teams forces leaders to communicate using new media and tools. The range and variety of digital communication tools are electronic whiteboards, e-mails, videoconferences, virtual meeting spaces, instant messaging, podcasts and wikis (Dwyer, 2020). Employees expect to receive and send information in real time, online, while organizations give their best in order to develop new practices and policies for digital communication. Digital workplace toolbox can be classified in eight different groups, differing the ways in which employees communicate, collaborate, connect and deliver services. Those groups are presented in Table 2.

In order to establish effective digital communication, it needs to be practical, based on facts, concise, clear and persuasive. Recipients should be given useful information that help them solve problems or make good decisions. The information must be clear, accurate and ethical, transmitted with concrete language and specific details that are important for the subject. Furthermore, it is important to clearly state what is expected from the receiver.

Key advantages of digital channels and digital communication are:

- Sharing ideas, information and feedback in real time, much faster than by traditional communication channels;
- Breaking down organizational silos;
- Opening up and fostering communication through entire organization in all directions;

- Connecting employees beyond different time zones and locations;
- Fostering organizational and team learning processes and activities;
- Embracing a global mindset;
- Embracing a diversity;
- Fostering inclusion.

Table 2. Digital workplace toolbox

Messaging	Productivity	Collaboration	Communication
Provides a fast way for communication <ul style="list-style-type: none"> • E-mails • Instant messages • Micro blogging • Mobile messaging 	Enables knowledge workers to finish their jobs efficiently <ul style="list-style-type: none"> • Word processors • Spreadsheet tools • Presentation software • Calculator 	Enables employees to work with each other and partners <ul style="list-style-type: none"> • Team rooms • Communities • Wikis • Web conferencing 	Supports information sharing and internal publishing <ul style="list-style-type: none"> • Portals/Intranet • Blogs • Personalized homepage
Business applications	Crowd sourcing	Connectivity	Mobility
Enables employees to access self-service applications online <ul style="list-style-type: none"> • Expense claims • HR systems • ERP • CRM 	Enables organizations to gather employees' ideas and opinions <ul style="list-style-type: none"> • Idea generation platforms • Polling • Survey • Forums 	Helps locate experts across the organization <ul style="list-style-type: none"> • Employee directory • Organization chart • Rich profile 	Enables access of tools away from the workplace <ul style="list-style-type: none"> • PC/laptop • Mobile/smartphone • Home office • Remote scanners

Source: Adapted from Deloitte, n.d.

As it is known, there are always two sides to the coin. In practice, there are also some disadvantages of digital channels and digital communication. The most frequent disadvantages are:

- Employees are frequently overwhelmed by emails or texts at any time of the day or night, because of the different time zones and working schedules;
- Employees may receive notifications at any time 24/7, 365 days a year;
- It may be hard for employees to establish and nurture work-life balance because of their all-time availability;
- Notifications may be very disturbing while employees are in the middle of work or meeting;
- Notifications may be very stressful or annoying for entire family when employees work from home.

Furthermore, one of the disadvantages is the fact that technology sometimes may reduce employees' freedom to perform work tasks on creative and/or innovative way, because technology use standardized procedures (Petković & Lukić, 2013; Schwarzmüller et al., 2018).

To achieve effective digital communication, organizations must enable and establish some characteristics. Firstly, it is important to tailor the message according to digital communication channels because each channel has its specifics and is appropriate for specific messages. Secondly, it is recommended to create an organizational policy for digital communication. On that way, employees will have clear guidance and rules on how to use different communicational channels and tools. On the other hand, organizations will be sure about privacy, protection and effectiveness of digital communication. Thirdly, organizations must provide adequate training to employees in order to learn them how to use modern communication tools and platforms for collaboration. Only educated and competent employees will be able to create added value for clients (Virijejić Jovanović & Jošanov Vrgović, 2017). Fourthly, one of the factors that impact

the effectiveness of digital communication is trust among employees because when employees trust each other, they have better results and relationships with superiors, (virtual) teams, partners, clients and entire organization.

4. THE ROLE OF AGILE LEADERSHIP IN EFFECTIVE DIGITAL COMMUNICATION

One of the key factors that determine the success of organizations, especially in digital economy and the fourth industrial revolution is leadership. Leaders of any organization must be able to cope with new environment in digital economy, and with the overall impact of digital technologies in order to survive and succeed. The important characteristic of leaders needed in digital economy is agility. Agile leaders are transparent, sincere, open, cooperative, responsible, focused on future, communicative, resilient in difficult and stressful situations, flexible and open to new experience.

In order to use digital technologies for internal communication in the best possible way, leaders must be aware of the following (Bovee & Thill, 2020).

- Technology, no matter of how much is expensive and superior, is only a tool, an aid, a means for communication. The communication in its nature must be established and nurtured appropriately and only channeled via technology.
- Information overload and technology overuse may lead to stressful situations, mistakes, distraction, burnout effect. It is necessary to educate employees that they must adjust digital channels to avoid the information they do not need and to filter only information which is important for their part of work.
- Employees must use digital channels and tools wisely and carefully in sense of data protection and privacy, but also in the sense of how much time they waste on these technologies.
- Employees must be educated to use technologies efficiently in order to be productive.
- There is still need for physical, direct contact among employees. Sometimes there may be misunderstandings in messaging, e-mails and other textual communication. In case that employees feel that there is or may be some confusion, it is important to visit receiver and have direct (face to face) communication.

Successful use of digital channels requires that employees have skills to: (1) synthesize, critically analyze and evaluate all data and information; (2) collect and use information with the clear purpose and goal that need to be accomplished; (3) create and communicate meaningful new information and knowledge; (4) comply with ethical and legal requirements such as privacy, confidentiality and data security.

When choosing the right tool for communication, leaders must be aware of the following (Martic, 2019):

- Solution should be easy for use;
- Solution should be mobile-friendly;
- Information should be easily accessible and shareable;
- Solution should have options for customization of usage, depending on the role of employees;
- Solution should encourage employees to communicate and share knowledge;
- Solution should enhance cross-functional communication;
- Solution needs to be secure and reliable.

In order to foster open and honest digital communication in all directions and through entire organization, leaders should establish appropriate communication channels, stimulate creative and critical thinking, new ideas and propositions, information and knowledge sharing, real time feedback, and engage employee participation in decision making. One of the activities of agile leaders that is important in digital economy and remote working is using digital communication channels for meetings with the entire global workforce, no matter of time zone and location. But, on the other hand, leaders must be aware that sending e-mails after working hours may cause more harm than good, because employees feel pressured to respond immediately. Modern tools and applications have the option to schedule e-mails to be sent on some specific date and time.

During 2020 and 2021 a large number of organizations implemented remote working with the aim to protect the health and safety of employees from Covid-19 pandemic. The key challenge was how to stay connected during physical distancing, especially having in mind that in crisis situation is of tremendous importance to have clear, open, honest and real-time communication. One of the researches conducted in 2020 in Serbia, Croatia and Bosnia and Herzegovina showed that during remote working of organizations, digital communication flourished. Crisis management teams and leaders quickly established effective channels of communication and nurtured open and honest communication in real time (Lukić, Jaganjac, Lazarević, 2020). Other research conducted in Slovenia, also showed that employees were mostly satisfied with digital communication – telephone calls, e-mails, video conferencing and chats (Erjavec, 2020). All those results indicate that organizations are able to establish and foster a variety of digital communication channels and achieve effectiveness, even in the time of crisis.

5. CONCLUSION

Internal digital communication is of tremendous importance for successful functioning of any organization that operates in digital economy. It represents any kind of communication that relies on the use of modern information and communication technologies and tools such as e-mails, phone calls, video conferencing, instant messaging, webchats, etc. It may be said that digital communication, especially in digital economy and growing remote working due to Covid-19 pandemic, have become an integral component of the workplace. However, the way how digital communication is established and nurtured determines whether it will be effective or not. Leaders and their agility have a key role in that process.

In this paper is shown that in order to achieve effective digital communication in all directions and through entire organization, leaders should be agile enough to establish appropriate communication channels, stimulate creative and critical thinking, new ideas, information and knowledge share, provide real time and constructive feedback, education and training of employees on how to use new digital channels, build and nurture trust among employees and engage employee participation in decision making. All these activities lead to effective digital communication and consequently to the rise of overall business results. Digital communication is here to stay, and, surely, it will be the dominant type of communication in the future. For that reason, leaders should be prepared on how to make the most of digital communication.

REFERENCES

- Bovee, C., & Thill, J. (2020). *Business Communication Today*. Global Edition, Pearson.
- Deloitte (n.d.). The digital workplace: Think, share, do. Transform your employee experience. Available at: https://www2.deloitte.com/content/dam/Deloitte/mx/Documents/human-capital/The_digital_workplace.pdf, Retrieved 22. 10. 2021.
- Dudić, B., Drahošová, M., Lukić, J., Dudić, Z., Smoleň, J., & Mirković, V. (2018). Counterparty credit risk closure: challenges in Big Data Era. *Proceedings of the 31st International Business Information Management Association Conference Innovation Management and Education Excellence through Vision 2020*, Milano, Italy, pp. 2441 – 2453.
- Dwyer, J. (2020). *The Business Communication Handbook*. Cengage Learning.
- Erjavec, K. (2020). Employees' communication during COVID-19. In *6th International Scientific-Business Conference – LIMEN 2020 – Leadership, Innovation, Management and Economics: Integrated Politics of Research – SELECTED PAPERS*, Online/virtual, November 26, 2020 (pp. 67-75). Belgrade: Association of Economists and Managers of the Balkans, <https://doi.org/10.31410/LIMEN.S.P.2020.67>
- Kane, G., Palmer D., Phillips, A., Kiron, D., & Buckley, N. (2016). *Aligning the organization for its digital future*. MIT Sloan Management Review and Deloitte University Press. Available at: https://aechile.cl/wpcontent/uploads/2016/09/2016_MIT_DeloitteAligningDigitalFuture1.pdf, Retrieved 23. 10. 2021.
- Lukić J., & Vračar, M. (2018). Building and nurturing trust in virtual project teams. *Strategic Management International Journal of Strategic Management and Decision Support Systems in Strategic Management*, 23(3), 10-16.
- Lukić, J., Jaganjac, J., & Lazarević, S. (2020). The successfulness of crisis management teams' response to the crisis caused by the COVID-19 pandemic. *Ekonomika preduzeća*, 68(7/8), 545-556. DOI: 10.5937/EKOPRE2008545L
- Lukić Nikolić, J. (2021). *Angažovanost zaposlenih sa organizacionim ponašanjem i menadžmentom ljudskih resursa*. Beograd: Visoka škola modernog biznisa.
- Martić, K. (2019). Digital Transformation: 15 Reasons Why Internal Communication is the Key, Available at: <https://blog.smarp.com/digital-transformation-15-reasons-why-internal-communication-is-the-key>, Retrieved 19. 10. 2021.
- Mirković, V., Lukić, J., Lazarević, S., & Vojinović, Ž. (2019). Key Characteristics of Organizational Structure that Supports Digital Transformation. In *24th International Scientific Symposium Strategic Management and Decision Support Systems in Strategic Management*, Subotica 2019 (pp. 255-261), https://doi.org/10.46541/978-86-7233-380-0_46
- Petković, M., Lukić, J. (2013). Uticaj informacione tehnologije na dizajn organizacije: primer organizacije u zdravstvu. *Sociologija*, 55(3), 439-460. DOI: 10.2298/SOC1303439P
- Schwarz Müller, T., Brosi, P., Duman, D., & Welp, I. (2018). How Does the Digital Transformation Affect Organizations? Key Themes of Change in Work Design and Leadership. *Management revue, Socio-economic studies*, 29(2), 114 – 138. DOI: 10.5771/0935-9915-2018-2-114
- Snow, C.C, Fjeldstad O. D., & Langer, A. M. (2017). Designing the digital organization. *Journal of Organization Design*, 6(7), 1-13. DOI 10.1186/s41469-017-0017-y
- Virijević Jovanović, S., & Jošanov Vrgović, I. (2017). Uloga zaposlenih i menadžmenta ljudskih resursa u procesu stvaranja vrednosti brenda. *Škola biznisa*, 1/2017, 41-50. DOI 10.5937/skolbiz1-14336
- Welch, M., & Jackson, P. R. (2007). Rethinking Internal Communication: A Stakeholder Approach. *Corporate Communications: An International Journal*, 12(2), 177–198. DOI: 10.1108/13563280710744847



Workplace Motivation – Case Study Engaging Students during a Pandemic

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Abstract: Professionals in all fields are to work even when societies go through crises (i.e., the current pandemic), natural disasters, or catastrophes. Studies conducted by specialists in different areas, indicate that numerous people are not willing to work under stressful conditions. In this paper, we want to find out what can motivate a person to work in abnormal conditions of stress, risk of illness, which motivational tools may be applicable with a direct view on students who remained online for more than 21 months.

Humanity is facing one of the greatest challenges of this century: the COVID 19. People are going through a period of fearful insecurity and stress causing many problems and even mental health issues, some of them probably hard to remediate. Education is among the most affected fields of activity. The purpose of the paper is to discover workplace motivation of teachers and students to respond and react to such unfortunate circumstances and to continue their activity, thus avoiding long term blockages and drawbacks.

1. INTRODUCTION

Motivation, the ‘force or influence that causes someone to do something’ as defined by The Merriam-Webster dictionary or ‘the energizing of behaviour in pursuit of a goal’ (Simpson and Balsam, 2016, p.1) or ‘the drive’ (Pink, 2011) lies at the basis of our interaction with the world and with each other. The fascinating thing about motivation is that from a biological point of view, seen a four-programme framework (the four basic pillars being safety, status, sex and self-reliance) human beings act like animals, that is they all share motivation to obtain the basic needs, including food, water, reproduction and social interaction (Natterson-Horowitz, Bowers, 2019, pp 187). Life is about meeting these needs as a requirement for survival, but the differentiation relies on the goals that particularize actions in each case. Therefore, motivation must be perceived both as an intrinsic and extrinsic power, a response to internal states and external environmental conditions. Basically, motivation is the outcome of an exchange of chemicals released by the brain (peptides, hormones, neurotransmitters, etc.), determining complex decisions to be made. In the past few years, there has been a great deal of research on the biology and psychology of motivation of people as they have had to deal with the physical and emotional stresses and rapid changes brought on by COVID-19.

Academics and students have faced a sudden twist in their lives being forced to rapidly learn and adopt a new way of working or learning remotely. The greatest challenge for academics has been to keep students motivated, and help them adjust and finally embrace the new mode of learning and deal with feelings of isolation due to a lack of physical interaction with peers and teachers.

Motivation for learning influences the educational process itself, and, implicitly, the results of this endeavour. Deficits in motivation can be devastating. Negative phrases and labels such as students are no longer interested in learning, do not like books, are not motivated to learn have

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often appeared in educational institutions in Romania. It is a reality frequently reported by academics and teachers in our country and a current problem, in which specialists in the field of education sciences, but also practitioners have tried to find solutions. The working from home and learning from home pattern only added to the problem.

2. WHAT MOTIVATES PEOPLE

In order to successfully overcome the challenges that appeared and to support mental health, well-being, and behaviour of people, a better understanding is required of how individual people experience and psychologically react to the new reality, how they think, feel, suffer and cope with the situation, and how they are handling threat perception, how they perceive and regulate emotions and behaviour, how they remain motivated in their workplace to remain productive.

Focusing on the changing nature of work and the workplace, it is wise to conduct research on the intrinsic power of motivation that can help people to overcome stress and demotivation. According to Pink (2009) there is a significant distance between what science proves and what economics do about human motivation – and how this discrepancy affects all aspects of human life by analysing three elements of true motivation – autonomy, mastery and purpose.

Autonomy is actually the self-reliance, the desire to leave the nest and live and direct our own lives. When it comes to the workplace, allowing employees autonomy contradicts the traditional view of management and education system which wants employees/students to “comply” with what is required of them. Nevertheless, if teachers or managers want students/ employees to be more engaged in what they are doing, then autonomy is the choice. As an example, freedom offered to employees to spend time doing their own thing leads to many more innovative ideas and solutions. This should also apply to the learning activity of students by growing more flexible time providing the technology and freedom to study from home.

Mastery is closely related to the biological motivation for status, as people show the desire to continually improve at something that matters, to become better, to enjoy the satisfaction from personal achievement and progress. Allowing employees and students respectively, to feel a sense of evolution hugely contributes to their inner drive. Whenever people feel left aside or lack opportunity for self-improvement they are liable to become bored and demotivated. The solution to this drive is to take into account the stress curve whenever tasks are assigned – they should not be too easy or excessively challenging, they only need to get people out of comfort zones, and allow them to stretch themselves and develop their skills and experience further.

The purpose is the third pillar defined by Pink as the desire to do things in service of something larger than ourselves (Pink, 2009) and human beings naturally tend to do things that matter. Briefly, there are numerous and diverse factors that influence motivation, both inner physiological ones, and the exterior current conditions, along with each and every being’s own experiences. These factors influence motivation if the information is processed completely, when it is encoded, decoded, interpreted, perceived, assessed and eventually learned and retrieved. For that, interactions and communication are vital.

The restrictions imposed by authorities when the pandemic hit the world impacted greatly all living world. People underwent crucial changes. Being forced to function, work, study from home, motivation was difficult to sustain. Academia and education are two social and public do-

mains that have been seriously affected by the pandemic lockdown in every country. Romania, for instance, decided for both public and private universities to close the campus for students and switch all teaching activities to e-learning.

3. THE CONSEQUENCES OF THE PANDEMIC FOR THE HIGHER EDUCATION SECTOR

All levels of education, from kindergarten to university, have been severely affected by the new coronavirus, and most institutions have either been completely shut down or have been operating at very limited capacity for several months. Despite the various challenges the pandemic has generated, it has also initiated some really creative responses within the higher education sector.

3.1. The Extraordinary Push Towards the Digitization of Education

Safety measures taken have been designed to help university personnel stay healthy, secure and still to support the ongoing work; not an easy job, nevertheless, workable and sometimes even generating enthusiasm by trying out new ideas.

Although the idea of digitizing education systems has been debated for some time, the acceleration of this initiative under the Covid-19 pandemic has been truly impressive. After the initial shock, educators and members of the administrative and technical staff in the education systems reacted in a truly extraordinary way, trying to transfer the whole teaching – learning process to the online environment and succeeded in relatively short time to operate efficiently on digital platforms such as Zoom, Google Meets and Microsoft Teams, which in most cases they were not even aware of before this crisis; most of those involved have adapted surprisingly well to the new systems, appreciating the advantages (the ability to offer and participate in educational courses at home, without the need for a physical presence in a classroom, the improvement in the quality and quantity of digital resources) and trying to overcome the encountered disadvantages (difficulties for the practical disciplines based on experimental or activities, the need for teachers to become accustomed with digital platforms and resources, socio-economic division, harsh on both teachers and students who do not have modern technological devices or uninterrupted access to high-speed Internet). Among the problems encountered as a result of online education, the reduced social interactivity with other students, which is a particularly critical factor especially for young people at the beginning of their higher education, has led to difficulties in concentrating and finding or maintaining motivation. Thus, the psychological issues related to social isolation or reduced social interactions despite the strengthening of psychological support networks in most academic institutions was a real challenge.

3.2. Difficulties for the International Mobility That Could Turn Virtually

One particularly negative impact of the health crisis was on the mobility of international students, both those seeking full-time courses abroad and those in exchange for experience, such as the Erasmus program, which has allowed almost three million students to take university courses abroad, over three decades. The pandemic forced many international students to interrupt their Erasmus programs, and led to the cancellation of others. The consequence is the much lower number of students who apply for such programs and the number of international students is less likely to return to the level of the years before the pandemic.

A solution will eventually be the virtual mobility that could offer the opportunity to take courses offered by different institutions around the world at the same time; however, in order to implement

virtual mobility there are some necessary steps to follow such as the formation of new academic partnerships, the setting and defining of academic credits that a student can obtain by following the digital courses offered by foreign universities, recognition of academic credits obtained abroad, the financial support offered to virtual mobility as it was offered the physical one, etc.

3.3. Good Leadership Was Required

Once the technological resources and pedagogical support were provided to facilitate academics in their teaching, institutions focused on senior leadership that had to become highly visible to ensure a smooth performance of the process. From informal conversations with employees aimed to unite staff and demonstrate an identification with the new environment, to follow-ups that encouraged academics to share teaching practices and observations and become part of the decision-making process, all these actions forced managers to adapt quickly and correct university procedures and to set different work expectations to better accommodate the ‘new’ working environment.

4. THE IMPACT OF WORKING/ LEARNING FROM HOME ON STUDENTS’ MOTIVATION

Social contexts affect people’s life goals or aspirations which tend to be more intrinsic or more extrinsic, thus affecting important life outcomes. Working from home is different from learning from home, nevertheless, the two realities, especially during COVID-19, have a lot in common. Working from home is not a new concept. Technology enabled an ever increasing number of people to work from home regularly. Some studies point out that ‘telework can reduce turnover rates and increase employees’ productivity, job engagement, and job performance’ (Vyas and Butakhieo, 2020, p. 6). On the other hand, studying from home without any possibility of coming to the university campus and not being able to attend traditional face-to-face lectures and courses, not interacting with colleagues, tutors, and teachers require from students to learn and adapt to new behaviour rules.

There is a gap in the existing literature regarding students’ experiences during COVID-19. Yet it is a fact that psychologically, students felt uncertainty, stress, lack of motivation, all in all, a twist in the behaviour routines and habits. Despite their highly developed digital skills, the abrupt change to the new forms of teaching and sole reliance on digital interaction as a means of social interaction might have caused students serious troubles. Students’ ability to cope with the new situation rely on each student’s personality and current cognitive, affective, and motivational state.

Becoming a student brings along, besides the initial enthusiasm and curiosity or eagerness, high levels of anxiety, and mental stress due to excessive demands and uncertainty in finances, job, or social relationships. This prevalence of academic stress and mental health turns university students into a particularly vulnerable social category with all the stress-related lifestyle changes associated with the current COVID-19 pandemic, where lack of motivation may seriously impede the educational process.

As mentioned above, the theory maintains and has provided evidence that all human beings have fundamental psychological needs to be competent, autonomous, and related to others. Satisfying these basic needs facilitates people’s autonomous or inner motivation, whereas denying these needs determines controlled motivation or demotivation. The more autonomous a student, the more effective he/she will prove in performing an activity, such as learning and it all relies on satisfying the basic needs. Thus, universities have had to concentrate on keeping students motivated while struggling to maintain their own morale up.

Beyond the positive aspect of improving digital skills, learning from home shows several drawbacks as well: with no face-to-face contact, it is quite difficult for educators to pick up nonverbal cues from students that can indicate they are disengaged, frustrated or unenthusiastic. The same, sharing emotions and enthusiasm, encouragement or concern is challenging for educators. Moreover, when cameras are off, the anonymous feeling of the online environment can make it easier for students to withdraw, participate minimally, or completely disappear from the course, having very little or no motivation to persevere.

In the attempt to preserve or even increase motivation for learning, especially the intrinsic one, the focus is on the affective-motivational aspects of the educational process, including emotions related to a specific situation or interest and motivation related to a task or subject matter. Therefore, students who experience enjoyment in the process, or the intrinsic motivation to engage in the task or situation will remain motivated. Previous research showed that enjoyment eventually contributes to students' intrinsic motivation (Ryan and Deci, 2000, p.17). Moreover, research argues that students' engagement depends on the type of motivation for a task (Ryan and Deci, 2000, p.15), i.e. mainly intrinsic motivation is seen as a beneficial ground, self-driven students show higher levels of persistence, achievement, and engagement. The pandemic highlighted this aspect as, in harsh times students' affective and motivational drives may have been even more important than during normal times – when there is no teacher present, students are responsible for regulating their own learning process.

The key is, thus, in the educators' pockets as intrinsic motivation should be mostly initiated by interest and the way in which students' attention and exploratory behaviour are directed. These essential factors like positive emotions determining learning enjoyment, as well as motivational aspects, such as intrinsic motivation, might have affected students' learning efforts during university lockdown.

5. STRATEGIES AND PRINCIPLES THAT SUPPORT STUDENTS' MOTIVATION

With students in contact only via the Internet, several new challenges arise. For extrinsically motivated students, online courses enable self-paced rhythm and fitting the work time into their schedule; they can be engaged with interactive activities that offer instant feedback. The Internet provides flexibility, interactivity and creativity engaging students in motivating experiences. Yet, there are more types of students ranging from high achievers to students currently on academic probation who may take courses through continuing education. Among them, there are those with the intrinsic motivation that has to be maintained continuously.

According to Weimer (2018) the principles of motivation might be adapted in various pandemic learning modes to raise student motivation.

1. **Adaptive self-efficacy and competence perceptions motivate students.** This appeals to the fundamental biological principle of motivation – status, meaning that if students believe they can do something, they are motivated enough to do it. And if the task follows the correct stress curve, being challenging but doable, the problem is almost solved. The course design is essential, technology and visual tools help in conceiving tasks that keep both students below the grade level and those above level motivated. Providing an option to obtain extra credit on performing additional challenging tasks will keep students above the grade level motivated, whereas students below the grade level will be motivated to complete the task or follow feedback for improvement.

2. **Adaptive attributions and control beliefs motivate students.** Students get and remain motivated if they feel their work counts, is appreciated and fairly assessed. This turns crucial with pandemic learning modes when student voices and feedback will have to be incorporated into the course design; such attitudes, talks, meetings preserve students' motivation and involvement in the course.
3. **Higher levels of interest and intrinsic motivation motivate students.** If the above presented principles referred more to extrinsic factors, there is a "distinction between personal and situational interest. Personal interest represents the attraction a student feels for a content area—what's motivating the decision to major in a particular field. Situational interest refers to positive feelings generated by the learning tasks or activities themselves. Students can catch motivation from a teacher who is obviously, unabashedly in love with the content and teaching." (Weimer, 2018) Motivation might appear from an external factor, yet, if filtered and turned into an inner calling, need, desire, it becomes more powerful and long lasting.
4. **Higher levels of value motivate students.** It is, in fact, the purpose of Pink (2011), namely, students have to understand the value attached with what they are learning and where it will be applied in their future lives to keep them motivated. Linked to the biological factor of self-reliance, where students are directed to find out through directed readings and experiential learning the relevance and future application of each topic, it enforces the power of motivation for learning. During these challenging times when traditional education was affected, these principles and strategies can really help in the process.

Some strategies involving instructor behaviour promote engagement through setting expectations and that is helpful especially to intrinsic type of motivation:

- creating *explicit* course and activity *goals* (Ames 1992) and thus students feel more motivated to put effort into a course that they consider worthwhile. It develops mastery (Pink, 2009) which acknowledges the fact that while learning a new skill or concept, a person may need multiple attempts.
- communicating work/learning expectations clearly from the very beginning.
- providing a detailed syllabus with assignment information, format of class, course and assignment schedule and advice for completing work.
- keep an accurate course website with updated information about activities that are opening, closing or changing.
- communicating effectively with students: logging in often, responding quickly, and convey permanent feedback (Crumpacker 2001). The use of feedback is another way of increasing mastery and it boosts their desire and dedication to learn. Students may not know where they are making errors. Providing constructive criticism and allowing students to apply feedback increases the intrinsic motivation to master a concept.
- recognizing and praising students who improved or performed tasks successfully.
- providing correct, specific and personalized assessments.
- ensuring autonomy which gives students the ability to lead their learning and this is motivating.
- building purpose as it provides students with a reason to engage and learn. Students need to feel like they are working toward something worthwhile and are doing something important; students feel good about their work—which reinforces the desire to keep working.

All these efforts are worth as, following the boomerang principle, what one offers, one receives in return (Nagpal, 2000). The more effort is spent to motivate students and keep them constructively engaged, the better the chances are for students themselves to take their turn and get involved, and naturally, to progress. And the wonderful part is that it does not end here, the circle

closes and completes only when the teacher's motivation grows fuelled by student involvement and engagement.

6. CONCLUSION

After COVID, there will be no return to the way of life that was actually before COVID; life-style, habits in the workplace, working conditions of higher education institutions have changed. In a post-pandemic era, it is likely that online learning will become a fundamental element in higher education. Remote education has impacted the learning process in various ways. The focus remains on human resources. Students, as “receptors” of education have to remain motivated. There are biological factors fundamental for any being. Humans add purpose and drive to make sense of life and work. Psychological principles of motivation clarify the mechanisms brains use to keep people motivated. Using the right strategies and methods can help maintain and even increase the motivation of distance learners.

REFERENCES

- Ames, C. (1992). *Classrooms: Goals, structures, and student motivation*. Journal of Educational Psychology, 84, 261-271.
- Crumpacker, N. (2001). *Faculty pedagogical approach, skill, and motivation in today's distance education milieu*. Online Journal of Distance Learning Administration 4:4.
- Cull, S., Reed, D., Kirk, K., (2010). Student Motivation and Engagement in Online Courses
- Hutchins, H.M. (2003). *Instructional immediacy and the seven principles: Strategies for facilitating online courses*. Online Journal of Distance Learning Administration.
- Nagpal, S. (2020) Raising Student Motivation During the Pandemic, Faculty Focus, <https://www.facultyfocus.com/articles/effective-teaching-strategies/raising-student-motivation-during-the-pandemic/>
- Natterson-Horowitz, B., Bowers, K. (2019). *Wildhood: The Astounding Connections between Human and Animal Adolescents*. Scribner Book Company. ISBN-10 1501164694
- Pecsek, B. (2018). Working on holiday: the theory and practice of workcation. *Balkans Journal of Emerging Trends in Social Sciences*, 1(1), 1-13. <https://doi.org/10.31410/Balkans.JETSS.2018.1.1.1-13>
- Pink, D. (2011). *Drive. Ce anume ne motiveaza cu adevarat*. Bucuresti: Editura Publica.
- Ryan, R.M., Deci, E.L. (2020) *When rewards compete with nature: The undermining of intrinsic motivation and Self-Regulation*. Educational Psychology 2000. <https://doi.org/10.1016/B978-012619070-0/50024-6>
- Simpson, E., Balsam, P. (2016). *The Behavioral Neuroscience of Motivation: An Overview of Concepts, Measures, and Translational Applications*. US National Library of Medicine National Institutes of Health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4864984/>
- Teaching Geoscience Online – A Workshop for Digital Faculty. <https://serc.carleton.edu/NAGTWorkshops/online/motivation.html>
- Vyas L., & Butakhieo N., (23.12.2020). The impact of working from home during COVID-19 on work and life domains: an exploratory study on Hong Kong. <https://www.tandfonline.com/doi/full/10.1080/25>
- Weimer, M. (2018). *Five Keys to Motivating Students*. The Teaching Professor. ISSN 2578-9899. <https://www.teachingprofessor.com/topics/for-those-who-teach/five-keys-student-motivation/>
- World Health Organization (2020) “Coronavirus Disease (COVID-19) Situation Report – 202.” Accessed 9 Aug 2020.



Employees' and Students' Attitudes of Business Process Orientation Usefulness in Croatia

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Abstract: *Considering the growing competition in the market, each company strives to operate in accordance with the time in which it exists and following modern techniques of business system management. One of such techniques is manifested in designing and managing business processes in organizations. The authors investigated two groups of respondents. The first group consists of employees of different organizations in Croatia. The second group of respondents are students of higher years of economic faculties in Croatia. The perception of these two groups on the importance of the company's business process orientation was examined. The two groups were examined for an overview of the current situation with the help of employees and the future through the prism of future employees – current students. This paper aims to assume future trends of BPO use in organizations taking into account the perception of the participants surveyed.*

1. INTRODUCTION

Many criteria can define the success of an organization and no consensus solution could label an organization as successful. Precisely because of this, success is a subjective concept and is perceived differently by different scientific and professional disciplines. However, one of the criteria for the success of the organization is certainly efficiency in business processes, since efficient business processes imply rational business activity.

McCormack and Johnson (2001) emphasize that business process orientation (BPO) is not just a kind of strategy the organization implements, but it is an orientation that puts the process at the forefront instead of the hierarchy. According to modern marketing principles, business processes in companies are customer-oriented, which is corroborated by Kotler et al. (2014) who showed that modern enterprise organization puts clients at the forefront. Alfirević (2000) stresses that “*organization should be viewed as an instrument for reaching the goals of its stakeholders*”, and that there should be a link between the economic performance of a particular organization and the quality of its organizational design. If the performance of an organization is understood as some form of output that can be quantitatively determined and measured (Armstrong, 2006) it is possible to assess the impact of BPO on performance as well. The measurement of performance at process level will indicate places where it is possible to introduce some improvements (Bakotić, 2012). Orientation to business processes has a positive effect on the non-financial performance of the organization, and therefore, indirectly on financial performance (Škrinjar et al., 2008). The influence of BPO on organizational performance, on a sample of companies in Croatia, was examined by the authors Milanović Glavan and Bosilj Vukšić (2017) and they found that the better the non-financial performance of the company the more the organization is focused on business processes, where such a result, in the form of improved non-financial performance, eventually results in better financial performance. Münstermann et al. (2010) found that process standardization has a positive and significant impact on process performance, such

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as process quality, output, price and timing. The financial performance of the enterprise can be improved using some of the techniques of business process management (Ittner and Larcker, 1997). The process orientation of the organization, as far as marketing processes are concerned, has a positive impact both on marketing efficiency (quality, costs and time) and on the effectiveness of marketing (Diller and Ivens, 2006). Markovic and Kowalkiewicz (2008) emphasize that the decomposition of the main goal to smaller goals, which is associated with a particular process, is important and such linking of the goal and process allows the advanced analysis of the process, where processes can be detected as ones that sufficiently contribute to one of the organizational goals as well as processes that do not have a goal. Everything that has been discussed previously indicates the importance of applying BPO in the context of organizational performances as an indicator of organization success.

The implementation of BPO is carried out by modeling the process of the observed business system. The business system consists of a series of processes that are necessary for it to function. According to Brumec (2011) the business process is considered a set of activities and decisions that is performed due to a specific goal, consumes certain resources and has a time duration. In order for a particular organization to successfully survive on the market, it must perform its business processes efficiently. The efficiency of work is considered as the relationship between inputs, i.e. costs and final results (Todorović and Kostic, 2008). Alotaibi (2014) laid out a timeline that shows the historical development of business process management (BPM), from the 1960s to here, highlighting the characteristics of decades, from system engineering (1960s) to automatization (70s), quality management (80s), business process reengineering (90s) and a new century characterized by advanced reporting and analytics, based on which business processes are managed during operation for the purpose of their optimization and quality management. Kaniški and Vincek (2018) defined the management of business processes through three activities: process formation, process execution and measurement of the success of created processes. It is the third activity that serves as a control mechanism in the management of business processes, since it answers the question about the expediency of implementing a process approach into the organization. Moreover, the author Nurlankyzy (2019) asserts as a result of the implementation of the process approach in the organization the elimination of the boundaries between the two organizational units and the suppression of delays between organizational functions. Harmon (2010) illustrates the timeline since 1900. indicates that after the appearance of the first computers, business management is included in *“the story”* of changing business processes. Van der Aalst (2004) notes that BPM means *“methods, techniques, and tools to support the design, enactment, management, and analysis of such operational business processes”*. In the broader context of BPM, there are a number of methods used by managers (Wang et al., 2006): “BPEL4WS” (Business Process Execution Language for Web Services), UML (Unified Modeling Language), “XPDL” (XML Process Definition Language), “Petri Net” and “IDEF0 and IDEF3” (Integration Definition Method). Grikšaitė (2008) points out that business process modeling enables process visualization, which is one of the elementary tasks of modeling. In this paper, Business Process Modeling Notation 2.0 (BPMN 2.0), which represents the international norm for modeling business processes, will be used to determine the understanding level of respondents regarding business process modeling. BPMN 2.0 notation includes four types of diagrams: business process diagram (mostly used), collaboration diagram, choreography diagram and conversation diagram (Brumec and Brumec, 2016). According to Stroppi, Chiotti and Villarreal (2021) this term notes an internationally recognized way of modeling business processes, and one of the fundamental purposes of the existence of such a way of modeling is the simplicity of understanding and creating business processes, which is why it was chosen in

this paper. Humphrey (1987) elaborated a concept that determined the levels of process maturity in the work *“Completing the software process: a maturity framework”*, focusing the work on the maturity of software processes. With further development, this concept was improved, thus the *“Capability Maturity Model Integrated”* (CMMI) was developed and with this model it is possible to classify processes in general, including processes in organizations, and employee satisfaction with the organization of processes in enterprises will be measured by the specified model containing five levels of process organization (Wolf and Harmon, 2011):

- the first level is characteristic of enterprises in which processes are not organized or modeled until the organization itself perceives processes as a non-essential element of business, but business tasks are performed by inertia, i.e. without a specific flow,
- the second level implies that only some of the processes in the enterprise are organized,
- the third level is characterized by organizations with most defined business processes,
- the fourth is characterized by organizations that manage their business processes (organizations measure the performance of their processes and optimize processes),
- the fifth level is characterized by organizations that are process oriented and constantly strive to improve their processes through formed process teams within the enterprise.

2. METHODOLOGY

This research aims to assume future trends of BPO implementation in organizations in Croatia concerning recognition of BPO importance and knowledge by current and future employees. This was done by comparing the results of surveys conducted among two groups of respondents: employees of the observed companies, and students of senior years of economic faculties and managerial orientations, as future employees of companies, who will have the opportunity to use managerial skills and knowledge about the management of the business system acquired through higher education. The difference between the results on understanding the modelling of business processes and the importance of applying BPO to improve organizational performance in the two groups examined will be noted. Based on the comparison of these results, it will be shown whether an upward or downward trend can be expected towards implementing BPO.

2.1. Research on a sample of employees

In order to examine employees' attitudes about the importance of modeling business processes in the context of organizational performance and their knowledge of the BPO concept, a questionnaire which was created, was divided into two parts. The first part examines the basic characteristics of employees and the companies in which they are employed. The second part of the questionnaire examines employees' attitudes about the importance of BPO influence on organizational performances such as attitudes about business process modeling. An important segment of the second part of the questionnaire was compiled based on questions about organizational performance from Hung (2006), and questions from the conducted questionnaire on the use of BPM (Wolf and Harmon, 2011), with some other questions added. The perception of organizational performance consists of five claims about organizational performance (shown in Table 1) and respondents will express a degree of agreement with each of the claims on the Likert scale from 1 *“I do not agree at all”* to 5 *“I completely agree”*. This coefficient will be calculated as a link between the degree of agreement (from 1 to 5) with each of the claims about organizational performance, and the evaluated level of process organization according to the perception of those surveyed (from 1 to 5). In order to conclude that organizations with a larger amount of modeled processes have better organizational performance according to employee

perception, it is important to establish a statistically significant and positive correlation in all five cases. The significance of the correlation will be determined with the help of p values, with $p < 0.05$ – the correlation is statistically significant, and $p > 0.05$ – the correlation is not statistically significant. The correlation strength will be determined with the help of the obtained correlation coefficient, according to universal rules: $0 < |r| < 0.2$ (slight correlation), $0.2 < |r| < 0.5$ (weak correlation), $0.5 < |r| < 0.8$ (moderately strong correlation), $0.8 < |r| < 1$ (strong correlation).

2.2. Research on a sample of students

In order to determine the acquired knowledge, skills and the perception of the influence of BPO on organizational performances by future employees and current students, a second survey was formed. The survey examined students' attitudes about the impact of BPM on organizational performances and knowledge of benefits that companies get by using business process modeling. The questionnaire is designed in such a way that it is divided into three smaller parts. The first part examines the characteristics of the sample, including the orientation at the Faculty of Economics. The second part follows questions examining students' attitudes on business process modelling, understanding BPMN 2.0 notation, questioning the meeting with BPM so far while studying, and the perception of the importance of BPO in context of improving organizational performances. The students surveyed expressed a degree of agreement, on a Likert scale of 1 "*I do not agree at all*" to 5 "*I fully agree*", with the desire to model the processes in the organization or organizational unit if they find themselves in a situation to manage such a system. In order to examine whether the students surveyed perceive positive or negative modeling of business processes in organizations, the mean of the degree of agreement with the above statement must be statistically significantly higher than the grade 3, which represents the value between agreeing and disagreeing with the claim. That will be verified by the One-Sample test in the SPSS. Statistical significance will be determined with the help of p values, and according to the rule; $p < 0.05$ – statistically significant, $p > 0.05$ – is not statistically significant. In the third part of the questionnaire, students were asked to express a degree of agreement with claims offered. They were offered five claims presented in Table 2, which were taken or adapted from the papers interpreted below. The first claim was taken from the paper Škrinjar et al. (2008) whose focus of research is on the impact that the company's orientation towards business processes has on the performance of the enterprise. The second claim was taken from the paper of Kesari et al. (2003) focusing their research on the pros and cons and usefulness of process modelling in companies. The third claim was adapted from the paper Grikštaitė (2008), who analyzed the disadvantages and advantages of process modelling and simulation in enterprises. The fourth claim is adapted from the paper Lemańska-Majdzik and Okręglicka (2015), who analyzed business processes, on the example of companies in Poland, as well as the advantages of a process approach in the context of organization management. The fifth claim was adapted from the paper Indulska et al. (2009) whose research is based on an analysis of the positive effects of business process modelling. A higher degree of agreement with the claims taken from these papers supports the greater knowledge of the students surveyed about business process modeling and positive repercussions that BPO has on organizational performances, while the above will be verified in the same way as in the second part of the questionnaire.

3. RESEARCH RESULTS

3.1. Description of the results obtained by examining employees

The questionnaire was completed by 101 employed persons, of which 41 were women (40.6%) and 60 were men (59.4%). The ages of the participants were divided into classes of 10 years each, and the most numerous categories of respondents, 39 (38.6%) were between 31 and 40 years old. Furthermore, 39 of those surveyed (38.6%) have higher education, 22 (21.8%) have undergraduate studies, and 25 (24.8%) have high school education, while the remaining 14.8% of those surveyed have another level of education. The majority of those surveyed, 82 (81.2%) work in tertiary activities, while the other respondents work in the remaining three categories of activity. According to Wolf and Harmon (2011), the size of the company by the number of employees is divided into three classes, and it was found that 81 workers (80.2%) work in a company with less than 999 people, 12 (11.9%) are employed in a company that employs from 1,000 to 4,999 employees, and 8 (7.9%) work in an organization with 5,000+ employees. Afterward, respondents were asked to evaluate the understanding of the process model presented by BPMN 2.0, and the majority of respondents 85 (84.2%) considered that they “*fully understand the process*”, while none of the respondents said that they “*did not understand the process at all*”. It was then found that 55 of those surveyed (54.5%) had never worked in any of the managerial position, while 46 of those surveyed (45.5%) held a managerial position now or had done so before. Regarding the previous experience of examinees with modelling business processes, taken over from Wolf and Harmon (2011), 54 (53.5%) have never dealt with modelling business processes, while the other 47 (46.5%) have done so at least once. Furthermore, respondents were asked to assess the level of process organization according to the CMMI model explained earlier, according to their perception, in the company in which they work, with the largest group of 33 surveyed (32.7%) believing that the processes in the company in which they work are organized on the third level. The questionnaire was completed with a set of five organizational performance claims from the survey by Hung (2006). Results of the correlation between the assessed levels of processes organization and the degrees of agreement with claims about organizational performances, are presented in the table below.

Table 1. Spearman's coefficient for observed correlations

Claims about organizational performances	Spearman's correlation coefficient with the rated level of process organization	Sig. (2-tailed)
Organization's competitive position improved over the last two years.	.411	<.001
Productivity of employees increased over the last two years.	.442	<.001
Organization's profitability increased over the last two years.	.379	<.001
Quality of products and services improved over the last two years.	.318	.001
Average cost per unit of product or service decreased over the last two years.	.131	.193

Source: author's view

3.2. Description of the results obtained by examining students

The survey was completed by 31 students of senior years of faculties of economics in Croatia. It was found that 14 female students (45.2%) and 17 students (54.8%) completed the questionnaire, with one questionnaire completed by a student who was not eligible to participate in the survey, and this answer was ignored. The majority of those surveyed, 22 (71%), come from graduate university studies – Business Economics, which is important to point out since the target group of respondents are students of economic faculties, and managerial orientations, as stated in the

methodology. Other subjects are studying on another graduate study programme. Seven students (23.3%) claim they have not met BPM through their studies so far, and 23 of those surveyed (76.7%) have. As well as employees, students were shown the same model of process BPMN 2.0, and 19 students (63.3%) understand the process completely, while understanding with a score of 4 evaluates 23.3%, which means seven of those surveyed. Overall, 86.6% of the students surveyed understand the process. Regarding students' opinion on modelling business processes with the help of BPMN 2.0, the majority of those surveyed expressed a positive attitude towards business process modelling in the company – 73.3%, i.e. 22 students. It is indifferent to the modeling of business processes 7 students surveyed (23.3%), and one student (3.3%) believes that process modeling in the company is negative. Then, the students were asked: *“Do you think that the created process model in the enterprise contributes to better organizational performance of the enterprise?”*. The answer to the question was offered three options: “yes”, “no” and “other”. Twenty-three students (76.7%) believe that the created model of processes in the enterprise contributes to better organizational performance. That this is not true is considered by 5 students (16.7%), and one respondent believes that *“depending on which company”* and *“depends on how well it presents the picture of the actual process in the company”*. Twelve of those surveyed (40%) in higher education so far have not used any software tool to model the process, and 60% of those surveyed (18 students) have used such tools. Then, the students were asked to agree with the statement: *“If I am in one of the managerial positions in my future career I would like the processes in the organization or organizational department I manage to be modeled”*. In the end of the questionnaire, students were asked to express a degree of agreement from 1 *“I do not agree at all”* to 5 *“I fully agree”* with the five claims presented in table 2. In doing so, the One-Sample test was carried out, and the average degrees of agreement with the claims are in order: 4.00, 4.33, 4.13, 4.10 and 4.20, while *“one sided” p* and *“two sided” p*, for each of the claims, in this case, are equal, and amount to less than 0.05 as shown in the table below.

Table 2. One Sample tests for claims about the benefits of BPM

One-Sample Test	One-Sided p	Two-Sided p
The higher the level of business process orientation a firm achieves, the better it performs non-financially in terms of more satisfied employees, customers and suppliers.	<.001	<.001
Process modelling is useful primarily for understanding and documenting business processes.	<.001	<.001
Business process modelling & simulation facilitates further decision making and help organizations to manage changes more effectively.	<.001	<.001
By the implementation of business process management system, organizations achieve certain advantages, such as making it easier to identify and eliminate process delays and increase organizational flexibility.	<.001	<.001
One of the advantages of process modeling in an enterprise is measuring process performance, which can separate the efficient from inefficient processes.	<.001	<.001

Source: author's view

3.3. Discussion

Analyzing the results of the survey in which employee attitudes were examined, Spearman's correlation coefficient was calculated between the estimated level of process organization in the subjects' companies and the degree of agreement with each of the claims about organizational performance. A statistically significant and positive correlation was found in four out of five cases. In the first case, the correlation coefficient between the level of process organization in the enterprise and the degree of agreement with the organizational performance claim in which the employee's perception of improving the competitive position of the enterprise was exam-

ined, is 0.411, which indicates a relatively weak but existing and statistically significant positive correlation, given that $p < 0.05$. In the second case, in which the correlation between the level of process organization in the enterprise and the improvement in employee productivity according to the perception of those examined was observed, the correlation coefficient is 0.442, which is a weak and positive correlation, but statistically significant because $p < 0.05$. In the third case, the correlation between the assessment of the level of process organization and the increase in corporate profitability according to those surveyed was observed and a correlation coefficient of 0.379 was determined, which indicates a weak and positive correlation that is statistically significant since $p < 0.05$. In the penultimate case, the correlation between the level of process organization and the quality of the product and/or service offered by the company on the market is observed, where the coefficient is 0.318 and $p = 0.001$, that is, $p < 0.05$, indicating a statistically significant, weak and positive correlation. However, in the last case, where the correlation between the level of process organization in the company and the decrease in the average cost per unit of product/service in companies is observed, the resulting correlation coefficient is 0.131 indicating the absence of correlation.

On the other hand, most students positively perceive business process modeling. This is concluded from the degree of agreement with the statement: *"If I hold one of the managerial functions in my future career I would like the processes in the organization or organizational unit I manage to be modeled"*. 73.3% of students expressed a certain degree of agreement with the claim, while for this claim the average level of agreement is 3,967. That is statistically significantly different from the test value 3, which is the limit of agreement and non-agreement since the p value in the One Sample test performed is less than 5%. Also, it was found that students are aware of the advantages of the process orientation of the enterprise. This is evidenced by the high degree of agreement with the set of claims in the third part of the questionnaire (shown in Table 2), which was confirmed by using the One Sample test where it was found that the average degree of agreement differs statistically significant from the boundary of agreement and non-agreement (3), because of $p < 0.05$ for each of the claims. In addition, 76.7% of the students surveyed believe that the created process model in the enterprise contributes to better organizational performance, which confirms the notion that most students perceive business process modeling as an essential element that contributes to the growth of organizational performance.

4. CONCLUSION

In this paper, we investigated the views of two groups of respondents on the usefulness of the enterprise process orientation. Since many of the papers interpreted in the literature review evidenced the usefulness of the process orientation of the enterprise, this research has obtained information about the perception of current employees and students, as future employees, about the importance of modeling business processes in organizations. Concerning the continuous growth of business complexity, that is, the generation of more and more knowledge that is globally dispersed, and the business of today's organizations that is largely based on information technology, considering all the positive effects of the process approach in organizations, it is justified to conclude that in the future all those organizations that want to be client-oriented will incorporate a process approach. The employees surveyed showed to some extent familiarity with the modeling of business processes. Considering the statistically significant correlations between the evaluated level of process organization and the degree of agreement with the claims of organizational performance, it is concluded that according to the perception of employees, a higher level of process organization in the enterprise contributes to better organizational perfor-

mance, not completely but in most part, because the correlation is established in 80% of cases. On the other hand, in view of the results of the research, most students, as future employees, perceive BPO in organizations in a positive way, and knowledge of business processes modeling proves a high degree of agreement of the surveyed students with a set of claims that are taken from the works of the authors mentioned in the methodology. Also, in support of the positive perception that reigns among students regarding the process approach, the fact is that most students express their agreement with the use of business process modeling in the company in which they will be employed in the future, and according to the expressed attitude, most students believe that the drafted model of the process contributes to organizational performance. By comparing these two groups of examinees it can be concluded that students (a group of persons with little or no experience, but with a good theoretical background) perceive the process approach in the organization more positively. Positive perception and awareness of the advantages of business process modelling by most students indicates a positive trend of expanding the application of BPO in the future in companies in Croatia.

REFERENCES

- Aalst, W. M. (2004). Business process management demystified: A tutorial on models, systems and standards for workflow management. *Lectures on Concurrency and Petri nets*.
- Alfirević, N. (2000). An empirical inquiry into the objective assessment and the top management perception of the need for organisational restructuring in large Croatian enterprises. *Management: Journal of Contemporary Management Issues*, 5(1), 21-48.
- Alotaibi, Y. (2016). Business process modelling challenges and solutions: a literature review. *Journal of Intelligent Manufacturing*, 27(4), 701-723.
- Armstrong, M. (2006). Performance management: Key strategies and practical guidelines.
- Bakotić, D. (2012). Organizacijske razine mjerenja performansi. *Praktični menadžment: stručni časopis za teoriju i praksu menadžmenta*, 3(1), 57-61.
- Brumec, J. & Brumec, S. (2011). *Business process modeling*. Zagreb/Varaždin, Koris Ltd.
- Diller, H., & Ivens, B. S. (2006). Process oriented marketing. *Marketing–Journal of Research and Management*, 2(1), 14-29.
- Glavan, L. M., & Vukšić, V. B. (2017). Examining the impact of business process orientation on organizational performance: the case of Croatia. *Croatian Operational Research Review*, 137-165.
- Grikštaitė, J. (2008). Business process modelling and simulation: advantages and disadvantages. *Global Academic Society Journal: Social Science Insight*, 1(3), 4-14.
- Harmon, P. (2010). The scope and evolution of business process management. In *Handbook on business process management 1* (pp. 37-81). Springer, Berlin, Heidelberg.
- Harmon, P., & Wolf, C. (2011). Business process modeling survey. *Business process trends*, 36(1), 1-36.
- Humphrey, W. S. (1988). Characterizing the software process: a maturity framework. *IEEE software*, 5(2), 73-79.
- Hung, R. Y. Y. (2006). Business process management as competitive advantage: a review and empirical study. *Total quality management & business excellence*, 17(1), 21-40.
- Indulka, M., Green, P., Recker, J., & Rosemann, M. (2009, November). Business process modeling: Perceived benefits. In *International Conference on Conceptual Modeling* (pp. 458-471). Springer, Berlin, Heidelberg.
- Ittner, C. D., & Larcker, D. F. (1997). The performance effects of process management techniques. *Management science*, 43(4), 522-534

- Kaniški, I., & Vincek, I. (2018). Business processes as business systems. *Tehnički glasnik*, 12(1), 55-61.
- Kesari, M., Chang, S., & Seddon, P. B. (2003). A content-analytic study of the advantages and disadvantages of process modelling. *ACIS 2003 Proceedings*, 2.
- Kotler, P., Keller, K., L. & Martinovic, M. (2014). *Marketing Management*, Zagreb, MATE
- Lemańska-Majdzik, A., & Okręglicka, M. (2015). Business Process Management in an Enterprise—Determinants of the Implementation and Expected Advantages. In *Proceedings of the 12th International Conference* (pp. 308-317).
- Markovic, I., & Kowalkiewicz, M. (2008, September). Linking business goals to process models in semantic business process modeling. In *2008 12th International IEEE Enterprise Distributed Object Computing Conference* (pp. 332-338). IEEE.
- McCormack, K. P., & Johnson, W. C. (2001). *Business process orientation: Gaining the e-business competitive advantage*. Crc Press.
- Münstermann, B., Eckhardt, A., & Weitzel, T. (2010). The performance impact of business process standardization: An empirical evaluation of the recruitment process. *Business Process Management Journal*.
- Nurlankyzy, N. A. (2019). Business Process as the Basis of the Process Approach in Enterprise Management. *International Journal of Engineering and Management Research (IJEMR)*, 9(2), 166-170.
- Škrinjar, R., Bosilj-Vukšić, V., & Indihar-Štemberger, M. (2008). The impact of business process orientation on financial and non-financial performance. *Business process management journal*.
- Stroppi, L. J. R., Chiotti, O., & Villarreal, P. D. (2011, April). A BPMN 2.0 Extension to Define the Resource Perspective of Business Process Models. In *CibSE* (pp. 25-38).
- Todorović, M. & Kostić, M. (2008). Planiranje, efikasnost i efektivnost – značajne funkcije zdravstvenog menadžmenta. *Fakultet za menadžment Novi Sad ISBN 987-86-85067-29-7*, 86.
- Wang, W., Ding, H., Dong, J., & Ren, C. (2006, June). A comparison of business process modeling methods. In *2006 IEEE International Conference on Service Operations and Logistics, and Informatics* (pp. 1136-1141). IEEE.



Digital Competences: Empowerment of Education at Universities

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Abstract: *The digital transformation, bringing new challenges for education and jobs, would require learning new skills and to strengthen the ability of people to adapt to challenges in new occupations that emerge in labour markets. Universities are undergoing a digital transformation that affects the teaching, learning, research activities and upskilling of university educators. The paper aims to point out why the educational and digital competencies of university educators need to be developed and operational. The framework of professional activities of university educators would require the strengthening of digital competences. Currently, the integration of digital skills and literacy into study programs is becoming a necessity for higher education. This measure requires innovative approaches and educational mastery of university educators. Therefore, upskilling and professionalization of university teachers employing a competence-based model of further education deserve special attention. The programs of relevant digital and pedagogical competences would promote the empowerment of faculty staff.*

1. INTRODUCTION

The world is developing in the trajectory of digital transformation, with digitization affecting economic and social development, called areas of life and work, including education and training. The digital transformation is setting new demands, especially in terms of preparing for new skills and upskilling university educators to use digital technologies in online teaching and encourage students to participate in online learning in virtual environment.

The onset of digital transformation has been rather gradual, but the pandemic COVID 19 has significantly accelerated the process, bringing new challenges and opportunities to universities. The perspectives of higher education will require educators to get prepared for a new approach, which is likely to be a hybrid model of education, teaching and research.

The education at universities was shifted to virtual environment. While the education at universities in 2020 was gradually and partly switched to online education, in 2021 lectures, seminars and consultations took place in virtual conditions in larger measures. In some study programs (e.g. medicine, pharmacy, engineering, etc.), the exercises were postponed to the period when strict anti-pandemic measures were released.

2. OBJECTIVES AND METHODOLOGY

The study is focused on professional competencies of university educators. The professional development and further education of university educators should take into account students' views and opinions related to the readiness and professional performance of university teachers in online teaching. The paper employs recommendations of the OECD Skills Strategy for the Slovak Republic, international surveys and a survey carried out by the author (Matúšová, 2022).

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They provide feasible arguments why digital skills and competences have to be applied by university educators. Many of them work under the pressure of digital transformation. The upskilling and empowerment of university educators in digital competences should be interlinked with educational skills and innovations.

3. DIGITAL TRANSFORMATION OF EDUCATION AND ITS ECONOMIC IMPACT

The digital transformation has affected the processes of teaching and learning and has put on university educators some new challenges associated with upskilling and the empowerment of digital skills and competences. Experience is being gradually gained and assessed how new requirements imposed on university teachers were coped with in online teaching and learning. The term digital skills applies to the general description of what an individual knows, understands and is able to do when working with digital technologies.

Digital skills include the ability to access, use, filter, evaluate, create, program and share digital content, and to manage and protect information, content, data and digital identities, as well as recognize and work effectively with software, devices, artificial intelligence or robots. Digital literacy is a set of skills for acquiring digital competence, which represents the consistent and critical use of information and communication technologies in work, leisure, learning and communication. Digital literacy focuses on the questions of why, when, who and for whom (Matúšová, 2022). Digital competence is a set of skills, knowledge and attitudes that enable self-confident, critical and responsible use of technologies and systems.

Digital competence in students is understood as the ability that equips an individual to live, learn and work in a digital society, e.g. the student is able to use digital tools to conduct academic research, create student papers and presentations, apply critical thinking, create, share and critically evaluate information.

The digital transformation not only applies to education, but is also linked to Slovakia's economy, economic growth and competitiveness. The need to innovate higher education while taking advantage of digital technologies is specifically linked to the forecast that by 2025, half of all vacancies in the EU will require tertiary qualifications, with tertiary digital competences being an essential part of the qualifications. The digital transformation of the economy means that almost all jobs would require a certain degree of digital skills. Business models are changing and bringing new job opportunities and paths, but they also require different sets of skills.

The OECD Skills Strategy for the Slovak Republic (2020) also emphasized the need to empower the younger and older generations with relevant skills which would help to adapt to current and emerging professions. The connection between the economic prosperity of Slovakia is thus clearly connected with the issue of education in conditions of digital transformation. In education, it is also necessary to focus on digital innovations, which will soon change the nature and essence of many professions. Related to this, the nature of education will be changed at all levels, including university studies, as well as adult education.

The OECD Skills Strategy for the Slovak Republic (2020) emphasized the following:

- a) The acquisition and effective use of skills is a prerequisite for the country to prosper in an increasingly interconnected and ever-changing world. The Slovak Republic is particularly exposed to the effects of digitization, globalization and demographic change. All citizens

will need stronger and more specific sets of skills, including cognitive, social and emotional skills, as well as skills necessary for individual jobs that meet the needs of labour markets.

- b) The Slovak Republic already has proved relatively strong indicators in individual skills areas. Apart from that, the participation rate in higher education has increased significantly and the basic skills of adults are at a comparably high level. However, the country still faces many complex skills challenges. Some significant skills in the younger generation lag behind the OECD average, especially in reading and science, and the long-term trend is negative. The shortage of skilled labour force is particularly evident in sectors with a strong demand for science and technology skills. The adult learning culture is underdeveloped, participation rate in adult education is very low and the labourers who would need it most, they participate in adult education to the lowest possible extent. The use of skills in the workplace is currently not reaching its maximum potential.

Four priorities have been identified to improve skills levels in the Slovak Republic, such as strengthening the skills of the youth, reducing skills imbalances, promoting higher participation in adult learning, and strengthening the use of skills in the workplace. The strategy mapped the most important factors of current and future prosperity and economic growth in Slovakia. The issues of the balance of skills in age cohorts (youth, employees in productive age, employees shortly before retirement) were analysed and assessed. The skills strategy emphasized adult education as an important tool for the professional, civic and personal development of the population and considered it necessary to improve the management of government policies and strategies of skills empowerment and upskilling.

Higher education in Slovakia contributes to the partial fulfilment of the above goals. In the period 2005-2015, the number of tertiary education graduates aged 25-34 doubled in Slovakia. In 2018, the share of the population in this age group with a university degree was 37%, but this is still significantly less than the OECD average of 45% (in this age group). One response to the COVID-19 global pandemic is the upskilling of workforce to learn new and additional skills and to strengthen the ability to adapt to new occupations emerging in labour markets. The need to innovate teaching, especially in education at universities with the support of digital technologies, is associated with the forecast that by 2025, half of all vacancies in the EU will require higher education qualifications, usually obtained at tertiary level (OECD, 2020).

4. EMPOWERMENT OF DIGITAL COMPETENCES IN UNIVERSITY TEACHERS

The development of digital competences of teaching staff is currently an increasingly urgent priority. In higher education, the digital transformation requires to set up new demands, especially in terms of new skills that would empower teachers to use digital technologies in online teaching and students to participate in online learning.

University teachers also need to develop their professional teaching competences, including the expertise in the subject matter, and extending to methodological-didactic, pedagogical-psychological, self-reflexive and reflexive competences. These can be considered the basis of teachers' professionalism. According to Pavlov (2014), "the professionalism of university teachers consists of three dimensions – behavioural, attitude and intellectual ones. They represent a fundamental framework for professional development and analysis of their educational needs" (p.141). Digital skills, digital literacy and digital competences applied by teachers in online teaching are

interlinked to the knowledge of their substance, the attitude toward the use, as well as their skill to demonstrate them in action (behavioural aspect).

Concerning this, Pisoňová et al. (2021) point out that “online learning requires also the fulfilment of different tasks at different stages, be it the planning, implementation and feedback” (p. 220). However, the development of critical thinking, creativity, collaboration and communication in students will be always necessary, regardless of whether the class is taught online or offline. For university educators, continuous professional development and further education is the key for the integration of digital technologies into teaching procedures (p. 226). Kirchmayer (2019) pointed that the digital divide can be observed among teachers which means the difference in digital literacy between the youngest and oldest generations.

The Research Centre for Digital Competences (DigComp) set up by the European Commission specified digital competences that can be reasonably applied in teaching professions:

- a) information and data literacy, regarding search, assessment, management of data, information and digital content;
- b) communication and cooperation, concerning interaction, sharing, involvement, cooperation through digital technologies; digital identity management;
- c) digital content creation, relating to digital content development, programming; understanding of copyright and licenses;
- d) security, concerning protection of equipment, personal data and privacy;
- e) problem solving, meaning solving technical problems, identification of needs and technological reactions and gaps in digital competences.

With regard to this, the authors Pisoňová et al. (2021) state that university educators should also develop a combination of digital skills and research skills, as research is a part of academic activities and “regardless of the education in academic disciplines, in which the university educators teach, the scientific results need to be observed, selected, analysed and communicated through technological tools” (p. 231).

In relation to this topic, two scientific studies have been carried out. The first study by Guillén & Gámez et al. (2020) analysed how university teachers use different ICT tools for research (from the aspect of gender, and the aspect of different academic disciplines such as engineering-architecture, health sciences, social sciences, arts and humanities). The findings revealed that both male and female respondents showed an average level of ICT use in research. The respondents made more use of digital databases, Google Scholar and tracked the websites of scientific journals highly impacted, but made very little use of software for data analysis, especially in qualitative research. The most use of ICT in research was shown by teachers of engineering and architecture while teachers of arts and humanities used the least ICT in research.

The second study of Mercader & Gairín (2020) highlighted barriers in using ICT for university teachers. The results show that the teachers of arts and humanities perceived the most obstacles to the integration of digital technologies into teaching. Therefore, it is important to develop the procedural and cognitive skills of teaching staff in given areas in order to continue research, self-education and share the results obtained. The focus on research skills in university teachers is extremely important as they also prepare students to apply research tools in practice, after graduation from university as emphasized by Pisoňová et al. (2021, p. 232).

The above studies indicate the urgent need to transfer digital technologies into teaching at universities, including humanities study programs. At the same time, university teachers should be specially prepared (trained) for this task. The nature of the teaching profession, its professionalization, and the professional nature of teacher training and development ought to be inevitably changed with the arrival of digital media and modern trends in education.

According to the findings of Bartošovič and Tamášová (2020), teachers state that their professional development and further (in-service) education through ICT technologies can yield from several advantages of ICT, especially the opportunity to work at one's own pace, to access to documents at any time, and the opportunity to contact, communicate and discuss new ideas and applications with other participants, even those outside the local area. The authors point out that the study of social learning theories and online learning preferences, as reported by teachers, requires further research on how social learning theories can be translated into technology-driven settings.

5. A SURVEY ON ONLINE TEACHING

The digital transformation of teaching and learning at universities requires the capacity building of teachers' professional capacities, interlinked to new skills and competences, especially to key competences to work with digital technologies. Competence to work with digital technologies means a certain and critical use of information and communication technologies at work, in leisure time and communication.

We assumed, that educators at universities need to develop educational competencies and subject-matter knowledge, pedagogical skills AND digital competence in personalized online education. In conditions of the pandemic, educators have to deliver courses efficiently, using innovative methods and technologies that are required for effective presentation, processing, skill development, and real-life applications.

In order to successfully set up the development and training of teachers at universities, it is necessary to find out how students perceive the professional performance of teachers in online education. Therefore, we carried out a survey in 2021 focused on the views and opinions of students related to the teaching proficiency of university educators in online education. The sample included 110 respondents which were the students participating in online education.

The purpose of the survey was to identify, among others, following aspects of online education:

- How do students characterize and assess online education?
- How do students view the new requirements of online education imposed on teachers?
- How do students assess the teaching proficiency in online instruction?
- What do students expect from teachers in online instruction?

The opinions and views of students in relation to the teaching proficiency of educators in online education can be considered a reasonable source of information that can be further assessed and utilised in the development of in-service education programmes of university teachers.

One of the reasons why to request feedback information from students is the fact, that students attending universities are members of the virtual generation. They show permanent access and attachment to digital technologies. Their educational needs and expectations differ from those of previous generations (i.e. their parents and teachers).

Therefore, universities and faculties should adjust the methods and practices they use, make them more attractive for students, and be open to innovations in the field of education and digital technologies.

The key results obtained by the survey can be formulated as follows:

- (a) Respondents were able to understand and characterize online education as online teaching through a technology platform based on information and communication technologies (WEBEX, teams, zoom, skype, etc.). They viewed online education as a pedagogical innovation in higher education.
- (b) Respondents considered the educational content presented to students in online education as clearly and effectively delivered as in full-time education. Some respondents, however, perceived and identified clear differences between online education and full-time education, and expressed their criticism towards online education.
- (c) The restricted communication between a teacher and students, the lack of classmates' support, little interaction among classmates, even excessive social isolation and limited opportunity to cooperate with classmates were indicated as the biggest disadvantages of online education. In its current form, online education has certain shortcomings and reservations.
- (d) Respondents expect and require from teachers to have developed technical skills and the ability to work with a given technical platform. Teachers should be able to work with technical platforms that are suitable for online teaching. They also require from teachers the linkage and interconnectedness between explanation and exposition of educational content, supplemented with topical information.
- (e) Respondents expect that even under the circumstances of online education, teachers should always apply standard pedagogical techniques and instruments, to use motivational incentives, continuously assess students' answers, etc. They have a clear vision of teachers' pedagogical skills which should be smoothly interlinked with technical (digital) skills.
- (f) Respondents expect a smooth mastery of the teacher in online education. Pedagogical skills are required as a matter of course. Logical explanation synchronised with online presentations must be in place. The teacher's verbal ability to explain the theory and supplement it with practical examples is "a must". The same concerns non-verbal keys, including voice, its volume, clear pronunciation and articulation.
- (g) Teachers are requested to master technical as well as digital skills. For this purpose, teachers should be specifically trained. Professionalism of educators is considered the most important aspect of online education, both teaching and learning. Teacher's ability to keep a dialogue with students, to activate students with questions, examples and cases, and to minimize disruptive influences were mostly evaluated.

6. DEVELOPMENT OF DIGITAL COMPETENCES IN UNIVERSITY TEACHERS

Survey results put into the foreground the issue of staff readiness to work with ICT in online teaching. This is in accordance with the World Bank (2020) recommendations, stipulating that staff working online should be trained and supported. The staff need to be supported technically, socially and morally.

The role of a university teacher has changed under the dynamic development of society and the digital transformation of education. Teaching activity requires a number of competences, knowledge and skills with the focus on students who should reach maximum achievement in

education. Under the influence of digitisation of education, mobility of students and teachers in Europe and the world, education models are changing. Many university teachers work with digital technologies with groups of students coming for mobility and study from different cultures, requiring from teachers to understand and consider intercultural differences.

As the teaching staff are the key players in the effective implementation of online education, they should be continuously professionalized, developed and trained. With respect to that, Bartošovič and Tamášová (2020) pointed out that the changing needs of society are also changing the needs of schools, and teachers are required to cope with new tasks, for which they were not prepared in initial teacher training. The authors state that the preconditions for the professional development of teachers lie in the setting of conditions by the school management. The role of the school lies in the support of teaching, planning and implementation of students' learning, and the utilization of cooperation and collegiality of learners. Positive results of professional development of teachers can be found in workplace learning and intergenerational learning, which represent opportunities for professional development of teachers (p. 21).

Bartošovič and Tamášová (2020, p. 23) further emphasized that teachers state the ability to work at their own pace whenever they have access to materials, use the opportunity to think and discuss ideas with other teachers, the opportunity to make contact as the best reason for their participation in online education, with teachers outside their local area, etc. This alignment between social education theories and teachers with preferences for online learning requires further theorizing and research on how social education theories are transferred to technology-supported settings.

Generally, the concept of competence is clearly preferred over other concepts, as in its scope competence covers knowledge, skills and abilities, as well as attitudes and values. The specific combinations of them in a given context makes competent performance possible (Průcha-Veteška, 2012, p.149). The university teachers should be trained in accordance with competences.

The interconnection between digital skills and education was supported by an analytical study "56 DELTA skills", conducted in June 2021 by the McKinsey Global Institute, focusing on 56 foundational skills that can be identified and developed in individuals. DELTA is an acronym for "distinct elements of talents" referring to a clear, distinct and distinctive element in the intellectual equipment (talents) of an individual. Foundational skills can be divided into 4 areas: (1) cognitive skills, (2) interpersonal skills, (3) self-management (and entrepreneurship), (4) digital skills.

The following digital skills are considered foundational:

- a) digital fluency and citizenship – includes digital literacy, digital learning, digital collaboration and digital ethics;
- b) use and development of software – includes literacy programming, data analysis and statistics, as well as computational and algorithmic thinking;
- c) understanding digital systems – includes data literacy, intelligent systems, cyber security literacy, technical translation and its activation.

The statistical analysis in the DELTA study referring to the correlation between the level of performance (proficiency) of selected skills and education showed that the highest correlation was confirmed in digital literacy. It is digital literacy that is acquired and developed in formal education, non-formal education and informal learning. The integration of digital literacy into

university study programs is therefore becoming a necessity. The professionalization of university teachers in digital competences is therefore a current challenge (Matúšová, 2021).

Our brief survey highlighted the students' expectations and requirements imposed on teachers in pandemic. With regard to the respondents' opinions, teachers primarily should master the content of education and be able to mediate and explain it, know to apply relevant teaching methods and forms, be able to apply digital technologies, encourage students to think and learn, respond to educational needs of students, integrate formative and summative assessment of students in online education (Tamášová – Matúšová, 2021). It can be assumed that students formulate their requirements towards teachers in terms of their own educational needs and goals, and under the influence of social environ.

In terms of digital transformation of education at universities, individual educational needs of university teachers must be taken into account. Primarily, the training and development refer to professional competencies, including digital competences, closely linked to curriculum presentation, testing of knowledge, knowledge assessment and quality of education.

7. FUTURE RESEARCH DIRECTIONS

There are numerous issues open to further research, including the development of training programs for university teachers. They should aim to empower their competences, including digital competences should be thoughtful and responsive to the framework of teachers' professional activities. Currently, teaching is perceived much more as a professional activity, so teachers at universities are required to professionalize teaching activities. A university teacher is also expected to work as a researcher and take greater responsibility for his own development.

These multiple aspects of the teacher's activity were reflected in professional standards of faculty staff. The professional standard is a framework containing the category of a teacher, qualification prerequisites, a career level and a career position, as well as a competence profile, including indicators and tools serving for the assessment and measurement of competencies. Competences are identified at subject-matter and didactic-methodological competence, which can be observed (identified) in specific professional activities of teachers.

A competence-based model of professional development can be applied in this context. The model is principally based on the analysis of educational needs. It also includes professional standards that apply to the professional efficiency of a teacher. Thus, from the competence-based model covering a set of competences, a model for further education of university teachers can be derived. Of course, there can be a large number of competence models. The development of competence-based models should take into account the levels of university education where teachers work (ISCED 5 – ISCED 8), the professional focus and the goals of education.

The training needs should be assessed due to the requirements of the teaching profession and from the aspect of maintenance, deepening and extension of competences in university teachers as well as the goals set by university management. If university management promotes teaching in a multicultural group of students, or professional mastery with digital technologies and online learning of students, it must create the appropriate prerequisites, including material, technical and human resources. Teacher should be specifically trained, retrained or undergo qualification programs.

Accordingly, it is necessary to identify the relevant educational needs of individual teachers. Educational needs can be hypothetically defined as a lack of knowledge or skills that are important for teaching profession and an individual teacher, preserving and promoting teacher's mental, physical and social function. They can also be characterized as a gap between the actual performance and a predefined performance standard.

Thus, the development of competence-based models of further education and development of university teachers should clearly follow the identification and analysis of educational needs. The needs can be either current and reactive when there is a decline in professional performance due to the lack of training or a gap, or they can also be proactive, tied to the future, when they are closely related to organizational strategy and plans of human resource development, especially to technical development, personnel policy, etc. (Babiaková et al., 2014, p. 78-79).

The analysis of educational needs should take into consideration individuals, university goals, future trends and opportunities. It can be supported by Delphi method (expert opinion) used in forecasting and prognosis. Teaching activities in university teachers cover direct teaching in a study program, further education according to an accredited program, consultations, research and publication of research results.

8. CONCLUSION

Individuals' digital skills are to be gradually integrated into digital literacy and comprehensive digital competences, usable in employment, private and social life and practice. Digital competence includes a well-established, confident and critical use of ICT technologies, relying on basic information and communication skills such as the use of computers for recovery, acquisition, storage, generation, presentation and exchange of information, communication and participation in social networks on the Internet.

Digital literacy has the highest correlation with education. The integration of digital literacy into university study programs must therefore become a necessity. The development of digital competence in university teachers deserves special attention. Education itself ceases to be the key to a prosperous future, attractive jobs and standards of living. As part of the competitive struggle among university graduates, additional knowledge, skills and competences will present an added value. The digital skills of university teachers and the combination with pedagogical competencies must become an added value in university educators.

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REFERENCES

- Babiaková, S. a kol. (2014). *Progresívny učiteľ. Autoevalvácia v teóriách a výskumoch*. Banská Bystrica: Univerzita Mateja Bela.
- Bartošovič, M. & Tamášová, V. (2020). Vzdelávanie učiteľov pomocou online technológií. In Rajs ký, A. (Ed.) *Juvenilia Paedagogica*. Trnava: Pedagogická fakulta Trnavskej univerzity.
- European Commission. (2019). *2nd Survey of Schools: ICT in education – Slovakia Country Report*. Luxembourg, Publications Office of the European Union.
- Kirchmayer, J. (2019). Digitálna gramotnosť – determinujúca podmienka regionálneho vzdelávania dospelých. In Prusáková, V. & Matúšová, S. *Determinanty regionálneho rozvoja vzdelávania dospelých*. Bratislava: Vysoká škola ekonómie a manažmentu verejnej správy v Bratislave.
- Matúšová, S. & Tamášová, V. (2021). The importance of autonomous assessment and motivation as part of formative assessment in secondary school (not only during the pandemic). Paper presented at *Interdisziplináris pedagógia a bizonytalanság korában: XII. Kiss Árpád emlékkonferencia*, Debrecen: Debrecen University. September 24-25, 2021. p. 42 (abstract).
- Matúšová, S. (2021). Digital Competencies: Challenge for Innovations in Education. Paper presented at 3rd International Video-Conference “*The World Economy in the Great Changes 2021*” *Construction of Global Value Chain in the Digital Economy Era*. Shanghai: Shanghai University. November 17, 2021.
- Matúšová, S. (2022). Digital Competencies in Online Education: Challenges for Now. s. 52-74. In Antošová, G. (Ed.) *Innovative Strategic Planning and International Collaboration for the Mitigation of Global Crises*. IGI Global. <https://doi.org/10.4018/978-1-7998-8339-5.ch004>
- McKinsey&Company. (2021). *Defining the skills citizens will need in the future world of work*. McKinsey Global Institute. <https://www.mckinsey.com/mgi>
- Mercader, C. & Gairin, J. (2020). University teachers’ perception of barriers to the use of digital technologies: the importance of academic discipline. *International Journal of Educational Technology in Higher Education* 17 (4).
- OECD. (2018). *The Future of education and skills: Education 2030*. Paris: OECD.
- OECD. (2020). *OECD Skills Strategy for the Slovak Republic*. Paris: OECD.
- Pavlov, I. (2014). Lektorom v profesijnom rozvoji, o vzdelávacích potrebách a motivácii učiteľov. In Prusáková, V. (Ed.) *Osobnosť lektora vo vzdelávaní dospelých*. Banská Bystrica: Univerzita Mateja Bela.
- Průcha, J. & Veteška, J. (2012). *Andragogický slovník*. Praha: Grada Publishing.
- Tamášová, V. & Matúšová, S. (2021). Management in a modern quality system of in-service education/training at the university. Paper presented at the International Conference of Continuing Education: Topical Issues. Uzhhorod: Institute of Post-Graduate Pedagogical Education. November 18, 2021 (p. 37)
- Tamášová, V., Marks, I. & Pesti, Cs. (2021). Vybrané otázky celoživotného vzdelávania a inovácie na trhu práce. In Repka, R. (Ed.) *The Humanities and Social Sciences in Undergraduate Education* 3, p. 95–111, Bratislava: Z-F LINGUA Bratislava, (CD- ROM), ISBN: 978-80-8177-086-9, 153 pp.
- World Bank. (2020). World Bank. *Guidance Note: Remote Learning & COVID-19*.



Financial Literacy and Risk Aversion of University Students: Study Applied to Lusófona University Students

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Abstract: Over the past few years, the number of young people who choose to invest their savings in the financial markets has increased – investments such as savings accounts and treasury bonds where there is a guarantee of return on invested capital. They also invest in stocks, options, futures, swaps, bitcoins, among other financial products with different levels of risk. For investments to be made with relative safety, an adequate level of financial literacy is essential. Related to the concept of financial literacy is the concept of risk. In this study, a questionnaire was applied, and it had a dual purpose: to measure the level of financial literacy and measure the degree of financial risk aversion. The questionnaire was applied to students of the business management course at the Lusófona University; most respondents have financial knowledge and are not risk averse, which can be attributed to their area of study.

1. INTRODUCTION

Portuguese society has lived with the stock exchange for several decades, but the relationship between citizens and the capital market continues to be far from what would be desirable in an open and developed market economy.

In recent years, the number of private investors who choose to invest part of their savings on the stock market has increased. Within these investors we can find young people who decide to invest, even before their financial life is stabilized. On the stock exchange comes the possibility of making money quickly.

But investments are not without risk and there is a set of concepts that must be learned: risk profile, investment, diversification, volatility and capital gains or losses. These are the best words to understand the stock market. But, to enter this world of constant ups and downs, it is necessary to understand how it works.

Mastering the literature is another step to take at the beginning: stocks, bonds, investment funds, volatility, dividends, commodities are also important concepts when making decisions in the securities market.

For decisions to be made in conscience, it is necessary to guarantee the necessary knowledge to make informed decisions. Thus emerges the unavoidable importance of the concept of financial literacy. In addition to being essential to ensure that financial knowledge begins to be learned

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from an early age, it is equally important to make investors aware that inherent in profit there is a risk. In this way, each investor has its own risk profile and is willing to accept greater or lesser losses in its investments. It is therefore essential to understand the level of financial knowledge of young Portuguese people and their risk profile. Thus, the main objective of this study is to assess the knowledge and profile of financial investors, seeking to determine which characteristics are related to the levels of knowledge and types of profiles.

2. THEORETICAL FRAMEWORK

The year 2020 brought great challenges to the financial market. Those who already invested saw a lot of fluctuation in returns. Several applications that were growing, dropped considerably, which made many investors apprehensive. And those who did not invest yet were more intimidated. In this volatile scenario, it is natural that we are afraid to invest in more “risky” applications, as they are less predictable. Understanding this concern as risk aversion – it is a concept from Behavioral Economics that shows how the pain of losing is, on average, twice as powerful as the pleasure of winning. Because of this, it is very important to have financial education, stay informed about the financial market and evaluate applications well. Not only to learn to manage your daily expenses, but also to better deal with these emotional issues related to money. With adequate knowledge, it is possible to reduce natural risk aversion and choose variable applications that bring a good financial return.

2.1. Financial Literacy

In October 2020 the OECD approved the Recommendation on Financial Literacy (“OECD Recommendation of the Council on Financial Literacy”), which includes a set of principles and recommendations in three areas: designing national financial education strategies, development of financial education programs in specific areas, such as savings, investment, pension plans, credit, and insurance, also implementation of national strategies and financial education programs. In this recommendation, the OECD (2020) considers that financial literacy and inclusion, together with adequate regulation and consumer protection, are essential to increase the population’s financial resilience and well-being.

According to the OECD (OECD, 2009), financial education can be defined as the process in which the individual makes conscious choices and remains well-informed about the economy to develop the best way to handle his money. That is, knowledge and understanding of financial concepts and risks, and the skills, motivation, and confidence to apply that knowledge and understanding to make effective decisions in diverse financial contexts, improve the financial well-being of individuals and society, and enable participation in economic life (OECD, 2020).

Also, according to the OECD (2020), financial education can bring benefits to people of different income levels, which can become a financial budget planning tool to have better control of their expenses. Another advantage is retirement planning for older people and supporting them in making better investment decisions. According to some authors financial education provide an intelligent and healthy mindset about money, knowing how to earn, spend, save, invest, and donate money (e.g., Peretti, 2008 and Huston, 2010).

As highlighted by some authors the results of the research developed showed evidence that financial knowledge is important in indebtedness, investment, and risk tolerance decisions. Pos-

itive affective emotions showed a positive relationship with risk tolerance. On the other hand, negative effectiveness emotions suggest greater caution when investing, leading people to traditional investments such as savings and capitalization bonds. (Awais, Rasheed, Fahad Laber & Khursheed, 2016)

2.2. Risk Aversion

Financial decisions are generally made in an environment of some uncertainty regarding the expected results. (Hibbert, Lawrence, & Prakash, 2013)

Inherent in financial investments is the uncertainty expressed by the risk associated with the investments. In other words, the risk is greater the greater the level of uncertainty associated with the investment (Aydemir & Aren, 2017).

As highlighted by the *Comissão de Mercados de Valores Mobiliários* (CMVM), before investing, a wide range of aspects must be considered, such as: decide how much to invest, for how long and what capital you are willing to risk losing; check whether there is a guarantee of the invested capital; not investing money, you might need for essential expenses; if the money you intend to invest is destined for an emergency, it should not be invested in products that cannot be redeemed at any time (without loss of value or excessive costs); bear in mind that the profitability of products may not be guaranteed; compare the various investment alternatives on the market and the costs incurred.

As the OECD highlighted in the “OECD Recommendation of the Council on Financial Literacy”, the Portuguese Securities Market Commission is also concerned with making investors aware of the existence of risk. The risk that, according to Junior, Rigo and Cherobim (2005), can be defined as the possibility of financial loss, that is, the variability of the return associated with a given financial asset. This is uncertainty that corresponds to the doubt of obtaining a result, without a way to quantify the possibilities of positive or negative situations occurring. How much risk one will assume depends on the expected return, and it is expected that financial assets that present a greater possibility of profitability also present a higher level of risk (Sapienza, Zingales, & Maestripieri, 2009).

According to the Portuguese Securities Market Commission (2012), the main risks associated with investing in financial instruments are: Market risk: possibility of the evolution of the product's price on the market affecting the amount receivable by the investor; Credit risk: possibility of the issuer of the product failing to pay the income or initial capital of the product; Foreign exchange risk: possibility of the currency in which the product was issued devaluing against the currency of the investor's country; Liquidity risk: impossibility of redeeming the product at any time and recovering the corresponding amount or proceeding with its sale at a fair price; Fiscal risk: possibility of aggravation of the income or capital gains taxation regime; Political risk: possibility of devaluation arising from the political circumstances of the issuer's State of origin; Risk of conflict of interest: possibility of your interests being subordinated to the interests of the issuer and/or the interests of the intermediary offering you the product.

In global terms, it is of interest to quantify the risk the investor is subject to, and as mentioned by Ross, Westerfield, Jaffe & Lamb (2015) the measurement of risk is made through standard deviation and variance. And according to these authors, the total risk of financial asset results

from two components of different nature: Systematic risk: a systematic risk is any risk that influences many assets, each to a greater or lesser degree. This type of risk affects all investments and cannot be eliminated; Unsystematic (specific) risk: it is a risk that affects a single asset, or a reduced number of assets. This type of risk can be reduced by diversifying the investment portfolio.

Financial risk tolerance is the maximum amount of uncertainty one must accept when making a financial decision, and different investors may have different tolerance levels. (Hibbert et al., 2013)

The risk aversion theory is the study of the behavior of investors when subjected to situations of uncertainty. It is based on the analysis of people's behavior to understand how they act in the face of risks in the field of finance (Dewi & Barlian, 2020).

According to the CMVM (2012), the risk profiles consider several investor characteristics: The greater or lesser aversion to the risk of loss of invested capital; the preference for a short or medium- and long-term application; the level and fluctuations of expected profitability resulting from previous choices.

Also, according to CMVM (2012) there is no harmonized classification of investor profiles among financial institutions that act as financial intermediaries. However, the most common designations for the different types of investors are: **Conservative or prudent**: This is an investor looking for products with the guarantee of invested capital and returns that he expects to be at least compatible with short-term interest rates. This investor is averse to the main risks: capital, income, and liquidity. It prefers guaranteed capital investments, with a shorter maturity, which may be associated with a lower return. As the name suggests, investors with a conservative profile are more cautious, seek capital stability and are more risk averse, that is, they prefer to invest their money in products that do not present any or low risk. In general, we can say that the conservative investor looks for concrete gains with the least possible risk, even if for that he has a low return. Typically, your investment portfolio is made up of fixed income assets and only a small portion of stocks or alternative products. The distribution of their assets is focused more on bonds than on shares, to make a return on capital and expect a return superior to traditional banking applications. BNI Bank (2020); **Balanced or moderate**: This is an investor who is looking for products with the guarantee of the invested capital, but who is willing to take a longer period for this investment to accommodate any possible adverse fluctuation in income. It assumes a preference for guaranteed capital investments but accepts their portfolio maintenance in the medium term. We can say that the moderate profile investor tolerates taking a medium risk in their investments to obtain a higher return – they are willing to take a little higher risk to have a higher return. But at the same time, it doesn't do without some security. He invests across multiple asset classes, currencies, and geographies to strike a balance between security and profitability. In other words, he is not completely risk averse and accepts to take part of it to earn more, but he is also concerned about safety. Its classic asset distribution is 50% bonds and 50% shares, they aim to increase their capital and higher profitability than products with medium/long-term interest rates. BNI Bank (2020); **Dynamic**: This is an investor who seeks a return higher than the market average, being available for medium- and long-term investments and to assume the risk of some losses in the invested capital; **Aggressive or Bold**: This is an investor who seeks products with a higher return when compared to the market average, being available for applications with a relatively shorter time horizon and assuming the risk of total

or even greater loss of invested capital. Aggressive or bold investors are willing to expose their portfolio to greater risk and accept market fluctuations to have greater profitability – and even consider losing part of their equity in investments. In an investment portfolio, most of its applications are in variable rate products – stocks, stock funds, options, among others. Their asset distribution typically stands at 30% bonds and 70% shares, and they aim for returns like that of the stock market. BNI Bank (2020)

3. METHODOLOGY

This study was carried out through questionnaires, using Google Forms, the questionnaires were sent to students from School of Economics and Management (ECEO) from Lusófona University (ULHT), between October 8th and December 22th, 2021. The target population was students from ECEO attending a graduation's, master's or post-graduation degree. Most questions are closed-response, some are multiple-choice and 2 are open-ended. Not all of them will be analyzed in this text due to space limitations.

To analyze financial knowledge, questions were asked such as: “Suppose that 5 brothers receive 1000 euros and that this amount is distributed equally among all. How much money does each one have?”; “Suppose now that the 5 brothers have to wait a year to receive their share of 1000 euros”; If the inflation rate is 2%, in 1 year will they be able to buy more, less or the same?”, “If you lend 25 euros to a friend and he pays you 25 euros back the next day, how much interest did he pay?”; “Suppose you put €100 on a term deposit with an annual interest rate of 2%. How much will you have in the account after one year? (Consider that no commissions or taxes are charged)”; “Suppose you put €100 on a term deposit with an annual interest rate of 2%. How much will be in the account after 5 years? (Consider that no commissions or taxes are charged and that at the end of each year, you let the interest amount stay in the same term deposit)”, etc.

To analyze the degree of financial risk aversion, questions such as the following were asked: “What attitude best describes your behavior towards investments in financial products?”; “As a general rule, what would you do in the event of a sharp drop in the price of a security you held?”; “What are the reasons that lead you to a concrete investment decision in securities?”, etc.

4. SAMPLE CHARACTERIZATION

A total of 1257 valid responses were obtained, corresponding to 85,15% of the target population. Respondents are 55,6% are male and 44,4% female; 81,7% are aged between 18 to 24 years, the rest are 25 years old or older (distributed by intervals as you can see in the Figure 1).

The majority of the respondents are attending graduate studies. Professionally, 62,5% only study, 31,5% study and work, the remaining 6% are unemployed or retired.

Questioned about “Who is responsible for making day-to-day decisions about money in your household?” 30,6% “Make decisions alone”, 25,1% “Decisions are made by someone else”, 21,1% “Make decisions together with someone other than a spouse/partner” and “29,2%” “Make decisions together with your spouse/partner”.

Concerning the gross income of families, 39,9% are between €1000 and €2500, 30 % between €500 and €1000, 26,2% above €2500 and the rest up to €500.

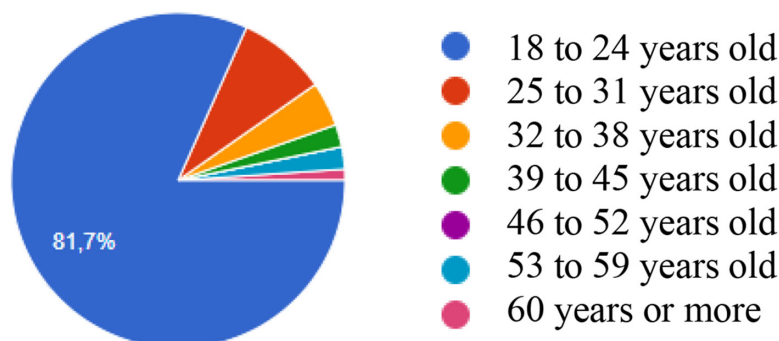


Figure 1. Age by group

Source: Authors

5. ANALYSIS OF RESULTS

Concerning the results about “Analyze financial knowledge” on average 30% of respondents reveal to have insufficient knowledge while the remaining 70% reveal to have sufficient to very good financial knowledge, concerning the “Profile of financial risk” (as described in section 1) 24,1% of the respondents have a conservative profile, 39,5% have a moderate profile and 36,4% have a dynamic or aggressive profile as can be seen in Figure 2.

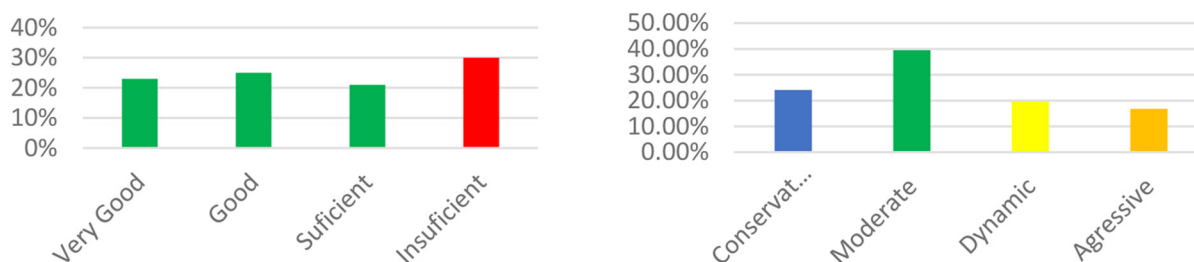


Figure 2. Financial Knowledge and Profile of financial risk

Source: Authors

As written in the introduction, the main objective of this study is to assess the knowledge and profile of financial investors, seeking to determine which characteristics are related to the levels of knowledge and types of profiles.

Non parametric tests of independence were done based on contingency tables and the χ^2 -test, by gender, by professional status (work vs don't work), by who is responsible for making day-to-day decisions about household money, and by the gross income of families, concerning financial knowledge and financial risk; the age will not be taken in consideration since 81,7 of the respondents are aged between 18 to 24 years.

Considering a level of significance $\alpha=0,05$ and “Financial Knowledge”:

- The hypothesis that Financial Knowledge is independent of gender is not rejected;
- The hypothesis that Financial Knowledge is independent of the professional status is rejected;
- The hypothesis that Financial Knowledge is independent of who is responsible for making day-to-day decisions about money in the household is rejected;
- The hypothesis that Financial Knowledge is independent of the gross income of families is rejected.

Considering a level of significance $\alpha=0,05$ and “Financial Risk”:

- The hypothesis that the Financial Risk is independent of gender is rejected;
- The hypothesis that the Financial Risk is independent of the professional status is not rejected;
- The hypothesis that the Financial Risk is independent of who is responsible for making day-to-day decisions about money in the household is not rejected;
- The hypothesis that the Financial Risk is independent of the gross income of families is not rejected.

6. FUTURE RESEARCH DIRECTIONS

The authors intend to extend this study to the more relevant Portuguese universities, in order to analyze if there are differences in the level of financial knowledge and propensity to take financial risks by public and private universities and also by area of study.

7. CONCLUSION

It can be concluded that in this study most respondents have the financial knowledge and are not risk averse, which can be attributed to their area of study. There is no independence on financial knowledge between gender, but there is in relation to risk aversion – female individuals are more risk averse than males. As for whether they work or not, there is no independence in relation to financial knowledge, but there is a relationship between risk aversion; the same goes for who is responsible for making day-to-day decisions about money in the household and the gross income of families. The results obtained make sense for the sample surveyed.

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REFERENCES

- Aydemir, S. & Aren, S. (2017). Do the effects of individual factors on financial risk-taking behavior diversify with financial literacy? *Kybernetes*, Vol. 46 Issue: 10, pp.1706-1734, <https://doi.org/10.1108/K-10-2016-0281>
- Awais, M., Fahad Laber, M., Rasheed, N., & Khursheed, A. (2016). Impact of Financial Literacy and Investment Experience on Risk Tolerance and Investment Decisions: Empirical Evidence from Pakistan. *International Journal of Economics and Financial Issues*, 6(1), 73–79.
- Boisclair, D., A. Lusardi & P. Michaud. 2017. Financial Literacy and Retirement Planning in Canada. *Journal of Pension Economics and Finance* 16(3): 277-296.
- Bongini, P. & D. Cucinelli. 2019. University Students and Retirement Planning: Never Too Early. *International Journal of Bank Marketing* 37(3): 775-797
- Brounen, D., K. Koedijk & R. Pownall. 2016. Household Financial Planning and Savings Behavior. *Journal of International Money and Finance* 69: 95-107.
- BNI Bank (2020). Tipo de investidor. Available in <https://bnieuropa.pt/que-tipo-de-investidor-voce-e/>.
- CMVM (2012). Recomendações aos investidores. Comissão de Mercados de Valores Mobiliários.
- Dewi, V. I. and Barlian, I. (2020). The Relationship Between Financial Literacy and Risk Profile Among Youth, *Frontiers Journal of Accounting and Business Research*, 02(01), pp. 27–31.

- Henager-Greene R. & B.J. Cude (2016). Financial Literacy and Long- and Short-Term Financial Behavior in Different Age Groups. *Journal of Financial Counseling and Planning* 27(1): 3-19.
- Hibbert, A., Lawrence, E. & Prakash, A. (2013). Does knowledge of finance mitigate the gender difference in financial risk-aversion? *Global Finance Journal* 24(2):140–152. DOI: 10.1016/j.gfj.2013.07.002
- Huston, S. J. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs*, 44 (2), 296–316. <https://doi.org/10.1111/j.1745-6606.2010.01170.x>
- Junior, L., Rigo, C. & Cherbim, A. (2005). Administração financeira. 2ª Ed. Rio de Janeiro: Campus.
- OECD (2005). Improving Financial Literacy: Analysis of Issues and Policies.
- OECD (2020). Recommendation of the Council on Financial Literacy, OECD/LEGAL/0461
- Peretti, L. C. (2008). Educação financeira: aprenda a cuidar do seu dinheiro. Dois Vizinhos: Impressul.
- Ross, S., Westerfield, R., Jaffe J. & Lamb R. (2015). Administração financeira. MCGRAW-HILL



Blended Learning Perceptions in First Time and Experienced Users – The Learning Curve Accumulation Approach

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Abstract: *The purpose of this paper is to analyze the learning curve of first-time users and experienced users of blended learning methodology and their perception of eLearning platforms. We investigate student relation with blended learning approach aggregated in first time users and experienced users, analyzing a multitude of factors with a sample size of 1021 students in university premises. Their approach is tested empirically through regression analysis by measuring the learning curve accumulation among two main categories of users. The implications of this study are practical for organizations and practitioners implementing innovative approaches in education. Data shows that first time users are more likely to share the experience, use the portal as an assisting tool in learning, and see blended learning as more helpful. While experienced users see it as a pure operational tool, spending more time on it, being more confident, and value the experience by perceiving satisfaction and usefulness.*

1. INTRODUCTION

Blended learning in the knowledge delivery industry and academia is a term being increasingly used (Anthony et al., 2020; Bruggeman et al., 2021; Nortvig, Petersen, & Balle, 2018; Singh & Reed, 2001; Vallee, Blacher, Cariou, & Sorbets, 2020). As a form of online learning, *mostly a combination of techniques using technology to deliver and assess knowledge*, authors see it more as complementary to traditional teaching methods (Prifti, 2020), rather than comparing it to whether it is better than traditional learning (Nortvig et al., 2018). The purpose of this study is not to make a comparison of face-to-face (traditional) learning, online learning, or blended learning, or even to compare their effects on student learning outcomes. We take a different path by looking at blended learning methodology as process innovation, thus analyzing the user learning path assessed by several components. Components include learning environment, the medium referring to the instrument through which content is delivered and its selection. Most important in this process is how all these components affect course design and the outcome of learning objectives. There is a discussion in literature arguing that learning outcomes are not affected, since they are rather dependent on instructional strategies deployed (Holden & Westfall, 2006). In addition, there are other components such as instructional ones which depend on learning objectives and affect learning transfer (Kaur, 2013), synchronous instructional methods, the live classroom, the virtual classroom, and media used.

2. BLENDED LEARNING REVIEW

One definition of blended learning is that it is a combination of instructional modalities (Kris-madinata et al., 2020; Maloloy-on, et. al., 2021; Matosas-López et. al., 2019). Another one is in

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line with this definition, but instead of modalities, a combination of methods (Driscoll, 2002; Rooney, 2003; Rossett, Douglass, & Frazee, 2003). A more practical definition refers to a combination of online and face-to-face instructions (Gide, 2019; Maloloy-on et al., 2021). Technically, the first two define blended learning broadly by taking into consideration media influences on traditional method learning thus blurring the lines by including any kind of system that is virtual. The third definition, which is closer to what the authors of this paper argue, provides a more precise understanding of what blended learning is. The third definition emphasizes the role of traditional learning and technology in the process, moreover, gives a historical perspective of the combination (Bonk & Graham, 2012).

Hrastinski (2019) draws on literature that research blended learning conceptualization. The vast research identifies several ways to conceptualize it. Inclusive conceptualization – emphasizing that it should be viewed as an inclusive way of a combination of modalities. Quality conceptualization – putting forward the overall quality and positive effects by integrating all modalities of face-to-face and online learning. Quantity conceptualization – emphasizing the quantity of the content delivered online regarding face-to-face. The synchronous conceptualization – arguing that is better for teaching and learning to happen in a synchronous way, both online and on campus. The conceptualization that an organization chooses depends on the strategy, resources, internal capabilities, and the objectives regarding quality, and most importantly as Derntl & Motschnig-Pitrik (2005a) put it, blended learning adds value when two main components are in place: educators with high interpersonal skills and easy to use technology.

Literature shows that for online education and blended learning, environmental factors that prove to be of considerable relevance are appropriate teaching and learning spaces for online and off-line purposes, learning communities that secure meaningful support for students' social relations and learning experience, and considerable and well-embedded sense of learner identity. Appropriate teaching is an umbrella terminology used to include several factors. Firstly, in order for blended learning to provide value added high interpersonal skills educators have to be engaged (Derntl & Motschnig-Pitrik, 2005). Secondly, strong educators' presence, associated with very good quality content, are substantial in student engagement (Nortvig et al., 2018; Swan & Shih, 2014). Thirdly, related with the technology factor literature argues that the element of technology per se does not provide much improvement in student achievement, however, it leads to considerable and significant improvements in student achievement while providing cognitive support such as stimulations or facilitating student-student and student-teacher contacts.

Appropriate teaching also pertains to course design. Course design influences student satisfaction (Pham, Limbu, Bui, Nguyen, & Pham, 2019) and perceived learning (Baber, 2020). Educators, while conceptualizing a blended learning system, should bear in mind that course design to be effective has to support knowledge transmission and skill acquisition (Gilboy et al., 2015; Ikhwan & Widodo, 2019) and this can be arranged through blended learning intertwining technology and traditional teaching.

Learning communities are important in developing student engagement and their learning identity and go beyond appropriate teaching. Students' experience of the learning community and their own learner identity appears to be significantly affected by the online element of blended learning education (Baxter & Haycock, 2014). An important part of online learning activities is the "peer-to-peer" method of assessing knowledge. However, as peer to peer seems to have a different effect on students according to their learning levels, also the blended learning method-

ology should have a different set up based on the same criteria. Studies suggest that the impact of peer evaluation is considerable in low and average-achieving students, and less impactful on high-achieving students (Baxter & Haycock, 2014). Based on the same principle, we hypothesized that students should have a different approach and prioritize different methodology components according to their experience in usage.

In addition, among many dimensions and variables to be considered, blended learning reflects also on educators. It develops their capacities to use technology-related teaching approaches (Chigeza & Halbert, 2014) and adds pedagogical value (Rivers, Richardson, & Price, 2014). Bernard, Borokhovski, Schmid, Tamim, & Abrami, (2014) in a meta-analysis study of blended learning applied in higher education found that students achieved better in comparison with those in traditional classroom programs. Many studies, also, support these findings and despite that blended learning appears to arise from a technological factor, its value lies in the combination and organized influence of many factors.

The reason why we emphasize blended learning methodology is twofold. Firstly, it relates to a belief in the philosophy of teaching and learning. We believe that the process of knowledge transfer and knowledge gaining is most of all a social process and that technology is a complementary tool and not a substitute for the traditional one. Secondly, the literature suggests that students find web-based lectures to be an added value to the traditional way of learning, thus making it complementary and not a substitute (Martín-Rodríguez et al., 2014). A comprehensive literature review carried out by (Nortvig et al., 2018) finds out that the most relevant elements in relation to interactions are between online and offline activities, between campus-related and practice-related activities, and between students, teachers and content, thus the importance of seeing blended learning as complementary to traditional learning.

Online learning often poses a myriad of challenges for educators, trying to adapt traditional teaching methods and techniques to online learning activities. However, the most important factors affecting online learning from, and educators' perspective are strong educators' presence and fostering positive relations through online learning communities.

3. METHODOLOGY AND DATA ANALYSIS

This study analyses a multitude of factors in blended learning methodology implementation. A learning management system based on a highly customized Moodle platform was used and learners' attitudes and perceptions were measured concerning learning effectiveness. In sociology, the way people think, behave, feel and act represent attitudes. Attitude affects students' ability to learn, attitudes toward learning influence the motivation of learners by influencing the educational context (Gardner, 2006).

One of the approaches to analyze the comprehensive dataset, and the one this paper analyses, is the learning curve accumulation while using the methodology. An online five-scale Likert questionnaire (Cigdem & Ozturk, 2016; Liaw, 2008; Liaw & Huang, 2013), was used to measure several constructs such as: in-class behavior, online behavior, LMS self-efficacy, multimedia instruction, perceived satisfaction, interactivity in portal, perceived usefulness, perceived ease of use, behavioral intention and satisfaction. In addition, controlling variables were used such as gender, year of study, field of study and in several cases whether it was a private or public higher education institution. For this study, we have limited variables and dimensions in consideration.

The questionnaire was distributed among students on university premises. It was completed by 1021 Business Administration students; the study population consisted of 835 female students, representing 81.78% and 186 male students representing 18.22%.

Table 1. Aggregate

Contains data	
obs:	1,021
vars:	93
size:	96,995

Source: Own research

Table 2. Gender summary

Gender summary			
Obs		1021	
	Freq.	Percent	Cum.
F (1)	835	81.78	81.78
M (2)	186	18.22	100.00

Source: Own research

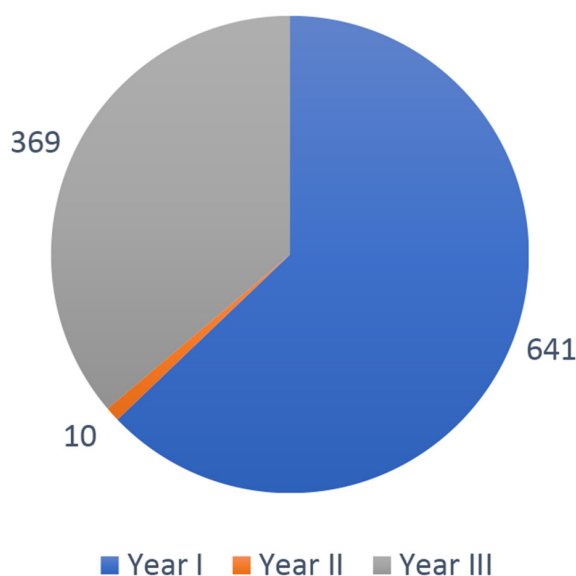


Figure 1. Years of study

Source: Own research

Approximately 82% of the respondents were female and 18% were male. Students were asked about their perceptions and attitude towards the blended learning methodology. The same questionnaire twice, once as first-time users and then as experienced users in that way to be able to build the knowledge and experience accumulation curve.

The analysis of mean and standard deviation shows the discrepancies that exist between first-time and experienced users. As shown in Table 3, the biggest discrepancies between first-time and experienced users are related to interactivity in the portal, ease of use, behavior intention and satisfaction. Looks like first-time users are more likely to share their e-learning experience, use the portal assisting their learnings, and also evaluate this course experience as helpful for them more than experienced users.

Table 3. Discrepancies

Variable	Comparison	
	Mean	STD
I would like to share my e-learning experience	-2.872	-0.430
I would find it easy to get to Portal to do what I want to do	-2.853	-0.213
I intend to use Portal to assist my learning	-2.858	-0.406
This course experience has improved my opportunity to access and use the class content	-2.848	-0.145
In-class meetings were well-organized	-2.793	0.140

Source: Own research

The knowledge and experience accumulation curve is presented in Figure 2. Experienced users are the ones that feel more confident with the online learning platform, have spent more hours online, feel more confident with the online platform they perceive satisfaction, usefulness, and ease to use more than first-time users. Asking about if the same course is being offered in different formats, which course format would you prefer, seems that experienced users are more likely to choose blended learning methodology than first-time users. According to behavior intention to use online learning platforms, experienced users intend to use the online platform as an autonomous learning tool more than first-time users.

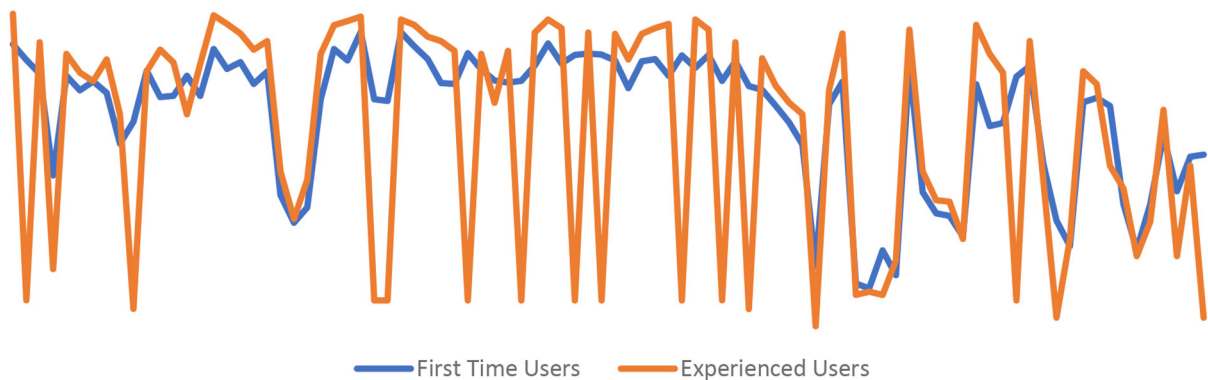


Figure 2. Knowledge and experience accumulation curve

Source: Own research

Before the regression analyses, the multicollinearity assumption was checked to see whether there was a multicollinearity problem among the variables involved in the analyses. In this regard, an Estat Vif analysis and Pearson correlation analysis are conducted.

Table 4. Estat Vif analysis

estat vif		
Variable	VIF	1/VIF
LM2	2,26	0.441783
LM1	2,19	0.456636
SK25	1,80	0.556409
SK27	1,53	0.655342
SK21	1,47	0.682200
SO1	1,21	0.825626
T11	1,12	0.895341
SK1	1,05	0.949736
Mean VIF	1,58	

Source: Own research

The values of all the questions above are less than 10 (Table 3) which indicates that all the variables are independent and there is no multicollinearity problem. This is also supported by the Pearson correlation analysis, where we see that all the correlations are less than .80.

Table 5. Pearson correlation

	G	SK1	SK21	SK25	SK27	SO1	SO21	SO22	T11	LM1	LM2
G	1.0000										
SK1	0.0572	1.0000									
	0.0675										
SK21	-0.0148	0.0958	1.0000								
	0.6364	0.0022									
SK25	-0.0292	0.1610	0.5144	1.0000							
	0.3509	0.0000	0.0000								
SK27	-0.0306	0.1586	0.3867	0.5646	1.0000						
	0.3282	0.0000	0.0000	0.0000							
SO1	-0.0907	0.1622	0.2052	0.2397	0.2335	1.0000					
	0.0037	0.0000	0.0000	0.0000	0.0000						
SO21	-0.0715	0.1264	0.3968	0.3589	0.2708	0.2450	1.0000				
	0.0222	0.0001	0.0000	0.0000	0.0000	0.0000					
SO22	-0.0672	0.1125	0.3787	0.3838	0.2653	0.3261	0.5992	1.0000			
	0.0318	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000				
T11	-0.0992	0.1003	0.2106	0.2525	0.2043	0.2334	0.2028	0.2128	1.0000		
	0.0015	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
LM1	-0.0712	0.0305	0.2987	0.2317	0.1547	0.2890	0.3776	0.3470	0.1185	1.0000	
	0.0229	0.3297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001		
LM2	-0.0821	0.0355	0.3150	0.2929	0.2053	0.3076	0.3798	0.3419	0.1390	0.7304	1.0000
	0.0087	0.2571	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Source: Own research

Pearson analysis table shows that the strongest correlation exists between engagement in class and the understanding of learning materials, organization of online learning materials and the attractiveness of online learning, also between the organization of portal functions and the confidence of learners to use the portal as an instrument of blended learning.

However, there is almost no correlation between gender and in-class behavior construct, also between the confidence of learners with the online portal and hours spent in class. Further, the analysis shows a negative correlation, even though it is low, between almost all the variables and gender.

To be able to analyze and understand the relationship that exists between the numbers of in-class meetings and the characteristics of in-class learning materials and activities it looks like the organization of the class meetings does not have any effect on students' attendance. Meanwhile, the engagement and integration in class discussions and activities do affect the attendance of students in class meetings.

Table 6. In-class behavior construct

regress SK1 SK21 SK25 SK27						
Source	SS	df	MS	Number of obs.	1021	
				F(3, 1017)	11,44000	
Model	48.82289	3	16.274299	Prob > F	0,00000	
Residual	1446.656	1017	1.4224739	R-squared	0,03260	
				Adj R-squared	0,02980	
Total	1495.478	1020	1.4661558	Root MSE	1,19270	
How many in-class meetings did you attend?	Coeff.	Std. Err.	t	P>t	[95% Conf.	Interval
In class meetings were well-organized	.0064987	.0500045	0.13	0.897	-.0916251	.1046225
I felt like being called upon in class challenged me to integrate the course material in meaningful ways	.1296587	.0511623	2,53	0.011	.029263	.2300544
I was actively engaged in the in-class activities and discussion	.1242877	.047499	2,62	0.009	.0310806	.2174949
_cons	3.165645	.2029921	15,59	0.000	2.767314	3.563976

Source: Own research

Regarding the relation between numbers of the online lessons completed and the attractiveness of online learning materials, also the variable of numbers of the online lessons completed and organization of the online learning materials, students have evaluated both variables as important determinants that affect their attitude to use this kind of learning methodology and completed more lessons online.

Table 7. Online behavior construct

regress SO1 SO21 SO22						
Source	SS	df	MS	Number of obs.	1021	
				F(2, 1018)	63,01	
Model	110.6691	2	55.33457	Prob > F	0	
Residual	894.0301	1018	.878222	R-squared	0,1102	
				Adj R-squared	0,1084	
Total	1004.699	1020	.9849993	Root MSE	0,93714	
How many of the online lessons did you complete?	Coeff.	Std. Err.	T	P>t	[95% Conf.	Interval]
Online lessons were interesting and engaging	.0777265	.03710	2,09	0.036	.0049148	.1505381
Online lessons were divided into manageable segments	.2997823	.03957	7,57	0.000	.2221178	.3774468
_cons	2.702047	.14436	18,72	0.000	2.418762	2.985332

Source: Own research

In a further analysis the numbers of the learning materials completed, confidence using portal and confidence on operating functions of the portal were checked to see whether there is any relation with the variable of hours that learners spend on the online module. It revealed a significant result, $R^2 = 0.059$, $F(3,1017) = 21,45$ $p < .001$, which turned out that the number of learning

materials students completed exerted positive significant relation with scores related to hours spent on the online learning. Variables confidence using the portal and confidence operating functions of the portal do not have any relation with hours that students spend on the online learning platform.

Table 8. Online learning platforms

regress T11 SO1 LM1 LM2						
Source	SS	df	MS	Number of obs.	1021	
				F(3, 1017)	21,45	
Model	113.293	3	37.764536	Prob > F	0	
Residual	1790.66	1017	1.7607328	R-squared	0,0595	
				Adj R-squared	0,0567	
Total	1903.95	1020	1.8666263	Root MSE	1,3269	
How many hours per week did you spend on online modules?	Coeff.	Std. Err.	t	P>t	[95% Conf.	Interval]
How many of the online lessons did you complete?	.289176	.0442128	6,54	0.000	.2024179	.375935
I feel confident using Portal.	.011319	.0677259	0,17	0.867	-.1215786	.144218
I feel confident operating functions of Portal	.106693	.0696734	1,53	0.126	-.0300265	.243413
_cons	.837850	.2475473	3,38	0.001	.3520884	1.32361

Source: Own research

The final analysis was performed to examine the relationship between gender and constructs of attendance in class, organization of class activities, integration of students in class, engagement in class, number of online lessons completed, the confidence of learners using the online learning platform and confidence operating functions of online learning platform. Attendance in-class meetings, online lessons completed, and hours spent on online learning seemed to have a significant relationship with gender construct.

Table 9. Gender construct

regress G SK1 SK21 SK25 SK27 SO1 T11 LM1 LM2						
Source	SS	df	MS	Number of obs.	1021	
				F(8, 1012)	3,14	
Model	3.68941021	8	.4611762	Prob > F	0,0016	
Residual	148.426163	1012	.1466661	R-squared	0,0243	
				Adj R-squared	0,0165	
Total	152.115573	1020	.1491329	Root MSE	0,38297	
Gender	Coeff.	Std. Err.	t	P>t	[95% Conf.	Interval]
How many in-class meetings did you attend?	.0246474	.0101619	2,43	0.015	.0047066	.0445881
In class meetings were well-organized	.0143779	.0165154	0,87	0.384	-.0180305	.0467864
I felt like being called upon in class challenged me to integrate the course material in meaningful ways	.001957	.0167453	0,12	0.907	-.0309025	.0348165

I was actively engaged in the in-class activities and discussion	-0,0047508	.0154054	-0,31	0.758	-.034981	.0254794
How many of the online lessons did you complete?	-0,0264368	.013297	-1,99	0.047	-.0525298	-.0003439
How many hours per week did you spend on online modules	-0,0248814	.0092756	-2,68	0.007	-.043083	-.0066798
I feel confident using Portal.	-0,0073283	.0196604	-0,37	0.709	-.0459081	.0312514
I feel confident operating functions of Portal	-0,0212152	.0204379	-1,04	0.300	-.0613206	.0188902
_cons	1,329586	.0873533	15,22	0.000	1.158172	1.501001

Source: Own research

4. CONCLUSION

In this research paper, we analyze how learners' attitudes and perceptions toward blended learning methodology change between first-time users and experienced users. It helps us to create a learning curve and to better understand which factors students value the most while knowing more about the online environment. From the analysis, it looks like first-time users are more likely to share their e-learning experience, use the portal assisting their learnings and also evaluate this course experience as helpful more than experienced users. From this result we can conclude that experienced users have become familiar with the platform and do not see that as a new methodology but as a learning instrument where they can find what is useful for them; this assumption is supported also by the fact that experienced users have spent more hours in the online platform, they feel more confident with the online platform and perceive satisfaction, usefulness and ease to use more than first time users. Also, by the fact that experienced users intend to use the online platform as an autonomous learning tool more than first-time users. For the first time users look like the e-learning experience is more attractive and they are more willing to share this experience; on the other hand, the experienced users go through the novelty of this methodology and they evaluate options like the attractiveness of the online platform, organization of the online learning materials, etc.

Results also show that learners' attitude to use eLearning platforms is affected by the attractiveness of online learning materials and the organization of the online learning materials. The more organized and attractive the learning materials and the online platform functions the better the engagement, understanding, and learners' confidence in using the online platform as an instrument of blended learning. Both first-time users and experienced users evaluate the quality and organization of the online learning materials as important elements that affect the attractiveness of the online platform and the confidence of users to use this kind of learning platform. Talking about the impact that gender has on class behavior construct, online behavior construct and confidence of learners to use the portal, results show that there is no correlation between these variables.

REFERENCES

- Anthony, B., Kamaludin, A., Romli, A., Raffei, A. F. M., Phon, D. N. A. L. E., Abdullah, A., & Ming, G. L. (2020). Blended Learning Adoption and Implementation in Higher Education: A Theoretical and Systematic Review. *Technology, Knowledge and Learning*. <https://doi.org/10.1007/s10758-020-09477-z>
- Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic of COVID19. *Journal of Education and E-Learning Research*, 7(3), 285–292. <https://doi.org/10.20448/JOURNAL.509.2020.73.285.292>
- Baxter, J. A., & Haycock, J. (2014). Roles and student identities in online large course forums: Implications for practice. *International Review of Research in Open and Distance Learning*, 15(1), 20–40. <https://doi.org/10.19173/irrodl.v15i1.1593>
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*, 26(1), 87–122. <https://doi.org/10.1007/s12528-013-9077-3>
- Bonk, C. J., & Graham, C. R. (2012). The Handbook of Blended Learning: Global Perspectives, Local Designs Memorial. *John Wiley & Sons.*, 33(1). <https://doi.org/10.21225/d51g6h>
- Bruggeman, B., Tondeur, J., Struyven, K., Pynoo, B., Garone, A., & Vanslambrouck, S. (2021). Experts speaking: Crucial teacher attributes for implementing blended learning in higher education. *Internet and Higher Education*, 48. <https://doi.org/10.1016/j.iheduc.2020.100772>
- Chigeza, P., & Halbert, K. (2014). Navigating E-learning and blended learning for pre-service teachers: Redesigning for engagement, access and efficiency. *Australian Journal of Teacher Education*, 39(11), 133–146. <https://doi.org/10.14221/ajte.2014v39n11.8>
- Cigdem, H., & Ozturk, M. (2016). *Factors Affecting Students' Behavioral Intention to Use LMS at a Turkish Post-Secondary Vocational School l sis (SNA) in OnlineCourses*. 17(3). <https://doi.org/10.19173/irrodl.v17i3.2253>
- Derntl, M., & Motschnig-Pitrik, R. (2005). The role of structure, patterns, and people in blended learning. *Internet and Higher Education*, 8(2), 111–130. <https://doi.org/10.1016/j.iheduc.2005.03.002>
- Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *E-Learning*, 54. Retrieved from http://www-07.ibm.com/services/pdf/blended_learning.pdf
- Gardner, R. C. (2006). Motivation and Attitudes in Second Language Learning. In K. Brown (Ed.), *Encyclopedia of Language & Linguistics (Second Edition)* (Second Edi, pp. 348–355). <https://doi.org/https://doi.org/10.1016/B0-08-044854-2/00625-8>
- Gide, A. (2019). Blended Learning: A New Hybrid Teaching Methodology. *Online Submission*, 3(13), 5–24.
- Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. *Journal of Nutrition Education and Behavior*, 47(1), 109–114. <https://doi.org/10.1016/j.jneb.2014.08.008>
- Holden, J., & Westfall, P. (2006). Instructional Media Selection for Distance Learning: A Learning Environment Approach. *Distance Learning*, 3(2), 1.
- Hrastinski, S. (2019). What Do We Mean by Blended Learning? *TechTrends*, 63(5), 564–569. <https://doi.org/10.1007/s11528-019-00375-5>
- Ikhwan, E. J., & Widodo, P. (2019). Attitude Conception: The Role of Blended Learning in Environmental Education. *Online Submission*, 2(6), 53–62. <https://doi.org/10.32996/ijllt.2019.2.6.7>

- Kaur, M. (2013). Blended Learning – Its Challenges and Future. *Procedia – Social and Behavioral Sciences*, 93, 612–617. <https://doi.org/10.1016/j.sbspro.2013.09.248>
- Krismadinata, Verawardina, U., Jalinus, N., Rizal, F., Sukardi, Sudira, P., ... Novaliendry, D. (2020). Blended learning as instructional model in vocational education: Literature review. *Universal Journal of Educational Research*, 8(11B), 5801–5815. <https://doi.org/10.13189/ujer.2020.082214>
- Liaw, S.-S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education*, 51(2), 864–873.
- Liaw, S.-S., & Huang, H.-M. (2013). Perceived satisfaction, perceived usefulness and interactive learning environments as predictors to self-regulation in e-learning environments. *Computers & Education*, 60(1), 14–24.
- Maloloy-on, M., Arnado, A., Aviles, G., Solania, N., & Ventura, R. (2021). Teacher's Responses on the New Normal Learning Delivery Modalities: Prospective Lifelong Learning Pathway. *SMCC Higher Education Research Journal*, 8(1). <https://doi.org/10.18868/sherj8j.08.010121.02>
- Martín-Rodríguez, Fernández-Molina, Óscar, Montero-Alonso, Uan-Carlos, González-Gómez, ... Francisco. (2014). The main components of satisfaction with e-learning. *Technology, Pedagogy and Education*, 24, 1–11. <https://doi.org/10.1080/1475939X.2014.888370>
- Matosas-López, L., Aguado-Franco, J. C., & Gómez-Galán, J. (2019). Constructing an instrument with behavioral scales to assess teaching quality in blended learning modalities. *Journal of New Approaches in Educational Research*, 8(2), 142–165. <https://doi.org/10.7821/naer.2019.7.410>
- Nortvig, A. M., Petersen, A. K., & Balle, S. H. (2018). A literature review of the factors influencing e-learning and blended learning in relation to learning outcome, student satisfaction and engagement. *Electronic Journal of E-Learning*, 16(1), 45–55.
- Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, 16(1). <https://doi.org/10.1186/s41239-019-0136-3>
- Prifti, R. (2020). Implementation of blended learning in a higher education institution in Albania: An analysis of factors that affect students' learning experience. *International Journal of Innovation and Learning*, 27(3), 233–253. <https://doi.org/10.1504/IJIL.2020.106809>
- Rivers, B. A., Richardson, J. T. E., & Price, L. (2014). Promoting reflection in asynchronous virtual learning spaces: Tertiary distance tutors' conceptions. *International Review of Research in Open and Distance Learning*, 15(3), 215–231. <https://doi.org/10.19173/IRRODL.V15I3.1777>
- Rooney, J. E. (2003). Blended Learning Opportunities to Enhance Educational Programming and Meetings. *Association Management*, 55, 26–32.
- Rossett, A., Douglass, F., & Frazee, R. V. (2003). *Strategies for Building Blended Learning*.
- Singh, H., & Reed, S. (2001). A white paper: Achieving success with blended learning. *Leerbeking.Nl*, 1–11.
- Swan, K., & Shih, L. (2014). *On the nature and development of social presence in online course discussions*.
- Vallee, A., Blacher, J., Cariou, A., & Sorbets, E. (2020). Blended learning compared to traditional learning in medical education: Systematic review and meta-analysis. *Journal of Medical Internet Research*, Vol. 22. <https://doi.org/10.2196/16504>



Study of Innovative Technologies and Materials for Online Learning

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Abstract: *The SARS-Cov-2 pandemic has fundamentally changed the way of life. On the continents, all areas were affected, from work to leisure and travel. The education sector has not been spared the consequences either. For months during isolation, schools, colleges and universities closed their doors, and online courses became the new norm. But education does not stop at the school gate, and educators everywhere have done everything in their power to ensure that pupils and students do not lag behind. The pandemic caused awareness of significant gaps and deficiencies regarding digital skills, connectivity and the use of technology in education. The paper presents issues related to the implementation of the online learning system in education, including the structure of higher education, the implications for both students, teachers and the global impact on society.*

1. INTRODUCTION

March 2020, the SARS-Cov-2 pandemic led to the closure of schools and universities in more than 20 countries in Europe, Central Asia and North and South America. This affected a total of 49.8 million children, from preschoolers to students who had a very disrupted last semester (if it did exist). The pandemic has profoundly affected education and exacerbated social inequities around the world.

Universities and schools are not only a place for academic education but also for learning social and emotional skills, interaction and social support. Their closure not only disrupted the educational process of students, but also restricted access to medical services. The challenge for teachers, education officials and decision-makers at local and national level is significant. If this challenge is not met, the impact on young people, families, communities and societies on a larger scale will be felt throughout life, both socially and economically. Therefore, improving the resilience of the education system, by planning quality education, should be a top priority for the coming months and years and be the basic principle of rebuilding better education and better schools.

Distance learning in emergencies (or distance learning in emergencies) illustrates the situation where courses are offered through distance learning, in response to a crisis, rather than being planned or organized for the purpose of distance education. This type of teaching refers to a sudden transition from learning in a classroom, to distance learning and/or in a virtual classroom. It is necessary to distinguish between online learning, based on inclusive pedagogy, and distance learning, in recognition of the fact that online learning has been planned and organized, while distance learning refers mainly to the use of technology to perform tasks designed for classroom teaching.

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Distance learning (distance education) is defined as distance education, without regular face-to-face contact with a teacher in the classroom. Once implemented through correspondence, distance education includes learning with the support of printed materials that can be taken home through online programs.

Online learning is usually understood as education that takes place on the Internet. It can be part of distance learning programs, but it can also be used to complement classroom teaching (blended learning). Students can study online at home or in the classroom with their classmates. Online learning uses a variety of formats, often combining Internet-based technologies and educational technology applications that can be used offline.

Blended learning combines several ways, including face-to-face teaching and learning, the use of educational technology applications, and student interactions with online learning. In this case, applications of educational technology and online learning are some of the teaching strategies that can help students achieve their learning goals. Blended learning can also include distance learning.

2. MATERIALS AND METHODS

E-learning is the most widespread form of distance learning, with an evolution guaranteed by the progress of information technology, a field marked by rapid change. In this way, the up-to-date maintenance of knowledge is ensured, with the main concern being the creation of the necessary framework for the development of e-learning courses and teaching materials. E-learning defines Internet-based educational technologies that include distance learning programs with effective communication between the people involved and the possibility of transmitting additional study materials customized according to the needs of the learners. In a restrictive sense, e-learning is the type of distance education with the planned teaching-learning experience organized by an institution that provides online materials ordered logically, sequentially to facilitate assimilation, in their own way by each student. The distribution of materials is done on the Internet and so is the communication between the participants in the e-learning process: tutors/instructors, students, system administrators. Other possible users are: author/co-author of the course, secretary, visitor, depending on the specifics and requirements of the institution that offers the distance learning program. The courses are designed to increase the student's autonomy in acquiring knowledge and to respond to the need to provide content and tools adaptable to different contexts and issues to support lifelong learning. The information contained in the course is delivered flexibly, is adaptable and regularly updated. The components of the traditional didactic approach – planning, content, methodology, interaction, support, evaluation – are found at the level of university education and adult courses, respectively. If traditional education is organized by age groups, online education is organized by subjects, with participants of different ages, training, experience and who come from any geographical area. Distance education, provided on the Internet, is based on synchronous technologies (chat, audio-video conferencing, whiteboard) – participant-centered (simultaneous interaction at a given time, using Internet technologies) and asynchronous technologies (www, e-mail, FTP, newsgroups) – computer-centric (interaction via a computer with an Internet connection). Today, e-learning systems combine the two technologies (Singh et al. 2005).

The e-learning models developed today, based on those in the traditional education system, are the same or even better educational solutions of the classical models. There are three of them:

- individual model (self-directed) – addressed to students with experience in continuous professional development; a web server provides hosting for web pages, multimedia pres-

- entations, audio-video presentations, etc.; there is no tutor, no communication mechanisms between students; a database contains all changes made by users;
- facilitated communication model – combines the individual model with communication facilities (e-mail, discussion forum) where the transfer of documents takes place; the course administrator facilitates the access to information of the students and answers their questions;
- advanced model – uses web technology for the mechanism of the educational process, real-time audio-video transmission techniques, video telephony, video conferencing, chat, whiteboard, online file transfer, which have been added to the model with communication facilities; there is an administrator, the tutor controls the educational process.

E-learning programs have the following advantages: personalized learning system, with dynamic and interactive technologies, various pedagogical methods, synchronous – asynchronous interactions, online administration and accessibility, geographical independence, low distribution price.

The disadvantages of e-learning programs include: high dropout rate (favored by attendance, equality, teaching style), the need for knowledge in the field of computer use, high design – development – maintenance costs. An analysis of the costs by expenditure chapters (publishing, course development, course organization, elaboration of additional teaching materials, distribution by mail), made for the classical education system in comparison with the e-learning system, shows that, obviously, the second will prove more profitable; and this is because in traditional education, publishing, everything related to the organization of the course – the costs of renting rooms/buildings, travel costs, accommodation and meals, as well as the salaries of tutors, involve a great financial effort, while the other on the other hand, it is expensive to develop the course and create new teaching materials. Online learning also means easier-to-distribute course materials, reusable learning materials, and easily editable updates and revisions.

Several approaches to the use of acceptance theories in e-learning are described in the literature. Table 1 presents a number of experimental features of e-learning acceptance studies. Keller and Cernerud (2002) conducted a study on the implementation of e-learning applications in universities, with the following objectives: analysis of students' attitudes towards e-learning (TA); analysis of the relationship between attitudes and specific variables such as age, gender, previous experience in working with the computer (EC), attitude towards new technologies, type of learning (LT); analysis of the advantages and disadvantages experienced by students from the perspective of e-learning. In the experimental model, the authors used a sample of 150 students. Based on the results obtained from the testing and experimentation of the research model, several aspects were found. First, students who had less computer knowledge had a better attitude toward e-learning than those who had more knowledge in the field. One possible explanation may be that male students and those with experience in working with a computer expected more from the use of the e-learning platform, which led to feelings of disappointment. Then, students' perceptions were negatively correlated with attitudes toward new technologies, in the sense that students who considered themselves to be innovative or easy to adapt had less favorable attitudes than others (Iordache, 2010).

No relationship was found between students' perceptions of e-learning and the type of learning. Overall, the students did not consider that the platform used facilitated their studies or improved their communication with other students or teachers. At the same time, they did not consider

that the pedagogical value of the courses improved in any way the possibilities of solving the problems related to the course. In subsequent studies, Keller (2005), Keller et al (2007) analyzed different ways of implementing virtual learning environments in correlation with the factors that influence the acceptance and use of e-learning.

Chesney (2006) identified the following factors that determine the use of e-learning systems: perceived utility, perceived ease of use, intent to use, and perceived enjoyment (PE). The study used an online questionnaire consisting of: 6 items that measure perceived utility, 5 items that measure perceived ease of use, and 4 items that measure perceived pleasure. This study involved 68 subjects, most of them male (92%). The study confirmed a positive relationship between perceived ease of use and perceived pleasure. Perceived pleasure and perceived utility had a positive impact on intent to use. A positive relationship was also found between perceived ease of use and perceived usefulness. No positive relationship was found between perceived utility and intended use (Iordache, 2010; Balog, 2006).

Table 1. Experimental characteristics of e-learning acceptance studies

Author	Analysis method	Variables	Sample	e-learning Technology
Keller & Cernerud, 2002	Multiple regression	8	150	Web platform
Saade & Bahli, 2005	Confirmatory factor analysis	22	102	On-line learning system
Keller et al., 2007	Analysis of the internal consistency of the scale	27	67	Distance learning systems
Drennan et al., 2005	Modeling by structural equations	16	256	Flexible online management course
Chesney, 2006	Multiple regression	16	68	Mindstorms
Saade et al., 2007	Modeling by structural equations	13	362	Multimedia learning
Saade et al., 2008	Modeling by structural equations	18	105	Multimedia Entity Relationship Diagram (MMERD)
Balog & Pribeanu, 2010	Modeling by structural equations	28	278	ARTP (Augmented Reality Teaching Platform)

The e-learning platform includes procedures and tools dedicated to individual study, at your own pace, using different means of study that are easily accessible. For use, minimum requirements are established for procedures for enrollment, selection of students, registration, monitoring, archiving of information related to services provided to students, ensuring communication between participants (administrator, tutors, students). The platform includes specialized tools for conducting online educational activities: tools for accessing content, online assessment, communication and security. The creation of a platform involves steps of: analysis and definition of course objectives (conditions and terms of educational process, analysis of student profile), design of user interface (screens, menus, options, structure and organization of courses), creation (design, interactions, assembly components), evaluation (testing), launching (distribution) and requires knowledge in different fields: pedagogy, programming, information security (Iordache, 2010; Balog, 2006).

Features of e-learning platforms:

- offers a friendly, adaptable interface, customized by user types and access rights;
- easy installation, configuration, administration (transcript management, schedule/agenda, tutors, students, administrator);

- easy navigation, content management facilities;
- allows visualization and administration of educational content (interactive materials, tutorials, simulation exercises, educational games);
- allows the creation of simple content, in compliance with the standards in force;
- allows import/export of content from files, resource archives;
- allows content modification/editing, building own courses from existing components according to tutors, offers keyword search functions in the knowledge base;
- offers facilities for online evaluation of students and monitoring of their activity; offers facilities for the inclusion of specific standardized educational content (Resteanu & Mitan, 2012).

The losses generated by online education are huge and difficult to recover, as the education system is not prepared to support the online school; so that students acquire the same competencies that the education process offers them with physical presence.

3. E-LEARNING SITUATION IN ROMANIA IN PANDEMIC CONTEXT

The IT sector is booming and Romania has some of the best Internet speeds in the world; Romanian schools have benefited from few technological and digital facilities, but are not ready for online schooling. Over 23% of Romanian entrepreneurs believe that this is because there is indifference and disinterest on the part of the government, 22.6% of respondents believe that teachers are not trained and are not open to learn digital skills, while 36.8% of entrepreneurs are convinced that the reason is the outdated mentality both at the level of government and at the academic level, the academic environment being sure that the classic teaching/learning methods are better than the modern ones. Instead, 17.4% of respondents believe that it is a false perception and that only the private IT sector is developing, with Romania lagging behind in terms of IT overall.

Digitization in Romanian schools is at a minimum level of 20% of the maximum potential, and teachers are beginners in computer and Internet use, compared to other European countries, according to most Romanian entrepreneurs (according to a study conducted by software manufacturer CIEL, Romania).

Young people in Romania are in the last place in the EU in this respect, only 56% of them having skills digital data above or above the basic level, according to data published by Eurostat. This reality once again confirms the need and importance of investing in the development of digital skills among students.

4. CONCLUSION

E-learning systems aim to facilitate the achievement of educational goals and can take the form of a variety of courses, textbooks, exercises, interactive options and communication methods that support individual or collaborative learning processes. The benefits of e-learning include the creation of learning networks and the ability to provide learners with a wide range of sources of information and examples.

Implementing IT technologies in education is not a new concept. The way information is defined and delivered through current technologies is innovative. All these technologies contribute to a transition in education, which puts learners in the role of self-taught people through an

interface for education, encouraging them to take a more active role in their own education. The standardization of technology is the result of the use of the Internet, which has fundamentally transformed the way we socialize, interact and present information.

The IT technologies used in the didactic and educational process in the university environments allow the teachers to realize their pedagogical ideas, to improve the quality of education. In this case, students can independently choose the sequence and pace of studying the topics, developing an individual style of activity and a culture of self-determination.

REFERENCES

- Balog A. (2006). *Măsurarea calității sistemelor de comerț electronic*. 2006, MatrixRom, Bucharest, pp. 35-40.
- Iordache D. D. (2010) *Cercetări privind acceptarea tehnologiilor de e-learning*, *Revista Română de Interacțiune Om-Calculator* 3(2), pp. 125-138
- Resteanu C.; Mitan E.: (2012) *Generator de cursuri electronice pentru pregătirea continuă a managerilor întreprinderilor mici și mijlocii*. *Revista Română de Informatică și Automatică*, vol. 22, nr. 3, București, România, ISSN: 1220-1758, ISSN: 1841-4303, pp. 55-66.
- Singh, G., O'Donoghue, J., & Worton, H. (2005). *A Study Into The Effects Of eLearning On Higher Education*. *Journal of University Teaching & Learning Practice*, 2(1), 16-27.



Are Musicians Entrepreneurs? A Preliminary Analysis

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Homogenization;
Conformism



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Abstract: *In this narrative literature review, we employed the grounded theory for studying the scientific debate, the contradictions, and the tensions between entrepreneurship and music activity. In particular, this work represents a preliminary study for a more in-depth future analysis of this relationship. The analysis let emerge two superordinate structures, five themes, and eight subthemes. The two superordinate structures represent the most relevant tensions we found in the analyzed articles. The first tension highlights the complicated relationship between musicians' identity and the entrepreneurial nature of their job. The second tension studies the needed compromises that musicians have to consider between the individualistic nature of their art and the needed conformism imposed by the capitalistic environment of the music market. Finally, in the discussion section, we consider this preliminary study's limitations and propose several further research opportunities.*

1. INTRODUCTION

The definition of music entrepreneur, ascribable to arts entrepreneurs, is not entirely achieved. Scott (2012) suggests that “cultural entrepreneurs are a social group comprising mostly young people whose primary life goal is to build an artistic career” (Scott, 2012:238). This definition shows two of the main characteristics of music and arts entrepreneurs. The first element of the sentence interprets these entrepreneurs as a social group, and the second element interprets music entrepreneurs as people who aim to build a career in the arts field. Their main objective is not to generate revenues or profits. In fact, music entrepreneurs are a category of entrepreneurs somewhat different from traditional conceptualizations because the entrepreneurial abilities for the music and creative industry cannot be entirely taught. Moreover, many successful firms and many individual artists who can be classified as music entrepreneurs who achieved the top in their musical genre have no background in economics, business, or entrepreneurship (van Zuilenburg, 2012).

The general environment of the music industry is widely changed after the advent of digital technology that has been intensely reducing the revenues of recorded music (Everts & Haynes 2021; Haynes & Marshall 2018). This change, which reached the music industry and other realities, has produced considerable modifications to the structure of creative entrepreneurship. In particular, the manners through which musicians interpret these changes and the related actions that have to be undertaken need particularly in-depth analysis.

Creative abilities remain the most critical precondition for an artist's success (Albinsson, 2016). However, musicians have to express their entrepreneurial potential for emerging in their mar-

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kets. These conditions create an intrinsic contradiction between the nature of the arts, interpreted as an expression of the creative and anti-system individuality of an artist, and the nature of entrepreneurship as interpreted from a popular viewpoint, i.e., as a profit-oriented activity that is entirely disconnected to ethical, social and human issues.

The environment in which musicians and entrepreneurs have to live currently is simultaneously varying and stimulating but complex and precarious. During the current era, which achieved a higher level of complexity due to the Covid-19 pandemic that increases the difficulties of live music entertainment, musicians have new methodologies for creating a critical mass of audience for emerging in their field (Marttila, 2012). Furthermore, over time, musicians have been forced to hardly strive for creating and conducting new typologies of secondary professions, improvised and autonomous, that let them emerge as entrepreneur models that are different compared to the traditional conceptualization of entrepreneurs. At the same time, this precarious condition stimulates the creativity for an entrepreneurship viewpoint, and it has been creating the preconditions for developing the musicians' preference for the competition rather than cooperation (Coulson, 2012).

In this complicated system of contradiction between individualism, which originated from the needs and the precarious conditions of the music environment, and conformism, needed for achieving a critical mass of potential fans, there are also ethical and moral issues that music entrepreneurs and musicians experiment during their professional lives. In particular, literature verified that many musicians who show entrepreneurial competencies struggle to accept being considered entrepreneurs (Coulson, 2012). These conditions have been developing a new way to see entrepreneurship among musicians, that is a kind of self-referential conceptualization that sees this positions separated from the rational logic of profit and revenues generations and closer to a form of entrepreneurship that promotes social cohesion and the sense of belonging among creative workers (Wilson & Stokes, 2002).

Therefore, it seems clear that the music market shows for musicians many threats and few advantages, given the reconversion of its nature from physic to digital, the precarity of a capitalistic system that aims to competition rather than cooperation (Scott, 2012) which is currently and strongly compromised by Covid-19 pandemic of 2020. The entrepreneurial abilities of musicians and record companies succeeding in surviving to the current difficulties keeping their ideals and principles stable are promoting the entrepreneur figure as an essential social and economic member. Nevertheless, it is generally possible to identify more relevant issues and financial risks connected to the choice of undertaking a music career nowadays, comparing them to the last decades of the last Century (Everts & Haynes, 2021).

In such a complex contest, which is rich in practical and ethical contradictions, both economic and moral, it is understandable that musicians are reluctant to ascribe their professional category to entrepreneurial activity. On the one hand, the consideration of value represents the foundation of the individual development of artists, who should be considered members of the community. Through their arts, artists let emerge the contradictions of the system. On the other hand, musicians need to compromise to continue with their music career in the contemporary capitalistic arts environment. Given all these premises, we argue that there is a need to answer this research question:

RQ: Given the literature evidence, what is the relationship between music and the entrepreneurial nature of their creative and artistic activity? In other words, are musicians entrepreneurs nowadays?

This preliminary study is structured as follows. A methodological section, in which we explain how we developed this article, precedes the evidence that emerged from the application of the grounded methodology to the existing literature on the topic. In particular, the section describes and comments on the main contents that emerged from the analysis of selected articles. Finally, in the discussion section, we consider the possible and preliminary answers to the research question, the limitations of this preliminary study, and the opportunities for further research.

2. METHODOLOGY

This study represents a preliminary analysis based on a narrative literature review concerning the intersection between entrepreneurship and music. In particular, we performed the research through Google Scholar, using the string *musicians AND entrepreneurs*. Moreover, we used a grounded approach (Corbin & Strauss, 1990; Strauss & Corbin, 1997) to achieve data saturation and write the content analysis included in the 3rd paragraph.

We employed the grounded analysis through open, axial, and selective coding to let the main themes and subthemes debated in the literature emerge. This approach allowed us to find two superordinate structures, five themes, and eight subthemes representing the preliminary result for the subsequent development of the topic. Through the open coding, we studied the contents article per article, identifying the codes that, at least at the beginning, seemed to be relevant for the general discourse on the intersection between music and entrepreneurship. After that, axial coding allowed us to identify the connections among the previous codes. We found the most relevant categories through this coding, gathering the most meaningful codes within each category and eliminating the codes and categories that were not relevant for the debate. Finally, the selective coding allowed us to classify themes and subthemes shown in the 3rd paragraph. Figure 1 shows the process we employed for researching and studying the selected article.

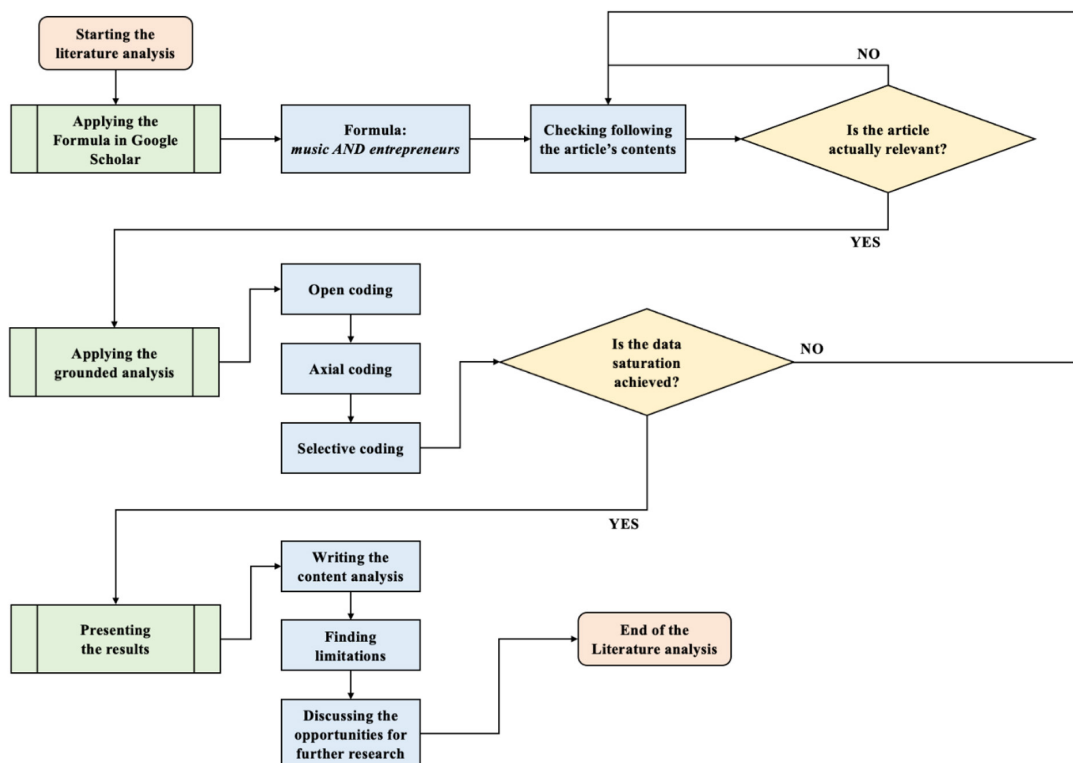


Figure 1. Grounded approach employed during this preliminary study

3. CONTENT ANALYSIS

In this section, we present the content analysis of the articles selected through the grounded procedure. In particular, two superordinate structures, five themes, and eight subthemes emerged during the study. Figure 2 shows the conceptual map of the results.

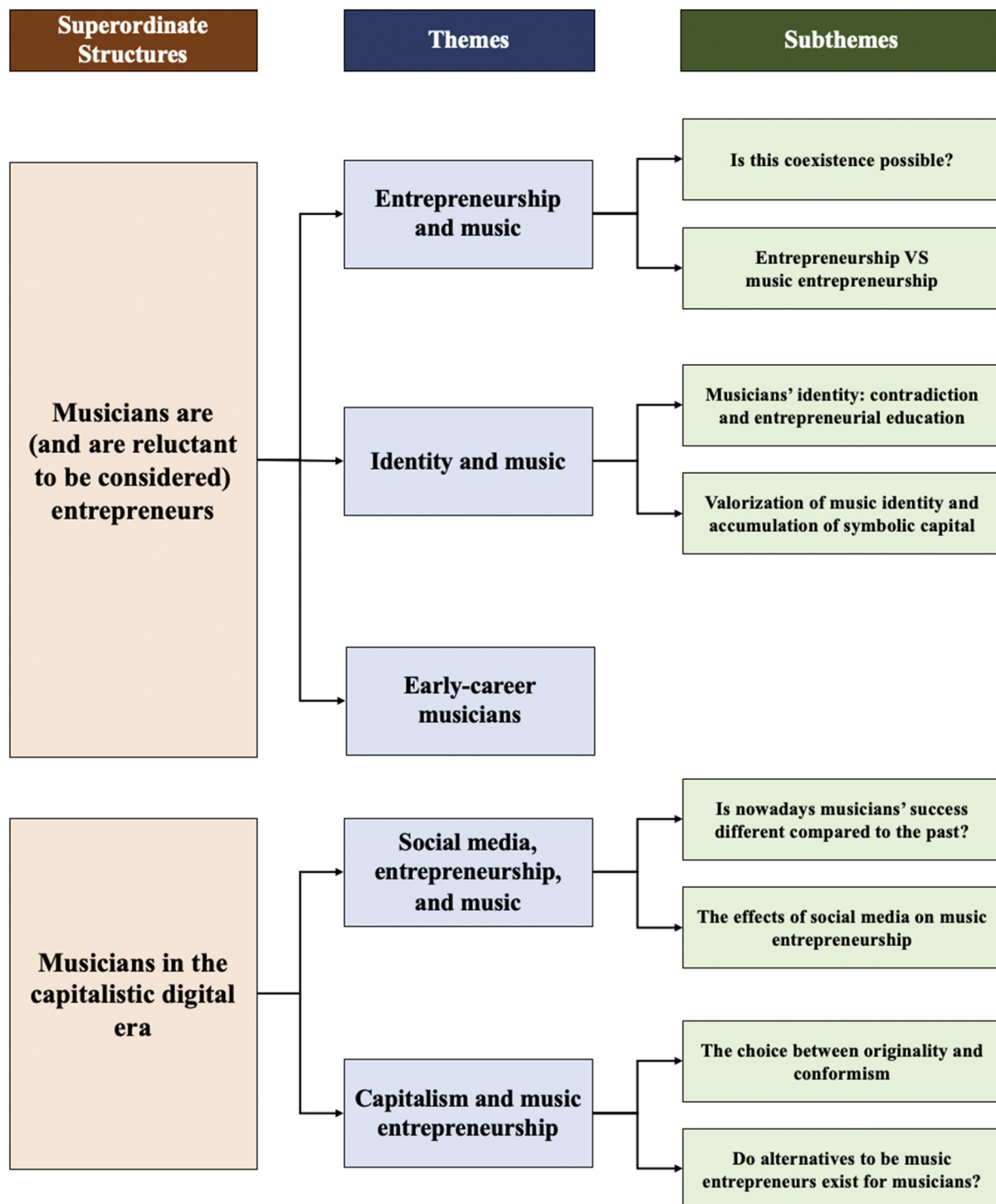


Figure 2. Superordinate structures, themes, and subthemes

3.1. Superordinate structure 1: Musicians are (and are reluctant to be considered) entrepreneurs

3.1.1. Theme 1: Entrepreneurship and music

Subtheme: Is this coexistence possible?

Achieving a comprehensive discussion about the intersection between entrepreneurship and music passes through the convergence of the conceptualization of the entrepreneur. The literature separates the idea of music entrepreneurs from the traditional conceptualization of entrepreneurship, which interprets entrepreneurs as individuals searching for profits. Moreover, the tendency to move away from this idea is not recent. With the emergence of sustainability-related thematic, the literature has been clarifying that the firms' objective should be different from the research of a short-run profit. Since the era of Shumpeter (1934), entrepreneurs have been considered something closer to a creative action man rather than an avid and calculating individual.

Therefore, the general concepts of entrepreneurs and artists are connected if considered from a philosophical and scientific in-depth analysis. Nevertheless, often the entrepreneurs' need for an economic return to ensure the sustainability of their businesses has a strong effect on the visibility of their actions. In other words, the entrepreneur is noticed more immediately than visionary artists who, instead, are often not searching for immediate and massive recognition (Haynes & Marshall, 2018). In fact, sometimes they are understood only after decades (or centuries) after their death.

During an interview with the composer of progressive rock music Frank Zappa (RockIt, 2016), the musician explained clearly how the entrepreneurial music world has been changing over time between the Seventies and the Eighties. The fundamental difference is that music entrepreneurs were not musicians at the beginning of the record industry history. They were investors who decided to record music independently from their music knowledge, which did not exist. Therefore, achieving a high level of conformism and convergence in music styles was not possible in this environment. The musical experimentation was much more intense. When this approach has changed, the musical direction of the record industries has started to be assigned to music experts. Instead of leaving the audience the decision about what music has to be listened to, they began to decide for the audience.

Moreover, music entrepreneurs, especially independent musicians, do not have a classic vision of entrepreneurial risk. In fact, literature verified that the musicians' requests for bank loans, in general, are not a choice that musicians make (Wilson & Stokes, 2005).

Subtheme: Entrepreneurship VS music entrepreneurship

The position of musicians is not associable in a complete way with the different visions of classic entrepreneurial activities. According to Albinsson (2018), musicians should act (and admit to acting) as a form of entrepreneurship based on opportunity. In fact, the velocity by which the music market and music industry change over time, together with the background context and the related music, oblige freelance musicians to keep a proactive behavior toward the market. Moreover, the music labor market is intensely hostile for musicians. In fact, it obliges them to keep social networks developed and perform in many different professions and duties connected to the main one, i.e., music. This aspect surely enriches the vision of music entrepreneur as a

proactive and creative subject but, at the same time, makes them more individualistic and forces them to continue research for the completeness of their identity (Coulson, 2012).

From the viewpoint of personality traits, music entrepreneurs seem to show the exact characteristics of traditional entrepreneurs. Nevertheless, there is a fundamental difference. In fact, it seems the music entrepreneurs cannot be entirely trained in their activity. Therefore, there is a sort of innate predisposition for this profession. For this reason, some workers belonging to the music field cannot achieve the success their desire. The reason is that their personality is much more associable to a condition in which they can express their full potential and their vocation if they rest bordered in an environment that is directed by other people (Van Zuilenburg, 2013).

Evert et al. (2021) distinguished two typologies of musicians. The first type is composed of arts-oriented musicians, who substantially interpret their role and job as a vocation dedicated mainly or exclusively to their profession. The second type concerns business-oriented musicians, who instead do other professions together with music, outsource some activities, and align more with the traditional idea of entrepreneurship. This contradiction has also been identified concerning high-level entrepreneurs, such as music-industry executives (Wilson & Stokes, 2005). In fact, while such entrepreneurs have a business education background and training, the community that surrounds them and that influences, through its economic contribution, musicians and music market management does not have an actual entrepreneurial culture.

3.1.2.Theme 2: Identity and music

Subtheme: Musicians' identity: contradictions and entrepreneurial education

Musicians' identity struggles to reflect in the vision of arts entrepreneurship, despite the new generation recognizing more than the generation belonging to the Seventies (Scott, 2012). Musicians keep over time their elevated cultural position. In summary, musicians' social position is to entertain and innovate with arts to earn sufficiently to continue this profession's entire life. Therefore, it is tough to associate music entrepreneurship with a material vision of labor. Instead, musicians can be ascribed preferably to the figure of social entrepreneurs (Albinsson, 2018).

The research of identity completion for musicians is a relevant issue. In fact, musicians are reluctant to recognize themselves in the materialistic nature of their profession. Although their behavior is often associated with entrepreneurs, musicians do not talk about themselves, referring to their entrepreneurial identity (Coulson, 2012). Nevertheless, the nature of the artists' work is highly distinctive. The artists' objective is to distinguish themselves from the other artists and the crowd to propose their original interpretation of reality and the future. In this sense, during the research of their identity, musicians experiment with a constant crisis between the individualistic and profit-oriented nature of their work, needed to make their career sustainable in the long run, and their self-awareness as social entrepreneurs.

Although it seems clear that entrepreneurship in the creative industry can represent a point of reference for other typologies of entrepreneurship, the problem of music entrepreneurs' identity leaves some entrepreneurial operations incomplete. In fact, the analysis of single creative markets published in the literature, such as the UK (Wilson & Stokes, 2002) and Greece (Dawe, 1998), highlighted that such a contradiction puts in a difficult position the realization of communication abilities of creative entrepreneurs. Everts et al. (2021), who analyzed the Dutch music

market, identified a contradiction between arts-oriented and business-oriented musicians. In particular, there is not an agreement between the two groups of musicians on the correct methods for conducting their music activity, dividing the development of their identity in two different paths, the first tends toward the interpretation of self as a subject of vocation, the second toward the interpretation of self as a subject of the market.

The survival of this market is strongly dependent on the communication style, the existence of strategic partnerships, and promotion planning. For this reason, the tendency to the individualism of musicians should be limited through a better entrepreneurial culture. In summary, musicians' identities can be completed, but they should be trained and educated sufficiently to ensure their self-awareness. This evolution is possible only by acquiring entrepreneurial competencies connected to communication that appears latent and not expressed by the music and creative entrepreneurs.

Subtheme: Valorization of musicians' identity and accumulation of symbolic capital

Music has a particular value of use since it is not perishable over time and causes an accumulation of symbolic capital able to modify the identity of who uses it. For this reason, music entrepreneurs try to build their position within the business environment as "subjects of value" (Scott, 2012: 251). In this sense, music production, which is individualistic and at the same time business-oriented, is ascribed to a circuit of exploitation of symbolic capital that generates new cultural tendencies and that is associated perfectly with the conceptualization of social entrepreneurship, as described by Albinsson (2018).

Following the digitalization of the music industry, musicians' business model, especially for independent musicians, has been changing considerably (Eiriz & Leite, 2017). In a panorama in which music is distributed for free in most cases, the valorization of single artists' identity can be compromised by the necessity of ensuring an immediate monetary reward. Considering the complex capitalistic system in which it is assimilated, the recording industry aims for a short-term reward and immediate profits that can be improbably matched to symbolic capital accumulation. This contrast is relatively strong and threatens the correct way toward completing the single artists' identity.

The accumulation of symbolic music capital should not be confused with a nonexistent concept of inestimable capital. The value of the arts is indeed intangible but not inestimable (Cartwright et al., 2015) and highlights a double condition of artists as members of a community that should support them through injection of capital and as an individual who has to nestle their creativity within their community. Therefore, although the success of the creative activity can be affected by the presence of collaboration among the stakeholders, it is essential to remember that the creative process is an individual activity (Wilson & Stokes, 2005). In general, the literature verified the presence of many contradictions within the sector of value creation in the music industry, especially concerning the objective of this creation. Such contradictions are very similar to the tensions discussed in the debate on the nature of music entrepreneurs between capitalistic context and creative individualism (Sternal, 2017).

3.1.3. Theme 3: Early-career musicians

It is highly complex to separate the role of musicians into performer and teacher. In fact, they are a moral duty for artists that consists of the diffusion of their talent and knowledge. Johansson (2012) identified some contradictions in this regard and interpreted these tensions as opportunities to im-

prove the general music environment and generate innovative solutions. Music is indeed an art toward which people approach because a passion pushes them, and this is an opportunity and a threat. The considerable volatility of this premise can allow musicians to employ their entrepreneurial abilities to define new solutions to emerging problems. Moreover, the general conditions in which musicians live, often forgotten by the institutions as demonstrated by the numerous protests that occurred during the Covid-19 pandemic, are complex and, even if they are an objective problem, they are also a motivation that can lead towards new entrepreneurial activities, for example, online education.

At the beginning of their career, musicians dedicated much time to their music activity, although they had to dedicate some time to other professions (Everts et al., 2021). Nevertheless, in the light of what emerged in the previous emerged themes, for several authors, it is critical to ask the prerequisites for the choice made by young people to participate in the music scene becoming musicians and music entrepreneurs (e.g., Everts & Haynes, 2021). In fact, the complexities of the market music panorama oblige to consider can discourage, at first sight, young musicians and new voices who, however, should keep their individualistic nature or adapt, with difficulty, to a progressive debasement of their identity, advantaging the capillary and conformist diffusion of artistic and music contents. Talent shows and illusorily fast success fostered by social platforms should not be underestimated. Nevertheless, reasons that push young people to start a career in music should be researched in more profound explanations.

3.2. Superordinate structure 2: Musicians in the capitalistic digital era

3.2.1. Theme 4: Social media, entrepreneurship, and music

Subtheme: Is nowadays musicians' success different compared to the past?

There are numerous similarities between how musicians achieve success nowadays and in the past. If we think, for example, of Beethoven and Paganini, their success did not depend only on their compositions and performances. It has been a gradual process that stabilized their social position, exactly as today happens when musicians create their audience and foster it through social media. In other words, the difference between the current and the past entrepreneurial structure, especially for music, concerns the timing with which such a success is achieved, but there are no considerable differences in its nature and quality (De Nora, 1995).

Moreover, evidence in the literature verified how musicians do not dedicate much time to online platforms for developing their businesses (e.g., Everts et al., 2021). The orchestration of media and social media is critical for leading artists' success at the highest possible level (Cartwright et al., 2015). Nevertheless, it is necessary that music networks work in a synergic way and that such a work is the efficient result of the collaboration among all the stakeholders. Emerging musicians cannot exploit such a condition at the beginning of their careers. In this sense, musicians' investment to achieve success in this standardized and capitalistic music environment is relevant, especially for early-career artists.

To understand how entrepreneurial music design was evolving in the last decade, Kaya et al. (2010) proposed the distinction between four categories of music entrepreneurs: Old School Artists, Independence Seekers, Major Label Seekers, Digital Era Enthusiasts. In fact, these categories resisted over time. In particular, the last category has been growing considerably due to the increasing use of social networks as YouTube and Spotify.

Subtheme: The effects of social media on music entrepreneurship

The development of social media produced a double effect on the art and music market. The research of salability and employability tends to homogenize the market in a specific historical period. At the same time, musicians search for differentiation of their art compared to the others'. Such a contradiction crashes with the diffidence experimented by musicians for entrepreneurship and for considering themselves as entrepreneurs. Moreover, media, managers, and record companies' pressure amplify the contradiction between capitalistic and artistic logic (Coulson, 2012).

The impact of digital technologies on music entrepreneurship and, in general, on the music market has been rather intense. Such an impact is not limited only to the born and the diffusion of social platforms, and its origin is dated back to the digital music sharing started during the Nineties. This transformation has not only modified the general business model, but it also had an impact only on independent musicians who, from being music composers, had to transform into entrepreneurs, going beyond their creative nature and embracing a 360-degree entrepreneurial vision, which includes many more activities (Eiriz & Leite, 2017).

Given the presence of social media, the financial output needed for achieving a critical mass of audience is limited (Kaya et al., 2010). In particular, the use of social networks, during the last decade, has been passed from being instrumental to reaching the popularity needed for getting a contract with a major record company, to the beginning of an era during which the success in these platforms can be sufficient for emerging and establishing as independent musicians.

3.2.2. Theme 5: Capitalism and music entrepreneurship

Subtheme: The choice between originality and conformism

The critical difference between the (recent) past and the current musicians' position is the capitalistic context in which arts are developing during this millennium. The choice to undertake a career in music production was more dangerous in the past rather than in the present. In fact, capitalism, together with all its contradictions and complexities, including the debasement of philosophical and artistic music contents, produced a context in which success is more probable than in the past eras, in which communication was slower and less effective. Although capitalism produces the homogenization of the audience, music entrepreneurs' opportunities for diffusing their work are more numerous and easier to access (Haynes & Marshall, 2018).

Musicians' need to emerge in this highly dynamic panorama seems, at least in part, dependent on the local context development and the related connection with musicians' business (Everts & Haynes, 2021). Everts et al. (2021) have indeed verified that the choice of musicians' work organization in the Dutch context strongly depends on the specific market conditions. The work environment is rather complex if ascribed to a capitalistic environment that privileges the large corporative agglomerates. The progressive reduction of independent labels, together with the always greater concentration of epicenters of music production diffusion, are increasing musicians' individualism, promoting entrepreneurship that, at the same time, challenges and adapts to the market needs. In fact, on the one hand, individualism leads to a more genuine expression of musicians' self. On the other hand, individualism reduces the power of single musicians and contextually improves the commercial power of record producers and large music corporations.

For these reasons, independent musicians are separating from large labels, at least at the beginning of their careers. In fact, literature verified that musicians, once they transformed from composers to entrepreneurs, compose and diffuse their music adapting to new entrepreneurial styles that generalized a concept of music broadcasted for free due to the advent of new platforms and new capitalistic forms of competition (Eiriz & Leite, 2017). Therefore, the valorization of music peculiarities is the most precious part of the product commercialized by musicians, especially in a market where capitalistic conformism is producing a convergence among the styles (Cartwright et al., 2015).

Subtheme: Do alternatives to be music entrepreneurs exist for musicians?

Although the capitalistic context seems to have given musicians an order and more significant opportunities, employment remains a significant issue. Although no musicians perceive themselves as entrepreneurs, there are no practical alternatives for this category of workers. Moreover, instead of “normal” jobs, the employers sometimes transform into agents, and there is evidence in the literature concerning the fact that musicians with less experience confess to having lost money and time due to negligent and unprofessional agents (Marttila, 2012).

Therefore, the alternatives to entrepreneurship for musicians are limited, at least at the beginning of their careers. Unfortunately, as happens for other typologies of activities, artists are nowadays launched from record companies just when they achieved considerable success. This general context makes the market very complex and, therefore, has powerful consequences for marketing. In fact, musicians and producers cannot be limited to distributing their music: they have to put together a vast range of accessory services (e.g., merchandising, communication, promotion, and brand) that can ensure short-term success (Eiriz & Leite, 2017).

4. DISCUSSION, LIMITATIONS, AND OPPORTUNITIES FOR FURTHER RESEARCH

In this preliminary study, we tried to understand the evolution of the literature concerning the relationship between musicians and the entrepreneurial nature of their creative and artistic activity. In particular, we searched for the musicians’ interpretation of their role as music entrepreneurs. With a narrative analysis of the literature performed through a grounded approach (Corbin & Strauss, 1990; Strauss & Corbin, 1997), we started from evidence concerning the solid tensions and the intense contradictions which characterize this relation, and we tried to let the debated themes emerge.

Analyzing themes, sub-themes, and superordinate structures, we identified two tensions concerning the relationship between musicians and music entrepreneurship. The first tensions interpret musicians as people who are still not ready to accept their entrepreneurial nature (Coulson, 2012). Many musicians are reluctant to recognize themselves as entrepreneurs because the nature of this role, at a popular level, is associated with the unethical research of profits and revenues. Nevertheless, the literature clarified that the position of modern music entrepreneurs is much more advanced than this limited vision. In particular, music entrepreneurs are creative subjects who accept a proactive facilitator for social cohesion and for the sense of belonging (Wilson & Stokes, 2002).

Although this preliminary study highlights this contradiction, we argue that further research can be conducted for clarifying how to incentive musicians to recognize in their role of creative entrepreneurs, even more ethically and socially, to foster their business and entrepreneurial

training and improve their performance without going against the principle the develop the individualistic identity of artists.

The second relevant contradiction we found in the literature is that musicians experiment with the challenge between originality, which is proper of the nature of their profession, and conformism, which is required by the capitalistic nature of the music market (Cartwright et al., 2015). The development of music streaming platforms that broadcast music for free and the tendency of record companies to consider as selectors of music instead of transferring this duty to consumers are developing the tendency toward homogenizing music content. Despite this can guarantee the stability of profits in the short run, in the long run, musicians' identity and accumulation of symbolic capital will be objects of an intolerable deterioration.

Although this preliminary study let emerge this contradiction, we argue that future researchers can concentrate their efforts to achieve a more in-depth understanding of the reasons that represent the foundation of this strong tendency to the homologation of music contents. Moreover, since musicians are forced, for business reasons, to limit the impact of their identity and individualism on published contents, further studies could evaluate, through a longitudinal logic, the impact of this homologation on musicians' identity.

5. CONCLUSION

In summary, it seems clear that the music market can be divided into two main groups of participants. From one side, record companies and major labels have a vision of their businesses perfectly coherent with the traditional conceptualization of entrepreneurship. They aim to homologize music content because this strategy ensures short-term high profits. On the other side, there are musicians and independent labels that, instead, are reluctant to consider themselves as entrepreneurs. Nevertheless, they need to sustain their professional activity, and therefore they have to make revenues and earn profits. To summarize, they have to do something they do not recognize as part of their nature.

In conclusion, in this preliminary study, we found that musicians are entrepreneurs, consciously or not. In this sense, entrepreneurial training and philosophical and ethical education connected to the social nature of entrepreneurial music activities assume a strategic role. Music entrepreneurs can understand the importance of their entrepreneurial identity, fostering the convergence between homologation strategies performed with profits and more authentic strategies planned for their individualistic realization.

REFERENCES

- Albinsson, S. (2018). Musicians as entrepreneurs or entrepreneurs as musicians? *Creativity and Innovation Management*, 27(3), 348–357. <https://doi.org/10.1111/caim.12254>
- Cartwright, P. A., Gillett, A., & Smith, G. D. (2015). Valuing networks for emerging musicians. *Les tendances technico-économiques de la Valeur. Paris, France: 'l'Harmattan*
- Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3–21. <https://doi.org/10.1007/bf00988593>
- Coulson, S. (2012). Collaborating in a competitive world: musicians' working lives and understandings of entrepreneurship. *Work, Employment and Society*, 26(2), 246–261. <https://doi.org/10.1177/0950017011432919>

- Dawe, K. (1998). Bandleaders in Crete: Musicians and entrepreneurs in a Greek island economy. *British Journal of Ethnomusicology*, 7(1), 23–44. <https://doi.org/10.1080/09681229808567271>
- DeNora, T. (1997). *Beethoven and the Construction of Genius: Musical Politics in Vienna, 1792–1803* (1st ptg. ed.). University of California Press.
- Eiriz, V., & Leite, F. P. (2017). The digital distribution of music and its impact on the business models of independent musicians. *The Service Industries Journal*, 37(13–14), 875–895. <https://doi.org/10.1080/02642069.2017.1361935>
- Everts, R., & Haynes, J. (2021). Taking care of business: The routines and rationales of early-career musicians in the Dutch and British music industries. *International Journal of Cultural Studies*, 24(5), 731–748. <https://doi.org/10.1177/13678779211004610>
- Everts, R., Hitters, E., & Berkers, P. (2021). The working life of musicians: mapping the work activities and values of early-career pop musicians in the Dutch music industry. *Creative Industries Journal*, 1–20. <https://doi.org/10.1080/17510694.2021.1899499>
- Giorello, S. (2016, September 15). *In pochi minuti Frank Zappa riassume l'intero declino dell'industria musicale*. RockIt. Retrieved December 29, 2021, from <https://www.rockit.it/news/frank-zappa-declino-industria-musicale>
- Haynes, J., & Marshall, L. (2017). Reluctant entrepreneurs: musicians and entrepreneurship in the 'new' music industry. *The British Journal of Sociology*, 69(2), 459–482. <https://doi.org/10.1111/1468-4446.12286>
- Johansson, K. (2012). Experts, entrepreneurs and competence nomads: the skills paradox in higher music education. *Music Education Research*, 14(1), 45–62. <https://doi.org/10.1080/14613808.2012.657167>
- Kaya, M., Steffens, P., Hearn, G., & Graham, P. (2010). How can entrepreneurial musicians use electronic social networks to diffuse their music. In J. Langan-Fox (Ed.), *Proceedings of the 7th AGSE International Entrepreneurship Research Exchange* (pp. 679–691). Australian Graduate School of Entrepreneurship, Swinburne University.
- Marttila, K. (2012). *Musicians as entrepreneurs*. JAMK University of Applied Science.
- Schumpeter, J. A. (2021). *The Theory of Economic Development (Routledge Classics)* (1st ed.). Routledge.
- Scott, M. (2012). Cultural entrepreneurs, cultural entrepreneurship: Music producers mobilising and converting Bourdieu's alternative capitals. *Poetics*, 40(3), 237–255. <https://doi.org/10.1016/j.poetic.2012.03.002>
- Strauss A, Corbin J (1997) Grounded theory in practice, 1st ed. SAGE Publications, Inc., New York
- van Zuilenburg, P. L. (2013). Personality traits of successful music entrepreneurs. *Acta Academica*, 45(1).
- Wilson, N. C., & Stokes, D. (2005). Managing creativity and innovation. *Journal of Small Business and Enterprise Development*, 12(3), 366–378. <https://doi.org/10.1108/14626000510612286>
- Wilson, N., & Stokes, D. (2002). Cultural Entrepreneurs and Creating Exchange. *Journal of Research in Marketing and Entrepreneurship*, 4(1), 37–52. <https://doi.org/10.1108/14715200280001465>



The Concept of Digital Marketing Mix: Implications in Consumer Behaviour

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Abstract: *Considering that digital technologies have become an essential element of everyday consumer life, modern marketing has shifted to new, digital models that provide different possibilities for marketing mix development. The advent of the Internet, and particularly Web 2.0. technologies have significantly influenced all elements of the marketing mix, regardless of whether organizations are directly involved in e-commerce or not. The paper analyses the strategic frameworks of the marketing mix from the context of consumer behaviour, and their user experience in the digital environment. The research aim is to indicate the opportunities of digital technologies for marketers when deciding about product differentiation, price strategies, online communication tools and distribution channels to deliver value to consumers. In addition, the paper provides an insight into current literature dealing with the implications of digital technology and media on the digital marketing mix.*

1. INTRODUCTION

The advent of the Internet, and particularly Web 2.0. technologies have significantly influenced all elements of the marketing mix, regardless of whether organizations are directly involved in e-commerce or not. The application of digital technologies in contemporary marketing has affected consumer behaviour and introduced the category of online consumers. Understanding online consumers is even more demanding regarding the fact that they have different characteristics and attitudes to both acquiring information and buying online. In addition, their geographical dispersion is often much wider.

The paper analyses the strategic frameworks of the marketing mix from the context of consumer behaviour, and their user experience in the digital environment. The research aim is to indicate the opportunities of digital technologies for marketers when deciding about product differentiation, price strategies, online communication tools and distribution channels to deliver value to consumers. In addition, the paper provides an insight into current literature dealing with the implications of digital technology and media on the marketing mix.

2. LITERATURE REVIEW

Digital marketing is defined as the application of digital channels to reach customers and build strong and long-term relationships with them. Such channels include websites, online communities, web browsers and display ads, mobile technologies, online videos, and social networks. The application of digital marketing brings wide-ranging opportunities since it is (Juan et al., 2015, p.3):

- Attractive to a significant segment of the demographics for most customer profiles;
- Faster and less expensive to conduct direct marketing campaigns;

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- More economical to communicate via email, online chat, and video conferencing than long distance phone calls;
- Measurable, which means that marketing activities and their effects can be quantitatively measured and presented;
- Set up for real-time results monitoring;
- Available 24-hours a day;
- Targeted, allowing its users to reach customers regarding geographical, psychological, behavioural characteristics;
- Useful to make long term relations with customers and other stakeholders, because digital media allows two-way communication.
- Fostering customer relationship management (CRM) and enabling a single coordinated view of customers across multiple communication channels.

According to American Marketing Association (AMA), digital marketing is a broad term that refers to any marketing methods conducted through electronic devices which utilize some form of a computer. This includes online marketing efforts conducted on the internet. In the process of conducting digital marketing, a business might leverage websites, search engines, blogs, social media, video, email and similar channels to reach customers (AMA, 2022).

Furthermore, Chaffey and Ellis-Chadwick indicated that digital media and technology offer new possibilities for the marketer (2016, p.251):

- to vary the application of marketing mix;
- to create new channels to achieve competitive advantage;
- to create new market positions;
- to develop relationships in innovative ways and foster CRM;
- to enable continuous and instantaneous access to products and services.

In accordance with these findings, the paper explores the marketing mix concept in digital environment and how it affects consumer behaviour. The important steps in marketing mix evolution were made by revolutionary studies of Neil Borden, James Culliton and Jerome McCarthy. The term marketing mix was first used by professor Neil H. Borden at Harvard Business School in 1964, who published an article entitled “The Concept of the Marketing Mix”. In this retrospective article, the author combined the marketing ingredients into the “marketing mix elements”. Borden’s original marketing mix had a set of twelve elements namely: product planning; pricing; branding; channels of distribution; personal selling; advertising; promotions; packaging; display; servicing; physical handling; and fact finding and analysis (Borden, 1967). However, the author said that he got the inspiration for using the term “marketing mix” from his associate, professor James Culliton, who was the first who came up with the idea of marketing mix ingredients. In the 1940s, James Culliton presented the marketing manager as a mixer of ingredients, or in other words, a decision maker who applies recipes based on different ingredients and is responsible for creating a mix of marketing procedures and policies on the basis of which the company achieves profitability. The idea was inspired by comparing the job descriptions of executive managers by mixing ingredients while preparing food. Slicing a marketing mix is the same idea as to when mixing a cake (Culliton, 1948). Since that time, the concept of marketing mix has reached widespread popularity among academics but also among marketing practitioners. Further evolution of the marketing mix included the 4P’s concept that was developed by Edmund Jerome McCarthy. In 1971, McCarthy succeed to reduce the original list on four basic, fundamental marketing mix elements, that he called the 4 P’s – place, price, product, and promotion. The concept of marketing mix was

found inspiring for many other authors who made significant contributions to its affirmation in theory and provided new perspectives and studies. According to one of them the mix was extended to 7Ps in service industry, which include three new elements: people, process and physical evidence (Booms and Bitner, 1981). The concept of marketing mix has also faced negative criticism by some authors, who pointed out the importance of relationship-orientated marketing in response to growing customer demands and technology-driven trading environments (Singh et al., 2011).

Marketing mix is not a scientific theory, but a conceptual framework that identifies the principal decision making instruments that managers use when configuring their offerings to suit consumers' needs (Išoraitė, 2016). Decisions of marketing managers regarding the offer of products and services that are in line with market requirements, i.e. the needs and desires of consumers are brought under the influence of a large number of factors. These factors are changeable, so the elements of the marketing mix must constantly adapt to the new situation. In terms of the dynamics of change, the dominant factor is technology, i.e. technological progress. One of the carriers of technological development is digitalization. It is the main disruptive factor that changes the accepted ways of doing business, but also the lives of individuals.

The emergence of digital marketing has significantly affected all elements of the marketing mix, regardless of whether organizations are directly involved in e-commerce or not. In terms of product as an element of the marketing mix, the Internet has brought new opportunities, especially when it comes to developing product levels, from the basic benefits to the augmented product. The Internet has also influenced the price, by enabling greater transparency, and providing at the same time new models of pricing, such as Internet auction. In distribution, the Internet plays a major role in managing distribution channels, as well as supply chains, which enabled some well-known companies such as Zara, to become market leaders particularly because of timely and rapid market reactions, provided by digital technologies.

3. DIGITAL MARKETING MIX AND CONSUMER BEHAVIOUR

The starting point in defining the marketing mix is always the market. Therefore, elements of the marketing mix need to be adapted to the conditions of the environment, consumer requirements, their purchasing power, and buying habits.

Chaffey and Smith identify eight marketing activities that are key to creating a digital experience: content marketing, SEO marketing positioning, paid Ad Words search, social media marketing, email marketing, multi-channel marketing and integrated planning (2017).

The application of digital marketing, and thus digital marketing mix, was conditioned by the emergence of Web 2.0 concept that has revolutionized Internet usage, providing interactivity and the emergence of social media. Furthermore, it has significantly affected the relationships with consumers who have created new, authentic user experiences. According to McKinsey, customer experience can be seen as a journey consisted of different touchpoints through which customers interact with organization. On this journey, delivering digital services has emerged as a prime factor in reshaping customer experience in almost every sector (2017, p.21).

Product is an element of the marketing mix that can be described as anything that can be offered to a market for attention, acquisition, use or consumption that might satisfy a want or need (Kotler et al., 2020, p.233). Therefore, products may be the best indicator of the impact of digi-

talization on modern business flows. The Internet has provided new opportunities in developing product element of the marketing mix, such as:

1. options for varying the core product;
2. options for offering digital products;
3. options for changing the extended product;
4. conducting research online; speed of new product development;
5. speed of new product diffusion (Chaffey & Ellis-Chadwick, 2016, p.256).

The listed opportunities may be considered as new added digital values (Ghosh, 1998), which consumers receive and experience. Specifically, in the case of products, digital technology has made the following possible:

- the transformation of existing products into digital form,
- the development of new innovative digital products,
- the establishment of novel distribution channels, and
- the broad expansion of markets, both nationally and internationally, whether intended or unintended (Bhattacharjee et al., 2011, p.2).

For example, booksellers in digital environment have gained new options to expand the digital value of their products. Some of them included online book reviews, new title reviews, or online book sales. Implications of digital marketing mix are noticed in travel industry as well, where travel agencies can provide video tours of their products, online reviews and reservations. Nowadays, with the advent of the pandemic, many museums have offered online video tours to their customers in the market.

Numerous definitions of the term digital product can now be found in the literature, and what they all have in common is that digital products are a software-enabled products or services that offer some form of utility to a human being (Napierkowski, 2020). A wide range of digital products has imposed the need for their categorization. One of the possible categorizations is shown in Table 1.

Table 1. Feature comparison of different categories of digital products

Category	Trialability	Delivery mode	Granularity	Sample
Content-based digital products	Low	By download	High	E-book
Utilities and tools	High	By download	Low	Anti-virus software
Online services	Medium	Interactive	Medium	Online translation

Source: Wang Y., K.L. Wang, J. T. Yao (2009). Marketing mixes for digital products: a study of the marketplaces in China, *International Journal of Technology Marketing*, 4(1):15-42.

Pricing digital products require a completely new approach, which differs significantly from traditional methods. Namely, traditional, well-tested methods, which fully corresponded to classic products and business systems, proved to be inadequate for digital products. The design and development of digital products require a completely new approach to pricing that is fully adapted to new circumstances.

There are several approaches to pricing digital products (Krämer & Kalka, 2016):

- For free,
- Freemium,
- Subscription,
- Dynamic Pricing.

For free is a method that is specific to digital product markets. The “sale” of products free of charge is carried out to attract new consumers or create new markets. This method is used by digital product manufacturers when they want to bring the product closer to new consumers. Freemium is a return to previous methods. It is a combination of free and premium methods. In practice, this means that consumers get the basic version of the product for free, while for higher quality, more functional or variants with more options they must pay extra. Subscription is a method that assumes that the consumer pays for a digital product or content periodically. Consumers are stimulated to pay for a longer period because they receive price discounts or additional opportunities and options. Dynamic Pricing is a method of price formation, according to which it changes and adapts to changes in the market.

Another important aspect of product as an element of the digital marketing mix is the great potential for customization. However, today manufacturers use digital channels not only to sell customized products, but also to gather information about the market and develop the latest design in accordance with customer needs and wants. The Internet provides many opportunities to learn about consumer behaviour and their product experience, so it can be applied as a useful method of collecting data.

By analysing the impact of digital technologies on product as marketing mix element, it can be noticed that the most affected are the markets where products can be transformed into digital formats. Such products include music (downloading or streaming digital tracks), books (electronic books), publishing newspapers and magazines (online access to articles) and software (digital downloads and online subscription services). For instance, music streaming has strongly affected the music industry, providing new unique experience for customers which exceeded digital music and music downloads. According to Statista Research Department, in 2020, music streaming revenue reached 13.4 billion U.S. dollars worldwide, representing more than 28 times the figure ten years ago. Although the statistics show a slowdown over the past few years, there is a market potential for future, particularly having in mind the number of music streaming subscribers worldwide reaching 487 million in 2021 (Statista Research Department, 2021).

Consumer behaviour in digital environment over the past two years has been marked by the Covid-19 pandemic. Physical distancing has forced even those consumers, who avoided digital channels, to acquire new knowledge and access the Internet. Statistics from 2021 show that 45% of consumers have used digital channels precisely because of Covid, in the fields of education, health, entertainment and grocery shopping (McKinsey, 2021). The remaining part of consumers have chosen digital channels due to greater convenience and accessibility, primarily in the activities of banking, entertainment, health and education. On the other hand, consumers who have not used digital channels state the lack of human contact, the desire to physically visit stores and the complexity of digital technology as the main obstacles.

Furthermore, promotion is one of the elements of the marketing mix, which was strongly exposed to the influences of the Internet, as a medium. The Internet offers a new, additional channel for marketing communication that is used to inform customers about products, prices and provide significant support in the purchasing decision-making process. This new type of communication that was provided with the advent of Web 2.0. technology differed significantly from communication through traditional media. Social media uses mobile and web-based technologies to share, co-create, discuss, and modify user-generated content (Hollensen et al., 2017). Two-way communication involves the consumer in the discussion, so that his voice is heard,

which indicates satisfaction or dissatisfaction. In this way, marketers have less opportunity to control the process of creating a brand, because consumers share their experiences online. Also, the lack of sensory interaction and fear for safety in the digital environment have influenced the development of consumer confidence to become a key motive in creating strong digital brands. According to Jones (2009), new digital technologies have forced companies, which want to communicate effectively with different audiences to be more transparent.

4. FUTURE RESEARCH DIRECTIONS

Connecting billions of people around the world, the Internet is a key pillar of the modern information society, and the foundation on which digital marketing has emerged. Given that digital technologies have become an important element of everyday life of consumers, modern marketing is redirected to new, digital opportunities for marketing mix development. The paper combines current research studies in order to provide a cognitive basis and a commentary regarding the influence of digital marketing mix consumer behaviour. Therefore, literature review is used as the most dominant scientific method in the paper. Future research should include updated studies based on empirical scientific methods which will provide better insights into online consumer behaviour affected by the marketing mix.

5. CONCLUSION

The paper presents different perspectives of marketing mix elements in digital environment and their implications on consumer behaviour. The most significant benefits that the consumer has recognized in digital channels are accessibility, convenience and lower costs. In addition, the emergence of social media has enabled the modern consumer to participate in the creation and sharing of content. With the popularization of the Internet and digital technologies, consumers are increasingly looking for information in the digital environment, which helps them to make purchasing decisions, but also to realize sales transactions and come up with other useful tips on product use.

REFERENCES

- AMA, What is Digital Marketing? <https://www.ama.org/pages/what-is-digital-marketing>, visited 10/12/2021
- Bhattacharjee, S., Gopal, R. D., Marsden, J. R., and Sankaranarayanan, R. (2011). Digital goods and markets: Emerging issues and challenges. *ACM Trans. Manag. Inform. Syst.* 2, 2.
- Borden, N.H. (1964). The concept of the Marketing Mix. *Journal of Advertising Research*, June, 4 (2) pp 2-7 reprint Harvard Business School, Journal of Advertising Research, Classics, Volume II, September 1984, Oxford
- Booms, B. and Bitner, M. (1981). Marketing strategies and organisation structures for service firms, in J. Donnelly and W. George (eds), *Marketing of Services*, New York: American Marketing Association
- Juon, C., Greiling D., and Buerkle C., (2015). *Internet Marketing Start to Finish*. Que Publishing
- Chaffey, D. & Ellis-Chadwick, F. (2016). *Digital marketing, Strategy, Implementation and Practice*. London: Pearson
- Chaffey, D. & Smith, PR. (2017). *Digital Marketing Excellence*. New York: Routledge
- Culliton, J.W. (1948). *The Management of Marketing Costs*. Division of Research, Graduate School of Business Administration, Boston, MA: Harvard University

- Ghosh, S. (1998) Making business sense of the Internet, *Harvard Business Review* (March–April), 127–35.
- Hollensen, S., Kotler, P., & Opresnik, M. O. (2017). *Social Media Marketing. A Practitioner Guide*. Opresnik Management Consulting
- Işoraitè, M. (2016) Marketing Mix Theoretical Aspects, *International Journal of Research – GRANTHAALAYAH*, 4 (6), 25-37
- Jones, B., Temperley, J. & Lima, A. (2009). Corporate reputation in the era of Web 2.0 the case of Primark. *Journal of Marketing Management*, 25 (9/10), 927–939.
- Kotler, P. T., Armstrong, G., Harris, L.C., He, H. (2020). *Principles of Marketing, Eighth European edition*. Harlow: Pearson Education
- Krämer, A., Kalka, R. (2016). How Digital Disruption Changes Pricing Strategies and Price Models, in Khare, A., Stewart, B. & Schatz, R. (eds.), *Phantom Ex Machina Digital Disruption's Role in Business Model Transformation*. Springer.
- McKinsey & Company (2017). *Customer experience: New capabilities, new audiences, new opportunities*. USA: McKinsey & Company
- McKinsey (2020) <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/whats-next-for-digital-consumers>, visited 17.12.2021.
- McCarthy, E. J. (1964). *Basic Marketing*. IL: Richard D. Irwin.
- Napierkowski, S. (2020). How to Explain Digital Products and Bring Them to Life – <https://innovatemap.com/resource/how-to-explain-digital-products-and-bring-them-to-life/> visited 12.12.2021
- Statista Research Department, Nov 9, 2021, <https://www.statista.com/topics/6408/music-streaming/#dossierKeyfigures>, visited 15.12.2021.
- Singh, A., Agrariya, K. and Deepali, I. (2011) What really defines relationship marketing? A review of definitions and general and sector specific defining constructs, *Journal of Relationship Marketing*, 10(4), 203–37
- Wang Y., K.L. Wang, J. T. Yao (2009). Marketing mixes for digital products: a study of the marketspaces in China, *International Journal of Technology Marketing*, 4(1):15-42.



Design in Function of Brand Creation

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Abstract: A brand is a collection of all tangible and intangible elements of a product or service which make it unique. Design is one of the most important components of a brand. Design consists of all those characteristics that influence the way how a product appeals to a consumer, what impression a product leaves on a consumer and how a consumer benefits from a product. It comprises all the characteristics of a product or service that influence the appearance of a product or service and the way how it works. When speaking about brand design, it is usually the key brand elements which are thought of, such as a logo, a color scheme, typography and other design components that make a brand differentiate from competitors' ones and recognizable to consumers. According to the extant literature, insufficient attention seems to be paid to studying the contribution made by design in creating relevant brands. This paper is aimed at indicating the significance design has in the brand creation process, the significance of certain individual elements, such as the packaging design and colors. In the paper, a special reference is made to design and drivers of the values of luxury products.

1. INTRODUCTION

The environment in which contemporary man lives is constantly and hurriedly changing. We live in a time when there is a flood of new products and numerous technological innovations which change consumers' habits. The greater the offer, however, the larger the number of choosy consumers, so it is increasingly more difficult to reach a buyer. The quick pace of living leaves increasingly less time for consumers to make well-thought-of purchase decisions. Today, consumers want access to information about a product at the time they find convenient for themselves and independent of the place they may find themselves in. Apart from satisfying the basic function, there are times when consumers seek additional functionalities and to fit in a product in a certain lifestyle, especially when speaking about luxury products. Consumers are in search for novel landmarks in the purchase decisions they make and the ease of choice. That landmark is most frequently found in a recognizable brand, which inspires safety in them, guarantees a quality, status features, the country of origin, a good service, a good customer service and a feeling of being given additional value (Richa and Prerna, 2020).

A brand implies a product or service different from other products or services designed to satisfy the same needs. Those differences can be functional, rational or tangible, whereas they can also be symbolical, emotional and intangible, i.e. connected with what a brand represents or means in an abstract sense. A brand is a promise that indicates a certain quality of a product or service standing behind the brand, which satisfies consumers.

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Product or service design is an important factor in the process of differentiating and positioning a company's products or services in the competitive conditions present on the market. Design is made of all those characteristics that influence the way how a product appeals to a consumer, what impression it leaves on a consumer and how a consumer may benefit from it. Design offers functional and esthetical benefits and positively influences a rational and emotional attitude to a brand (Chitturi et al. 2008). From the point of view of a company, a well-designed product will easily be produced and distributed. From the consumer's perspective, a well-designed product looks nice to the consumer, is simple to open, install, use, repair and lay aside. A designer has to take into consideration all the foregoing elements (Orth and Malkewitzm K., 2008).

In contemporary market conditions today, special attention is paid to the emotional influence of design and the importance consumers give to how a product looks and how it works. For that reason, there is an increasing influence of design today, even in those product categories in which no attention has been paid to before. Thanks to their achievements in the design field, some countries have developed a great reputation, thus having become synonyms for good design for certain kinds of products. So, Italy has become famous in the clothes and furniture categories. The Scandinavian countries have become well known in the categories of the products uniting into one functionality, aesthetics, and ecological awareness. Finland's manufacturer of mobile phones, Nokia, was for a large number of years being a leader in product innovation and design since it was the first to have introduced protective covers for mobile phones, phones of elliptical forms, soft and friendly contours, and was the first to have introduced innovations with large-size screens. In a fashion similar to that, the German company Braun, within the Gillette corporation, has made a great success with its electrical shaving machines, coffee makers, hairdryers and mixers thanks to the first-class design of its products.

In today's world in which the culture of visual appealability is increasingly more pronounced, brand building and conveying a brand's motto, as well as positioning a brand through design, are becoming crucial for its success. In the overloaded market, aesthetics is sometimes the only way to single out a product from a mass (Postrel, 2003).

Today, design has a significant influence on the consumer's perception of a brand. On the other hand, a bad design may destroy the future of a product. In search for the universal identity of the Coca-Cola company, the principles were introduced stipulating that each and every design, no matter whether pertaining to the packaging, a packing material, a point of sale or any other point of touch with consumers, should reflect: 1) simplicity, 2) authenticity, 3) the power of the red, and 4) "the already known, yet simultaneously surprising" nature (Tischler, 2008).

As design itself is based on creations, there are also a lot of creative approaches in its implementation. Some organizations conduct formal processes which are based on collecting data through three stages (observation, idea generation and implementation). On the other hand, many are based on non-formal approaches – they do not research a market (the consumer's opinion), but they rather rely on their designers' creativity. The Danish company Bang & Olufsen (B&O), which has received numerous acknowledgments and commendations for their design of audio devices, TVs and phones, is famous for such an approach, so some of their most successful products are exhibited as the exhibits in the permanent setting of the New York Museum of Modern Arts (Green, 2007).

2. LUXURY PRODUCT DESIGN

Luxury brands are one of the most expressive examples of branding importance because a brand and a brand image most frequently stand for the key competitive advantages. Luxury products such as Prada, Gucci, Cartier and Louis are most often connected with the brand as the key instrument of competitive advantage. Research studies have shown that consumers favor extravagantly designed brands with a logotype (Greenberg et al. 2020). As with the majority of other products, luxury brands are also faced with a constantly changing marketing environment. Globalization, new technologies, a financial crisis, changes in consumer culture, as well as other influences coming from within the environment, request that luxury brand merchants should have new skills and that they should constantly be adapting themselves.

According to (Keller, 2009), the drivers of the market value of luxury brands are as follows:

1. the retention of a good, expensive, prestigious image,
2. the creation of numerous intangible associations related to the brand,
3. the harmonization of all the aspects of a marketing program for luxury brands so as to ensure quality products and services and a positive purchase and use experience as well,
4. the elements of the brand, the brand name, logotypes, symbols, the packaging, marks,
5. secondary associations, such as the connectedness of brands with famous personalities, events, countries, and so on,
6. the careful management of distribution, which as a rule is selective and which may also include the company's shops,
7. the determination of prices for prestigious brands at a considerably higher level than the prices of ordinary products belonging to the same category, given the fact that luxury brands serve to highlight one's social status; luxury brands are characterized by very few sales and discounted prices so as not to diminish the reputation of the brand,
8. an attentive analysis in full detail of the competition that frequently comes from other categories, and
9. the legal protection of the marks and fighting product forgery.

Quality and uniqueness, sometimes even their timeless style and authenticity, are the common characteristics of luxury brands. The buyer pays a high price for them, so they have to have a feeling that they are receiving something special in return for their buying a brand. In that way, buyers of the leather fancy goods manufactured by a well-known French company Hermes pay a high price for its products not only for the reason of the fact that those products are fashionable at the time, but because they are never unfashionable.

At the times of economic crises, however, even the most famous of brands, such as the Italian Armani, start diversifying their products. Armani has gone beyond the haute couture category (Giorgio Armani and Giorgio Armani Prive) to the medium-range luxury (Emporio Armani), all the way to the most favorable luxury in their offer (Armani Jeans and Armani Ex-change). There is a clear difference between the mentioned brands, by means of which any confusion with consumers and the cannibalization of the brands are avoided. Each of the said brands is a part of the Armani parent (roof) brand and preserves its reputation. Similarly to Armani, the Bulgari jewelry manufacturer has expanded its product range to perfumes, chocolates and skin care preparations. In spite of the opinions that the company has expanded itself too much, the majority of consumers still consider this brand to be a luxury brand. The Ralph Lauren company has successfully added its luxury trademark to a broad range of products, such as bedlinen,

candles, sofas, vessels, photo-albums and jewelry. In the same way, the Calvin Klein brand has implemented a similar and very successful expansion strategy, aiming at the consumer's different lifestyle. Differently from them, a former icon of the fashion industry Pierre Cardin has licensed its brand name to numerous ordinary products, which has to the brand losing its value. In the increasingly more networked world, luxury brand sellers are making efforts to find out an ideal e-sale platform, whereas success depends on the achievement of a balance between the classical image and the contemporary image. What luxury product manufacturers and sellers have to bear in mind is the fact that they very often sell a dream anchored in the quality, status and prestige of the product itself (Bulik, 2009).

3. THE PACKAGING, LABELING, WARRANTIES AND GUARANTEES

Some products' packaging makes them famous throughout the world, like the Coca-Cola bottle and the Red Bull can. There are those who refer to the packaging, together with the price, the product, the place and promotion, as the fifth P. The majority, however, consider the packaging and labeling as the elements of the production strategy. The packaging includes all the activities of forming and producing the packaging and can have three different levels, like a perfume in a bottle (the primary packaging), which is placed in a carton box (the secondary packaging), which is placed in the carton packaging of larger dimensions (the transportation packaging). The packaging is the first thing that catches the consumer's eye. A well-designed type of packaging attracts buyers and encourages them to make a decision to buy a product (Barnes, 2017). Some types of packaging are designed in such a way that they can be used as a piece of decoration in homes. A recognizable packaging is key when creating the market value of a brand. The good examples of said are the Kiwi shoe cream or Absolut Vodka (Richards, 2009).

Given the fact that consumers are offered an ever-increasing number of products at supermarkets, where sometimes there are over 15000 articles, which means that a buyer passes by 300 articles in a minute, the packaging has to attract buyers' attention, describe the product's characteristics, inspire trust and create a good overall impression with buyers. Consumers will be ready to pay larger amounts of money in exchange for the practicality, appearance, reliability and prestige of improved packaging.

Warranties and guarantees may be a very important part of the production strategy, so they are frequently declared on the packaging itself.

4. THE ROLE OF COLORS IN PACKAGING AND LABELING A PRODUCT AS A BRAND

A choice of colors is very important in the product or service branding procedure, since colors stir different associations (Sullivan, 2008):

- the red is a very strong color symbolizing energy, passion and danger as well; the red best suits the products or brands connected with action, speed or strength; it is frequently present in dominant or cult brands;
- the orange is often associated with adventure and entertainment; although less aggressive than the red, it also attracts attention; it is most frequently used to convey a value or announce discounts, and also belongs to young-age and modern colors;
- the yellow is identified with the warmth of the Sun and joy, frequently with wisdom and intellect, too; it is adequate for the products or brands connected with sports or for the products or content intended to draw one's attention;

- the green is associated with cleanliness and freshness, and reminds one of nature; it is suitable for organic or recycled products, or for a brand connected with health and rest;
- the blue is yet another color prevailing in nature and frequently used to highlight safety, efficiency and productivity; it is especially popular in the high-technology industry; it symbolizes cleanliness, openness and relaxation, so it is suitable for products intended for cleaning and personal care, as well as holiday destinations;
- the violet has always been symbolizing nobility, wealth and elegance; the violet is a strong color adequate for luxury brands and products, as well as the companies that want to cover their business operations with a veil of secrecy or leave an impression of uniqueness;
- the pink is the color associated with decoration and warmth, so it is considered to be soft, tranquil and comfortable; it is most frequently used for personal care products, baby products, or sweets packaging;
- the brown is a strong earth color radiating honesty and reliability; it is considered to be one of men's favorite colors; its darker nuances are rich and firm, whereas the lighter nuances of the brown are often used as the base color for other packaging elements;
- the black is classical and strong, so it is most frequently used as the primary component or the color used to highlight the font or the graphics; the black demonstrates power, luxury, refinement and authority; it is used for a broad range of products, from cars and electronics, via first-class hotels, to financial services;
- the white is the color of the freshness of snow and it is most frequently associated with cleanliness; it is most often used as a back color; it is used with organic food or personal care products, and it can symbolize innovation and modernity.

5. CONCLUSION

A brand implies a product or service which differs from other products or services designed to satisfy the same needs. Those differences can be functional, rational or tangible, and they can also be symbolical, emotional and intangible. In one word, a brand is a promise that beyond it there is a quality of a product or service that satisfies the consumer. Product or service design is an important factor in the procedure of differentiating and positioning a company's products and services in the competitive market conditions. Design consists of all those characteristics that have an influence on how a product appeals to the consumer, what impression it leaves on the consumer and how the consumer can benefit from it. In modern market conditions, special attention is paid to the emotional influence of design and the importance consumers attribute to how a product or service looks and how they work. Due to that fact, the influence of design even in those product categories in which previously no attention was paid to it is increasingly greater today. Luxury brands are one of the most expressing examples of the importance of design in the branding process, because a brand and the brand image are most often the key competitive advantages.

REFERENCES

- Barnes, A. (2017), Telling stories: The role of graphic design and branding in the creation of 'authenticity' within food packaging, *International Journal of Food Design*, Volume 2, Number 2, pp. 183-202(20), https://doi.org/10.1386/ijfd.2.2.183_1
- Bulik, B.S. (2009). Sub-Zero Keeps Its Cool in a Value-Obsessed Economy. *Advertising Age*, p. 14.
- Chitturi, R., Raghunathan, R. & Mahajan V. (2008). Delight by Design: The Role of Hedonic Versus Utilitarian Benefits. *Journal of Marketing*, 72(3), p. 48–63.
- Green, J. (2007). Where Designers Rule. *Business Week*. November 5, 2007, p. 46–51.
- Greenberg, D., Ehrensperger, E., Schulte-Mecklenbeck, M. *et al.* (2020), The role of brand prominence and extravagance of product design in luxury brand building: What drives consumers' preferences for loud versus quiet luxury?. *Journal of Brand Management* 27, 195–210. <https://doi.org/10.1057/s41262-019-00175-5>
- Keller, K.L. (2009). Managing the Growth Tradeoff: Challenges and Opportunities in Luxury Branding, *Journal of Brand Management*, 16(5), p. 290–301.
- Orth, U.R. & Malkewitzm K. (2008). Holistic Package Design and Consumer Brand Impressions, *Journal of Marketing*, 72(3), p. 64–81; Borden, M. (2007). *Less Hulk, More Bruce Lee*. Fast Company, p. 86–91.
- Postrel, V. (2003). The Substance of Style: How the Rise of Aesthetic Value Is Remaking Commerce, *Culture, and Consciousness*. New York: HarperCollins. ch. 4, p-91.
- Richa J. Prerna G., (2020), Assessing brand love, brand sacredness and brand fidelity towards halal brands, *Journal of Islamic Marketing*, 13, 4, (807-823), <https://doi.org/10.1108/JIMA-04-2020-0104>
- Richards, F. (2009). Memo to CMOs: It's The Packaging, Stupid, *Brandweek*, August 17, p. 22.
- Sullivan, E. (2008). Color Me Profitable, *Brendating News*. p. 1.
- Tischler, L. (2008). Pop Artist David Butler, *Fast Company*, October 2009, p. 91–97.



Digital and Virtual Fashion as an Opportunity for Sustainable Concept

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Abstract: Sustainable digital transformation in the global textile and clothes value chain is a way to substantially change business performance through durable digitization techniques. With this digital transformation, manufacturers are seeking higher productivity, reduced labor costs, and environmental sustainability, among other business improvements, catalyzing the demand for a more automated and connected industry. Sustainable digital transformation in the global textile and clothes value chain is a way to substantially change business performance through durable digitization techniques. The purpose of this study is to identify the impact of digitalization on the fashion industry. The study is based on primary quantitative data that have been collected from 54 managers within the retailing industry from all continents. The study results show that the impact of digital transformation is positive for profit, operating costs and revenues and the rise of technology has changed consumer behavior.

1. INTRODUCTION

Digital technologies provide opportunities for retailers to acquire new customers, engage better with existing customers, reduce costs and improve employee motivation. The digital age presents opportunities for retailers to bring in greater levels of operational efficiency and customer centricity in their business models. The competition is increasing not between individual retailers but the wider constellation of alliances that the retailer builds within their network. Decision makers following the fast-fashion business model seem to have been reluctant to go online because fast fashion has traditionally been based on consumers' making regular visits to the stores to see new arrivals.

The clothing industry is a high involvement product category, related to personal ego and products that need to be seen, felt, touched and tried on because they are difficult to evaluate. Fashion has been historically highly based on "design driven" business models, where many organizations were created upon networked resources. In fact, the traditional fashion model often started from a designer-centered vision, where a designer and manager could create their brand sourcing and integrate existing manufacturing systems, locally based (Bertola & Teunissen, 2018). Within this perspective the potential impacts of digital technologies in creating fashion "smart networks" is quite high, considering the whole set of technologies currently available which goes from interaction, co-working and knowledge exchange platforms until on-site production business models enabled by digital manufacturing (Ustundag & Cevikcan, 2017).

The decision makers following the fast-fashion business model have been reluctant to go online, because fast fashion has traditionally been based on consumers making regular visits to the stores to see what new items have arrived. Digital transformation with the help of digital technologies such as analytics, manufacturer software, mobile applications, cloud computing

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and data management are enabling shifts that are resulting in total cost reduction and changing shopping experience. Digital Transformation is an environment where everything for an organization is connected (Fitzgerald et al., 2013), creating digital imperatives for companies to create transformation through technology impacting Customer Experience, Operational Improvement and Business Model Change thus covering an organization's Supply side, Demand side and Operations. Whereas in the past, producers dictated the supply, today's markets are increasingly influenced by individualized consumer demands. Digital and traditional channels are increasingly approaching, and consumer power is rising. Fashion brands are also faced with change in customer expectations: higher quality, individualized products, prompt delivery and comprehensive pre- and post-purchase services, free shipping, and regular updates (Johnson et al. 2008). Therefore, the value of information about consumers and analytics will grow.

People are demanding sustainable products, and trends such as ethical consumerism and corporate social responsibility are taking an important role and for retailers the ability to create economic value and ethical values coincide (Arvidsson, 2011). Because of the prominent position that retailers occupy in the market, they have become a key element to promote and consolidate changes in market processes (Maloni & Brown, 2006). Retailers can gain competitive advantages by incorporating sustainability issues (Reuter et al. 2010) and corporate responsibility. There are many benefits for retailers of adopting the concept of sustainability commercial practices like savings, the attraction of new customer segment, improving reputation and greater commitment by workers. Digital technologies enable more information about habits, behaviors and trends available for decision making process. Digital technologies enable integration of Business and IT, impact Customer Experience, and Operational Processes. This results in increased cost reductions, higher productivity and higher revenues. The transition from physical to digital and enterprise integration also impact the sustainability aspects of doing business.

2. IMPACTS OF DIGITAL TECHNOLOGIES ON FASHION

The potential impacts of digital technologies in creating fashion "smart networks" are quite high, considering the whole set of technologies currently available which goes from interaction, co-working, and knowledge exchange platforms until on-site production business models enabled by digital manufacturing. There are plenty of smart mirror technologies already in use in Fashion Retail: Mirow, OAK Labs, SenseMi, and AdvanMirror. These smart mirrors can show what other sizes of that product are currently available and provide you with stylists' suggestions of which other items you can wear this product with. These technologies generally work with RFID tags, so they would be able to incorporate another layer of data that contains the journey of the garment securely stored on Blockchain. SenseMi's innovative Smart Mirror is trending in the retail market and with reason because it can make the user experience even more realistic and the virtual dressing room is both a nobility factor and a convenience. Customers are swapping virtual clothes models to find and choose the one they most like, and the future is already here.

Augmented reality (AR) is commonly used in the description, planning and real-time operation monitoring, fault diagnostic and recovery, and training related to industrial products and processes (Doshi et al. 2017). In the shopping experience, AR can be housed in a custom-built mobile app. Users can download the app to unlock their journeys through AR and to access events, timetables, and competitions. Virtual reality (VR) is becoming a powerful channel for many brands which want to interact with their consumers. This technology provides a computer-gen-

erated 3D environment feeding a brain with the set of stimuli that they expect – this is a true experience. It is expected that VR will become popular like mobile and social media, but current prices are really high. For retailers, it could be useful virtual stimulation of store environment, dressing room, product display, and layout. One of the first major fashion retailers, Tommy Hilfiger deploys VR headsets in stores and customers can try it in a 360-degree experience. Gap unveiled AR dressing room and customers can try garments virtually. Artificial intelligence track customer online journeys with algorithms and help them to find an appropriate product. AI is also real-time communication through Chatbot service or robots inside stores which can help customers to find items (Reuter et al. 2010). One of the most popular AI is Amazon's Echo Look (2017) which serves as a style assistant to help customers decide what to wear.

3. METHODOLOGY

In this study we started with a research process that should explore the influence of digital technologies on the fashion industry and the opportunity for more cost reduction and sustainability. Focusing on digital technologies fashion industry is changing to a virtual fashion and new online experience and can be more competitive. Fashion retailing seems quite open to incorporating new technologies in its purchase buying processes which changes the previous purchase experience with using the senses. The implementation of industry 4.0 includes the creation of a new architecture of the entire company ecosystem, where all data and information are collected and exchanged at any level of the organization (vertical hierarchy) and at any stage of the process throughout the entire value chain (horizontal network), enabling the creation of a real-time virtual duplication of the whole system.

The survey was conducted by sending Google Forms questionnaires to managers in the manufacturing and fashion retail companies. The sample was 60 respondents. The survey used a questionnaire with 7 questions. The questionnaire consists of two sections: the first part presents a general group of questions that should provide us with the necessary information about the respondents (gender, age group and level of education), while the second part relates to managers' perceptions about using of digital technologies in the fashion industry. The online questionnaire was sent to organizations targeted for the retail, fashion, and sustainability industry, with a high response rate. The targeted sample was 60, where we received a response rate of 73% for the direct e-mails during the first round, and during the second round of direct e-mails, we received a response rate of 90%. The sample size of 54 responses came from all continents, although 46 answers were from Europe. We have not found anything in the research that would contradict to use the total response rate from all continents in the findings section. Therefore, the finding section will analyze the impact of digitalization in the (fashion) retail industry on a more global level vs. only European.

4. RESULTS AND FINDINGS

The main objective of this study is to:

- 1) identify the importance of digital marketing technologies in retail and manufacturing companies,
- 2) find in which area digital investments are made and have a positive effect, and
- 3) explore how sustainability goals are integrated into business strategy.

Two main topics should be analyzed more deeply: digital transformation and sustainability. When we asked if digital transformation will have a positive impact on the retail industry, the question was asked in a Likert Scale rating scale question format to measure how people feel about digital transformation. Thus we have the answer in both percentages as well as a maximum likelihood estimate. Results have shown that 37% of respondents stated that they strongly agree with this statement and 48.1% agree, while only 1.9% disagree. It is related to previous research that technological revolution can provide businesses with competitive advantages like improvement of the relationship between the business and customers by enabling a higher level of connectivity. Consequently, looking into investments in digital transformation and if respective companies have invested in this, 68.5% stated that they have. We asked the question with a yes or no answer to determine which of the participants will be required to answer questions about investments. The data collected in the section on investments were only for the respondents that answered yes in question 8. The Google Forms questionnaire was built in a way to only have relevant answers. We have in this section 37 respondents where the respondent's company did invest in digital transformation. Based on the results of this question the highest investments are made in Sales, followed by Customer Service and R&D.

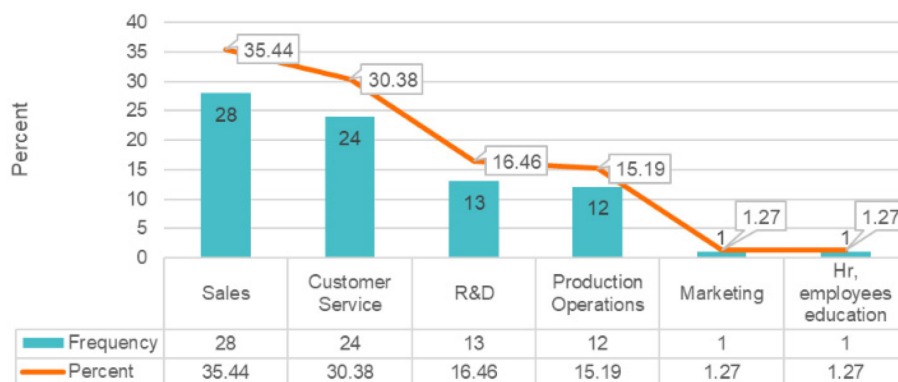


Figure 1. In which area digital investments are made

Source: Own research

Technologies enabling digital transformation include Cloud, Connected Devices, Data Analytics, Connected enterprise and Manufacturer software. The results of question 12 show that majority of the companies are working on technology devices and technical aspects within their companies today. The total is not equivalent to 100% as they could choose several answers. The highest response was on Cloud on Data Analytics.

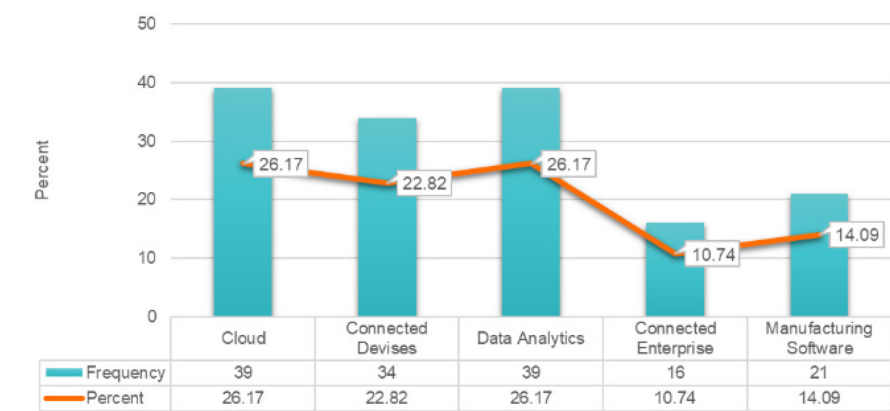


Figure 2. Technologies that fashion companies work with

Source: Own research

The main challenge identified by all respondents for digital transformation is lack of vision and leadership and lack of skilled professionals showing that 57,7% of the data collected see this as the biggest risk. The question was asked to choose one or more challenges that are appropriate.

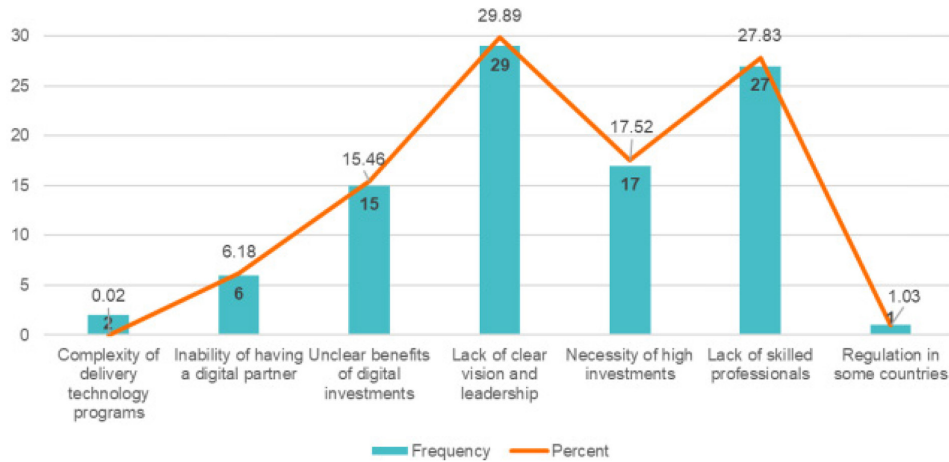


Figure 3. Challenges of digital transformation for those that invested

Source: Own research

In the section on sustainable development, we asked questions in order to identify the trend of companies and if the 17 Sustainable Development Goals (SDGs) developed by the UN are taken into account. In all the data collected from the 54 respondents, all answers were higher on yes for involvement in sustainable development. If the company has a long-term target for the future, 37 people responded affirmably.

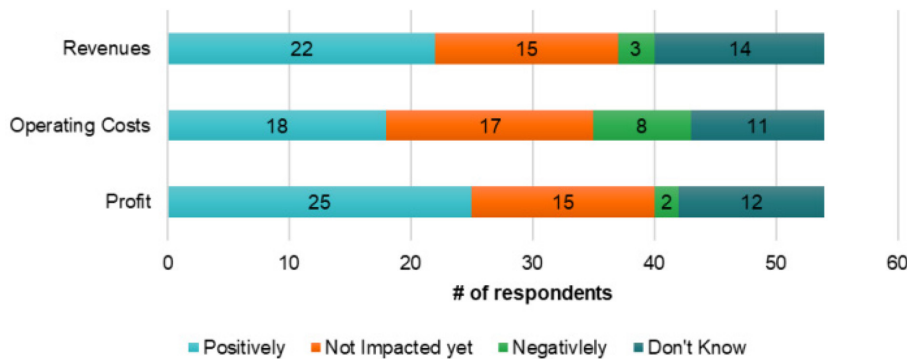


Figure 4. Impact of digital technologies on sustainability

Source: Own research

All data collected show that the impact of digital transformation will be positive for both profits, operating costs and revenues.

5. CONCLUSION

The impact on digital transformation will play a key role for the future of the fashion industry and also is an opportunity for the sustainable concept. Throughout the research, results and findings show that there is a clear indication that the movement to a digital transformation must happen and not just e-commerce and online shopping. Modern business conditions in the Fashion retailing sector are characterized by intense changes in the business environment and the need for flexible and rapid adaptation to market conditions and competitive structure.

The latest technological revolution, primarily in the field of IT and telecommunications, has led to changes in the way of business, formation and definition of business strategies, organizational structures and education of all participants of business transactions. Fashion retailing organizations evaluate the results and success of their business activities in the financial markets, production processes and sales of wardrobe, where the basic measurement parameter is quality and long-lasting sustainable relationship with clients. The fashion industry is changing at the pace of technology and digitalization. Companies like Walmart, Amazon or Nike are acquiring tech startups specializing in AI, VR, AR, blockchain, etc. Regarding Fashion retail, IBM has teamed up with Tommy Hilfiger and The Fashion Institute of Technology (FIT) Infor Design and Tech Lab on a project called Fashion retailing, and the new concept of using digital technologies is a new form of banking organization business in the World market that is based on a marketing approach to the environment and is part of e-commerce.

The research has collected relevant literature focusing on fashion retailing and digital technologies that lead to digital transformation. The study is based on primary quantitative data that have been collected from 54 managers within the retailing industry from all continents. The study results show that the impact of digital transformation will be positive for profit, operating costs and revenues and the rise of technology has changed consumer behavior. Also, changes must be made in the area of sustainability and everything will change to fit a new digital world. The study results also show that digital transformation will have a positive impact on the retail industry. Digital transformation impacts every aspect of the business and is creating a new paradigm for fashion retailers that will pay more attention to the concept of sustainability in its future development.

REFERENCES

- Arvidsson A., (2011). General Sentiment: How Value and Affect Converge in the Information Economy: *Sociological Review*, 59, pp. 39–59.
- Bertola P., Teunissen J. (2018). Fashion 4.0 Innovation fashion industry through innovation'. *Research Journal of Textile and Apparel*, vol. 22, issue 4, pp. 135-148
- Doshi, A., Smith, R.T., Thomas, B.H. and Bouras, C., (2017). Use of projector-based augmented reality to improve manual spot-welding precision and accuracy for automotive manufacturing, *International Journal of Advanced Manufacturing Technology*, Vol. 89 Nos 5-8, pp. 1279-1293.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing Digital Technology: A New Strategic Imperative. MIT Sloan Management Review in collaboration with Cap Gemini Consulting. Retrieved from <https://www.capgemini-consulting.com/SMR>
- Johnson M., Clayton M.W., Christensen M. & Kagermann H., (2008). Reinventing your business model, *Harvard Business Review* 86(12), pp 57-68.
- Maloni, M.J.; Brown, M.E. (2006). Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry, *Journal of Business Ethics*, 68, pp 35–52.
- Reuter, C.; Foerstl, K.; Hartmann, E.; Blome, C. (2010) Sustainable global supplier management: The role of dynamic capabilities in achieving competitive advantage 2010: *Journal of Supply Chain Management* 46, pp. 45–63.
- Ustundag, A. & Cevikcan, E. (2017). Industry 4.0: Managing the Digital Transformation, Springer, Heidelberg.



Leasing of Production Control Processes – PLC as a Service in Industry 4.0

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Abstract: Programmable Logic Controllers (PLCs) represent a settled technology that is well established and ubiquitous within the automation of industrial processes. This technology is a significant automation foundation, and PLCs are expected to be needed in the future, even in the era of Industry 4.0. However, these controllers have to satisfy a variety of requirements in new era production paradigms. This manuscript gives a brief overview of the current state of the practice, explaining the main reasons for the persistence of PLC technology, while further examining the possibility of the shift towards the direction of their replacement by a cloud service. Thereby, the introduction of the service paradigm could also play an important role in future industrial automation. This paper discusses such a concept of production control as a service substitution of the traditional PLCs. Its application would significantly increase flexibility by fulfilling industry 4.0 requirements such as autonomy, interchangeability and reconfigurability, and would allow the creation of new business models that would lease production control processes.

1. INTRODUCTION

From the industrial era, economic laws encouraged producers towards mass production, and later, towards automation of production processes, as a condition for achieving competitiveness of their products in the market. Nowadays, automation is faced with an *ever-increasing demand for ensuring the adaptability of manufacturing facilities in context of Industry 4.0* (Legat & Vogel-Heuser, 2017). Field level automation software is, indeed, dominant in making manufacturing resources flexible, and as Legat and Vogel-Heuser (2017) argue, *classical programming approaches based typically on signal-oriented languages result in disproportionate effort for ensuring necessary flexibility*. The well-established basis for the automation of industrial processes are Programmable Logical Controllers (PLCs). A PLC is essentially a microprocessor device that uses programmable memory to store commands that require the performance of specific functions, such as logic functions, sequencing, counting, timing, computing, to control different types of machines and processes via digital and analogue input-output modules. The key to their success lay in their programming method. PLC programming is conducted by the ladder logic diagram language (Wang, 2021), already present in the industry for projecting logical and sequential relay devices. This language uses graphical notation, visually quite similar to the electrical diagram, thus, it is comprehensible to industrial engineers. In other words, industrial engineers do not have to be programming experts to use PLC controllers in their systems. However, creating ladder diagrams for highly complex processes such as welding of complex parts, loading-unloading, painting, etc. may be possible, as Iskandar, Rameli & Ramadhan (2018) argue, with heuristic methods, but the success of those methods depends greatly on the experience of the programmer. This leads to an ever-increasing level of professional speciali-

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sation, combined with also increased demand for narrow specialised employees (Bogoviz, Gulyaeva, Semenova & Lobova, 2018). Furthermore, in today's Industry 4.0 paradigm, many new challenges for industries have been raised. Exponentially accelerated technology development and customer habits have led to significantly reduced product life-cycles, increased demand for highly customised products while, at the same time, allowing for reduced development and manufacturing costs. This also, as Sallati, Bertazzi & Schützer (2019) argue, require product engineers, as well as engineering students in universities (Tepe, Aslan & Eminoglu, 2020), to develop new skills in order to meet these new market requirements. Therefore, several issues have to be targeted such as the reduction in the local demand for specialized manpower able to program PLC ladder logic, reduction in the production of physical devices, and increased flexibility without the reduction of functionality, while at the same time obtaining the ever-present total cost reduction. Based on the literature review, we argue that leasing of production control processes, more specifically outsourcing them as a cloud service, tackles all of these issues and represents a natural step further towards Industry 4.0.

2. PROGRAMMABLE LOGIC CONTROLLERS

PLC is a microprocessor device, or computer, designed for *multiple input and output arrangements, extended temperature ranges, immunity to electrical noises, and resistance to vibration and impacts* (Budha, Thapa, Park & Wang, 2008). Many different types of PLCs vary in size, appearance and processing power, from small units with small and limited inputs and outputs to large, modular units that can be configured to work with hundreds or even thousands of inputs/outputs. Block diagram of a typical PLC is given in Figure 1. They were developed with the goal of overcoming numerous problems specific for the electromechanical control system based on relays while increasing the scope of their functions, and reliability. Decrease in PLC price, and simultaneously, their increased reliability, made them ubiquitous in industry. Compared to relay technic, PLCs are more compact, cost less, more reliable. Moreover, they allow for relatively easy control logic change. Program ladder diagrams are typically developed on a PC with the help of specialised software with an intuitive graphical interface that, in addition, allows you to check and test ladder programs. The ladder diagram is written to the PLC controller with the help of a programmer, and the registration process itself does not take more than a few minutes. The possibility of fast reprogramming is important because the production process, with minimal downtime, can be easily adapted to new requirements.

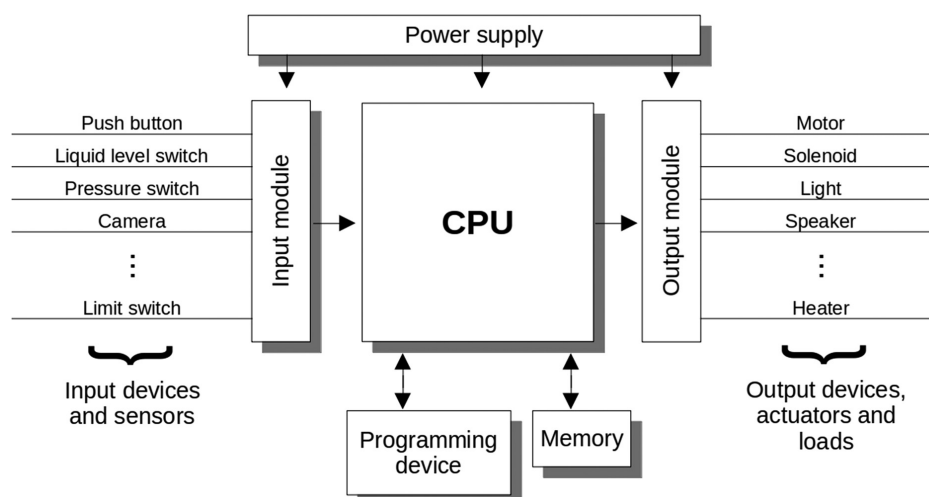


Figure 1. Block diagram of a typical Programmable Logic Controller

The first PLC controllers were simple on/off control devices and were used to replace outdated relay technology. However, such PLC controllers could not provide more complex control, such as temperature, pressure, position control. Meanwhile, PLC controller manufacturers have developed and incorporated a number of enhancements and functional enhancements into PLC controllers. Modern PLC controllers have the ability to perform extremely complex tasks such as managing precise positioning and managing complex technological processes. Also, the speed of the PLC controller is significantly increased, as well as the ease of programming. Numerous special-purpose modules have been developed for applications such as radio communication, vision or even voice command recognition. However, PLC operating system is always projected for the specific purpose. It is assumed that, in its basic form, PLC will be used for the realisation of logic functions that translate sensors' signals to actuator signals. Hence, the PLC is expected to periodically read (input) signals from the sensor, perform a number of arithmetic-logic operations (in accordance with the given function) whose results are transmitted to the executive bodies or some other indicator devices. In addition, with the same or some other frequency, the PLC should maintain communication (exchange data) with some other computer systems in the network. Still, as the need of automation increases significantly, the PLC control system must follow in the footsteps allowing for flexibility, meaning to be easily programmable, but still, robust and cost effective (Alphonsus & Abdullah, 2016). Nevertheless, the complexity and difficulties of programming in adapting to very complex processes remain (Iskandar, Rameli & Ramadhan, 2018). In other words, plants require very skilled ladder logic developers to be constantly available.

3. PLC AS A CLOUD SERVICE

In 1997, author Rullán already discussed personal computers (PCs) as effective devices for the same applications as PLCs (Rullán, 1997). As Rullán (1997) observes, *this relationship is established in most cases in Boolean logic*. As modern PLCs are computer-like, computer-based devices designed to control processes, PCs also can provide a totally integrated solution that incorporates all of the functions of the PLC, such as the man-machine interface, and the programming terminal, while also providing process simulation/emulation so that complete software development can be done independent of the hardware (Rullán, 1997). However, as Rullán correctly observed at the time, commercial-grade PCs were not designed to withstand harsh conditions frequent in the production facilities i.e., *to tolerate the shock, vibration, temperature, and electrical noise* (Rullán, 1997). Still, computer technology has advanced significantly in the past decades. More importantly, telecommunication technology has also advanced to the level where SCADA systems can be controlled and managed from remote locations (Bjelica & Lale, 2014; Sajid, Abbas & Saleem, 2016). The past few decades have brought several cellular network generations, e.g., namely from 0G to 5G (Saad, Mehdi & Mingzhe, 2020). Each generation represented an incremental leap in connection speed from Kbps for starting generations, up to 100+ Mbps for 5G. In the relatively near future, further leaps are expected such as 6G and 7G. Sixth generation is aimed to be a ubiquitous ultra-broadband mobile network with ultra-high rate, ultra-high data density and, the most importantly, ultra-low latency (Baiqing et al., 2019). 6G architecture will shrink cells from small to “tiny cells”, but with denser deployment where mesh network and Device-to-Device (D2D) connectivity should become a norm (Saad et al., 2020; Bhat & Alqahtani, 2021; Hoschek, 2021). As Sajid, Abbas & Saleem (2016) also realised, *one such solution to fulfil the current needs of industrial systems is the concept of IoT, which involves cloud computing*. Still, performance bottlenecks of today's common Internet of things (IoT) devices such as latency, computing power and storage have to, and should be mitigated by increasing connections to other nodes (Sodhro et al., 2021). These steps to improve the Internet and network communication speed are very important in order

to create a foundation on which to build adequate protocols that should further regulate communication between sensors in production and Cloud service, and vice versa, from Cloud service to actuators or production machines. If this foundation existed, it would be possible to further develop communication protocols in order to, not only ensure timely communication, but also secure it. The final goal is to transfer the whole PLC functionality to the Cloud (Table 1), but along with the imperative of keeping production safe. As Table 1 shows, one of the main concerns for keeping control programs locally is safety and security of production processes. Certain research and development efforts have been invested in virtualisation of complete PLC controllers to outsource them into the cloud, such as a scalable control platform for cyber-physical systems in industrial productions (Langmann & Rojas-Pena, 2016), and a cloud-based controller, which also uses a virtual control system in an Infrastructure as a Service (IaaS) cloud (Langmann & Stiller, 2019).

Table 1. Industry 4.0 PLC controller capabilities

Class	Service Ability (SA)	Control Locality (CL)
0	No service	All control programs are encapsulated locally in the PLC hardware.
1	Services only for non-critical and overarching functionalities	Some control programs that include non-critical and overarching functionalities are not located on the local hardware, but are instead distributed to other systems such as, e.g., in the network.
2	Services for most functions available	Most control programs are distributed in the network. Control programs that are critical in terms of time and safety remain in the local PLC hardware.
3	All control functions as services	All control programs are distributed in the network. Third instances can access all the control algorithms in real time.

Source: Langmann & Stiller, 2019.

However, problems with the virtualisation of PLCs result, as Langmann & Stiller (2019) argue, especially from the fact that already available manufacturer-specific PLCs are virtualised. As these authors observe, these controllers, however, are closed systems, which were originally not developed considering the aspects of web technologies (Langmann, & Stiller, 2019). Hence, any eventual modifications of these controllers by third parties would be hardly possible. Cristani, Demrozi & Tomazzoli (2018) proposed a methodology for converting a plant automation managed by PLCs onto an EFSM control module (EFSM—extended finite state machine) that is driven by single board computers or SoC (system-on-a-chip). Such control module is able use IoT devices, but the control program, as Langmann & Stiller (2019) also observe, cannot be resolved as a cloud service. Summa summarum, different efforts to equip PLC controllers with additional functions, in order to be able to use the controllers in an Industry 4.0 – type IP network, exist. However, deficits also exist, and further research is required in the field of a flexible distribution of the structure and function of the control functionality. Moreover, systematic investigations, architectures, interfaces and demonstration solutions are also lacking.

4. CONCLUSION

Production systems, as every business system, always prefer to reduce operational costs. To support such reductions, solutions capable of providing robustness and flexibility are always needed. Cyber-physical integration with the Internet of Things (IoT), and Cloud computing services are the step further. Transformation of PLC towards the service paradigm is, as we see it, inevitable. ICT components are already increasingly present in PLCs, especially when the system is aimed to represent a sub-system of SCADA. Three different approaches emerge as necessary to allow

PLC controllers to be Industry 4.0 compatible and these are the inclusion of the basic web technologies, the global networking of process data and the introduction of service principles. Significant steps in that direction have already been made, primarily on an infrastructural basis. Fast and resilient Internet of extremely low latency is already being widely developed and this should enable real-time communication within the production system and cloud service. The next step is the development of protocols and the physical IoT components themselves in production machines that will be able to use Cloud functionalities. Finally, it is necessary to develop in parallel the entire service environment that will represent a separate business model, and unite experts and developers within clusters who are highly specialized in this field. It is realistic to expect that such a model of production process management will contribute to the overall reduction of production plant costs, eliminating, by outsourcing, specially trained workforce whose presence is now necessary in each complex production system separately.

REFERENCES

- Alphonsus, E. R., & Abdullah, M. O. (2016). A review on the applications of programmable logic controllers (PLCs). In *Renewable and Sustainable Energy Reviews* (Vol. 60). <https://doi.org/10.1016/j.rser.2016.01.025>
- Baiqing, Z., Fan, C., Wang, X., Duan, X., Wang, B., & Wang, J. (2019). 6G Technologies: Key Drivers, Core Requirements, System Architectures, and Enabling Technologies. *IEEE Vehicular Technology Magazine*, 1–1. doi:10.1109/mvt.2019.2921398
- Bhat, J. R., & Alqahtani, S. A. (2021). 6G Ecosystem: Current Status and Future Perspective. *IEEE Access*, 9, 43134–43167. doi:10.1109/access.2021.305483
- Bjelica, O., & Lale, S. (2014). A cost effective solution for development environment for data acquisition, monitoring and simulation of PLC controlled applications. *Telfor Journal*, 6(1). <https://doi.org/10.5937/telfor1401075b>
- Bogoviz, A. V., Gulyaeva, T. I., Semenova, E. I., & Lobova, S. V. (2018). Transformation changes in the system of professional competences of modern specialists in the conditions of knowledge economy's formation and the Innovational Approach to training. *Industry 4.0: Industrial Revolution of the 21st Century*, 193–200. https://doi.org/10.1007/978-3-319-94310-7_19
- Budha, M., Thapa, D., Park, S. C., & Wang, G.-N. (2008). Generation of PLC Ladder Diagram Using Modular Structure. 2008 International Conference on Computational Intelligence for Modelling Control & Automation. doi:10.1109/cimca.2008.125
- Cristani, M., Demrozi, F., & Tomazzoli, C. (2018). ONTO-PLC: An ontology-driven methodology for converting PLC industrial plants to IoT. *Procedia Computer Science*, 126, 527–536. doi:10.1016/j.procs.2018.07.28
- Hoschek, M. (2021). Quantum Security and 6G critical infrastructure. *Serbian Journal of Engineering Management*, 6 (1), 1–8. <https://doi.org/10.5937/sjem2101001h>
- Iskandar, E., Rameli, M., & Ramadhan, W. (2018). Ladder Diagram Design Based on Huffman Method for Selection and Assembling Part on Dual Conveyor Plant. *Proceeding – 2018 International Seminar on Intelligent Technology and Its Application, ISITIA 2018*. <https://doi.org/10.1109/ISITIA.2018.8711094>
- Langmann, & Stiller. (2019). The PLC as a smart service in Industry 4.0 Production Systems. *Applied Sciences*, 9(18), 3815. <https://doi.org/10.3390/app9183815>
- Langmann, R., & Rojas-Pena, L. F. (2016). A PLC as an Industry 4.0 component. 2016 13th International Conference on Remote Engineering and Virtual Instrumentation (REV). doi:10.1109/rev.2016.7444433

- Legat, C., & Vogel-Heuser, B. (2017). A configurable partial-order planning approach for field level Operation Strategies of PLC-based industry 4.0 Automated Manufacturing Systems. *Engineering Applications of Artificial Intelligence*, 66, 128–144. <https://doi.org/10.1016/j.engappai.2017.06.014>
- Rullán, A. (1997). Programmable logic controllers versus personal computers for process control. *Computers & Industrial Engineering*, 33(1-2), 421–424. [https://doi.org/10.1016/s0360-8352\(97\)00127-7](https://doi.org/10.1016/s0360-8352(97)00127-7)
- Saad, W., Bennis, M., & Chen, M. (2019). A Vision of 6G Wireless Systems: Applications, Trends, Technologies, and Open Research Problems. *IEEE Network*, 1–9. doi:10.1109/mnet.001.1900287
- Sajid, A., Abbas, H., & Saleem, K. (2016). Cloud-Assisted IoT-Based SCADA Systems Security: A Review of the State of the Art and Future Challenges. *IEEE Access*, 4, 1375–1384. doi:10.1109/access.2016.254904
- Sallati, C., Bertazzi, J. de A., & Schützer, K. (2019). Professional skills in the Product Development Process: the contribution of learning environments to professional skills in the Industry 4.0 scenario. *Procedia CIRP*, 84, 203–208. doi:10.1016/j.procir.2019.03.214
- Sodhro, A. H., Pirbhulal, S., Luo, Z., Muhammad, K., & Zahid, N. Z. (2021). Toward 6G Architecture for Energy-Efficient Communication in IoT-Enabled Smart Automation Systems. *IEEE Internet of Things Journal*, 8(7), 5141–5148. doi:10.1109/jiot.2020.3024715
- Tepe, C., Aslan, A. S., & Eminoğlu, İ. (2020). Conveyor belt experiment setup for programmable logic controller education. *The International Journal of Electrical Engineering & Education*, 002072092095813. doi:10.1177/0020720920958134
- Wang, G. (2021). *A New Approach for PLC Ladder Diagram Design*. 2021 IEEE International Conference on Electro Information Technology (EIT). doi:10.1109/eit51626.2021.9491
- ADDITIONAL READING
- Chen, J.-Y., Tai, K.-C., & Chen, G.-C. (2017). Application of Programmable Logic Controller to Build-up an Intelligent Industry 4.0 Platform. *Procedia CIRP*, 63, 150–155. doi:10.1016/j.procir.2017.03.1
- Hackworth, J. R., & Hackworth, F. D. Jr. (2003). *Programmable Logic Controllers: Programming Methods and Applications*. System.



On-Demand Services in Transportation and Mobility – A Structured Literature Review

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Abstract: *This article aims to examine the application opportunities of on-demand services in the transportation and mobility sector. As these personalized, demand-driven services are gaining prominence in more and more areas, their dissemination and operation should be given a deeper understanding and overview, thus a structured literature review is being conducted in the study to examine these adaptive service processes.*

There is a great variety in these service types and characteristics, such as on-demand transportation services, demand-responsive transport, dial-a-ride transit, flexible mobility on demand, and many others. Because of this, a systematic approach is strongly justified, as there is a great need for a comprehensive summary, in order to learn more about the nature and operating model of these services.

1. INTRODUCTION

On-demand services and products refer to the way how the demand for these commodities is fulfilled. This concept requires remarkable flexibility because upon its appearance, the demand has to be satisfied immediately; on the other hand, prior that, for instance placing a particular order, commodities are not really available. This means “real time” fulfilment in a demand-uncertain environment (Qiu et al, 2021). Such method ensures flexibility and speed with large capacity or resource reserves to meet the sometimes quite fluctuating demand, that can occasionally explain by immediate responding to fluctuating price levels (Du et al, 2019). Although these systems are not economic, neither efficient without the tight integration along the phases of the value-chain and certainly, some level of predictability or delay may be anticipated, for example state-ensured stabilizing control over transportation (Yan et al, 2019).

The great resource and capacity demand on the input side is compensated by the negligible or zero demand for storekeeping, because the final product is immediately taken, sold, delivered or people get served through the inherently given demand. It is extremely advantageous if the final products are perishable or turn obsolete very rapidly (short product life cycle), or when the range of alternative solutions are wide through fierce competition. Naturally, no need for store-keeping release additional resources from logistics (physical storage), administration (inventory control), manpower (security), overheads and so on.

The flexibility, promptness and up-to-date being are regarded as the most beneficial and innovative features of the concept of on-demand. As a consequence, the term is overused (intentionally) by marketing departments or by the media. The phrase is used in cases whereas the fulfilment is obviously done so. Such trivial instances are hair-cut, pizza delivery or cash machine

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usage. This is also a way to emphasize uniqueness of the products or services respectively, even if this is not always the case. An example for the latter is when an item is assembled of pieces of distinctive materials or coloration, which pieces are made upon the demand, but not the entire item. The supposedly attached positive connotation of the on-demand product and services is questionable in the mentioned cases, so they are usually not labelled as on-demand services professionally.

2. BACKGROUND OF THE CONCEPT

The concept was elaborated for the first time by Ariyasu (2005) in the book “On Demand Logistics”. On-demand services, including logistics, means direct responding to each individual requests in a way that the upstream and downstream side of the value chain is very tightly integrated (Wang et al, 2008). In practice, that reflects to the special idea of delivering from the manufacturer directly to the door of the customer, covering the problematic last miles, detailed later in this study. As a novelty, such integration can facilitate the optimization of the entire value chain comprehensively to achieve smoother operation as a result. To that end, understanding commercial logistics is essential.

Enterprises with minimal logistic activities are especially in need of optimization, plus they are, by size, more flexible. According to Ariyasu’s theory (2005), after standardization, visualization – clearing related information out – can they optimize, link, strip, so as to develop their network of logistics, although it may require special software and hardware back-up. Logistic systems as any other activity, can be also explained through input, conversion and output (Figure 1); the problem occurs usually at the connection points, hence social interactions (e. g. room for misinterpretations and misunderstanding, especially in a culturally diverse environment) and dependency. On the other hand, one can realize the conflict of interests among some elements too, e. g. finance and pollution from a superior perspective (Dong-lai, 2004).

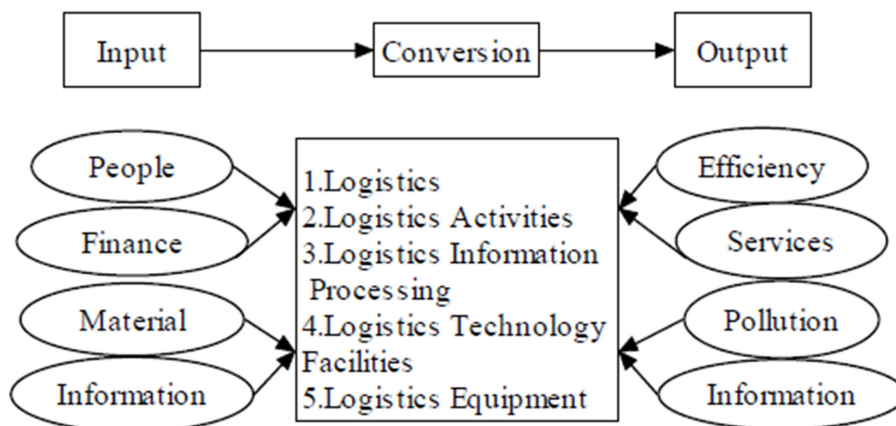


Figure 1. Modeling of logistics

Source: Dong-lai, 2004.

If the actors are not varying per stage or element, so when the system is integrated into “one hand”, then the conflict is easier to solve. On a sublevel for example, when transportation entails water transport, railway, their features are different and not standard. In a micro-, administrative realm, when more actors are involved, different forms, institutions, channels, communication methods complicate the process. Optimization is desired to deal with the described phenomena and according to Ariyasu (2005), on-demand logistics can be a solution respectively.

The core sentiment is that one should imagine logistical structures as a wide network with nodes suitable for manipulation instead of a “flat” line. Nodes are allocation points (warehouses, airports, etc.), and their links (physical routes and flow of information) form areas they serve. To arrange the network the most effectively, all the elements must be in the authority of one actor and the most vital function is the positioning of the nodes (Ge et al, 2010). Upon globalization, global value chains, the necessity of rethinking the traditional logistic systems became inevitable.

Apart from the purely economic viewpoints of the network’s arrangement, flow of information, market-orientation, local tastes, invisible barriers across countries turned to be more affectual. The local market, the individual customers’ demand itself is more important nowadays than the upstream side’s capabilities, hence global competition. In other words, it is called external-orientation or “demand chain management” by Madhani (2013). The phrases “on-demand” or “end-to-end” refer to the whole logistic system’s complete (both upstream and downstream) and real-time alignment to the single demands (Ariyasu, 2005). Such a mission touches upon several disciplines from management to technology, from political interests to administrative pitfalls throughout the entire value chain from development to after-sale services.

3. DEVELOPMENT OF ON-DEMAND DELIVERY

Due to the spread of digital technologies, recently enormously boosted by the pandemic, commercial activities have developed, including e-commerce (Kovács, Vinkóczi, 2020). However, the evolution of on-demand services began with a particular problem, which had always been present in history: delivery. Delivery had no primal importance for companies in the past, they focused on demand, product range, production costs and therefore customers might have to wait for days or week to receive any product they ordered. Logically, improving delivery systems means additional expenses for the enterprise in question; in the meanwhile, it was only a second viewpoint for the clients, especially because the product variety available upon order is usually much wider than those available promptly in physical stores (Buics, Süle, 2022).

This preliminary stage had evolved over a long period, but the twist happened relative suddenly with the establishment of Amazon in the United States. Amazon delivers products only in a couple of days, which is a revolutionary speed (Amazon Prime). The consumer perceives only the timespan between the placement of the order and the reception of the item, but all the while, a plenty of complex logistical problems must be solved, among them one of the most prominent issue is the so-called last mile delivery. Although, according to others, companies (Walmart) and researchers (Jindal et al, 2021), the focus on delivery is not always the best strategy.

It is relatively easy to deliver products in large amount across continents, overseas to specific countries and populous large cities. Driven by scale, this is cost effective as well, but the problems appear at the level of the individual settlements, whereas the whole process slows down and delivery routes diverges greatly, and the products have to be sorted. Contrarily to the cost-effective, mass overseas delivery, from airport to airport, harbor to harbor, at this level, small amounts must be carried more or less individually to several destinations and clients. According to Hong and his co-authors (2019), the last-mile is accountable for half of the total shipment expenditure. The latter the phase of the delivery is, the costlier it is and attention (administration) is required by the task. Timing is also crucial, it entails communication with the customer too, apart from the B2B (manufacturer and delivery service provider) and internal communication. Additionally, transportation on land is more times expensive than water

transportation (Si-Log Network, 2019). Based on the substantially different nature of the various delivery stages, it is not rare that more service providers cooperate to manage the assignment, specialized for certain methodologies.

The new concept of on-demand delivery was invented by Amazon Prime to hedge the described problem. In 2005, Amazon started to offer two-day shipping without additional charges for subscribed customers (Bensinger, 2015). As a direct impact, the subscription fees, which were already paid prior to the placement of an order, partially ensured financial coverage for the operation required only at a latter moment. In short, there was some revenue before the request and expense. In order to raise money as much as possible before the appearance of direct costs, subscription has to be promoted. This culminated in a new approach in strategy. The company incorporated numerous additional services into Prime, such as movie streaming and special offers for instance. As a consequence, in the long-run, subscription revenue continuously increased. There was also another paradigmatic shift on the demand side related to consumer culture, expectations and attitudes (Yan et al, 2019).

With the accelerated speed of information spreading, technological innovations, changes in fashion and taste, the value and perception of time changed worldwide. The waiting started to be regarded as a burden, a particular kind of cost on the behalf of the buyer. This attitude was firstly indicated by the popularity of the Prime subscription, namely that clients pay in advance in order to be served sooner, with other words, in exchange for a shorter waiting time. Long-term subscription also reflected on loyalty, therefore the durability of this new approach of consumption. The consumer base of services with longer fulfillment time started to shrink, despite their historical embeddedness and cheaper being. Vázquez-Martínez and his coauthors (2021) discussed in detail Covid's impact on consumers' behavior; among other viewpoints, they highlighted the perception of safety and current availability of resources from consumers' behavioral changes, but the researchers found evidence on expense cutting too.

In a purely technological realm, in the past, people went to stores, purchased albums, books, etc. while nowadays, they are more inclined to purchase them online, even if they do not receive a physical product. The compensation for that is the immediate "shipping", flexibility and safety (Vázquez-Martínez et al, 2021) regarding the moment of purchase. This shift was largely fueled by Apple. The mentioned companies gained an invaluable strategic advantage: they are able to inform about, keep up with and respond to the changing customer demand almost immediately.

As individual tastes vary distinctively, personalization has become more relevant too. The dealing between individuals is more frequent nowadays than decades before, which was supported again by technological advancement and representative enterprises. In this respect, taxi services and recently Uber should be commemorated. Such services entail communication between individuals, especially in the case of Uber. On the other hand, taxi cabs are typical examples of on-demand services, however the payment is realized only after fulfillment. But it also highlights the importance of time, flexibility and unique needs over cost from the perspective of the client, certainly before the appearance of the virus; afterwards, the situation has changed, and the price become relevant again, but only in terms of leisure activities or "luxurious" commodities (Vázquez-Martínez et al, 2021).

The importance and utility of personalization and individual connection was recognized also by Amazon, what pioneered in this paradigmatic shift. Amazon Flex adopted the same methodol-

ogy as Uber, namely, that a person takes a package, that is meant to be delivered to a spot in his close surrounding, not to a remote place. This “delivery person” is not necessarily a full-time employee, but someone who would like to gather a little money in exchange for a small effort. This led to significant resource saving obviously if the spread of the relevant information is effectively solved.

What is a reasonable argument against shopping via ordering is that the experience is absent from the process. While shopping in a book or electronics store or in a boutique is somehow joyful, daily food purchasing for example is hardly that. Realizing that fact, several retail stores launched their own home delivery service. Although, their success and popularity are not relying on personalization, quite the contrary, on standardization and unambiguity. This way, large, mass-scale companies serve their customers with time-sparing, convenience and flexibility on-demand too (Bartucz et al, 2021).

In today’s competitive and specialized world, people devote less and less time to functional activities such as traveling, shopping or cooking, hence the upheaval of remote working, online ordering or spread of delivery as an option even in traditional restaurants. There is a demand, that the time used to be consumed by such “obligations”, should rather be devoted to our private (entertainment) or professional (livelihood) lives. This is also a deep, paradigmatic change, which is unimaginable without a sufficient level of technological advancement and its coverage, that features the 21st century.

On-demand delivery systems aim to fulfill these new streams of desires through convenience, flexibility accompanied with wide accessibility. Therefore, this business model was invented to remedy the last mile problem, which is a logistical, economic issue, and at the same time, resonates with a profound social change, culminates in commercial and individual benefits as well. Although, brick-and-mortar shops are unlikely to disappear in the foreseeable future at least, however their prospects significantly differ by industry. They need to reposition themselves and increase their value addition in accordance with the evolving consumer desires, particularly concentrating on services more in the future (Sheth, 2021).

The introduced trend is also motivated and supported by the growing amount of investments into companies, which are dealing with any type of on-demand services. And the investments have been presenting impressive yields, that reinforce the whole tendency and generate growth. As companies evolve themselves, they are enabled to offer more and more services – cooperating with more manufacturers or distributors – and to cover larger geographical areas and increase their capacities both in terms of computer capacities and labor force (Nextbrain.com, 2020).

4. MOBILITY ON DEMAND

Mobility on Demand (MOD) is built both on the traditional means of public transportation as well as on private carriers, both enterprises and individuals. However, in the case of the latter, the sharing of their travel routes as an offer is usually done via a company’s website, which serves as a pool but not as an actual actor in the process. MOD, as its name suggests, concentrates on the traveler, its preferences, therefore their evident satisfaction too and not on the supply side (Bartucz et al, 2021a). Thus, the efficiency of the whole action is more crucial, because the client is a more influential factor than it used to be in the past. The mobility is pulled by demand and not determined by the suppliers’ decisions (Bartucz et al, 2021b).

The combination of the mobility services reinforces competition and ensures great flexibility in filling gaps (idle times) in any transportation procedure (Alonso-Gonzales et al, 2020). Or on the other side, the last mile problem is also much easier to bridge, however it may require a bit of planning, depending on the recipient person of the package. It must be enabled by the available technology that is supposed to be sufficiently expanded. It is a further form of pressure on the relevant service providers. In terms of punctuality, another benefit of flexibility is evident when more means of public transportation are aligned while travelling. If the schedule is not upheld by one actor, the whole process can collapse, if alternative solutions are not at hand. A developed and spread technological background can enhance planning possibilities for the passengers and the exposure to delays for instance, can be accounted or diminished. It could be traced back to channel connection between nodes as discussed above (Ge et al, 2010).

Despite the benefit of the individual customer, there are positive externalities apart from the purely commercial aspects. The flexibility and available information about the supply side allow the whole system to align to and fulfil the demand as best as possible, meaning that there are less likely to be empty seats, wasted trips and so on, coming from the higher occupancy-ratio in general. As a consequence, less energy is required for transportation that leads to less CO2 emission, congestion, noise and vehicles required. As a positive externality, overall contamination, which is a crucial viewpoint in urban areas, is likely to decrease substantially. Although, contradictory results were also published recently by Erhardt et al, (2019).

Mobility as a service (MAAS) and mobility on demand have a similar meaning in core, but they are not identical. Both involve different transportation methods, but MOD offers higher flexibility through integrating, sharing and connecting a wider network of options, considering up-to-date information on the supply side, e. g. driver of a shared car and its occupancy or halt request or its absence on shuttles (Buics, Süle, 2022).

The new paradigm of transportation was supported by technology; however, the social vein behind may be more important. Convenience, cost, idle time, number of connections, total time and maybe further factors too, depending on the personal tastes, have an economic value for the individual. In today's accelerated world, it is even more so. These attributes are not always in correlation with monetary terms, therefore even with shrinking budgets (spent on public transportation from governmental side,) a better result may be achieved if the mentioned aspects' impacts are carefully analyzed per target groups, per vehicles or per location. Some argue that the coverage and accessibility of the relevant information networks is what should be funded in the first place because the rest is rather contingent on the potential passengers' demands. The change in preferences includes that people are less likely to have their car and drive, especially in densely populated urban areas, and to relieve themselves from the attached financial burdens and efforts. As found by Kuhnimhof (2017), in a market (Qian, Soopramanien, 2014), car sales grow up initially than gradually slow down. Environmental agendas enhance this tendency too.

The modernization of the transportation infrastructure is nowadays reflecting on the soft technological background from the viewpoint of the on-demand mobility. The physical side is of proportionately smaller relevance, which leads to the fact that (public) investments should target other areas. These areas, deriving from the skyrocketing prices of construction materials (van Sante, 2021), can have a large impact even from smaller input. For instance, vehicles should be tracked by GPS to enable more efficient planning. Real-time methodologies are of crucial importance, while the interface applied or the service provider are secondary (Brusse, 2020).

Although, location sharing raises privacy matters, which are not subject to this study. But stemming from industry forecasts (Verified Market Research, 2021) and the business sphere's pilot projects to develop their position in the market (technological improvements, integrated platforms – Verhoef et al, 2015 – including several types of vehicles), on-demand mobility is gaining ground in transportation at the expense of the traditional and rigid “supply-driven” forms.

5. ON-DEMAND DELIVERY IN THE PRESENT

E-commerce was gaining enormous momentum in the past two years, which was fueled by the pandemic, but even further, the tendency was evident (Totolo & Baijal, 2020). In particular, the author of the study put its first online order in 2019, while throughout 2020, around ten online orders were put. More importantly, e-commerce has increased its share at the expense of traditional, brick-and-mortar retailers. Acknowledging that, they had been setting up their own online platforms too (Kim & Park, 2005). This possibility significantly impacts overall customer satisfaction (Napolitano, 2013). Nowadays, providing an online, “click-and-mortar” alternative became a requirement of retailer competitiveness and survival (businessinsider.com, 2016). This necessity must be met with delivery companies as well, which, as mentioned several times in this work, had to find a solution for the last mile problem. Although, in case of a local grocery store, we can simplify it in a way that there are only last miles to manage.

On-demand delivery is the new instrument for meeting this demand and bringing their products to the customer at the desired spot and time. As described previously, Amazon Prime was the vanguard of this approach. Later, DHL outsourced that specific last-mile to the buyers by introducing the drop-off points. Additionally, the employees were occasionally asked in Walmart to deliver parcels, if the customers' home is nearby their own or can be touched upon while they (employees) travel home after work (Bhattarai, 2017).

The system of dropping-off points did not surpass customer satisfaction, in fact, they proved to be beneficial and more convenient for both parties sometimes. Buyers with hectic, unpredictable daily schedules do not have to worry of missing the delivery, especially when he or she is living in a single-occupant flat. The last-mile problem is solved this way too (as in small cities setting a precise time for delivery is not possible, but only a more hours long range of time and just in specific periods of weekdays, the author of the study prefers pick-up points over home-delivery). Pick-up points have been adopted by several delivery companies or enabled others to provide online ordering (Jing, 2014). However, this process raises the question of the accumulation of inventory expenditures but they are either minimal or zero (Hong et al, 2019). It can be zero, if the pick-up point is ensured by an affiliate company for example. Another widely applied methodology is when the pick-up point is established in a grocery store or supermarket, whereas the visit of a customer has a potential chance of an additional casual purchase.

The task, in this case, is to find the most suitable point for installing the pick-up point, in accordance with its location, and delivery routes and time to it, while maintaining customer satisfaction. Although it is a popular method, it is unlikely that door-to-door deliveries would be squeezed out of the market any time soon, especially during the pandemic, when free movements are to certain extent restricted and some people thrive to avoid crowded places (Vázquez-Martínez et al, 2021).

This model usually involves a third party, plus the customer itself as explained above. Optimizing this model is more complicated than the door-to-door alternative. The next factors are to

be considered (Hong et al, 2019): available pick-up points offered to the customer (which is in correlation with its home, workplace, size of the settlement, etc.), the cost and time of delivering to this point by the company, its capacity and additional features (opening hours of malls, for example), preferred period for taking over the commodity (customer). Perishable goods for instance impose additional aspects to consider (freshness e.g. – Neghabadi et al, 2016).

A new, hybrid method for the described approach is “on-demand last mile delivery service”. This approach grants companies an even shorter response time than in the former case. This utilizes crowdsourcing and outsider (temporary) delivery personnel, who could either deliver to the pick-up point or to an individual spot, which is a greatly flexible method, in fact, it may lead to higher customer satisfaction occasionally (Esper et al, 2003). However, this allocation model is very problematic for companies (e. g. Amazon, DHL) to manage effectively and reliably (Traveling Salesman Problem with Time windows; Voccia et al, 2013).

6. CONCLUSION

In a summary, optimizing the location, the number of the delivery centers and routes in the light of several additional factors extracted from a real-time delivery, is a challenge to face in the on-demand logistics industry. The issue aroused upon the discovery that the last-mile can be delegated to the customer without a disproportionately great sacrifice of satisfaction. As the spot and time of delivery became flexible, a range of options opened up among which the most optimal has to be found in order to minimize costs among other possible goals. The impact of each individual factor is also remarkable when making such a strategic decision. However, as demand continues to grow, aided by the continuous development of digitalization, these challenges have to be addressed by companies in order to operate successfully on the market.

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REFERENCES

- Alonso-González, M. J., Cats, O., Van Oort, N., Hoogendoorn-Lanser, S. & Hoogendoorn, S. (2020). What are the determinants of the willingness to share rides in pooled on-demand services? *Transportation*, 48(1), 1733-1765.
- Ariyasu, K. (2005). On-demand logistics. Cen Yun-Hua, Yuan Yun-Ying translated, Science Press, Beijing, China.
- Bartucz, Cs., Buics, L., Horvath, A., Süle, E. (2021a). Possibilities of adaptive services in mobility and city logistics.
- Bartucz, Cs., Buics, L., Horvath, A., Süle, E. (2021b). Process based approach of adaptive transportation services – identification of time gaps.
- Bensinger, G. (2015). Amazon's next delivery drone You. *The wall street Journal* [online] Available at: <https://www.wsj.com/articles/amazon-seeks-help-with-deliveries-1434466857>. Accessed: 11. 05. 2021.
- Bhattarai, A. (2017). Walmart is asking employees to deliver packages on their way home from work. *The Washington Post*. [online] Available at: <https://www.washingtonpost.com/news/>

- business/wp/2017/06/01/walmart-is-asking-employees-to-deliver-packages-on-their-way-home-from-work/?noredirect=on&utm_term=.085a065f3c82. Accessed: 11. 04. 2021.
- Brusse, T. (2020). What is mobility on demand? *TripSpark.com* [online] Available at: <https://www.tripspark.com/blog/what-is-mobility-on-demand>. Accessed: 11. 05. 2021.
- Buics, L., Süle, E. (2022). On-demand logistics in public services from customer perspective. *Logisztikai Évkönyv*, Magyar Logisztikai Egyesület. DOI 10.23717/LOGEVK.2022.11.
- Businessinsider.com (2016). E-commerce growth has hit a two-year high. [online] Available at: <https://www.businessinsider.com/e-commerce-growth-has-hit-a-two-year-high-2016-8>. Accessed: 11. 04. 2021.
- Dong-lai, N. (2004). Modern logistics technology. *Shanghai Finance University Press*, China, 47-95.
- Du, P., Lu, N. & Zhong, H. (2019). Distributed real-time demand response. In book: *Du, P., Lu, N. & Zhong, H. (2019). Demand Response in smart grids*. Springer Nature, Switzerland.
- Erhardt, G. D., Roy, S., Cooper, D., Sana, B., Chen, M. & Castiglione, J. (2019). Do transportation network companies decrease or increase congestion? *Science Advances*, 5(5), 1–11.
- Esper, T., I., Jensen, T., D., Turnipseed, F., I. & Burton, S. (2003). The last mile: an examination of effects of online retail delivery strategies on consumers. *Journal of Business Logistics*, 24(2), 177-203.
- Ge, H., Chen, L. & Li, H. (2010). Research on the function of on-demand logistics mechanisms in the optimization of logistics system. *Traffic Bureau of Zhenjiang City*, Zhenjiang, China.
- Hong, J., Lee, M., Cheong, T. & Lee, H., C. (2019). Routing for an on-demand logistics service. *Transportation Research Part C*, 103, 328-351.
- Jindal, R., P., Gauri, D., K., Li, W. & Ma, Y. (2021). Omnichannel battle between Amazon and Walmart: Is the focus on delivery the best strategy? *Journal of business research*, 122, 270-280.
- Jing, M. (2014). JD teaming up with convenience stores. *Usa.chinadaily.com* [online] Available at: http://usa.chinadaily.com.cn/epaper/2014-03/18/content_17356623.htm. Accessed: 11. 04. 2021.
- Kim, J. & Park, J. (2005). A consumer shopping channel extension model: attitude shift toward the online store. *Journal of Fashion Market and Management*, 9(1), 106-121.
- Kovács, G. & Vinkóczy, T. (2020). Spatial study of the digitalization-modernization effects of the banking sector in the European Union. *Külgazdaság*, 64, 33-69.
- Kuhnimhof, T. (2017). Car ownership and usage trends in Germany – Response to the Commission on Travel Demand's Call for Evidence: Understanding Travel Demand. Institute of transport *Research at the German Aerospace Center (DLR)* [online] Available at: <http://www.demand.ac.uk/wp-content/uploads/2017/03/25-EC1-Tobias-Kuhnimhof.pdf>. Accessed: 11. 05. 2021.
- Madhani, P., M. (2013). Demand Chain Management: Enhancing Customer Value Proposition. *The European Business Review*, March, 50-54.
- Napolitano, M. (2013). Omni-channel distribution: moving at the speed of “now”. *Logistics Management*, 52(6), Colorado, USA.
- Neghabadi, P., Samuel, K. & Espinouse, M., L. (2016). City logistics: a review and research framework. In: *RIRL 2016 EPFL*, Lausanne, Switzerland.
- Nextbrain (2020). Amazing milestones in the history of on-demand delivery business Start-ups, Technology. *Nextbraintech.com* [online] Available at: <https://www.nextbraintech.com/blog/amazing-milestones-in-the-history-of-on-demand-delivery-business>. Accessed: 11. 05. 2021.

- Qian, L. & Soopramanien, D. (2014). Using diffusion models to forecast market size in emerging markets with applications to the Chinese car market. *Journal of Business Research*, 67(6), 1226-1232.
- Qiu, R., Hou, L., Sun, Y., Sun, M. & Sun, Y. (2021). Joint pricing, ordering and order fulfillment decisions for a dual-channel supply chain with demand uncertainties: A distribution-free approach. *Computers & Industrial engineering*, 160, 107546.
- Sheth, J., N. (2021). Future of brick and mortar retailing: how will it survive and thrive? *Journal of strategic marketing*, 29(7), 598-607.
- Si-Log Network (2019). Transport by sea, by land or by air: the differences and similarities. *Blog.si-log.net* [online] Available at: <https://blog.si-log.net/transport-by-sea-by-land-or-by-air-the-differences-and-similarities>. Accessed: 11. 05. 2021.
- Totolo, E. & Baijal, H. (2020). How a pandemic-induced boom in e-commerce can reshape financial services. *World Bank Blogs* [online] Available at: <https://blogs.worldbank.org/psd/how-pandemic-induced-boom-e-commerce-can-reshape-financial-services>. Accessed: 11. 04. 2021.
- Van Sante, M. (2021). Building material prices to remain high until at least the middle of next year. *Think.ING.com* [online] Available at: <https://think.ing.com/articles/some-building-material-prices-remain-high-till-at-least-mid-2022>. Accessed: 11. 05. 2021.
- Vázquez-Martínez, U., J., Morales-Mediano, J. & Leal-Rodríguez, A., L. (2021). The impact of the COVID-19 crisis on consumer purchasing motivation and behavior. *European Research on management and business economics*, 27(2), 100166.
- Verhoef, P., C., Kannan, P., K. & Inman, J., J. (2015). From multi-channel retailing to omni-channel retailing: introduction to the special issue on multi-channel retailing. *Journal of Retailing*, 91(2), 174-181.
- Voccia, S., A., Campbell, A., M. & Thomas, B., W. (2013). The probabilistic traveling salesman problem with time windows. *EURO Journal on Transportation and Logistics*, 2(1-2), 89-107.
- Wang, M., Liu, J., Wang, H., Cheung, W., K. & Xie, X. (2008). On-demand e-supply chain integration: A multi-agent constraint-based approach. *Expert system with applications*, 34(4), 2683-2692.
- Yan, L., Xu, F., Liu, J., Teo, K., L. & Lai, M. (2019). Stability strategies of demand-driven supply networks with transportation delay. *Applied mathematical modelling*, 76, 109-121.
- Yan, X., Levine, J. & Zhao, X. (2019). Integrating ridesourcing services with public transit: An evaluation of traveler responses combining revealed and stated preference data. *Transportation Research Part C: Emerging Technologies*, 105, 683–696.



The Importance of Ethical Language in Business Communication

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Abstract: *Language is culturally transmitted. It means that the language people use is the result of influences different factors had upon them: parents, educators, colleagues, and media. When conveying a message, it is important to think not only about the words that help with clarity but, also, it is crucial to consider the meanings of different words. In the business world, for companies operating in foreign countries, the language used plays a central role in how these companies are perceived, thus the language and the culture of that country coexist. In today's world, effective communication is critical to a company's success since it strengthens relationships, improves decision-making, and improves problem-solving abilities. Yet, successful business communication means that the communication must include the application of ethical standards during communication. Thus, this paper aims at presenting the relationship between communication and business, with emphasis on ethical language.*

1. INTRODUCTION

Culture is defined as “the specific learned norms of a group’s attitudes, values, and beliefs” (Daniels et al, 2011). In contemporary society, apparently marked by democracy, words may become people’s biggest weapons. As we have witnessed many times, words have tremendous power to achieve change through articulate messages meant to influence the masses. Thus, language has become a reflection of culture, contributing to people’s understanding of what is “good” or “bad.” Linguists are increasingly focusing on ethical language, emphasizing the use of disparaging language and its potential to create a hostile environment.

Effective communication is critical for an individual’s success in today’s world since it helps to develop and maintain relationships, as well as improve decision-making and problem-solving abilities. It would be difficult to explain one’s views, beliefs, and ideas to another without efficient communication. When related to business, ethical behavior and corporate social responsibility can bring important benefits to a business. Ethical communication improves credibility, and the decision-making process and also contributes to the creation of a certain level of trust between parties. Thus, ethical communication allows two parties to communicate with a basic understanding of what is expected. How individuals or groups of people transmit information is referred to as an ethical issue in corporate communication. Communicators aim to explain their ideas, intentions, and goals to their receivers as clearly as possible to achieve effective communication. As a result, communication is only successful when both the sender and the recipient have the same understanding of the information.

Effective communication skills are required in today’s corporate environment due to the highly informative and technology age, thus the exchange of information between parties has been made easier. Regardless of the situation, communication is about making choices, reflecting

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ideals, and having consequences. Customers, management, and employees all value honest and ethical behaviors, thus any company trying to be socially and ethically responsible must prioritize ethical communication both inside the firm and in its dealings with the public for successful communication. Hence, ethical communication in business is critical since it promotes the company's reputation, avoids major financial and legal issues, and benefits everyone involved.

2. ETHICAL COMMUNICATION IN BUSINESS

Ethical communication in the workplace is the exchange of information between a variety of individuals involved in the day-to-day running of the company (management, employees, suppliers, clients, and the community), communication that has to be truthful and accurate.

As we have mentioned earlier, ethical business communication may take different forms. The literature has devoted a wide range of writing regarding the significance of ethics in business communication. Most failures in business happen due to the absence of morals in their business operation, therefore ethics is the basic achievement of authoritative development and progress. It can be said that ethics are a vital segment in achieving business objectives. According to Martin and Chaney (2012) there is a direct correlation between ethical business communication and customer loyalty. Ethical business communication plays a vital role in the development of a loyal customer base because of the ethical way in which the company behaves when it comes to communicating with its customers. Ethical business communication helps to create a positive image of the organization in the workplace, which helps in attracting more customers. Ethics also contributes to employees understanding of corporate standards, particularly in the area of communication. The respect and protection of all human beings' rights is the foundation of ethics. Hence, together with business communication reduces discrimination and makes people practice honest behavior in a business setting.

According to The National Communication Association (NCA) (<https://www.natcom.org/>) contexts, cultures, channels, and media, ethical communication is "essential to responsible thinking, decision making, and the formation of relationships and communities." Obviously, it still takes into account the moral principles that govern a person's behavior. Moreover, the NCA states that "ethical communication enhances human worth and dignity by fostering truthfulness, fairness, responsibility, personal integrity, and respect for self and others." Communication ethics value truth, honesty, integrity, respect, fairness, and justice. Ethical communication is about freedom of expression and diversity of perspective. According to this theory, people should do their best to understand others, while promoting access to communication resources and opportunities. Nonetheless, communication ethics is about sharing information, opinions, and feelings, while also respecting privacy and confidentiality. Hence, not considering these principles can threaten the quality of all communication. Therefore, "unethical communication threatens the quality of all communication and consequently the well-being of individuals and the society in which we live." (National Communication Association, 2017). On the other hand, communication ethics can vary across different communication contexts. While all of these morals should still be kept in place, "communication ethics are expressed in different ways within different contexts". Within communication, we value respect and listening. Interpersonal and public communication may also value respect and honesty compared to organizational and rhetoric communication. Though all principles are still important, some play a bigger role in certain contexts.

3. PRINCIPLES OF ETHICAL COMMUNICATION

Businesses rely on communication in all of its forms, including face-to-face, print, and digital. At the same time, the business world heavily focuses on revenue, growth, and profit margins. Organizations deal with sensitive information every day, like news about financial crises, or information about upcoming upheavals. Most of the time, managers are told to keep such information private because it can lead to an ethical problem, either within the organization (internally) or for its consumers and investors (externally). Nonetheless, a growing number of voices are asking for workplace honesty, transparency, and respect — not just between the company and its customers, but also within the company itself. As corporate communications are largely deregulated, this leaves room for messaging that is creative, misleading and sometimes incorrect. Thus, the question that arises is: Where do we draw the line? Despite a variety of communication standards that organizations should be aware of, ethical communication is the most crucial. As a result, ethical communication is a form of communication based on particular ethical standards (Mandelbaum, 2020). These are:

Honesty. Running a business that is proud of being ethical and socially responsible is a challenge. Honesty is the cornerstone of ethical communication, and all other characteristics flow from it. It is defined as the act of communicating a message straightforwardly and truly.

It is not ethical communication to try to make information more appealing. When a boss asks tough questions, neither is lying because speaking the truth would make an employee appear bad. Thus, if honesty is not a driving concept in how a company conducts every area of its work process, it is nearly impossible for that company to develop trust.

Honesty in business is not only doing things correctly the first time but also articulating the ideals around which a company is founded.

Transparency. In business, transparency is the foundation for trust between a company's customers, partners, and employees. When talking with persons with a vested interest in business matters, being transparent involves being honest and open. It is conceivable to tell the truth but not the whole truth, albeit partial disclosure is rarely ethical.

Professionalism. In the workplace, ethical communication is more than just an issue of personal morality; it is also a sign of professionalism. In a job or business situation, professionalism is described as someone's conduct, behavior, and attitude. It is not necessary to work in a certain profession to display important professional talents and characteristics. Job success, a strong professional reputation, and a high level of work ethic and quality are all linked to professionalism. According to Forbes, thinking long-term is the best method to communicate effectively (Flaxington, 2018).

Consistency. So that individuals are not confused by contradicting messages, consistency necessitates that the information supplied to various parties is rational and congruent. An anticipated workflow that is constant throughout the firm is vital in any business process, not simply communication methods. Consistency creates a pattern everyone can come to expect, and they develop a subconscious comfort level when business needs are met. Many organizations admit that consistent communication is the basis of any business's success and survival. Workplace communications have positive results in increasing productivity, improving efficiency, and raising employee satisfaction and morale.

Responsibility. Whenever speaking or writing in a business environment, individuals have certain responsibilities to their audience, their employer, and their profession. The sender of the message is responsible for the way the message is received. Writing an unclear message to give the sender credible disputability if the receiver misunderstands the message is not ethical communication. The sender must communicate the message in such a way that it surpasses any unexpected hurdles, such as conversing with customers in plain English rather than business jargon. Manipulation, avoidance, and other verbal techniques are forbidden by ethical communicators. They must be as open as possible.

Fairness. Fairness is the notion of communicating without judging or interrupting the other person, and not presuming how they would reply. According to the career and management learning solutions platform Mind Tools (<https://www.mindtools.com/CommSkill/ActiveListening.htm>), active listening is an essential skill as this talent guarantees that everybody is listening to comments and addressing in-depth questions for clarification.

People who embrace this concept build an environment devoid of discrimination and dishonesty in order to ensure a fair decision-making process. Fairness is related to the process of decision-making rather than the outcome. The goal in a corporate setting is to make smart judgments that benefit the company while not causing harm to customers, employees, shareholders, suppliers or people, in general.

4. THE IMPACT OF UNETHICAL COMMUNICATION ON BUSINESS

The Merriam-Webster dictionary (Merriam-Webster.com dictionary) defines “unethical” as “not conforming to a high moral standard; morally wrong; immoral.” Some schools of thought define unethical communication as anything that encourages ignorance, intolerance, or defamation. According to Redding (1996), *coercive*, *destructive*, *deceitful*, *invasive*, *secretive*, and *manipulative-exploitive communication* are six types of unethical interaction that regularly occur in businesses. Behaviors such as intimidation or threats, in which the speaker abuses his or her status or influence and attempts to limit the hearer’s autonomy, are examples of coercive communication.

Destructive communication, according to Redding, is defined as communicative activities that harm a listener’s self-esteem, image, or feelings by demonstrating disregard or scorn for the listener’s values. It includes “insults, derogatory innuendoes, epithets, jokes (especially those based on gender, race, sex, religion, or ethnicity); put-downs; backstabbing; character assassination and so on”.

Acts intended at deceiving, misleading, or defrauding the listener are considered *deceptive* communication. According to the same author, subordinates are more inclined to engage in false communication when discussing their activity or observations. However, Redding also points out that businesses employ euphemisms to conceal product flaws, unpleasant details, and unpleasant realities.

The *intrusive* communication category is concerned with communicative acts that infringe on the listener’s privacy rights. Acts of secretive communication include hoarding or concealing information that would reveal a person’s incompetence. Silence and unresponsiveness are included in this group, according to Redding.

Manipulative-exploitative communication involves exploiting people's anxieties, prejudices, and ignorance in order to get acquiescence.

American comedian, Fred Allen famously said, "An advertising agency is 85 percent confusion and 15 percent commission" (<https://www.forbes.com/quotes/3131/>). Just like in life, business communication is about more than just getting a word over; it's also about gaining feedback, which is heavily influenced by how the message was received. This means that communicators must take into account any language limitations that the audience may encounter and strive for representation in their word choices. In professional interaction, communicators should make certain that they do not present anything that may be construed as demeaning, intolerant, or even hateful. The following are instances when corporate communications become overcomplicated, instances ignoring that communication is always two-way.

4.1. Starbucks: The Importance of the Company's Main Values to Each Employee

Two men went to a Philadelphia Starbucks to meet up with friends in April 2018. They asked to use the restroom as they sat at a table waiting to be served. Nonetheless, the on-duty manager phoned the cops, and the two black males were unfairly detained for trespassing. The video of the arrest went viral, and #boycottStarbucks was trending on social media the next day. What began as a store manager trying to follow company policy devolved into a racially charged interaction that even Starbucks CEO Howard Schultz labeled "reprehensible." Kevin Johnson, the company's CEO, issued an immediate statement that included a formal apology to the two men. To employees and customers, he said, "You can and should expect more from us. We will learn from this and be better." (<https://stories.starbucks.com/press/2018/starbucks-ceo-reprehensible-outcome-in-philadelphia-incident/>). Schultz also discussed a list of internal actions the company would take (realigning the entire organization to the company's key values and mission; encouraging bottom-up feedback from partners on how the company was doing from their standpoint; adopting best practices and reviewing policies that support an inclusive and equal culture). Starbucks shuttered 8,000 outlets a month later to train 175,000 employees on discriminatory practices and how to make every client feel welcome. Starbucks conducted an internal inquiry into its rules after recognizing a major breakdown in its organizational communication protocols and how its "practices and training contributed to a disastrous outcome." It was regarded as a genuine and transparent response.

4.2. Yahoo's Failure: Not Communicating

Yahoo executives admitted in September 2016 that a data breach in 2014 had revealed the accounts of 500 million users to hackers. Three months later, in December, the corporation revealed that another hack had occurred in 2013, this time affecting one billion accounts. Yahoo acknowledged nearly one year later, in October 2017, that the data hack had touched all 3 billion of its subscribers (Larson, 2017). In this case, ironically, Yahoo's business communication failure was not communicating, an example of deceptive, intrusive and secretive unethical communication. It appears that firm insiders were aware of the incident when it occurred years ago but kept it hidden. An internal investigation found that "failures in communication, management, inquiry, and internal reporting contributed to the lack of proper comprehension and handling of the 2014 Security Incident (McAndrew, 2018)."

Yahoo is an example of a company that, by not addressing a crisis with internal stakeholders and customers, faced a *decrease in valuation* (Yahoo was in the process of selling a part of its

corporation to Verizon, who slashed the asking price by \$350 million as a result of the error); *damaged brand reputation* (people will not trust a company that not only mismanages their personal information, but also fails to notify them that their names, phone numbers, and passwords have been stolen, thus Yahoo's failure to communicate most likely resulted in a loss of users); *loss of employee trust* (trust is an extremely important aspect highly affecting high employee confidence and engagement).

4.3. Nike: Top Management Business Communication Failure

Nike has been one of the most well-known names in the world of sneaker gear since 1971, when the Swoosh emblem was first introduced. Nike has consolidated its position as the leader in the footwear market, with an annual profit of \$36 billion, thanks to endorsement deals with some of the most well-known personalities in sports. Notwithstanding being one of the most profitable garment corporations in the world, Nike has suffered a few public relations disasters that required extensive mending. Female employees spoke up in 2018 about the male-dominated workplace atmosphere that encouraged harassment and discrimination. It began with an anonymous poll on their experiences conducted by a group of women at the company's Beaverton, Oregon headquarters. CEO Mark Parker was informed of the alarming findings (Creswell et al. 2018).

What went wrong with Nike are just some examples of internal communication problems. Yet, the more significant problems were that it took a survey by a group of employees to reveal this toxic culture, that a leader said he was unaware of the problems, and, conclusively, the lack of efficient methods of bottom-up communication.

5. CONCLUSION

Ethical communication refers to communicating in a manner that is clear, concise, truthful and responsible. Therefore, we believe that unethical communication is a threat to the quality of all communication and consequently the welfare of individuals and the society in which we live. Being ethical implies acting in accordance with moral principles or following good moral standards in all situations, not only when talking. It is critical to communicate ethically because there are too many people forgetting about what is right and what hurts other people. Also, ethical communication is about giving respect and being a respectable human being. Both individuals and organizations suffer major consequences when they engage in unethical behavior. They could lose their job and reputation, companies' credibility could be harmed, general morale and productivity could suffer, or the behavior could result in considerable financial loss.

REFERENCES

- Creswell, J., Draper, K., Abrams, R. (2018, April 28). "At Nike, Revolt Led by Women Leads to Exodus of Male Executives". <https://www.nytimes.com/2018/04/28/business/nike-women.html>. Retrieved January 5th, 2022.
- Daniels, J. D., Radebaugh, L. H., Sullivan, D. P. (2011). *International Business Environments and Operations*. 15th edn. Prentice Hall.
- Flaxington, B. (2018, October 24). Communicating Professionally Still Matters. <https://www.forbes.com/sites/forbesbostoncouncil/2018/10/24/communicating-professionally-still-matters/>
- <https://stories.starbucks.com/press/2018/starbucks-ceo-reprehensible-outcome-in-philadelphia-incident/>

<https://www.forbes.com/quotes/3131/>

<https://www.mindtools.com/CommSkll/ActiveListening.htm>

<https://www.natcom.org/>

Larson, S. (2017, October 4). Every single Yahoo account was hacked – 3 billion in all. <https://money.cnn.com/2017/10/03/technology/business/yahoo-breach-3-billion-accounts/index.html>.

Mandelbaum, A. (2020, October 22). “Ethical Communication: The Basic Principles”. <https://www.smbadvisors.com/capabilities/knowledge-management/insights/ethical-communication-the-basic-principles>.

Martin, J. S., & Chaney, L. H. (2012). *Global business etiquette: A guide to international communication and customs*. ABC-CLIO.

McAndrew, J. (2018, May 11). The Hacked & the Hacker-for-Hire: Lessons from the Yahoo Data Breaches (So Far). <https://www.natlawreview.com/article/hacked-hacker-hire-lessons-yahoo-data-breaches-so-far>.

Merriam-Webster. (n.d.). Unethical. In *Merriam-Webster.com dictionary*. Retrieved November 13th, 2021, from <https://www.merriam-webster.com/dictionary/unethical>. *Webpage on a website with an organizational group author*

The National Communication Association (2017). *Credo for Ethical Communication*. https://www.natcom.org/sites/default/files/pages/2017_Review_Credo_for_Ethical_Communication.pdf.



Perceptions of the Role of the Media in the Understanding of UAS for Civil Use – The Case of the Republic of Serbia

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Abstract: *Unmanned Aircraft Systems (UAS) have major benefits for humankind, nevertheless they are perceived through their widespread use for military purposes with ethical reservations. However, the possibilities for non-military use of UAS are extensive: scientific research; disaster prevention and management; protection of critical infrastructure; homeland security; communications; and environmental protection. Media can have a significant role in promoting and explaining the use of UAS for civil purposes to the wider public. This paper explores perceptions of academics and professionals in various fields (security, environmental protection, STEM, etc.) of media reporting on UAS in general, UAS for military use, and UAS for civil use in the Republic of Serbia. The findings show that media are perceived as underutilized vehicles in promoting UAS for civil use and develop a model for media use in promoting UAS for civil purposes.*

1. INTRODUCTION

In the second decade of the 21st century, Unmanned Aircraft Systems (UAS) have been developed for various fields of human life, other than military usage which has been their original purpose. There is an ongoing debate on the added value on one side and legal and moral restrictions on the other side. The use of unmanned combat aerial vehicles (UCAV) is on the rise and many countries are considering their use in current and future conflicts, especially after their application in Nagorno-Karabakh region (Ilić & Tomašević 2021). This, on the other hand, raises many ethical questions and increases doubts about the possibility of their civil use for the benefit of societies.

Undoubtedly, UAS have great potential in implementation for civil purpose and influence on improving everyday life, nevertheless, the public is still not aware of advantages of the use of UAS for civil purposes. One of the main reasons is that the media is still very much focused on their military use and destruction they can bring to people and their communities in war and other conflict circumstances, especially in the terms of terrorist attacks for which they have been used in the past.

Nevertheless, the possibilities of non-military use of UAS, as previous studies demonstrate are wide. UAS can be used in scientific research (archaeology, geography, biology, etc.); environmental and disaster management (environmental protection, disaster prevention and management); security (management and protection of critical infrastructure, homeland security, etc.), education; communications; creative industries; etc. (Skrzypietz 2012).

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Public mostly perceives UAS use and develops attitudes on UAS applications either in military or civil purposes through media. Media can have a significant role in promoting and explaining the use of UAS for civil purposes to the wider public.

The first part of this paper explores existing literature on UAS use for civil purposes, the second part analyses topics on UAS use that Serbian media are focused on. The third part of this paper explores perceptions of academics and professionals in various fields (security, environmental protection, STEM, etc.) of media influence on promoting UAS for civil use in the Republic of Serbia. The final part develops a model for media usage in promoting UAS for civil purposes.

2. LITERATURE REVIEW

2.1. UAS Implementation

Unmanned Aircraft Systems (UAS) during the last decade have been given many roles in various aspects of human life other than military purposes. Those applications are not widely known in general public in the Republic of Serbia. In existent scientific literature, however, UAS are often represented as low-cost, easy to use tools in many aspects of human activities (González-Jorge et al. 2017).

UAS has growth potential in medicine, namely delivering medical supplies to inaccessible areas, especially during extreme situations. They showed great potential for use in pandemics during the Covid-19 outbreak (decontamination, monitoring, etc.) (Restás 2022).

UAS has huge potential in agriculture which is one of the main sectors of the Serbian economy. UAS is already used in precision agriculture – crop monitoring and mapping, weed identifying and control, irrigation planning, crop spraying, health assessment, etc. (Ehmke 2013; Rasmussen et al. 2013; Faical et al. 2014; Simelli and Tsagaris, 2015; Comba et al. 2015; Souza et al. 2017; Pantazi et al. 2017; Huang et al. 2018) and its potentials in agriculture are almost endless.

UAS also have potential use in construction, namely in 3D mapping, inspection and assessment of construction sites (Dupont et al. 2017; Freimuth and Koenig, 2018), which significantly influences mapping and inspection processes and requires a new set of knowledge and skills, but also reduces the possibilities of accidents and assists strict implementing of safety rules and regulations. It also helps the improvement of the precision of collected data.

One of the important possibilities is the use of UAS in the process of monitoring critical infrastructure, namely inspection of power lines, especially in mountain or hilly areas; it helps speedy identification of problems, risk assessment and reduces the time for the feedback and lessens various dangerous situations for the manpower (Zormpas et al. 2018; Wang et al. 2022).

UAS has potential use in traffic control and observing and sending data on accidents to traffic control authorities that can lessen the consequences of those accidents (Kamnik et al. 2020). Similarly, UAS has great potential in photogrammetry and remote sensing (Everaerts, 2008).

UAS has promising application in all phases of the disaster management cycle. UAS are scarcely used but have great potential to be used in monitoring areas prone to wildfires, floods, avalanches and they can send real-time data to monitoring centres that can assess the risk of disas-

trous situations. However, UAS are already extensively used in response to floods or fires and earthquakes (Fernández-Guisuraga et al. 2018; Gebrehiwot et al. 2019; Ilic, et al. 2021). They have potential use in man-made disaster scenarios, like radiation incidents, and can be used in assessing the severity of a situation without endangering people (Li et al. 2018).

Archaeology is one of the fields where UAS are already being used with great success in 3D mapping, analysing and building 3D models of the most important historic sites (Bakirman et al. 2020), like Egyptian pyramids, Hagia Sofia in Istanbul, Parthenon in Athens, etc., thus tremendously expanding the existent knowledge.

Various types of media themselves can ensure great benefits of using UAS for filming documentaries, films, various types of live events (sports, concerts, etc.), while respecting privacy and other laws (Gynnild, Uskali 2018; Barrero, 2018; Karakostas et al. 2020).

2.2. Media in the Republic of Serbia on UAS

Most of the media focus in the Republic of Serbia is given on military usage of UAS, nevertheless, there were occasional stories about the use of drones for civil purposes.

- In 2018, Deutsche Welle (DW) in Serbian has been analysing usage of drones in potential future conflicts (27.08.2018). In 2021, Deutsche Welle has been focused on the political and military implications of use of drones of pro-Iranian militants in Iraq and Syria (03.07.2021), use of Turkish drone Baryaktar in Ukraine (02.11.2021), implementation of drones at the wars of future and loitering munition (07.06.2021).
- Web portal Slobodna Evropa focused on Serbian military orientation on UAS procurement and development (08.10.2020). Web portal B92 focused on military drones Serbian developed and produced in Serbia (18.08.2021) as a showcase of Serbian defence industry development. Web portal Tangosix (25.10.2021) focused on kamikaze drones.
- Web portal Srbija danas focused on Russian drones (13.12.2021).
- Russian Sputnik News web portal in Serbian language in the period between 2015 and the end of 2021, published 98 texts on drones, most of them focused on military use of drones in Iraq, Syria, Nagorno Karabakh, Ukraine, UAE, etc., nevertheless handful of texts focused on civil implementation of UAS in scientific research, traffic, creative industries, and quarantine control during Covid-19 pandemic (Sputnik News, 2021).
- Balkans.ALJazeera.net portal in the period of 2016 to the end of 2021 published sixty three texts on UAS, among them 46 have been focused on usage of drones in military purposes (USA, Iran, Turkey, Ukraine, Russia, Yemen, Saudi Arabia, Afghanistan, and Iraq), and the rest of the texts focused on topics such are: delivery of medicines in the USA and Rwanda; delivery of university documents in Singapore; UPS drone delivery in Florida; mail delivery by drones in Mostar; photos made by drones in New York; drone flight control in Singapore; a drone competition in Dubai; Airbus development of taxi drones; private drones flying restrictions in Iran; eagle training in catching illegal drones in Holland; droneboarding; legal issues of UAS usage in Serbia and Bosnia and Herzegovina; restrictions of drone using in crowd monitoring in France; UN drone register (n.d.).
- Politika (n.d.) portal from 2014 until the end of 2021 published 148 texts on UAS, mostly on military purposes (USA, China, Russia, Ukraine, Iran, Iraq, Yemen, Nagorno Karabakh; Israel; India; Pakistan; Syria) and political purposes (Albanian drone football match incident in Belgrade). Texts on civil use of drones included: UAS use in pipelines monitoring; several articles on drones usage in agriculture; pocket drones for selfies; British regulative problems

with private drones; near hits of planes with drones at London airport; drones incident at Frankfurt airport; British Embassy donation of drones with georadar for missing persons bodies recovery from previous war conflicts in former Yugoslavia for Serbian committee on missing persons; drones monitoring of Greek beaches during Covid-19 pandemic; drones flying in California threatening the birds; drones for documentaries filming; drones for weddings filming; drones in photogrammetry; drones in fighting illegal drug trade, etc.).

- Telegraf.rs (22.12.2021) focused on the use of UAS in policing, namely in shooting response. 021.rs (28.07.2021) portal focused on similar topic – traffic police use of drones instead of radar.
- Telegraf.rs portal also focused on a story of an accident during a UAS entertainment show in China showing potentials problems (09.10.2021). Telegraf.rs. also focused on positive experiences of Korean air using UAS for planes inspection (20.12.2021). State TV – Radio Television of Serbia TS also focused on this story (19.12.2021).
- Some of the media focused on texts on UAS implementation in civil use (for example traffic control) at their Technology sections (Danas, 10.11.2019). Web portal Biznis i finansije (10.08.2021) focused on the use of UAS for meteorology. Web portal Energija Balkana (04.03.2021) focused on the possibilities of UAS use for green energy producing.
- Web portal Biznis.rs (13.06.2021) published an article on legal issues and problems of drones operating in the Republic of Serbia that was repeated at portal Energyobserver (18.06.2021).
- Web portal Ozon press focused on using drones in fighting illegal tobacco production (17.12.2021).
- Webportal 013info.rs (13.09.2021) focused on drones for education program by Serbian Ministry of education, science and technological development.

3. MATERIALS AND METHODS

3.1. Research Methodology

In order to develop the list of the most important topics for media promotion of UAS for civil purposes in the Republic of Serbia and types of media coverage significant for UAS promotion experienced experts in different fields who are involved in studies on UAS or UAS implementation were interviewed through semi-structured interviews regarding their attitudes on the most important topics for media promotion of UAS for civil purposes in the Republic of Serbia and types of media coverage significant for UAS promotion. Two open questions were given to the participants:

1. What are the most important topics for media promotion of UAS for civil purposes in the Republic of Serbia?
2. What are types of media coverage significant for UAS promotion in the Republic of Serbia?

3.2. Sample

During the period from November 1 to November 12, 2021 twenty participants from Belgrade, Serbia, researchers in the fields of security studies, civil construction engineering, engineering management, management, architecture, waste management, strategic management; professionals in the fields of information technologies, archaeology, project management, water management, construction and drones' operations were interviewed through semi-structured interviews. Participants were contacted through academic networks.

Table 1. Demographic Variables

Code Name	Position	Type of institution/Field of expertise
P1	Full professor	Faculty/Security
P2	Full professor	Faculty/Security
P3	Full professor	Faculty/Civil construction engineering
P4	Full professor	Faculty/Architecture
P5	Assistant professor	Faculty/Environmental protection
P6	Associate professor	Faculty/Management in education
P7	Associate professor	Faculty/Information technologies development
P8	General manager	Agriculture company/Management
P9	General manager	Security company/Management
P10	Chief information technologies officer	IT company/Information technologies development
P11	General manager	Construction company
P12	Risk manager	International company/Information technologies
P13	PhD student	Faculty/Strategic management
P14	PhD student	Faculty/Waste management
P15	PhD student	Faculty/Waste management
P16	PhD student	Faculty/Engineering management
P17	Associate	Public institution/Archaeology
P18	Associate	Creative industries/Project management
P19	Associate	Public company/Water supply and distribution
P20	IT engineer/UAS operator	Private institute for risk management/UAS operations

Results and Discussion

Based on the answers of the interviewees on the first question, the most important topics for media promotion of implementation of UAS for civil purposes are presented at Table 2 in order of relevance.

Table 2. Most important topics for media promotion of UAS for civil purposes with relevance

Implementation possibility	Relevance	Implementation possibility	Relevance
Risk assessment of disaster scenarios	1	Medicine	8
Emergency response (in case of disasters: floods, earthquakes, etc.)	2	Traffic control	9
Critical infrastructure monitoring	3	Wildlife monitoring	10
Agriculture	4	Waste management	11
Education	5	Remote sensing	12
Urban planning	6	Archaeology	13
Construction	7	Creative industries	14

Source: Authors

Based on the answers of the interviewees on the second question, the list of types of media coverage significant for UAS promotion is presented in Table 3.

Table 3. Types of media coverage significant for UAS for civil use promotion

Success stories in preventing worst case disaster scenarios in TV news and video format on Internet
Disaster response success stories on TV and Internet
Examples from agriculture in TV programs and in print media
Stories on successful implementation in archaeology in educational TV shows
Stories on successful implementation of UAS for medical purposes on TV and Internet
Presentation of waste management successful initiatives using UAS on TV and Internet
Presentations of UAS students' competitions for educational purposes on TV

Source: Authors

Interviews helped developing a list of the most important media for UAS for civil use promotion to the wider public.

Table 4. Types of media significant for UAS for civil use promotion sorted by relevance

Television
Internet portals
V-logs
Social media
Print media
Specialised print media
Blogs

Source: Authors

For the purpose of promoting UAS for civil use, we propose developing continuous promotion projects that would include various media outlets. The projects could be developed and funded by cooperation of government, local government, academia, educational NGO's and societies, and interested companies. At the first stage, promotion project would be designed and developed, at the second stage media outlets for promotion would be chosen, at the third stage the project would be implemented, at the fourth stage the results should be evaluated and recommendations would be given at the final stage for the following promotion projects.

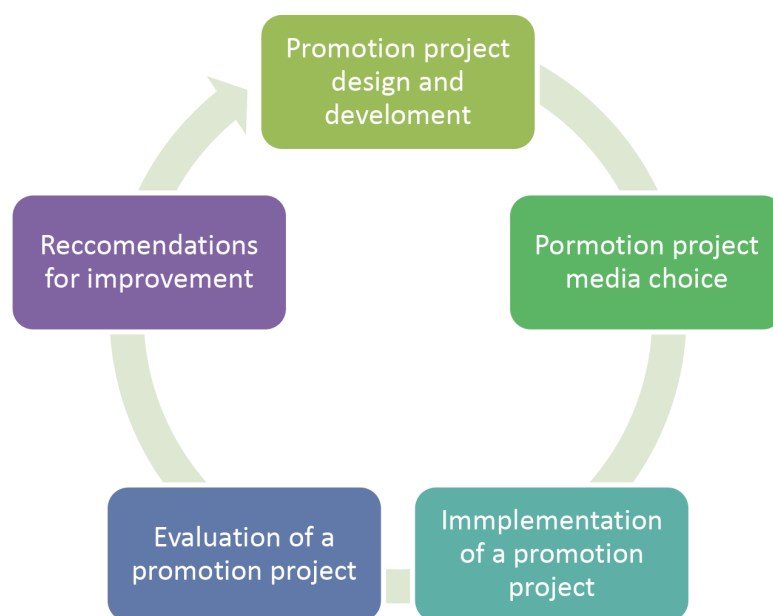


Figure 1. Proposed model of UAS promotion project for civil use

Source: Authors

This research supports the previous research that emphasised the importance of the role of media in promoting UAS for civil purposes as they are often represented in public only through military purpose (Boucher 2014; Richards, 2018).

3.3. Limitations of the Study and Implications for Further Research

The sample of the study was quite small and further research requires empirical research on a wider scope of participants with the usage of statistical analysis.

4. CONCLUSION

Unmanned Aircraft Systems (UAS) are mostly seen by public, media, and, often, by researchers through their military purposes and destruction they can put upon people, infrastructure, and businesses. One of the major topics of interest of researchers and media is the ethical component.

Nevertheless, as literature review demonstrations, the opportunities for non-military use of UAS are almost limitless: scientific research; environmental protection; disaster prevention and management; protection of critical infrastructure; construction, security; photogrammetry; communications; and creative industries. Media in the Republic of Serbia are already covering various UAS civil applications, but are still more focused on military uses and their dire consequences. However, media are starting to explore various topics of civil use of UAS.

Interviews of academics and professionals in various fields supported the claim that media can have a significant role in promoting and explaining the civil use of UAS to the broader public.

REFERENCES

- Balkans.AlJazeera.net. Available at: <https://balkans.aljazeera.net/tag/dronovi/>. (Accessed December 26, 2021)
- Barrero, M. Á. F. (2018) Journalism and drones. Challenges and opportunities of the use of drones in news production. *Doxa Comunicación*, 26, 35. Available at: <http://ezproxy.nb.rs:2059/login.aspx?direct=true&db=edb&AN=134158470&site=eds-live>.
- Biznis i finansije. (10.08.2021) Nova metoda za proizvodnju padavina: Elektro-kiša iz Dubaija. Available at: <https://bif.rs/tag/dronovi/> (Accessed November 15, 2021)
- Biznis.rs (13.06.2021) Drakonske kazne za nelegalan let drona Available at: <https://biznis.rs/vesti/srbija/drakonske-kazne-za-nelegalan-let-drona/> (Accessed November 15, 2021)
- Boucher P. (2014) Civil Drones in Society: Societal and Ethics Aspects of Remotely Piloted Aircraft Systems. EUR 26824. Luxembourg (Luxembourg): Publications Office of the European Union. JRC91671 Available at: <https://publications.jrc.ec.europa.eu/repository/handle/JRC91671> (Accessed November 15, 2021)
- B92 (18.08.2021) Srpski “pegaz” spreman za poletanje: Prvi dronovi do kraja godine ulaze u naoružanje. Available at: <https://www.b92.net/biz/vesti/srbija/srpski-pegaz-spreman-za-poletanje-prvi-dronovi-do-kraja-godine-ulaze-u-naoruzanje-1908652?version=amp> (Accessed November 15, 2021)
- Comba, L., Gay, P., Primicerio, J., & Ricauda Aimonino, D. (2015) Vineyard detection from unmanned aerial systems images. *Computers and Electronics in Agriculture*, 114, 78–87. <https://doi.org/10.1016/j.compag.2015.03.011>.
- Dupont, Q., David, F.M., Chua, K.H., Tashrif, A., Abbott, E. L.S. (2017) Potential Applications of UAV along the Construction's Value Chain, *Procedia Engineering*, Volume 182, Pages 165-173, <https://doi.org/10.1016/j.proeng.2017.03.155>.
- DW. (07.06.2021) Kako sprečiti “ratove budućnosti”? Available at: <https://www.dw.com/sr/kako-spre%C4%8Diti-ratove-budu%C4%87nosti/a-57791809> (Accessed November 15, 2021)
- DW. (03.07.2021) Opasnost dolazi s neba. Available at: <https://www.dw.com/sr/opasnost-dolazi-s-neba/a-58137619> (Accessed November 15, 2021)
- DW. (02.11.2021) Ukrajina: Diskusija oko borbenih dronova. Available at: <https://www.dw.com/sr/ukrajina-diskusija-oko-borbenih-dronova/a-59694202> (Accessed November 15, 2021)
- Ehmke, T. (2013) Unmanned aerial systems for field scouting and spraying. *Crops Soils*, 46, 4–9

- Energija Balkana. (04.03.2021) Dronovi će locirati podvodne struje plime za proizvodnju zelene energije. Available at: <https://energijabalkana.net/dronovi-ce-locirati-podvodne-struje-plime-za-proizvodnju-zelene-energije/> (Accessed November 15, 2021)
- Energyobserver. (18.06.2021) Šta je potrebno za bezbedno upravljanje popularnim letelicama/drakonske kazne za nelegalan let drona. Available at: <https://www.energyobserver.com/sr/post/30118> (Accessed November 15, 2021)
- Everaerts, J. (2008) The use of unmanned aerial vehicles (UAVs) for remote sensing and mapping. *Int. Arch. Photogramm. Remote Sens. Spat. Inf. Sci.* 37, 1187–1192.
- Faical, B., Costa, F.G., Pessin, G.; Ueyama, J., Freitas, H., Colombo, A., Fini, P.H., Villas, L., Osório, F.S., Vargas, P.A., et al. (2014) The use of unmanned aerial vehicles and wireless sensor networks for spraying pesticides. *J. Syst. Arch*60, 393–404.
- Fernández-Guisuraga JM, Suárez-Seoane S, Calvo L, Sanz-Ablanedo E (2018) Using unmanned aerial vehicles in postfire vegetation survey campaigns through large and heterogeneous areas: Opportunities and challenges. *Sensors (Switzerland)* 18(2): 586. <https://doi.org/10.3390/s18020586>
- Freimuth, H., & Koenig, M. (2018) Planning and executing construction inspections with unmanned aerial vehicles. *Automation in Construction*, 96, 540–553. <https://doi.org/10.1016/j.autcon.2018.10.016>.
- Gebrehiwot, A, Hashemi-Beni, L, Thompson G, Langan, T.E, Kordjamshidi, P. (2019) Deep Convolutional Neural Network for Flood Extent Mapping Using Unmanned Aerial Vehicles Data Sensors (7):1486. <https://doi.org/10.3390/s19071486>
- González-Jorge, H., Martínez-Sánchez, J., Bueno, M., Arias, P. (2017) Unmanned Aerial Systems for Civil Applications: A Review. *Drones* 1, no. 1: 2. <https://doi.org/10.3390/drones1010002>
- Gynnild, A., & Uskali, T. (Eds.). (2018) *Responsible Drone Journalism* (1st ed.). Routledge. <https://doi.org/10.4324/9781315163659>
- Huang, Y., Chen, Z., Yu, T., Huang, X., & Gu, X. (2018) Agricultural remote sensing big data: Management and applications. *Journal of Integrative Agriculture*, 17(9), 1915–1931. [https://doi.org/10.1016/S2095-3119\(17\)61859-8](https://doi.org/10.1016/S2095-3119(17)61859-8)
- Ilić, D., Milošević, I., Ilić-Kosanović, T. (2021) Application of Unmanned Aircraft systems for disaster management in the Republic of Serbia. *Fresenius Environmental Bulletin*, Volume 30–No. 07A/2021. ISSN 1018-4619. p.p. 9573-9588
- Ilić, D., & Tomašević, V. (2021) Uticaj sukoba u Nagorno-Karabahu 2020. na percepciju borbenih dronova. *Serbian Journal of Engineering Management*, 6(1), 9-21. <https://doi.org/10.5937/SJEM2101009I>
- Kamnik, R., Nekrep Perc, M., & Topolšek, D. (2020) Using the scanners and drone for comparison of point cloud accuracy at traffic accident analysis. *Accident Analysis and Prevention*, 135, 105391. <https://doi.org/10.1016/j.aap.2019.105391>.
- Karakostas, I., Mademlis, I., Nikolaidis, N., & Pitas, I. (2020) Shot type constraints in UAV cinematography for autonomous target tracking. *Information Sciences*, 506, 273 – 294. <https://doi.org/10.1016/j.ins.2019.08.011>.
- Li, B., Zhu, Y., Wang, Z., Li, C., Peng, Z.R., Ge, L. (2018) Use of Multi-Rotor Unmanned Aerial Vehicles for Radioactive Source Search. *Remote Sensing* 10(5):728. <https://doi.org/10.3390/rs10050728>
- Ozon press (17.12.2021) Dronovi za suzbijanje nelegalne proizvodnje duvana. Available at: (<https://www.ozon.rs/vestisrbija/2021/dronovi-za-suzbijanje-nelegalne-proizvodnje-duvana/>) (Accessed December 26, 2021)

- Pantazi, X. E., Tamouridou, A. A., Alexandridis, T. K., Lagopodi, A. L., Kashefi, J., & Moshou, D. (2017) Evaluation of hierarchical self-organising maps for weed mapping using UAS multispectral imagery. *Computers and Electronics in Agriculture*, 139, 224–230. <https://doi.org/10.1016/j.compag.2017.05.026>.
- Rasmussen, J., Nielsen, J., Garcia, R. F., Christensen, S., Streibig, J. C., & Lotz, B. (2013) Potential uses of small unmanned aircraft systems (UAS) in weed research. *Weed Research*, 53(4), 242–248. <https://doi.org/10.1111/wre.12026>.
- Restás, Á. (2022) Drone Applications Fighting COVID-19 Pandemic—Towards Good Practices. *Drones* 6, no. 1: 15. <https://doi.org/10.3390/drones6010015>
- Richards, D. (2018) The role of the media in the public perception of Unmanned Aerial Vehicles, AIAA 2018-3514. Aviation Technology, Integration, and Operations Conference. June 2018.
- RTS. (19.12.2021) Dronovi u jatu proveravaju bezbednost aviona. Available at: <https://www.rts.rs/page/magazine/sr/story/1882/tehnologija/4632485/dronovi-bezbednost-juznakoreja.html> (Accessed December 26, 2021)
- Simelli, I., Tsagaris, A. (2015) The Use of Unmanned Aerial Systems (UAS) in Agriculture. HAICTA.
- Skrzypietz, T. (2012) Unmanned Aircraft Systems for Civilian Missions. Brandenburg Institute for Society and Security. (Accessed December 24, 2018) https://www.bigs-potsdam.org/images/Policy%20Paper/PolicyPaper-No.1_Civil-Use-of-UAS_Bildschirmversion%20interaktiv.pdf.
- Slobodna Evropa. (2020) Zaokret Vojske Srbije ka dronovima Available at: <https://www.slobodnaevropa.org/a/vojska-srbije-dronovi-/30881980.html> (Accessed November 15, 2021)
- Souza, C. H. W. de, Lamparelli, R. A. C., Rocha, J. V., & Magalhães, P. S. G. (2017) Mapping skips in sugarcane fields using object-based analysis of unmanned aerial vehicle (UAV) images. *Computers and Electronics in Agriculture*, 143, 49–56. <https://doi.org/10.1016/j.compag.2017.10.006>.
- Sputnik News. (2021) Available at: https://rs.sputniknews.com/keyword_Dronovi/ (Accessed November 15, 2021)
- Srbija danas (2021) Ruski dronovi kamikaze kidaju. Available at: <https://www.srbijadanas.com/vesti/naoruzanje/ruski-dronovi-kamikaze-u-akciji-pogledajte-lansiranje-barazne-municije-pomocu-mehanickog-katapulta-2021-12-13> (Accessed December 6, 2021)
- Tangosix. (25.10.2021) Dronovi-samoubice i vazduhoplovna ubojna sredstva. Available at: <https://tangosix.rs/2021/25/10/partner-2021-dronovi-samoubice-i-vazduhoplovna-ubojna-sredstva/> (Accessed December 6, 2021)
- Telegraf.rs. (09.10.2021) Spektakularna predstava, pa umalo tragedija: Dronovi bez kontrole padali na zemlju. Available at: <https://www.telegraf.rs/zanimljivosti/svastara/3402043-spektakularna-predstava-pa-umalo-tragedija-dronovi-bez-kontrole-padali-na-zemlju> (Accessed December 26, 2021)
- Telegraf.rs. (22.12.2021) Novi policijski sistem će slati dronove do lokacije pucnjave. Available at: <https://www.telegraf.rs/hi-tech/gedzeti/3435402-novi-policijski-sistem-ce-slati-dronove-do-lokacije-pucnjave/> (Accessed December 26, 2021)
- Telegraf.rs. (20.12.2021) Korean Air je prvi avio prevoznik koji koristi roj dronova za inspekciju svojih aviona. Available at: <https://www.telegraf.rs/hi-tech/gedzeti/3434326-korean-air-je-prvi-avio-prevoznik-koji-koristi-dronove-za-inspekciju-svojih-aviona> (Accessed December 26, 2021)

- Trajković, I. (10.11.2019) Dronovi su sve moćniji i pristupačniji. Danas. Available at: <https://www.danas.rs/zivot/tehnologije/dronovi-su-sve-mocniji-i-pristupacniji/> (Accessed May 23, 2020)
- Verkhozher N. (27.08.2018) Juriš jata inteligentnih dronova. DW. Available at: <https://www.dw.com/sr/juri%C5%A1-jata-inteligentnih-dronova/a-45239191> (Accessed November 15, 2021)
- Wang, Z., Gao Q., Xu J., Li D. (2022) A Review of UAV Power Line Inspection. In: Yan L., Duan, H., Yu, X. (eds) *Advances in Guidance, Navigation and Control. Lecture Notes in Electrical Engineering*, vol. 644. Springer, Singapore. https://doi.org/10.1007/978-981-15-8155-7_263
- Zormpas *et al.*, A. (2018) Power Transmission Lines Inspection using Properly Equipped Unmanned Aerial Vehicle (UAV), *2018 IEEE International Conference on Imaging Systems and Techniques (IST)*, 2018, pp. 1-5, doi: 10.1109/IST.2018.8577142.
- 013info.rs (13.09.2021) Available at: <https://013info.rs/vesti/drustvo/dodeljeni-dronovi-pancevac-kim-osnovnim-skolama> (Accessed November 15, 2021)
- 021.rs. (28.07.2021) Zaboravite radare, stižu policijski dronovi. Available at: <https://www.021.rs/story/Info/Zanimljivosti/280552/VIDEO-Zaboravite-radare-stizu-policijski-dronovi.html>. (Accessed November 15, 2021)



Legal Protection of the EU Database: One Proposal for a Transposition

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Abstract: *The European Commission's 2021 Intellectual Property Action Plan provides for a revision of Directive 96/9 / EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases. The process of its amending is started with Directive 2019/790, which complemented it with new exceptions already mandatory for the Member States, on the mining of text and data for the purposes of scientific research, digital cross-border learning activities, and use by cultural heritage institutions. The transposition of these new texts by the deadline of 06.07.2021 did not take place in many Member States. The article relates to the proposal to transpose these exceptions into the legislation of Bulgaria and analyzes to what extent to which it would contribute to the objectives of harmonization.*

1. INTRODUCTION

European Parliament resolution P9_TA (2021) 0453 of 11 November 2021 welcomes, inter alia, the revision of the Databases Directive (Directive 96/9 / EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases). It was announced by the EC in the Intellectual Property Action Plan in Support of EU Recovery and Sustainability. The aim is, in parallel with the forthcoming Data Act, to clarify whether Directive 96/9 / EC will not be an obstacle to the use and sharing of data, mainly by clarifying the status of machine-generated data. There are two assumptions here about Directive 96/9 / EC: first, that it is an obstacle to the use and sharing of data, and second, that it is unclear whether and what it relates to machine-generated data.

Makes an impression that in the mentioned policy documents the exceptions to copyright and sui generis the right to databases, and more precisely their incomprehensive and optional nature, is no longer mentioned as an obstacle to harmonization, as in the first and in the second evaluation in 2005 and 2018. This is apparently due to the adoption and entry into force in the meantime of Directive 2019/790 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (hereinafter Directive 2019/790 or the DSM Directive (unless otherwise stated in the relevant text, the provisions cited are those of the Directive). With it are amended (Article 24), inter alia, the provisions on exceptions in Directive 96/9, Article 6 (2) (b) on copyright and Article 9 (b) on sui generis law, and adds new important exceptions.

The provision of Art. 29 of the DSM Directive required the Member States to transpose it by 6 July 2021, which has so far been notified as implemented by the following Member States: Czech Republic, Denmark, Germany, Estonia, Ireland, Spain, France, Croatia, Italy, Lithuania, Hungary, Malta, the Netherlands, and Austria. How the national transposition will be carried out, i.e. whether it corresponds to the content and scope of the directive, is extremely important for harmo-

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nization. This, of course, applies to all EU directives. In this sense, the question has been raised as to whether it is appropriate to carry out copyright reform in Europe with Regulations instead of Directives. This issue is related to the problem that when drafting laws or transposing laws are adopted, member states move in different directions, and this is only partly due to the objective ambiguity of some of the provisions in the directives. “In more significant part, however, this attitude is linked to a misplaced idea of great freedom enjoyed by national legislatures” (Rosati, 2021).

The national legislation of the member states adopted in pursuance of an obligation to transpose may be regarded as a “legislative continuation” of the Directive in the territory of a Member State. In this sense, the article offers a look at the legislative proposal for transposition into Bulgarian legislation of the new exceptions to copyright and sui generis database rights. Namely, those introduced by Directive 2019/790 and relating to the mining of text and data for the purposes of scientific research, digital cross-border learning activities, and use by cultural heritage institutions.

In Bulgaria, the relations related to the creation and distribution of works of literature, art, and science are regulated by the Copyright and Related Rights Act (CARRA), published in the State Gazette No. 56 of 1993, in force since 01.08.1993, with many changes and additions. It is envisaged that the exceptions and restrictions newly introduced by the DSM Directive in order to adapt them to the digital and cross-border environment will be transposed into Bulgarian legislation by amending and supplementing it. For this purpose, a draft law has been prepared to amend and addition the CARRA (hereinafter only the “The Bill”). As of the date of this report, The Bill has not been submitted by the Council of Ministers for discussion in the National Assembly, which objectively excludes as a subject of analysis the reports and transcripts from the discussions in parliamentary committees and possible legislative proposals between first and second reading.

Therefore, the current analysis is based on the text of The Bill, published on 15.09.2021 on the website of the Council of Ministers, Public Consultation Portal. The Bill introduces the new exceptions provided for in the DSM Directive through a new section IIa in the Chapter of the Copyright and Related Rights Act, entitled: “Particular provisions for certain digital uses of works and other objects of protection”, including references to the application of exceptions to of the objects of related rights. This chapter contains a total of five new articles. Namely: Art. 26e “Automated analysis of text and information”; Article 26ж “Automated analysis of text and information for scientific purposes”; Article 26з “Free use within digital and cross-border teaching activities”; Art. 26и “Free use for the protection of cultural heritage”; Art. 26к “Application by analogy; Special rules regarding technical means of protection” and Art. 26л – “Avoidance of collision”. Each new member has several paragraphs (The exact term in Bulgarian legislation is “alineia” and is used here too, as “paragraph” has a different meaning).

For evaluation and to conclude whether the proposed Bill (in volume and content) transposes the matter governing public relations within the scope of Directive 2019/790, we should specify the necessary and mandatory characteristics of new exceptions. As a result of the analysis, we identify seven characteristics that include the minimum required and mandatory content of the exceptions, as follows:

- The exceptions and limitations refer to measures for their adaptation to the digital and cross-border environment, for example for the purposes of illustrating teaching in digital and cross-border teaching activities (Article 5 and Recitals, for example, Recital – 5);
- The exceptions and limitations concern the “Text and data mining” actions, as defined in Article 2 (2): ‘text and data mining’ means any automated analytical technique aimed at

- analyzing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations”;
- Exceptions and restrictions are provided in terms of faces. That is, they refer to research organizations and cultural heritage institutions, for the purposes of scientific research and to allow the latter to make copies of works or other objects that are permanently in their collections, in any format, and on any medium, for the purposes of preserving such works or other objects and to the extent necessary for their preservation. They also apply to other persons, apart from the listed organizations and institutions, who, under the condition of Art. 4 (3) have lawfully access to content;
 - Lawfully access to content is a condition for research organizations and cultural heritage institutions, including related persons, to fall within the scope of the exception for extracting information from text and data. What is meant by “lawful access” is clarified in Recital 14, which requires an exception “regardless” of how it is obtained – through a policy of free access, through contractual agreements between right holder and users, or otherwise obtained;
 - In case of lawful access, no compensation is provided for the right holder by the persons indicated in the exception. It is based on the presumption (recital 17) that, given the nature and scope of the exception, any potential harm would be minimal;
 - Any contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable (Article 7, paragraph 1);
 - Exceptions and limitations should become mandatory for each Member State. It is worth recalling that the test of Directive 96/9 before the amendment included only three, optional, exceptions: private use of non-electronic databases, illustration of non-commercial training and research, and public security or procedural uses.

The following analysis aims to indicate whether and where the Bulgarian proposal for transposition deviates from the necessary and mandatory content of Directive 2019/790, but without assessing whether this has been done in the best possible way, including through the best possible legislative technique. The analysis of the legislative proposal of the Council of Ministers which transposes Articles 3 to 7 of Directive 2019/790 shows the following.

The title of Art. 26e, alinea 1 “Automated analysis of text and information” is slightly misleading, as it leads to the logical expectation of a subsequent definition, which, however, we find in the Additional Provisions (in the new point 3a of §2, which we will consider separately). Instead of a definition, the provision of Art. 26e, alinea 1 introduces the exception for use of works and other objects of protection by a person who has legal access to them in automated analysis of text and information. Art. 26e, alinea 2, p.3 introduces an exhaustive list (*numerus clausus*) of admissible actions of use in a digital way or in digital form, relevant to the databases, namely: “reproduction, extraction or re-use within the meaning of Art. 93b of databases or parts thereof”. Given the existing legal definition of “reproduction” in § 2, point 3 of the Additional Provisions of the (CARRA), it can be said that the exceptions in connection with Art. 4 of Directive 2019/790 have been correctly adopted in terms of meaning. Art. 26e, alinea 3 of The Bill almost reproduces alinea 2 of art. 4, and the possibility of the right holder to prohibit the use of protected works by the person under the first paragraph exists only before they are available (art. 26e, alinea 4). It is noteworthy that there is no requirement for persons under Article 4 of the Directive, respectively Art. 26e, alinea 1 of The Bill, to store the results of their actions at an “appropriate level of security”, as this is required and done in respect of the persons under Art. 3 of the Directive (respectively – art. 26ж, alinea 6 of The Bill).

The title of the next provision – Art. 26ж – is “Automated analysis of text and information for scientific purposes” and aims to transpose Article 3 of Directive 2019/790. According to the text, the use for scientific research in automated analysis of text and information of protected works (including databases) by a person with lawful access to them is permissible without the consent of the right holder and without remuneration. The circle of persons for whom the exception is explicitly allowed is exhaustively listed in Art. 26ж, alinea 3, and this is an approach that is supported by the requirement for a “common understanding for research organizations” (Recital 12 of Directive 2019/790). Again in line with the above Recital 12 is the exclusion from the circle of beneficiaries of those “organizations and their associations over which the trader exercises control within the meaning of the Commercial Act or other decisive influence and has the opportunity to enjoy privileged access to results from the scientific research” (art. 26ж, alinea 4). There is also the obligation to protect through appropriate technical means of protection by the beneficiaries (Article 26ж, alinea 6), as well as their right to preserve the results and provide access to third parties for the purposes and for the period of the scientific research, its inspection, and evaluation (Article 26ж, alinea 5). Unlike the previous article, the provision of Art. 26ж, alinea 8 explicitly excludes the computer programs from the scope of the exceptions.

The next provision is Art. 26з, entitled “Free Use in Digital and Cross-Border Teaching Activities” and transposes Art. 5 of Directive 2019/790. It is to allow the digital use of works (including databases) for the purpose of illustration for teaching without the consent of the right holder and without remuneration, by educational institutions, under their control and responsibility and with reference to the source and the name of the right holder. There is no explicit requirement for institutions to have lawful access to protected works. Is it implied? And if so, why is “lawful access” explicitly written as a condition for applying the exceptions under Art. 26e and Art. 26ж of The Bill (respectively – Art. 4 and Art. 3 of Directive 2019/790)? With regard to databases under this Article, free use provides for the following comprehensive actions:

1. reproduction, public presentation, broadcasting, transmission, retransmission or provision of electronic access;
2. translation into another language, processing or synchronization;
3. reproduction, public presentation, broadcasting, transmission, retransmission or offering of electronic access, as well as dissemination of the results of the actions under item 2;
4. extraction or reuse in the sense of art. 93B.

A comparison with the text of the previous two provisions (namely: Art. 26e and Art. 26ж) shows a significantly higher volume of permissible actions with databases when used for teaching activities. Whether this is justified for the purposes of harmonization and whether it is legally sound and justified is a matter of further analysis. Here we only note that the use of databases through actions such as “public presentation, broadcasting, transmission, retransmission” is not consistent with the specifics of the databases and for the first time we are faced with the anticipation of such uses (i.e. actions) in relation to databases. “Public presentation” is traditionally regulated as a property right of the author to present a (usually stage) work to the public, that is, allowing for the perception of an unlimited number of people. And “broadcasting” as part of the content of property copyright in the context of the law is used when the action is performed wirelessly (for example – satellite – Article 99b of the Copyright and Related Rights Act). It remains unclear, including in the reasons on The Bill, why it is considered necessary to expand the possible actions with databases (reproduction, extraction, or reuse) in the context of digital and cross-border teaching activities. We hope that in the final version and especially in the adopted law this will be clarified.

“Free use for the protection of cultural heritage” is the title of Art. 26i, from which it is clear that the text aims at transposing Art. 3 and Art. 6 of Directive 2019/790. It provides for the use of protected works from public libraries, schools or other educational establishments, museums, archival institutions, and institutions preserving film or sound heritage without the consent of the right holder and without payment of remuneration, in accordance with the National Archives Fund Act. In the context of this use, the permitted actions with databases are “reproduction, extraction or re-use”, which are already established in the Database Directive and in case law.

The following text, Art. 26k, alinea 1, envisages the application by analogy of two current provisions. Namely, the provision of Art. 23 of the Copyright and Related Rights Act (i.e., free use is permissible provided that it does not interfere with the normal use of the work and does not harm the legitimate interests of the right holder), as well as the provision of Art. 25a (i.e., the use may not be carried out in a way that is accompanied by the removal, damage, destruction, or disruption of technical means of protection, and the right of the beneficiary who has free access but is hindered by technical means of protection, to request from the right holder access). The text of Art. 26k, alinea 2 stipulates that the right holder is obliged to provide access within 72 hours of receiving a request from a user who is entitled to free use. This period, given the potentially large number of requests (recital 16), is generally considered sufficient to provide access. It is reproduced (Art. 26k, alinea 3 of The Bill) and the possibility provided by Directive 2019/790 and other directives for right holder to use technical means to protect networks and databases, provided they are proportionate to risks for their integrity and security and do not impede the exercise of the rights under Art. 26ж. And lastly, according to the text of Art. 26л, alinea 2 of the Bill, “any agreement that impedes or restricts the right to free use under Art. 26ж, art. 26з and Art. 26и, is null and void.” It transposes the wording of Article 7 (1) of Directive 2019/790, according to which “Any contractual provision which is contrary to the exceptions provided for in Articles 3, 5 and 6 shall not be enforceable”.

2. DISCUSSION

Before summarizing and drawing the relevant conclusions, we return to the topic of the proposed definition in the new point 3a of §2 of the Additional Provisions of The Bill. According to the text: “automated analysis of text and information” is any automated analytical method used to analyze text and data in digital form, to create models, trends, relationships and other information. This means introducing a legal definition of “automated text and information analysis” and not “text and data mining” (Article 2, (2) of Directive 2019/790 defines ‘text and data mining’ means any automated analytical technique aimed at analyzing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations). Who needs this, what is achieved in this way? The answer is – too little for progress in harmonization. The effect “play on words” is obtained, which is subsequently multiplied in vague interpretations and contradictory case law. Directive 2019/790 accents on the action unknown until the advent of new technologies and its outcome, namely the text and data mining, and not on the technical way in which this action is achieved, as is done with the proposed definition in The Bill. The purpose of the directive, in this case, is to regulate the legal consequences of this new way of using intellectual property rights, and not to define self-serving one technical notion.

3. CONCLUSION

This report provides a brief commentary on The Bill on Amendment and Addition to the Copyright and Related Rights Act, aimed at transposing Directive 2019/790, focusing on how this project envisages transposing the new exceptions. The review shows that, in general, the scope and content of the provisions of the Directive in question are correctly understood at the national level. The legislative technique does not meet the best criteria, especially considering that Bulgaria has a tradition in this regard and legislation for this purpose in the current Law on The Normative Acts of 1973. The two evaluations (2005 and 2018) of Directive 96/9 / EC show that a large part of the observed heterogeneity in the laws and case law of the Member States is due to unclear and inaccurate definitions or their absence at all. This, of course, hinders harmonization. And while in some cases the reason may be in the Directive itself, in the present case it is not. Such a legislative approach is not desirable and, as the draft has not yet been discussed in the relevant parliamentary committees, it is not too late to show the necessary will and to avoid legislative misunderstandings.

REFERENCES

- Rosati, E. (2021). Are directives good for the EU internal market? The case of the Copyright DSM Directive and its national transpositions, *Journal of Intellectual Property Law & Practice*, Volume 16, Issue 10, October 2021, Pages 1027–1028, <https://doi.org/10.1093/jiplp/jpab142>
- Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC [2019] OJ L 130, 92–125.
<https://eur-lex.europa.eu/legal-content/EN/>
<https://www.strategy.bg/PublicConsultations/View.aspx?lang=bg-BG&Id=6348>
- Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Database, OJ, L 77, 20-28.
https://www.europarl.europa.eu/doceo/document/TA-9-2021-0453_EN.html



Directive 2019/633 on Unfair Trading Practices in Business-To-Business Relationships and Its Implementation

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Abstract: *Unfair trading practices between economic operators are a consequence of the concentration and vertical integration of retailers of fast-moving consumer goods. The strengthened market position of the latter allowed them to impose unfavorable conditions on their economically weaker partners in the supply chain – such as manufacturers and small suppliers. The cross-border nature of trade in agricultural goods and foods has brought this issue to the attention of the European institutions relatively quickly.*

On 25 April 2019, Directive (EU) 2019/633 of the European Parliament and of the Council of 17 April 2019 on unfair trading practices in business-to-business relationships in the agricultural and food supply chain was published in the Official Journal of the EU. This paper analyses the norms and implementation of the Directive as of 31 July 2021.

1. INTRODUCTION

The issue of unfair trading practices between suppliers and buyers in the fast-moving consumer goods chain has emerged relatively recently as a consequence of the concentration and vertical integration of retailers of such goods.

The strengthened market position of customers has enabled them to impose favorable trading conditions on their weaker partners in the chain – manufacturers and small suppliers, these conditions being unfavorable for the latter. They included both unfair contract terms and margin squeeze on suppliers so that the low prices they offered to the consumers were at the expense of the low purchase prices imposed on their suppliers. Those unfair practices are not covered by the EU antitrust law – neither by norms regulating vertical restraints² nor by the norms regarding the abuse of dominant position³. But those practices affected negatively a lot of small and medium producers and distributors in the EU. The cross-border nature of trade in agricultural goods and food brought this issue to the attention of the European institutions⁴, as the market concentration and the vertical integration of fast-moving consumer goods retailers being a global tendency. The problem of unfair trade practices of retailers found a place in the public discussions held within the EU framework. The debate took place both at the European and national levels, National debates led to the adoption of various regulatory solutions by the Member States which manifested differences in their approaches to the problem of unfair trade

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² Colino, S.M., Vertical Agreements and Competition Law- A Comparative Study of the EU and US Regimes, Hart Publishing, 2010, pp. 35 and following

³ See Foer, A. A., Abuse of Superior Bargaining Position (ASBP): What Can We Learn from Our Trading Partners? AAI Working Paper No. 16-02, September 2016

⁴ First official document of the European Commission outlining the issue was drafted in 2009 – Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A Better Functioning Food Supply Chain in Europe, at 2, COM (2009) 591 final (Oct. 28, 2009)

practices. Their regulation was carried out either on the basis of norms of general civil and commercial law or based on specific sectoral rules, within the framework of competition law, codes of loyalty, etc. The variety of approaches led to the necessity of a certain level of harmonization of these norms in the EU due to the cross-border scope of the chain. Harmonized rules can prevent the undesirable situation in which these unfair trade practices are allowed to exist in some parts of the chain, while not in others. Besides that, harmonized rules can hinder the efforts of buyers to choose favorable (for themselves) jurisdiction with less protection for their suppliers⁵.

In 2018, the Commission initiated a proposal for a draft Directive on unfair commercial practices between food business operators⁶. As a result of the legislative process, Directive (EU) 2019/633 of the European Parliament and of the Council of 17 April 2019 on unfair trading practices in business-to-business relationships in the agricultural and food supply chain was adopted and published in the Official Journal of the EU on 5 April 2019⁷.

The Directive was adopted based on Art. 43 of the TFEU, where paragraph 2 states that the European Parliament and the Council, in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee, should establish the common organization of agricultural markets and adopt the provisions necessary to achieve the objectives of the common agricultural policy.

Member States were required to inform the Commission on the adopted laws, regulations and administrative provisions intended to comply with the Directive. By 31 July 2021, 15 countries had notified the Commission that the Directive had been fully transposed, 11 did not notify the Commission, and France had notified that it had partially transposed it. As a result, the Commission has initiated infringement proceedings against the twelve Member States⁸ that have not notified the full transposition of the Directive.

2. OBJECTIVES AND APPROACH OF THE DIRECTIVE

The Directive aims to protect the smaller enterprises of the supplier/seller/producer from the larger enterprises of the buyers in the agricultural and food supply chain. This chain can be described as a sequence of vertically interconnected markets⁹. Therefore, a seller can be the manufacturer, the processor, the distributor, etc. Accordingly, a buyer can be a processor, a distributor, a retailer, etc. In other words, the Directive covers all sales/supply contracts throughout the production and marketing chain of food and agricultural products, except for the sale to consumers (which is covered by the consumer law norms, respectively on EU level by the Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market)¹⁰.

⁵ Petev, B., Ikonomicheskata sigurnost, faktor za natsionalna sigurnost, sp. Biznes posoki, br.1 /2021,BSU, Burgas, 2021, str. 69-73, ISSN 1312 – 6016 (Print), ISSN 2367 – 9247 (Online),pp. 71

⁶ COM(2018) 173 final 2018/0082(COD) – Proposal for a Directive of the European Parliament and of the Council on unfair trading practices in business-to-business relationships in the food supply chain

⁷ OJ L 111, 25.4.2019, pp. 59–72

⁸ These member states are Austria, Belgium, Cyprus, the Czech Republic, Estonia, France, Italy, Poland, Portugal, Romania, Spain and Sweden

⁹ COM(2018)173 – Unfair trading practices in business-to-business relationships in the food supply chain.

¹⁰ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council

As mentioned above, different rules exist in the Member States, providing for different hypotheses and different intensities of protection against unfair commercial practices. Therefore, the Directive provides the minimum harmonization approach, as set out in recital 1, which is to indicate two shortlists of unfair commercial practices (so-called black and gray lists), which the Member States must ban. Separately, the minimum harmonization approach enables Member States to adopt additional national rules prohibiting unfair commercial practices not covered by Directive 2009/633 as well as to maintain the existing stricter rules.

Secondly, the Directive obliges states to provide an administrative procedure for lodging complaints, including to ensure their confidentiality, before the relevant public authority. The aim is to build administrative capacity to deal with problems, and confidential complaints aim to safeguard the applicants' interests and limit obstacles to the exercise of their rights. The "fear" factor, which discourages affected companies from seeking their rights for fear of retaliation, is deemed as one of the main reasons for the lack of transparency in the chain's trading conditions and practices, which makes it difficult to detect and investigate unfair commercial practices.

Thirdly, the Directive establishes a mechanism for assessing the achievements of Member States, by periodically updating and reviewing the achievements in this sphere. This is particularly important insofar as the regulation must be sensitive to possible changes in the relationship between enterprises – these changes represent new trade practices that shall be also a subject of further evaluation. This assessment is also important considering the fact that at present the effects of unfair commercial practices are still insufficiently studied, which requires the collection of additional information on their effects as well as on the effects of the norms adopted.

3. FIELD OF APPLICATION

3.1. Sectoral Application

The Directive provides for the creation of norms in a certain sector, the trade in agricultural products and foodstuffs, as set out in Annex I to the TFEU, and the goods resulting from the processing of agricultural products into foodstuffs. The advantage of such an approach is that by establishing and applying rules for a specific sector, the specifics of this type of relationship can be taken into account as the chain of production and sale of agricultural products is different from that of production and sale of other goods, vehicles for example. On the other hand, this implies the application of various sectoral rules for cases where the similarities outweigh the differences, such as the trade in non-food fast-moving goods – non-food suppliers generally suffer from similar unfair practices. Insofar only Latvia has declared that it has extended the protection standard of the Directive to the non-food sector.

On the contrary, while transposing the Directive, Bulgaria has limited its existing horizontal protection, repealing the existing horizontal norm of Art. 37 a of the Competition Protection Act, which provides a general prohibition of the abuse with superior bargaining position, and replaced it with the sectoral provisions of Art. 37 b-e for agricultural and food products. Thus, strengthening the sectoral rules was adopted at the expense of cancellation of the horizontal protection under art. 37a of the Law on Protection of Competition.

and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive') (Text with EEA relevance), *OJ L 149, 11.6.2005, p. 22–39*

3.2. Application to Certain Agreements According to the Annual Turnover of the Counterparties

Another important issue is determining to which agreements the prohibitions of the directive shall apply to. In this respect, it uses a formalistic (heuristic) approach to assessing the stronger position of the buyer, which is reduced to the simplest arithmetic comparison between the annual turnover of the supplier and that of the buyer.

Thus, a supplier with an annual turnover of less than EUR 2 million shall be protected from the described unfair commercial practices imposed on it by all buyers with an annual turnover of more than EUR 2 million (Article 1, paragraph 2, item a). A supplier with an annual turnover of between EUR 2 and 10 million is protected from all buyers with an annual turnover of over EUR 10 million. A supplier with an annual turnover between EUR 10 and 50 million is protected by all buyers with an annual turnover over EUR 50 million, etc.

The Directive prefers the heuristic approach to a “higher turnover” instead of other approaches of assessment used in various legislations such as “market power”, “abuse of market power” or “abuse of a stronger bargaining power”¹¹. Although these criteria allow a more accurate assessment of inequality, they cause market participants a greater uncertainty of whether they comply with the prohibiting norms or not.

Accordingly, the supervising authority does not also need to assess the characteristics of the structure of the specific market, of the specific legal relationship between the undertakings concerned. This approach is not adopted here – it concerns cases in which a company with a higher turnover manages to impose its conditions on companies with a lower turnover, without requiring the buyer to be in a stronger position when negotiating.

The disadvantage of this approach is that it assesses the formal rather than the proven inequality between the counterparties, supporting the weaker counterparty.

Its advantages are in the direction of facilitated proving and facilitated compliance with the rules by enterprises.

In the first place, this approach leads to transparency in the application of the law, insofar as the assessment of the undertaking’s conduct can be easily carried out by the administrative sanctioning body.

Also, the specific thresholds make it easier for companies to comply with the rules, as far as they provide them with a stereotypical and therefore easily applicable approach to assessing what provisions they can include in their contracts. The buyer can assess its own position based on a clear indicator, such as the annual turnover. Similarly, it can assess the situation of its partner based on public information concerning the partner’s annual turnover.

¹¹ Thus, for example, the prohibition in the directive would apply to contracts between a buyer with an annual turnover of EUR 2 000 001 and a supplier with an annual turnover of EUR 1 999 999. In the event that the criteria was that of the market power, the buyer’s market share would also be relevant. In the event that the criteria was that of the stronger bargaining position, a tie in turnover would rather indicate that there is no stronger bargaining position or, if such a stronger bargaining position exists, it shall be measured by different set of criteria.

The transposition of this provision has led to the greatest diversity in the legislative approaches of the Member States. Five countries have adopted the thresholds set out in the Directive. The rest in one way or another had extended the scope of their national legislation. Examples of diversity of the approaches are – the reduction of the initial threshold for the implementation of the directive, the lack of a requirement for a certain threshold of the seller, etc.

4. TYPES OF PROHIBITED BEHAVIOR – “BLACK” AND “GRAY” CLAUSES

The Directive uses the approach of listing prohibited behavior in the form of the so-called “Black clauses” – i.e. those that are strictly prohibited and “gray clauses” – that can be applied by the parties if they have concluded an explicit agreement in writing. The Directive specifies 16 hypothesized unfair commercial practices, divided into a “black” list of 10 absolutely prohibited commercial practices and (Article 3, paragraph 1 of the Directive) and a “gray” list of 6 illegal practices. commercial practices the prohibition of which can be overcome by unambiguous agreement between the parties (Article 1, paragraph 2 of the Directive).

This will likely require the updating of lists over time, as a result of companies’ efforts to create clauses that are not covered by the blacklist but achieve comparable adverse effects. Thus, the application of this approach has the potential to commence a competition for legal ingenuity between the legal advisers of companies with opportunities and the legislator, based on the letter of the norm rather than on its sense. Therefore, this approach is appropriate given the envisaged legislative technique (a directive to be transposed into the legislation of the Member States), but is unsuccessful as a legislative decision with the direct application (as a regulation) insofar as it would limit the possibilities for counteracting newly introduced unfair commercial practices.

Except for the first and second prohibitions, where States may adopt shorter time limits, the other prohibitions should be applied by the Member States in that manner. However, the principle of minimum harmonization makes it possible both to introduce additional prohibitions (both absolute and conditional) and to define a conditional prohibition as absolute. As a result, some countries have supplemented the “black list”¹² and the “gray list”¹³ with additional absolutely prohibited, respectively conditionally prohibited practices, while others have added the practices from the gray list to their absolutely prohibited list¹⁴.

4.1. Black Clauses

“Black clauses” are those provisions, that set absolute prohibition of the described behavior in the way that the parties of the agreement are not entitled to derogate this ban in any event.

The first and second prohibitions concern deferred payment. The directive prohibits deferred payment by a buyer to a supplier for perishable agricultural and food products – later than 30 days from the agreed delivery date, and for other products – later than 60 days after the expiry of the agreed delivery date, respectively, the date, after which the amount payable was set.

Similarly, if the delivery contract does not provide for deadlines for this delivery, the 30/60-day period starts and runs from the delivery date.

¹² Bulgaria, Greece, Croatia, France, Hungary, Lithuania and Slovakia.

¹³ Bulgaria, Croatia, Latvia and Slovakia

¹⁴ Denmark, Ireland, Luxembourg, Malta and Netherlands.

Most Member States – 11 of them, have adopted the exact Directive deadlines. Bulgaria and Sweden have adopted a higher standard – 30 days for both durable and perishable agri-food products, and Hungary and Slovakia have adopted a deadline of 15 days for both durable and perishable products.

The third prohibition is that of the short-notice cancelation by the buyer of already ordered perishable agricultural and food products. In the event of such short notice, it cannot be reasonably accepted that the supplier will find another way to market or use these products. The norm includes the presumption that a notice of less than 30 days is always considered such short notice, unless states, in duly justified cases, provide for shorter deadlines in their legislation.

The fourth norm represents prohibition on unilateral changes of the contract for the supply of agricultural and food products. In that regard, the Directive introduces a higher standard of protection in so far as it does not allow a unilateral modification of the supply contract in those cases, even if such a possibility is provided for in the contract.

The fifth “black” clause is the prohibition of the practice of requiring payments from the supplier that are not related to the sale of agricultural and food products of the supplier. Such payments were very popular in Bulgaria concerning the imposition of payment obligations by suppliers for all kinds of activities of the buyer, which became known as “Happy Birthday fee”, “new store opening fee”, etc.

The sixth provision prohibits any kind of request from a buyer for payment for the deterioration or loss, or both, of agricultural and food products that occurs on the buyer’s premises or after ownership has been transferred to the buyer, where such deterioration or loss is not caused by the negligence or fault of the supplier.

The seventh prohibition is with regard to the refusal of the buyer to confirm in writing the terms of the supply contract between the buyer and the supplier, for which the supplier has requested for written confirmation.

The eighth “blacklisted” prohibition is the unlawful acquisition, use or disclosure by the buyer of trade secrets of the supplier within the meaning of Directive (EU) 2016/943 of the European Parliament and the Council.

The ninth absolute prohibition is a threat by the buyer to carry out or carrying out acts of commercial retaliation against the supplier if the supplier exercises its contractual or legal rights, including by filing a complaint with enforcement authorities or by cooperating with enforcement authorities during an investigation.

The tenth prohibited practice is a request from the buyer to the supplier for compensation from the supplier for the cost of examining customer complaints relating to the sale of the supplier’s products despite the absence of negligence or fault on the part of the supplier.

4.2. Gray Clauses

“Gray clauses” oblige the Member States to introduce a relative ban on certain commercial practices. The prohibition may be derogated by the parties in the event where it is agreed in

advance with clear and unambiguous terms in the supply contract or in a subsequent agreement between the supplier and the buyer. While the written form is not a requirement for the supply agreement, in this event it is necessary in order to fulfill the requirement of the Directive.

Generally, the Directive defines as gray clauses the practices of transfer of part or all of the risks or costs of selling the goods from the buyer to the supplier. The redistribution of these risks/costs has a different hypothesis, which the Directive has described in Art. 3 (2), as follows:

In the first place, it is the practice according to which the buyer may return some unsold agricultural and food products to the supplier without paying for those unsold products or without paying for the disposal of those products, or both. The return by the buyer of unsold goods is a phenomenon of the so-called. “reverse logistics”, which includes the movement of goods (damaged, recyclable, etc.) from the customer to the supplier, i.e. back to the movement of the chain from the manufacturer to the customer. In this case, the return of the unsold goods by the buyer shifts their sale not to the buyer (who should have decided how much goods to buy and how to sell them), but to the manufacturer or distributor. Exempting the buyer from this risk demotivates him to assess the quantities he needs and deprives him of incentives to sell the goods, insofar as the loss will be borne by the buyer. Conversely, the supplier will incur a loss from the returned unsold production, which could be impossible to sell through alternative channels. Additionally, this leads to overproduction, which, when it cannot be realized, turns into waste.

The second „grey prohibition” includes charging the suppliers as a condition for stocking, displaying or listing its agricultural and food products, or of making such products available on the market. Through this practice (entrance fee, fee for some additional item) a condition for access of the goods of the supplier to the shelves of the buyer is the payment of a certain fee, which is to bear part of the costs of the buyer for the sale of goods.

The third provision prohibits the request from the buyer to bear all or part of the cost of any discounts on agricultural and food products that are sold by the buyer as part of a promotion. This practice, in the form of, for example, a “promotion fee”, transfers to the supplier the burdens associated with the buyer’s marketing policy.

The fourth prohibition concerns a request from the buyer to the supplier to pay for the advertising by the buyer of agricultural and food products. This practice is widespread, in the form of various advertising fees for marketing the supplier’s products (e.g. through brochures, commercials, posters, etc. that directly advertise the product), which aim to market the products to the buyer’s benefit. Through these fees, the supplier shares part of the costs of the buyer for the marketing of goods to the end user.

The fifth prohibition concerns a request from the buyer to the supplier to pay for the marketing by the buyer of agricultural and food products. This is a fee for carrying out various marketing activities of the supplier’s products, at his expense and, ultimately, in the interest of the buyer.

The sixth prohibited practice is that of charging the supplier by the buyer for the staff engaged in the fitting-out the premises used for the sale of the supplier’s products. Besides by paying for the equipment, the supplier bears the costs of storing and offering the products that the buyer sells.

5. TRANSPOSITION OF THE DIRECTIVE

Member-states had to transpose the Directive into their legislation by 01.05.2021, and the measures should have entered into force six months later, i.e. to 01.11.2021.

As required by the Directive, Art. 6, para. 1, Member States must designate a body which, *inter alia*, may initiate and conduct investigations, on alert or *ex officio*, carry out inspections, decide on interim measures or the cessation of certain practices, decisions imposing sanctions, as well as to ensure the publicity of these decisions.

Generally, there are several possible alternatives for the appointment of such a body – a body of the judiciary (court), a body responsible for food issues, a ministry (agriculture, economy), a consumer body, or a competition authority.

Carrying out the activity before a body of the judiciary means the adoption of specific rules within the framework of civil or commercial contract law could be justified by the fact that these are rules governing contractual and pre-contractual relations. In case of violation of these norms, the affected party may file a claim for damages before the civil court.

However, this protection is insufficient for the following reasons:

In the first place, the undertaking concerned will have to pay serious legal costs, which it often cannot afford, as the applicant is most often a small or medium-sized undertaking with limited legal resources, especially compared to those of the stronger undertaking. As a result, there is a strong likelihood that the lawsuit will be unprofitable for the plaintiff and that he will ultimately fail to prove his claim.

Secondly, the initiation of a civil or commercial case may lead to retaliation against the undertaking concerned. This circumstance demotivates smaller traders to take such action.

The Directive also finds such a solution to be insufficient. The enterprise concerned needs assistance to exercise its rights, which the court does not offer through its competitive civil or commercial proceedings. The provision of administrative proceedings against infringers increases the guarantees for the enterprise concerned. In these proceedings, confidential complaints may also be allowed to be considered in order to overcome the applicant's fears of retaliation by the infringer¹⁵. Involving the state's administrative capacity to establish unfair practices also makes it easier to prove the latter. The administrative penalty, in addition to the compensation, also acts as a preventive measure against potential violators. It is for this reason that the sixteen Member States which have notified the Commission also provide for the power to investigate and impose sanctions to be exercised by administrative authorities.

¹⁵ Article 5 (3) of the Directive provides that, at the request of the applicant, the enforcement authority shall ensure the confidentiality of its identity and of any other information the disclosure of which, in the applicant's view, would prejudice his interests. Although this is a positive legislative development, this guarantee can only remain a good wish, insofar as in disclosing the facts in the proceedings; this confidentiality is practically impossible to maintain, as far as the factual situation will have to be presented to the company concerned (otherwise the exercise of its right of defense will be impossible), which is alleged to be in breach and it will easily be able to identify its trading partner.

Six countries have assigned to their competition authority to investigate and impose sanctions. It is generally considered to be the most appropriate, given that it has such competences, these bodies possess the necessary means and expertise which enable them to carry out the relevant checks on the basis of which to establish the facts and reach the relevant decision. A problem in granting these powers to the national competition authority may be the requirement of Directive 2019/1 of 11 December 2018, according to which national competition authorities should give priority to infringements of competition law than to their other competences.

The other alternative is for competent authority to be the relevant public authority of a Member State responsible for food safety, agriculture or specific authority that regulates unfair commercial practices. Eight countries have adopted this approach, which includes the Ministry of Agriculture, the department responsible for food markets or the department responsible for unfair competition or unfair practices, the department for consumer protection and others.

6. CONCLUSION

Unfair commercial practices between traders are a relatively new phenomenon and its economic effects on the diverse interests of market participants (large enterprises, small and medium-sized enterprises and consumers) are still insufficiently explored.

This makes it difficult to establish a stable legal solution to the issue, as there is no complete clarity about the overall set of problems that unfair commercial practices give rise to. For this reason, the prohibited practices under the Directive are similar to abuse of dominant position cases (with the difference that the buyer that is not in dominant position¹⁶).

However, there are obviously unfair consequences of these practices called for a legal intervention at an early stage in the study of the effects of unfair commercial practices.

In this respect, the Directive sets the beginning of a process, the rules and authorizations of which will probably be the subject of further discussion and the corresponding changes. This was the reason which has motivated some Member States to supplement the minimum standards of the Directive with additional absolutely or conditionally prohibited unfair acts. For this reason, it is provided that the first evaluation of the Directive will be carried out by the Commission by 01.11.2025, while if necessary it can be done earlier.

REFERENCES

- Bakhoun M., (2015). Abuse Without Dominance in Competition Law: Abuse of Economic Dependence and its Interface with Abuse of Dominance, Max Planck Institute for Innovation and Competition Research Paper No. 15–15
- Colino, S.M., (2010). Vertical Agreements and Competition Law- A Comparative Study of the EU and US Regimes, Hart Publishing
- COM(2018)173 – Unfair trading practices in business-to-business relationships in the food supply chain

¹⁶ Bakhoun M., Abuse Without Dominance in Competition Law: Abuse of Economic Dependence and its Interface with Abuse of Dominance, Max Planck Institute for Innovation and Competition Research Paper No. 15–15, p. 4 states, that the abuse of the vertical agreement affects the market position of the competitor in the horizontal market

- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A Better Functioning Food Supply Chain in Europe, at 2, COM (2009) 591 final (Oct. 28, 2009)
- Foer, A. A., (2016). Abuse of Superior Bargaining Position (ASBP): What Can We Learn from Our Trading Partners? AAI Working Paper No. 16-02.
- Petev, B., (2021). Ikonomicheskata sigurnost, faktor za natsionalna sigurnost, sp. Biznes posoki, br.1 /2021,BSU, Burgas, str. 69-73, ISSN 1312 – 6016 (Print), ISSN 2367 – 9247 (Online),pp. 71



Multiple-Criteria Approach for Serbian Tourism Products Assessment

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Abstract: *The main intention of this paper is to emphasize the crucial tourism products that will contribute to the tourism development of the Republic of Serbia. With that aim, the Multiple-Criteria Decision-Making – MCDM approach is proposed based on the Pivot Pairwise RElative Criteria Importance Assessment – PIPRECIA and the Simple Weighted Sum Product – WISP methods. PIPRECIA method is applied for defining the criteria weights, while the WISP method is used for ranking the considered tourism products. The final results are reliable and the tourism product City break is emphasized as the one with the greatest potential.*

1. INTRODUCTION

Decision-making in the tourism field is not less complex as it is in other business areas (Rigall-I-Torrent, & Fluvià, 2011). One of the questions that arise when it comes to decision-making in the mentioned area is what tourism product is the most attractive for the tourists. The attractiveness of the tourism products is affected by various factors which should be considered in the decision and evaluation process. For example, the Republic of Serbia in *The strategy of the tourism development of the Republic of Serbia* (“Službeni glasnik RS”, br. 91/2006) elicited nine crucial tourism products that could foster further tourism development. These alternative products were estimated against eleven criteria by using an adequate number of points. But, based on this it is very hard to clear determine what product should be a priority because of its potential. In resolving this issue the application of the multiple-criteria approach would be very helpful.

Multiple-Criteria Decision-Making methods (MCDM) are very popular and used for the facilitation of decision-process in the various business fields as well as in the tourism field (Alptekin & Büyüközkan, 2011; Liu et al., 2012; Liu et al., 2013; Stević et al., 2019; Lin, 2020; Lin & Chang, 2020). So far, many different approaches are introduced. Although all of them have the same goal of facilitating the decision process, the reason for the continual proposal of the new methods reflects the researchers' intention for finding the best possible technique that will give optimal and reliable results. In the present case, the approach based on the Pivot Pairwise

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Relative Criteria Importance Assessment – PIPRECIA and the Simple Weighted Sum Product – WISP is proposed for assessment of the aforementioned Serbian tourism products. The main reason for the application of these methods relies on their simplicity, ease of use and reliability.

2. PROPOSED METHODOLOGY

2.1. The PIPRECIA method

The first phase in the application of the MCDM methods is defining the criteria significance. There are a significant number of MCDM approaches dedicated to obtaining of the criteria weights, to name a few: The Entropy method (Shannon, 1948), the Analytic Hierarchy Process – AHP (Saaty, 1980), the Best-Worst Method – BWM (Rezaei, 2015, 2016), the Full Consistency Method – FUCOM (Pamučar et al., 2018) and the Stepwise Weight Assessment Ratio Analysis – SWARA (Keršulienė et al., 2010). In this case, the PIPRECIA method (Stanujkic et al., 2017) is applied for defining the criteria weights. The main reason for its usage relies in its simplicity and adequacy for using in the group decision-make environment.

The calculation procedure of the PIPRECIA method could be precisely illustrated by the following steps.

Step 1. Evaluation criteria selection. In the first step of the PIPRECIA method, there is no need for sorting the criteria according to the expected importance.

Step 2. Determination of the relative importance s_j , beginning from the second criterion, is as follows:

$$s_j = \begin{cases} > 1 & \text{when } C_j > C_{j-1} \\ 1 & \text{when } C_j = C_{j-1} \\ < 1 & \text{when } C_j < C_{j-1} \end{cases} \quad (1)$$

Step 3. Determination of the coefficient k_j as follows:

$$k_j = \begin{cases} 1 & j = 1 \\ 2 - s_j & j > 1 \end{cases} \quad (2)$$

Step 4. Calculation of the recalculated value q_j , in the following manner:

$$q_j = \begin{cases} 1 & j = 1 \\ \frac{q_{j-1}}{k_j} & j > 1 \end{cases} \quad (3)$$

Step 5. Determination of the relative criteria weights by using the following equation:

$$w_j = \frac{q_j}{\sum_{k=1}^n q_k} \quad (4)$$

where w_j denotes the relative weight of the criterion j .

Step 6. Determination of the relative criteria weights when the greater number of decision-makers are involved in the evaluation procedure. In that case, the overall criteria weights are defined in the following way:

$$w_j^* = \left(\prod_{r=1}^R w_j^{nr} \right)^{\frac{1}{R}} \quad (5)$$

$$w_j = \frac{w_j^*}{\sum_{j=1}^n w_j^*} \quad (6)$$

where w_j^{nr} is the weight of criterion j that is defined by the respondent r , R represents the total number of the respondents, w_j^* is group weight of criterion j before its adjusting in order to fulfill the condition $\sum_{j=1}^n w_j = 1$, and w_j is the overall weight of criterion j .

2.2. The WISP method

The WISP method is introduced by Stanujkic et al. (2021) which incorporates four relationships between benefit and cost criteria in order to define a final utility of an alternative. Its procedure is very comprehensive and it successfully facilitates the decision process.

The computation procedure of this method could be represented by using the following steps.

Step 1. Creation of a normalized decision matrix. The normalized ratings are calculated in the following way:

$$r_{ij} = \frac{x_{ij}}{\max_i x_{ij}} \quad (7)$$

where r_{ij} is a dimensionless number that represents a normalized rating of alternative i regarding the criterion j .

Step 2. Calculation of the values of four utility measures, by using the following equations:

$$u_i^{wsd} = \sum_{j \in \Omega_{max}} r_{ij} w_j - \sum_{j \in \Omega_{min}} r_{ij} w_j \quad (8)$$

$$u_i^{wpd} = \prod_{j \in \Omega_{max}} r_{ij} w_j - \prod_{j \in \Omega_{min}} r_{ij} w_j \quad (9)$$

$$u_i^{wsr} = \frac{\sum_{j \in \Omega_{max}} r_{ij} w_j}{\sum_{j \in \Omega_{min}} r_{ij} w_j} \quad (10)$$

$$u_i^{wpr} = \frac{\prod_{j \in \Omega_{max}} r_{ij} w_j}{\prod_{j \in \Omega_{min}} r_{ij} w_j} \quad (11)$$

where: u_i^{wsd} and u_i^{wpd} represent differences between the weighted sum and weighted product of normalized ratings of alternative i , respectively. Analogous to the previous one, u_i^{wsr} and u_i^{wpr} remarks ratios between weighted sum and weighted product of normalized ratings of alternative i , respectively.

Step 3. Recalculation of the values of four utility measures, as follows:

$$\bar{u}_i^{wsd} = \frac{1 + u_i^{wsd}}{(1 + u_{max_i}^{wsd})} \quad (12)$$

$$\bar{u}_i^{wpd} = \frac{1 + u_i^{wpd}}{(1 + u_{max_i}^{wpd})} \quad (13)$$

$$\bar{u}_i^{wsr} = \frac{1+u_i^{wsr}}{(1+u_{max_i}^{wsr})} \quad (14)$$

$$\bar{u}_i^{wpr} = \frac{1+u_i^{wpr}}{(1+u_{max_i}^{wpr})} \quad (15)$$

where: \bar{u}_i^{wsd} , \bar{u}_i^{wpd} , \bar{u}_i^{wsr} and \bar{u}_i^{wpr} represents recalculated values of u_i^{sd} , u_i^{pd} , u_i^{sr} and u_i^{pr} .

Step 4. Definition of the overall utility u_i of each alternative by using Eq. (16):

$$u_i = \frac{1}{4}(\bar{u}_i^{wsd} + \bar{u}_i^{wpd} + \bar{u}_i^{wsr} + \bar{u}_i^{wpr}) \quad (16)$$

Step 5. Rank the alternatives in descending order and select the optimal one. The alternative which has the highest value of u_i is the best one.

3. NUMERICAL EXAMPLE

The application of the proposed approach is demonstrated through a real case study directed to the ranking of the tourism products of the Republic of Serbia. Tourism products that are submitted under evaluation are:

- A_1 – City break
- A_2 – Circular tours
- A_3 – Business tours
- A_4 – Spa/wellness
- A_5 – Mountains and lakes
- A_6 – Nautics
- A_7 – Events
- A_8 – Special interests
- A_9 – Rural tourism

The evaluation criteria are:

- C_1 – Threat from the new competition entrance
- C_2 – Threat from the substitutes
- C_3 – Competition intensity
- C_4 – Bargaining power on the customer side
- C_5 – Bargaining power on the supplier side
- C_6 – Demand volume
- C_7 – Potential of the growth of demand
- C_8 – Image creating
- C_9 – Speed of investment attraction
- C_{10} – The amount of investment required
- C_{11} – Technical and managerial complexity

Table 1 contains the initial assessment of the tourism products retrieved from *The Strategy of the tourism development of the Republic of Serbia* (“Službeni glasnik RS”, br. 91/2006), which represents the input data for further MCDM analysis.

Table 1. Initial decision-making matrix

	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}	C_{11}
	min	min	min	min	max	max	max	max	max	min	min
w_j	0.092	0.090	0.085	0.080	0.084	0.094	0.092	0.085	0.098	0.106	0.095
A_1	1	4	1	4	5	5	5	5	3	5	5
A_2	1	4	2	3	5	5	3	5	3	5	4
A_3	3	5	3	3	5	5	5	5	4	2	3
A_4	4	4	3	5	4	3	4	3	3	2	1
A_5	3	3	3	3	5	4	4	3	3	2	3
A_6	4	4	3	3	5	3	3	4	4	2	3
A_7	4	3	5	5	5	3	3	5	2	4	4
A_8	3	5	3	5	5	1	2	4	2	5	5
A_9	3	3	3	3	5	1	3	4	3	4	4

Source: Službeni glasnik RS”, br. 91/2006

First, the criteria weights are defined. Three-decision makers are involved in the procedure in order to gain adequate weighting results. The criteria weights according to decision-makers as well as the overall weights of criteria are shown in Table 2.

Table 2. The criteria weights

Criteria	DM_1	DM_2	DM_3	w_j
C_1	0.103	0.097	0.077	0.092
C_2	0.086	0.108	0.077	0.090
C_3	0.086	0.090	0.077	0.085
C_4	0.078	0.075	0.086	0.080
C_5	0.087	0.079	0.086	0.084
C_6	0.097	0.088	0.095	0.094
C_7	0.097	0.084	0.095	0.092
C_8	0.088	0.080	0.087	0.085
C_9	0.098	0.088	0.108	0.098
C_{10}	0.098	0.111	0.108	0.106
C_{11}	0.081	0.101	0.103	0.095

Source: Own research

When the criteria weights are determined, the WISP method is applied. In Table 3 the recalculated values of four utility measures are presented, which are computed by using Eqs. (12) – (15).

Table 3. Recalculated values of four utility measures

	\bar{u}_i^{wsd}	\bar{u}_i^{wpd}	\bar{u}_i^{wsr}	\bar{u}_i^{wpr}
A_1	0.047322	0.000005	0.501570	0.996044
A_2	0.030187	0.000003	0.481527	0.498022
A_3	0.087440	0.000006	0.559165	0.655832
A_4	-0.031423	0.000001	0.398204	0.191241
A_5	0.032994	0.000002	0.490487	0.314799
A_6	-0.000417	0.000002	0.440279	0.177075
A_7	-0.129245	0.000001	0.308314	0.019921
A_8	-0.213176	0.000000	0.230804	0.003022
A_9	-0.075405	0.000000	0.345548	0.029512

Source: Own research

The ranking order of the considered tourism products is defined by using Eq. (16) and presented in Table 4.

Table 4. Ranking order of the alternatives

	u_i	<i>Rank</i>
A_1	0.3862	1
A_2	0.2524	3
A_3	0.3256	2
A_4	0.1395	6
A_5	0.2096	4
A_6	0.1542	5
A_7	0.0497	8
A_8	0.0052	9
A_9	0.0749	7

Source: Own research

As Table 4 shows, the most significant tourism product in present conditions for the Serbian tourism sector is A_1 – City breaks.

4. CONCLUSION

The main target of this paper was to emphasize the crucial tourism products of the Republic of Serbia that should have adequate attention and that should be further developed. With that aim, the MCDM approach is proposed based on the PIPRECIA and WISP methods. PIPRECIA method is used for defining the criteria weights, while the WISP method is applied for the final ranking of the considered alternative tourism products. Nine tourism products are evaluated against the eleven criteria, and the decision process is performed by three decision-makers. The final results spot light on the alternative A_1 – City breaks as a tourism product that has the greatest potential and could greatly contribute to the tourism development of the Republic of Serbia.

The main limitation of this paper is expressed thorough application of the crisp numbers in the computational procedure. So, the first proposition for future research goes in favor of proposing adequate extensions based on the fuzzy, grey or neutrosophic numbers. Besides, if a greater number of decision-makers from the tourism field will be involved in the defining of the criteria weights, the obtained results would be more representative and reliable. Also, performing an additional analysis by using different MCDM models based on other combinations of the MCDM methods will enable confirmation of the obtained results.

Despite the outlined shortcomings of the given paper, the applicability of the proposed approach as well as the reliability of the gained results could not be refuted. The proposed model facilitates the evaluation process and decision-making is performed effectively. Obtained results are real and relevant and are in accordance with the present conditions.

REFERENCES

- Ahmad, U. (2016). Application of multiple criteria decision making techniques in tourism and hospitality industry: A systematic review. *Transformations in Business & Economics*, 15(1), 37.
- Alptekin, G. I., & Büyüközkan, G. (2011). An integrated case-based reasoning and MCDM system for Web based tourism destination planning. *Expert Systems with Applications*, 38(3), 2125-2132. <https://doi.org/10.1016/j.eswa.2010.07.153>
- Keršulienė, V., Zavadskas, E. K., & Turskis, Z. (2010). Selection of rational dispute resolution method by applying new step-wise weight assessment ratio analysis (SWARA). *Journal of business economics and management*, 11(2), 243-258. <https://doi.org/10.3846/jbem.2010.12>
- Lin, C. L. (2020). Establishing environment sustention strategies for urban and rural/town tourism based on a hybrid MCDM approach. *Current Issues in Tourism*, 23(19), 2360-2395. <https://doi.org/10.1080/13683500.2019.1642308>
- Lin, C. L., & Chang, K. C. (2020). Establishing the service evaluation and selection system for emerging culture festival events using the hybrid MCDM technique. *Current Issues in Tourism*, 23(18), 2240-2272. <https://doi.org/10.1080/13683500.2019.1665628>
- Liu, C. H., Tzeng, G. H., & Lee, M. H. (2012). Improving tourism policy implementation—The use of hybrid MCDM models. *Tourism Management*, 33(2), 413-426. <https://doi.org/10.1016/j.tourman.2011.05.002>
- Liu, C. H., Tzeng, G. H., Lee, M. H., & Lee, P. Y. (2013). Improving metro–airport connection service for tourism development: Using hybrid MCDM models. *Tourism Management Perspectives*, 6, 95-107. <https://doi.org/10.1016/j.tmp.2012.09.004>
- Pamučar, D., Stević, Ž., & Sremac, S. (2018). A new model for determining weight coefficients of criteria in MCDM models: Full consistency method (FUCOM). *Symmetry*, 10(9), 393. <https://doi.org/10.3390/sym10090393>
- Popovic, G., Stanujkic, D., Brzakovic, M., & Karabasevic, D. (2019). A multiple-criteria decision-making model for the selection of a hotel location. *Land use policy*, 84, 49-58. <https://doi.org/10.1016/j.landusepol.2019.03.001>
- Rezaei, J. (2015). Best-Worst Multi-Criteria Decision-Making Method. *Omega*, 53, 49-57. <https://doi.org/10.1016/j.omega.2014.11.009>
- Rezaei, J. (2016). Best-worst multi-criteria decision-making method: Some properties and a linear model. *Omega*, 64, 126-130. <https://doi.org/10.1016/j.omega.2015.12.001>
- Rigall-I-Torrent, R., & Fluvà, M. (2011). Managing tourism products and destinations embedding public good components: a hedonic approach. *Tourism Management*, 32(2), 244-255. <https://doi.org/10.1016/j.tourman.2009.12.009>
- Saaty, T. L. (1980). *The Analytical Hierarchy Process: Planning, Priority Setting, Resource Allocation*. McGraw-Hill, New York.
- Shannon, C. (1948). A Mathematical Theory of Communication. *Bell System Technical Journal*, 27, 379–423 and 623–656.
- Službeni glasnik RS (91/2006). *The Strategy of the tourism development of the Republic of Serbia*
- Stanujkic, D., Popovic, G., Karabasevic, D., Meidute-Kavaliauskiene, I., & Ulutaş, A. (2021). An Integrated Simple Weighted Sum Product Method—WISP. *IEEE Transactions on Engineering Management*, 1-12. <https://doi.org/10.1109/TEM.2021.3075783>
- Stanujkic, D., Zavadskas, E. K., Karabasevic, D., Smarandache, F., & Turskis, Z. (2017). The use of the pivot pairwise relative criteria importance assessment method for determining the weights of criteria. *Journal of Economic Forecasting*, 4, 116-133.
- Stević, I., Stević, S. R., & de Jesus Breda, Z. M. (2019). Application of MCDM methods to tourism evaluation of cultural sites. In *Cultural Urban Heritage* (pp. 357-381). Springer, Cham. https://doi.org/10.1007/978-3-030-10612-6_24



Water – Renewable and Protected Natural Resource

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Abstract: Water is a “renewable, vulnerable and limited natural resource, an indispensable element for life and society, raw material for productive activities, energy source and transport, decisive in maintaining the ecological balance.” But is water, really, an inexhaustible and permanently renewable element? This is the question that can only be answered by implementing all methods, levers, domestic and international efforts aimed at protecting water and maintaining its natural and permanent circuit in nature. As water is a natural resource with great economic value in all its forms of use, conservation, reuse and saving of water are imperative objectives, which are to be achieved through the development of environmental awareness, the application of economic stimulus and the application of sanctions to those which violate legal rules on water protection. The protection of water quality at the national and international level involves a vast and complex activity of cooperation and collaboration based on domestic legislation and international treaties and conventions to which Romania is a party. The planet’s waters are a unitary whole, but their legal protection regimes vary depending on the category of waters that are protected. As a result of the diversity of legal regimes for water protection, the need for international cooperation has been imposed in order to prevent and combat water pollution, its judicious administration and management. The main normative acts include objectives and rules such as conservation, development and protection of water resources, protection against any forms of pollution and modification of water characteristics, complex use of water as an economic resource, their rational and balanced distribution, conservation and protection of aquatic ecosystems, protection against floods and other dangerous hydrometeorological phenomena, meeting the water requirements of industry, agriculture, tourism, transport and any human activities.

1. INTRODUCTION

The United Nations Conference on the Environment in Rio de Janeiro adopted on 22 December 1992 the decision to make March 22 World Water Day (resolution 47/193). In 2013, the International Year for Water Cooperation, proclaimed by the UN General Assembly, was marked by Resolution 65/154, on February 11, 2011. The theme of the 2021 campaign was “Valuing Water” and generating a global public dialogue on social media about how people know how to properly appreciate water and its many uses. The goal is to create a more comprehensive understanding of how water is valued by different people in different contexts so that we can protect this precious resource for everyone. The role of water in households, schools, jobs and health care facilities is essential. In addition, ASI services – water, sanitation and hygiene – also add value in the form of better health, especially in the context of the COVID-19 pandemic. This theme will extend beyond pricing issues to include environmental, social value and culture that people give to water. The holiday is of real importance, especially because water is one of

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the indispensable resources for human life. Also, this festivity is a good opportunity to remind yourself how dangerous the absence or pollution of water is (<https://iwaponline.com/ws/article/21/8/4058/82385/Impact-of-the-COVID-19-pandemic-on-water>, <https://unece.org/environment-policy/water/covid-19-role-water-convention-and-protocol-water-and-health>).

In 2010, the UN recognized the “Right to Safety and Security of Drinking Water, clean and wholesome”, as an essential human right. The human right to water allows everyone without discrimination, access to sufficient, safe, acceptable, physically accessible water and accessible for personal and household use; which includes drinking water, personal hygiene, preparing food and personal and family hygiene (<https://www.un.org/en/observances/water-day>).

2. ROMANIAN WATER RESOURCES

Romania’s water resources consist of surface waters – inland rivers, natural or artificial lakes, the Danube river (Black Sea waters are not taken into account due to technical and economic difficulties of desalination) – and groundwater.

Romania is a country rich in water resources, ranking 21st in Europe (according to United Nations Statistics) given that it has only 1700 m³ of water for a year per inhabitant.

These resources cannot be used without significant investments for hydrographic works and treatment plants, because:

- the Danube river, the most important water resource, is used to a small extent, due to its eccentric position, at the southern limit of the territory;
- the inland rivers are unevenly arranged on the territory, presenting, at the same time, important variations of flows in time and space;
- significant pollution of important rivers makes their use prohibitive (<https://www.eea.europa.eu/soer/2010/countries/ro/freshwater-why-care-romania>).

In 2021, on the International Water Day occasion, Andrei Coșuleanu, President and Founder of the ‘Act for Tomorrow’, said: “The main rivers in Romania are polluted with microplastic, the results of analyzes collected from 21 water courses show the presence of microplastic and nanoplastic in all this” (<https://ambadasustenabilitatii.ro/act-for-tomorrow/>).

Following the Report presented by the ‘Act for Tomorrow’, a set of specific recommendations is presented for the first time. They could be a starting point in the development of public policies aimed at limiting microplastic pollution of aquatic environments, as well as in the development of a national strategy on water protection. Recommendations include:

- Introduction of the obligation to monitor the presence and concentration of microplastics in Romanian waters (rivers, lakes), including drinking water;
- Investments for the implementation of high-performance systems and advanced wastewater treatment and filtration technologies;
- Allocation of public funds for national research institutes, in order to acquire technology to increase the research and analysis capacity of the microplastic;
- Research on the presence and potential impact of microplastic on aquatic fauna;
- Establishment of a working group between representatives of public institutions, the private sector and civil society to adapt and supplement the legislation on water protection.

3. MATERIALS AND METHODS

According to world statistics, every second, the urban population grows by two individuals. Five million every month people come to live in the city, and 27% of the urban population worldwide not benefit from power systems. Annually, between 250-500 m³ of drinking water are wasted pointless in the big cities of the globe. If this amount of water would not be wasted yet 10-20 million people would have drinking water.

Every day, 2 million tons of wastewater arrive untreated or insufficiently cleaned in the courses of water from all over the world. Every fourth inhabitant of cities around the world do not have access to adequate sanitation.

Water is one of the most limited resources we have – only 2.5% of all the water on Earth is fresh water, while the rest is salt water from the seas and oceans, and that small amount of water is not entirely accessible to us, as more than half is stored in glaciers; but, nevertheless, we waste it many times, as if it could never be exhausted.

Water is appreciated as the main element that allowed the appearance of life on our planet. Water is the factor that determined the maintenance of life and the evolution of homo sapiens, making it possible to cross the historical periods and societies known until now.

That is why European and international environmental policies aim is to implement all the normative acts that set the general framework and to respect the principles that imply long-term water protection.

The industrial development of the last decades has given rise to a serious depreciation, in some parts of the world, of this important source of life, which is water. Both globalization and the misuse of water resources have sounded the alarm about the obvious danger of water consumption and infestation.

Eventually, the negative effects on the water began to be realized. Subsequently, conventions, directives and treaties concluded between riparian states have emerged in international relations and international law, imposing legal norms that make it mandatory for all actors involved to respect in their development process all the principles and norms that aims at protecting the water and maintaining its quality in the long run. At the same time, efforts must be made to protect, improve and restore the state of groundwater, to prevent pollution, but also to conserve protected areas.

At present, the states of the world are interested in preventing water damage, in improving and restoring water reserves, in using good quality, chemical and ecological water, but also in reducing pollution due to discharges and emissions of hazardous substances.

At the European and international level, states are guided by water exploitation activities according to a number of principles: the principle of sustainable, unitary and rational use of water, the principle of public participation in decision-making (solidarity), the polluter pays principle and the beneficiary pays.

Water is a common good of humanity and a limited resource that must be protected and used rationally, both in terms of quality and quantity. Water as a natural resource is under pressure

due to its multiple uses in agriculture, tourism, transport and energy. In 2012, the Commission of the European Union launched the Plan for the Safeguarding of Europe's Water Resources. This plan is a long-term strategy that aims to ensure the availability and availability of water at a level of quality sufficient for all legitimate uses. By implementing current EU water policy, we are integrating water policy objectives into other policy areas and addressing gaps in the current framework. This plan provides for Member States to establish water accounts and water efficiency targets, as well as to develop EU standards for water reuse (<https://www.europarl.europa.eu/portal/en>).

The United Nations Convention on the Law of the Sea (Montego Bay, 1982) establishes a minimum level of protection for the marine environment against pollution (Ciuvat, 1998).

This Convention establishes the general principles of international cooperation for the prevention of pollution of the marine environment (from land-based or atmospheric sources, by the operation of ships and the transport of dangerous substances by sea, by immersion, by the exploitation of the abiotic resources of the seas and oceans) and the continental shelf, eliminating/limiting the effects of pollution and taking responsibility for pollution of the marine environment.

The principles recognized by the Montego Bay Convention are taken over and developed by specialized international conventions with a universal or regional vocation, as well as by regulations adopted at the national level.

The European Parliament Directive 60/2000/EC establishes a framework for Community action in the field of water policy. The aim is to maintain and improve the aquatic environment in the European Union.

The purpose of the Directive is to establish the legal framework for the protection of inland surface water, transitional water, coastal and groundwater. The aim is to protect and improve the condition of aquatic ecosystems, terrestrial ecosystems and wetlands; promoting the sustainable use of water on the basis of long-term protection of available water resources; gradually reduce discharges, emissions or losses of priority substances and phase out discharges, emissions or losses of priority substances; ensure the gradual reduction of groundwater pollution and the prevention of further pollution.

The United Nations has stated that the seabed and the ocean floor and their subsoil are a common heritage of humanity and that the exploration and exploitation of the area will be in the interest of all mankind. At the same time, Article 1 of the Convention sets out the concept of pollution of the marine environment by the introduction, directly or indirectly, by man, of substances or energy into the marine environment, including estuaries, when it has or may have harmful effects, such as would be damage to biological resources, marine fauna and flora, risks to human health, obstacles to maritime activities, including fishing and other legitimate uses of the sea, impaired seawater quality in terms of its use and degradation of its recreational values.

Europe's waters are affected by organic and nutrient pollution, as well as by chemical pollution. Water pollution comes from various sources, such as households, industrial plants and agriculture. The 2000 Water Framework Directive harmonized existing EU water policy legislation. The directive introduced the river basin management plan as a key implementation tool.

The European Union has provided substantial funding for the achievement of water policy objectives, in particular for investment in the wastewater sector (EUR 6.35 billion from the European Regional Development Fund and the Cohesion Fund, in the 2007-2013 programming period, for the nine Member States in the Danube watershed) and for compensating farmers who make agri-environmental commitments (EUR 6.39 billion from the European Agricultural Fund for Rural Development, in the 2007-2013 programming period, for the same nine Member States).

The legal framework in the European Union Member States provides for the application of a water pollution tax, which must be paid by those who discharge polluted water. It is based on the amount and/or concentration (mg/l) of the pollutants in the discharged water. Such a charge is in line with the ‘polluter pays’ principle 49, according to which the polluter must bear the costs of reducing the pollution he has caused. The water pollution tax can be used for three purposes:

- (i) to mobilize financial resources;
- (ii) to encourage compliance with the emission limit values set out in the permits of those discharging polluted water;
- (iii) to act as an incentive to further reduce pollution by meeting stricter limits than those already set.

The fee to be paid for the discharge of waste water into surface water bodies is limited to a number of pollutants. The fee expressed in euro/ton of pollutant varies significantly between Member States. In Romania, no tax is levied per pollutant if the effluent discharged is less polluted than the receiving surface water body. This favors those who discharge wastewater into bodies of water with a high degree of pollution.

Since 2020, the European Parliament has defined the essential quality standards for water intended for human consumption. Thus, it is necessary to periodically monitor the quality of water intended for human consumption by using the “sampling point” method. Union Member States may include specific additional requirements, but only if this leads to higher standards. The European Parliament’s directive requires the regular provision of consumer information on water quality. Periodically, reports on drinking water quality are submitted to the Commission every three years.

The revised directive was proposed by the Commission on 1 February 2018 in response to the European Citizens ‘Right2Water’ initiative, which replaced the 1998 World Health Organization directive. This increases the transparency for consumers in terms of the quality of drinking water and the water supplied, helping to reduce the number of plastic bottles due to increased confidence in tap water. A proper water safety assessment will help to identify and address potential risks to water sources starting with the distribution area.

4. CONCLUSION

In order for water to remain a renewable element, it must be a part of the guidelines transposed by the European Union to the Member States through national law and ratified international conventions.

Although we are in the midst of a global ecological crisis, we must take into account the need for long-term use of quality water without pollutants.

In recent years, human-nature interaction has been aggressive enough. As a result, there is a need for development of ecological awareness at the same time as the support of cultural-ecological models.

Because the distribution of quality water in the world is not equal, we must continue the training the culture of the right to water, which presupposes, in fact, the knowledge of the laws of water, the knowledge of the human right to an environment that is environmentally safe from an ecological point of view for life and health.

All actions to prevent and combat pollution must be found in all states through legislation to protect the country's water resources. In this regard, the most important aspects are:

- carrying out some arrangement works;
- regulations on natural water quality;
- water quality monitoring and control;
- training of specialized personnel in water quality assurance and protection;
- raising public awareness on the social, economic, ecological importance of the problems and actions to combat water pollution.

Water demand is expected to grow by 2050, while the world's population is projected to grow by a third to 9 billion, according to the United Nations. This will lead to a 70 percent increase in food demand, putting pressure on the demand for water in agriculture, which is already the largest consumer of this resource.

As climate change contributes to rising sea levels and extreme weather conditions, at least one in four people will live in a country with a chronic or periodic shortage of fresh water by 2050, according to the United Nations, focusing on expanding rainwater harvesting and wastewater recycling.

REFERENCES

Ciuvat, V. (1998) “*Convenția Națiunilor Unite asupra dreptului mării de la Montego Bay adoptată la 10 decembrie 1982, remarcabilă creație a actualului stadiu al colectivității internaționale*”, Revista de Științe Juridice, nr.13-14/1998.

<https://ambasadasustenabilitatii.ro/act-for-tomorrow/>

<https://iwaponline.com/ws/article/21/8/4058/82385/Impact-of-the-COVID-19-pandemic-on-water>

<https://unece.org/environment-policy/water/covid-19-role-water-convention-and-protocol-water-and-health>

<https://www.eea.europa.eu/soer/2010/countries/ro/freshwater-why-care-romania>

<https://www.europarl.europa.eu/portal/en>

<https://www.un.org/en/observances/water-day>

