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## Preface

Economic development refers to the improvement of activities in the economy, which leads to progressive changes in the socio-economic structure and the rising of living standards. Given that the objective of sustainable economic development is elimination of poverty, inequality and unemployment – thus leading to social inclusion and improvement of the quality of life; it is necessary in analysis of this important issue apply extremely multidisciplinary approach.

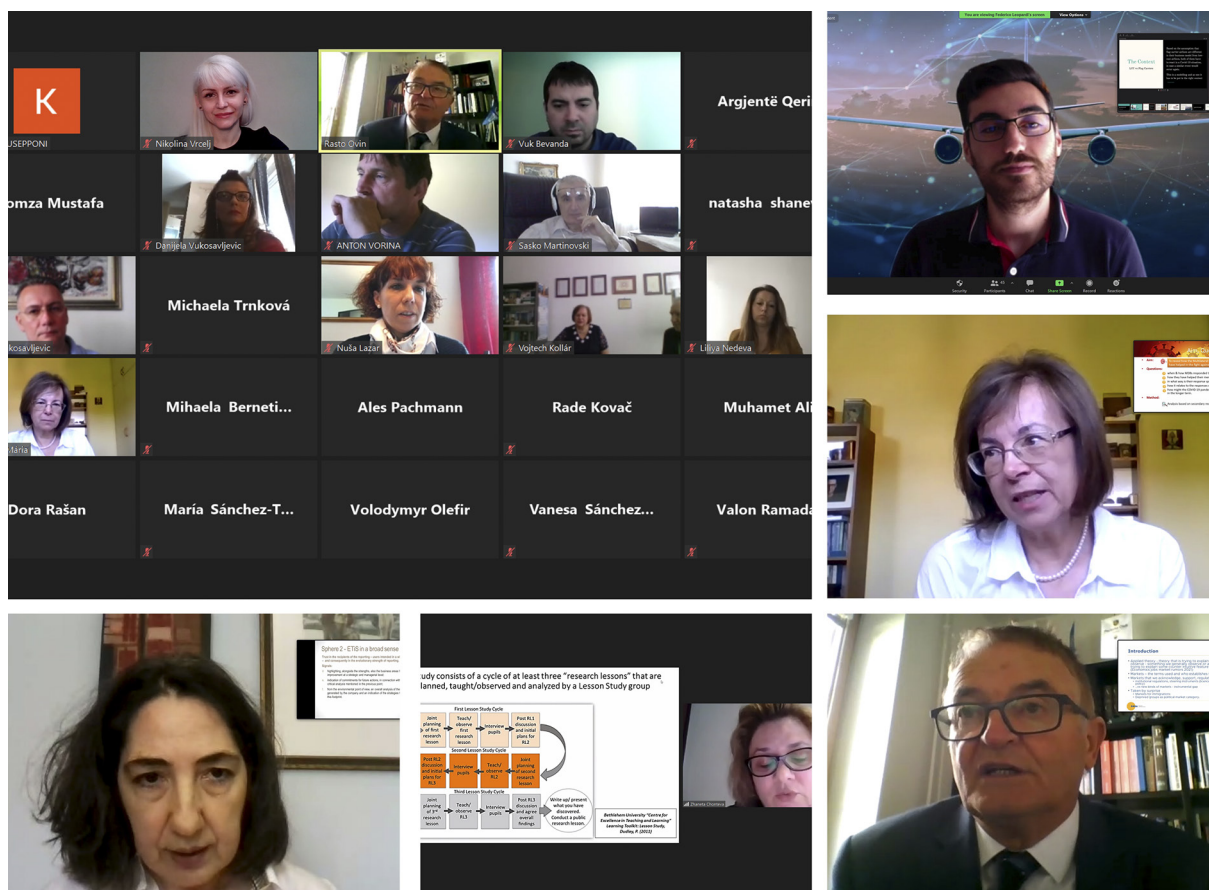
University of National and World Economy – Sofia, Bulgaria; Faculty of Economics and Business, Mediterranean University – Podgorica, Montenegro; Faculty of Commercial and Business Studies – Celje, Slovenia; Faculty of Applied Management, Economics and Finance, Belgrade; Association of Economists and Managers of the Balkans along with the AMBIS University from Prague, Czech Republic have recognized the following issue and organized the 7th International Scientific Conference titled: ***Knowledge Based Sustainable Development – ERAZ 2021*** online/virtually (due to the COVID-19 pandemic) on May 27, 2021.

The conference objective was to bring together academic community (experts, scientists, engineers, researchers, students and others) and publication of their scientific papers for the purpose of popularization of science and their personal and collective affirmation. The unique program combined interactive discussion and other forms of interpersonal exchange of experiences and presentation of the latest scientific developments in following areas:

- Microeconomics and macroeconomics,
- Economic policy,
- International Economics and Trade,
- International Business,
- Economic diplomacy,
- Lobbying,
- Globalization,
- European business,
- Modern management and innovation,
- Business and Public Finance,
- Fiscal policy,
- Stock exchange and financial markets,
- Risk management,
- Insurance and reinsurance companies,
- Financial Management and Banking,
- Modern forms of entrepreneurship and investment,
- Investment Management,
- Enterprise and Learning,
- Women and Entrepreneurship,
- Corporate entrepreneurship,
- Agribusiness Strategy,
- Marketing and trade,
- Marketing services,
- Marketing of non-profit sector,
- Research in marketing,
- Marketing in education,
- Marketing in sport,
- Marketing in culture,
- Accounting and auditing,
- Quality management,
- Labor law,
- Business law,
- The role of the rule of law in the country's progress,
- Human rights and protection of minorities,
- Legal aspects of EU integration,
- Intellectual Property Law,
- The reform of corporate law in countries in transition,
- CEFTA,
- Ecology and energy,
- Renewable energy,
- Energetic efficiency,
- Information technology and business intelligence,
- The use and integration of new technologies,
- E-society and E-learning,
- Sustainable tourism,
- Hospitality

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# Human Capital and Job Satisfaction During a Pandemic

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## Keywords:

Pandemic;  
Home office;  
Satisfaction;  
Social capital;  
Social relations;  
Human capital;  
Connectivity;  
Distance;  
New reality;  
Communication;  
Effective organization;  
Management;  
Incentives;  
E-business proactiveness

**Abstract:** *The pandemic caused by COVID-19 is a global crisis that imposes travel restrictions, quarantines, and suspensions of much of its daily activities. The pandemic changed the real interest rates and the balance in the economy, made it difficult and almost impossible to financially forecast and plan the activities of organizations, increased the level of uncertainty in the economies of each country.*

*This topic identifies possible and observed problems that have arisen in an unhealthy social environment and their impact on social resources (people), which integrate institutions, organizations and networks to perform actions of common benefit, through the challenge to transform their overall approach and model of business and social life management. The problems caused by the health crisis are identified and solved in progress, without prior preparation and without high expectations as a reflection on social units.*

*During a pandemic, the prevention of human health, on the one hand, and ensuring business continuity, on the other, require adaptability and rapid solutions, adequate responses in unforeseen and unpredictable environments, related to effective transformations to reorganize the work regime, to engage, motivate and attract people in an online environment, but also keep the relationship with them alive. The so-called “new normal” causes changes in a person’s daily life, both as an individual and in society.*

*Among the urgent new challenges is the question: “Does working from home contribute to higher productivity and wider development of one’s potential, and in this sense does the contribution to the development of the respective sector increase or is the “home office “perceived” as a constraint and demotivation?” The topic discusses and develops the idea of changing approaches to human capital, in order to feel safe and productive in the new job, which helps us in the process of overcoming the difficulties associated with an unhealthy Environment.*

*Faced with a catastrophic decline in all elements of social capital, a positive start must be developed and a formula found for one’s own satisfaction, both for ourselves and for those with whom we are virtually connected. Investments in the changing work profiles, as well as in the change in the required qualities and competencies of the employees, corresponding to the new normality, should be seen as levers for convincing and effective support of the skills of the workforce and as a long-term advantage.*

*Innovation, entrepreneurship, and knowledge are the basis for increasing the competitiveness of any company and its growth. Social capital helps the management of each company to actively respond to changes in the market in which they operate, to understand and meet customer needs in the most adequate way. Therefore, companies should be able to use their social capital in the most effective way to stimulate all their activities and, through the digitalization of processes and accumulation of new knowledge, to be able to meet various market challenges.*

*While all companies strive to survive in a pandemic, the pressure of the pandemic has created an opportunity to use innovations and integrate capital management into e-business, forcing them to prioritize their processes and activities towards innovative flexible solutions.*



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## 1. INTRODUCTION

COVID-19 caused a global crisis and posed one of the greatest challenges facing humanity in our time. Determinants of job satisfaction which relate to labor market conditions, such as job security, wages, bonus, retirement/pension plans, the potential for future growth, and spending on training, tend to suffer during recessions. The wave-like pandemic spread rapidly and swept the world, stopping travel, quarantining and restricting gatherings. Just as the adverse effects of the COVID-19 pandemic vary widely from country to country, the effects of a pandemic vary internally across communities.

Social capital provides many different benefits during a crisis, with communities with high social capital responding more effectively to the effects of crises than those with low social capital. If in a crisis physical capital is completely destroyed, social sustainability and cooperation are able to allow communities to recover, which is extremely important during various emergencies. Social capital has the potential to facilitate calm activities as well as to enable collective decision-making.

Companies devoted more efforts and resources to support their employees' well-being, helping to keep overall job satisfaction for workers at a high level. Many of the components of employee job satisfaction that companies directly control, such as the health plan, performance review process, flexible time plan, family leave plan, sick leave, and supervisor, significantly improved in 2020.

## 2. LITERATURE REVIEW

Social capital is the set of relationships related to the expectation that other business agents will perform their duties without sanctions. The intellectual searches for the role of human relationships of groups of individuals are connected with the works of J.J. Rousseau, J. Locke, M. Weber, E. Durkheim, and others, traced in the classical sociology of the twentieth century. The historical genealogy of the sum "social" is associated with the meaning "I follow someone" and "I have something in common" and the term is used as a synonym for public, community, connection. Modern research on the concept connects it with the economic sociology of Max Weber, as well as with the concepts of Adam Smith presented in "Theory of Moral Feelings".

The main ideas on which the understanding of social capital in our time is determined are those of Pierre Bourdieu, James Coleman, and Robert Putnam. P. Bourdieu presents the idea that the individual benefits from being a member of a certain social network, as the conscious building of sociability and social ties, support his progress in terms of career development (Minchev, 2009). According to sociologist Coleman, social capital is everything that supports personal and collective action and is the result of established networks of relationships, social norms, and trust. Coleman defines that social capital as a resource reflects on society depending on the way individuals use it, and unlike other types of capital, social capital is built based on established relationships between people (Rakadzhyska et al, 2015).

This shows that social capital is intangible. Each of the scientists derives different definitions of it, and the general opinion is that it exists in social groups and can manifest itself in different forms. One of the most widely used definitions of social capital is "characteristics of social organizations, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated action". From this, it can be concluded that social capital includes

various relationships between individuals - social networks and the norms of reciprocity. The established social networks and norms of reciprocity evoke trust among individuals, as a part of social capital (Makridis & Wu, 2021). Trust includes not only people's faith in each other, but also their trust in the institution itself (Bourdieu, 1986). At the same time, social norms in social capital refer to such forms of social support that support the behavior of individuals to achieve collective efficiency. Social networks in social capital are in their essence formed social connections, built through membership in certain groups, which leads to the creation of benefits both for the individual and for the social group as a whole (Xue & Cheng, 2017).

Different forms of social capital have an uneven impact on the achieved social results, due to the fact that different forms of social capital cover different aspects of the social environment, which in turn require different resources, support and responsibilities. Thus, trust and norms, part of social capital create more positive effects on individuals, compared to established networks or membership in a social group. In this way, trust and civic norms are the main parts of a prosperous and developing society, and the social connections and relationships established in the group can be used to achieve various goals (Sampson & Graif, 2009).

Social capital is defined as the access to and use of resources included in the various social networks, which include:

- Trust;
- Solidarity;
- Cooperation;
- Reciprocity.

In turn, social networks and established interpersonal relationships in social capital provide the necessary framework for building a supportive and improving the health of the individual. In this way, social capital has been linked to ensuring better physical and mental health by mediating the link between socio-economic inequalities and health and serving as a factor in reducing mortality.

Social capital has many advantages in crisis management and can help empower and mobilize society and its members (Nygren & Olofsson, 2020).

One of the biggest pandemics-induced changes was the massive shift to remote work; the results of the job satisfaction survey suggest that remote workers were not significantly more satisfied with their jobs than other workers. Offsetting factors may have precluded remote work from affecting job satisfaction. Some respondents may have appreciated the increased flexibility and the absence of a daily commute, others may have suffered from the lack of in-person interaction and perhaps a less-than-ideal working environment at home, due to inferior equipment, lack of space, or inadequate childcare and other dependent care options.

### 3. RESEARCH

The proliferation of COVID-19 has posed a challenge to the survival of many activities and the survival of entire businesses. These challenges left organizations without a choice, forcing them to react quickly and work in new, completely unknown ways to continue their business. The effects of the coronavirus have forced companies to learn to build the resilience they need during various crises (Nygren & Olofsson, 2020).

Human capital is increasingly becoming a popular concept in the social sciences due to the fact that it can explain various phenomena such as economic growth, quality of governance and social well-being of people. More and more researchers are beginning to study the link between social capital and its ability to prevent and control various epidemics such as Zika, Ebola and influenza strains. However, many of the restrictions associated with COVID-19 hamper the basic functions of social capital. For example, physical distancing and isolation promote homogeneous connections and make it difficult to build the social network necessary for the development of human capital.

Limiting daily activities and spending more and more of their daily lives isolated at home forces people to have limited social contacts and interactions, except with their household members. Random interactions can occur with a variety of individuals when walking to school, the store, the park, the workplace, or other public places. At the same time, the increased use of telephone, chat, social media and other forms of digital communication further limits the semantic interactions between people (Wu, 2021). More and more researchers suggest that higher levels of social capital improve the ability of both individuals and communities to prepare for, respond to, and recover from the negative effects of various crises (Lee, 2013).

Social capital in the form of trust among community members leads to a greater exchange of information about facts, procedures, or threats to the community, which is critical in extreme events. Individuals with less pronounced social connections are much less likely to seek medical help when they need it or help from other people. These people are less willing to take any preventive action, such as evacuating (Dynes, 2002).

In response to various crises, trust, norms, and established social networks provide individuals and communities with easier access to:

- Resources;
- Information;
- Funds;
- Emotional and psychological support.

People who trust are more likely to plan their actions and share the necessary information and resources with other people. In his 1994 study of the Chicago heat wave, Klinenberg (2002) found that people with low social capital, such as people living in isolation, the elderly, the poor, and others were not found, days after his death. A study by Helliwell et al. (2014) found that societies with effective social capital and confidence-building were able to respond to the economic crisis much more effectively.

Human capital is important not only immediately after the crisis, but also during the recovery. The links that are made between individuals ineffective human capital help to restore and eliminate the effects of a pandemic in the long term.

Human capital can affect the spread of COVID-19 in two main ways:

**First**, in the form of the economic, health and political benefits of social capital that were manifested before the pandemic. Communities with effective social capital are better and more economical, with more effective policies, which is why they have rich and healthy individuals. For their part, affluent communities have more effectively structured health facilities with easier access to their services, and it will probably be easier for them to obtain

personal protective equipment quickly, learn more quickly how to deal with the pandemic, and recover faster. It is also important to note that richer people are concentrated in jobs, using public transport less often, which implies fewer social contacts. Governments can also respond more quickly in communities with high social capital, due to the possibility of greater civic engagement and awareness of the greater consequences for their constituents in terms of those responsible for inaction or bad policy.

**Second**, social capital can mitigate the spread of COVID-19 in the form of shared norms and trust, as well as social networks. For example, residents in areas with greater social capital may also use more hygiene practices and greater responsibility for trusting and caring for their community members, such as neighbors in the apartment block or colleagues at work. In addition, in order to maintain a sufficiently effective level of social capital during a pandemic, governments must rely on the trust of citizens so that they can all work together to respond to the negative effects of a pandemic. Therefore, individuals who are part of a community with high social capital have higher levels of guardianship of each other and are more active in intervening for the common good (Lee, 2013).

Even though it hasn't been long since the World Health Organization declared the outbreak of COVID-19 a global pandemic, studies have already shown that human capital can explain why there are more people infected with COVID-19 somewhere than to others. These studies largely found that places with more human capital tended to have more positive responses to the COVID-19 pandemic and fewer confirmed cases, as well as a slower rate of infection growth over time.

Although it has not yet been empirically proven what are the channels through which human capital can make some places more likely to respond to a pandemic than others. However, there are several assumptions:

Communities with more human capital may be better able to mobilize resources and encourage collective action in times of crisis. People with greater human capital may be more likely to comply with control policies and adopt vital new behaviors, such as social distancing and wearing a face mask.

There is also the possibility that regions with greater human capital are likely to see physical interactions between their inhabitants, providing increased opportunities for the spread of the virus.

Social capital can be owned by both individual groups of individuals and entire communities, so it is possible to analyze it both at the individual level and the community level (Kawachi, 2006). As a complex structure, social capital at different levels can have different influences. While at the individual level, social capital defines to a greater extent individual values and norms as well as the resources that are available to certain individuals. At the community level, social capital provides more information about the characteristics of the community over which characteristics individuals have less control and resources that cannot be created by the individual alone. Therefore, in order to analyze the impact of human capital, it is essential not only what forms of human capital are analyzed, but also what level of human capital is at.

Given that different forms of human capital have different consequences and can lead to different impacts at different levels, we ask ourselves how human capital in different forms and at different levels can affect the COVID-19 pandemic?

The answer to this question requires an analysis of different forms of social capital, because different forms of social capital can affect social outcomes through different means, and therefore comparing different effects provides information about the nature of human capital action.

As we have already specified, human capital has a multilevel composition, and some mechanisms that function effectively at one level may not be applicable at another level. Therefore, the different effects of social capital at different levels show whether social capital affects the COVID-19 response in relation to the individual or the community (Capriano, 2006).

In fact, various studies have already shown that different forms of social capital can have different effects on the response to COVID-19. For example, a study by Wu et al. in the past 2020 shows an analysis of the two main forms of social capital - community involvement and individual commitment to social institutions. During the study, the researchers found that in the areas with stronger community involvement, the sensitivity of social distancing to both local COVID-19 cases and mobility restrictions across the country tends to be more sensitive-weak. The opposite phenomenon is also true – in areas with a higher individual commitment to social institutions, the sensitivity of social distancing is stronger. The opposing effects of these two forms on social isolation and distancing show that social capital slows the spread of COVID-19 not through social networks and connections, but through greater individual engagement, which is aimed at a specific goal - limiting the pandemic and morbidity. This shows that areas with higher civic norms have higher levels of socially distancing behavior of individuals, while areas with more social networks have lower levels of socially distancing behavior. This suggests that social capital may influence the response to COVID-19 in two different ways:

- civil norms facilitate the cooperation and deprivation of the individual to achieve the common goal of the community, which leads to higher compliance of people with a social distance;
- formed social networks increase the individual involvement of the individual in these networks and increase the creation of a habit of maintaining social interactions, which makes social distancing more difficult to practice (Wu, 2021).

All this shows that human capital has a direct impact on the co-creation of knowledge and e-business activity in response to pandemics, in the following ways:

### **3.1. The impact of social capital on the activity of e-business**

Today's organizations must be able to take advantage of IT resources in a dynamically changing environment. The level of activity of managers, as one of the main organizational resources that strengthen the role of IT, use and include it in a promising strategy for organizational survival, speed of perception and response to innovations, proper organization of resources and use of innovation opportunities are an extremely effective tool for creating social capital. IT capabilities and management are critical to improving organizational resilience, including the ability of businesses to withstand problematic crises and adapt to new high-risk environments. Understanding how social networks use IT to respond to unexpected events can create new opportunities for businesses to build a flexible response to withstand environmental instability.

Social capital is the key to the success of companies, with social capital focusing on the internal and external networks of the business, which can foster the innovative capabilities that lead to strategic behavior in times of crisis (Kutywayo et al, 2018).



Therefore, social capital has a direct and indirect impact on the perception, implementation and evaluation of business decisions and the advancement of activities in an electronic environment. Social capital and social networks provide opportunities through the use of IT tools to create products, optimize operations and expand market share.

### **3.2. The impact of human capital on increasing the knowledge of individuals in the social network**

It is an indisputable fact that social capital helps to increase the various knowledge of individuals in the social network, helping companies to achieve sustainable results during a crisis. Social capital also influences the creation of knowledge of each individual. Knowledge creation can be seen as a dynamic process that takes place through social interactions between the company and its employees or partners. Social networks work as channels in which information and knowledge can be quickly transmitted and integrated into the built group. The company's social networks play an important role in optimizing the collective awareness of the necessary reactions to market changes, providing an opportunity to share and create new knowledge in dynamically complex areas.

Knowledge creation is seen as a process in which business partners create new knowledge through collaboration and co-creation of social networks to develop a better understanding of the environment and to respond to changes in the market in which they operate together. It is cooperation that is the social process through which knowledge is transferred, coordinated and integrated through social interaction, and the creation of organizational knowledge is a dynamic process based on social capital. In this way, the knowledge of cooperation is created jointly by direct and indirect partners embedded in social relations.

Social capital enables companies to survive in times of crisis and difficult economic conditions, because social capital, which combines different expertise and resources, improves the creation of knowledge for cooperation. This shows the strong link between co-creation of knowledge and the flexibility of the company to respond to crises. In this way, the creation of knowledge for cooperation is reflected in the evolving organizational knowledge, which requires continuous training, monitoring and adaptation to changes in the environment and rapidly changing market requirements.

### **3.3. The role of co-creation of knowledge to achieve the success of market changes**

The ability to develop a flexible and adaptive learning process and to acquire new knowledge is vital for companies to grow and innovate, especially in times of pressure, even after the crisis has subsided. Knowledge management consists of a wide range of strategies and practices for creating, sharing and applying individual or organizational knowledge, providing valuable resources for innovations. Knowledge creation is seen as a starting point for both knowledge management and the activity of individuals. To strengthen its capacity to respond flexibly to change during a crisis, an organization needs to step up its knowledge-sharing efforts so that it can generate new business ideas and practices. The rapid use of already acquired knowledge and joint learning, as well as the ongoing creation of new knowledge, can strengthen the organization's ability to sense market imperfections and discover opportunities, pursuing new endeavors and achieving continuous alignment with the business environment. Based on prior knowledge, collaborative learning and the creation of new knowledge, the organization's ability

to sense market imperfections and discover opportunities suggests that opportunities to create, share and use knowledge are used to actively seek future business opportunities.

Crisis management requires knowledge-based initiatives, including the active use of IT innovation. Business flexibility is the result of the creation and implementation of new knowledge and the combination of this knowledge with existing business resources and opportunities. This shows the important role of organizational training and the creation of new knowledge for the development of IT skills, the promotion of innovation and the activity of each individual in the social network. Knowledge creation provides renewable sources of intelligence and new ideas, and thus has a positive impact on business success. The flexibility of companies and the ability to adapt to the changing environment requires the creation of new knowledge of social capital in the organization of each individual and the community. The many opportunities offered by the Internet in the financial crisis have created a business environment in which the role of knowledge has grown and become extremely important. On the other hand, social capital plays a decisive role in the cooperation and interaction with business partners and other organizations in determining the successful implementation of new activities in highly uncertain business environments and industries with high levels of production fluctuations due to the pandemic (Omoush, 2020).

For their part, social networks are strong mechanisms for creating, transferring and sharing explicit and less explicit knowledge. Enterprises with high levels of social capital have better knowledge management capabilities than those with low levels of social capital. In the same way, social capital is crucial for a company's capacity for IT-based innovation due to its role in creating new knowledge and transforming it into new applications. In particular, social capital is crucial in flexible decision-making and entrepreneurship. Thus, the joint creation of knowledge mediates the impact of social capital on the activity of companies.

#### **4. CONCLUSION**

The COVID-19 pandemic is the greatest challenge facing humanity in this millennium. High IT capabilities and social capital are essential factors for increasing organizational resilience in such crises. The pandemic has provided unprecedented opportunities to explore the determinants and role of e-business solutions during global crises that affect the world and disrupt offline life and human activity.

In this context, the important role of social capital and the creation of knowledge for cooperation to achieve business proactivity and organizational flexibility to deal with competition in a difficult context is highlighted.

The results show that social capital has a key role to play in achieving business flexibility in response to the COVID-19 crisis. These results are in line with various findings and studies confirming that social capital is the key for companies to develop flexibility during times of crisis.

Many studies highlight the role of social capital in creating IT-based entrepreneurial ideas and initiatives and the way in which innovative e-business opportunities are discovered.

The results also reveal that social capital plays an important role in the joint creation of knowledge in the crisis caused by the COVID-19 virus. These findings confirm that social capital brings together different expertise and resources to support co-creation of knowledge.

In addition, these findings are in line with the impact of social capital on entrepreneurship. The findings confirm that social capital supports companies that seek for new knowledge to feel the imperfections between the way the market currently operates, and what can be actively done to understand and meet the needs and desires of customers.

Co-creation of knowledge has an important role to play in achieving sustainability for any business in response to the COVID-19 crisis.

## 5. LIMITATIONS AND FUTURE RESEARCH

It is necessary to clarify how different forms of human capital can work in different ways and at what levels. It is also necessary to consider how the role of social capital may change in the context of COVID-19.

The current study opens up new opportunities to explore emerging topics related to social capital management during a pandemic, including the role of knowledge sharing between human resources and managers to activate e-business, and the possibility of keeping organizational flexibility during a pandemic.

The originality and value of the topic lie in its relevance, as far as it is impossible to predict the outcome of the health and social crisis in small research and analytical set of knowledge, ideas and scientific achievements in the field of practical and research work, both our and international intellectual formations.

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# How ICT Encourages Informal Mentoring Networks to Promote Gender Equality in Times of Pandemic

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## Keywords:

Gender equality;  
Information and communication technologies;  
Engineering;  
Sustainable development goals



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**Abstract:** Gender equality promotion initiatives are increasingly needed to foster the choice of the scientific area of engineering. Currently, in higher education, it is observed that regarding engineering courses women practically have no representation in relation to the number of male students. The article presents the problem in the field of Gender Equality interrelating with the Sustainable Development Goals. The research methodology adopted is Design Science Research, given the specificity of the problem. The main results and contributions are the literature review in the field of the theme under study, as well as the various initiatives in the national Portuguese context and focus on a set of instruments of debate and dissemination involving testimonies of former students and the community. These initiatives promote Gender Equality in engineering courses in Higher Education, enhancing the choice of these courses.

## 1. INTRODUCTION

The use of Information and Communication Technologies (ICT) can enhance the transformation of the Society by incorporating sustainability concerns, including the Sustainable Development Goals (SDGs).

The main objective of this work is to give the SDGs (UNDP, 2021) a broadness from a perspective of ICT sustainability, promoting gender equality between women and men in the fields of science and technology. The numbers are staggering, women make up less than 25 percent of the Science, Technology, Engineering, and Mathematics (STEM, STEAM represents STEM plus the arts) workforce in the United States; also in the United States, the number of women who graduated in computer science between 2006-2014 decreased (Stofan, 2017). One of the important questions to be asked is: why is the fact that women are not represented so important? Research shows that mixed teams perform better, that is, people of different genders, races, backgrounds and experiences bring different perspectives that can lead to innovative solutions (Stofan, 2017).

In fact, a set of strategies and actions is needed at the secondary level to raise the interest of girls to enter higher education in engineering areas. ICT is encouraging tools for informal mentoring networks in promoting gender equality. It is considered that Information and Communication Technologies may play a fundamental and disruptive role in enhancing the aggregation of crucial information in the field of the theme. The paper is structured in six sections: introduction, background, methodology, experiences with higher education students, future research directions and conclusion.

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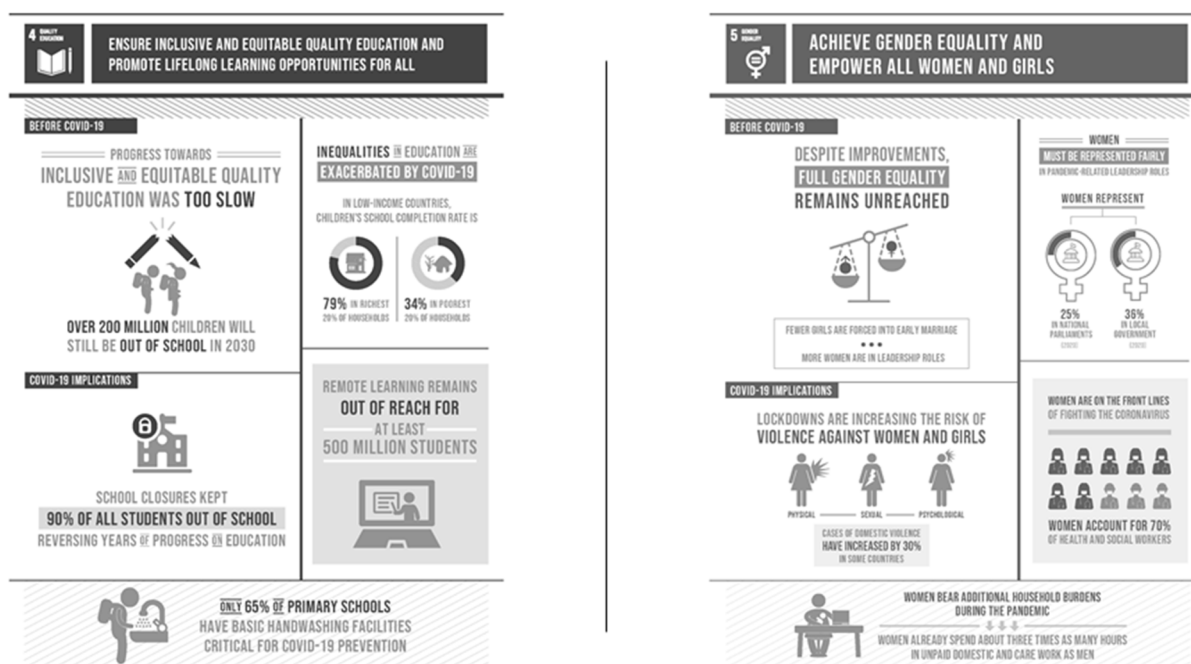
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## 2. BACKGROUND

The use of Information and Communication Technologies (ICT) can enhance the transformation of the Society by incorporating sustainability concerns, including the Sustainable Development Goals (SDGs). On September 25, 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development (UNDP, 2021), setting 17 objectives and 169 targets, covering social, economic and environmental dimensions around the world. The objectives focus on people, human rights and responding to growing social inequalities, as well as core concerns such as peace, security and climate change. This study focuses on the issue of gender equality, aggregating two SDGs in particular: SDGs 4 and 5. Figure 1 shows some indicators related to education and gender equality, reinforcing the need for concrete actions to achieve some goals.



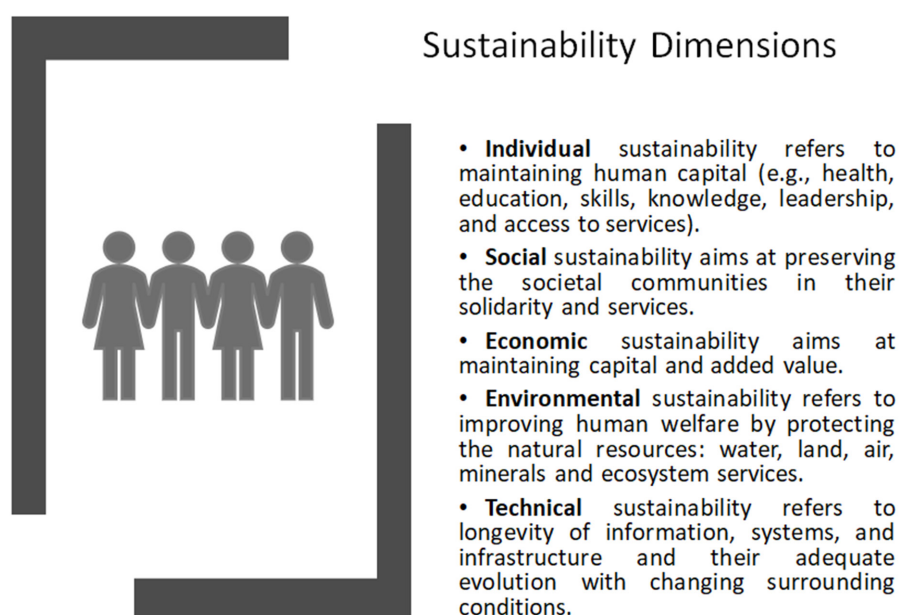
**Figure 1.** Sustainable Development Goals: Goal 4 and Goal 5

**Source:** <https://sdgs.un.org/goals>

As a part of the project under study, SDG 4 “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” and SDG 5 “Achieve gender equality and empower all women and girls”. It is important to highlight the lack of representation of women in the various sectors, namely in management positions.

Within the scope of the project also stands out ODS 5; this SDG emphasizes ensuring the full and effective participation of women and equal opportunities for leadership at all levels of decision-making in political, economic and public life. In this sense, it is considered to increase the use of basic technologies, in particular information and communication technologies, to promote the empowerment of women. It is also considered that adopting and strengthening sound policies and applicable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels, in this framework of performance of functions in the field of engineering and ICT, can contribute to gender development. It is also a challenge to encourage the incorporation of sustainability concerns in the different dimensions: economic, technical, social, human and environmental in the context of ICT.





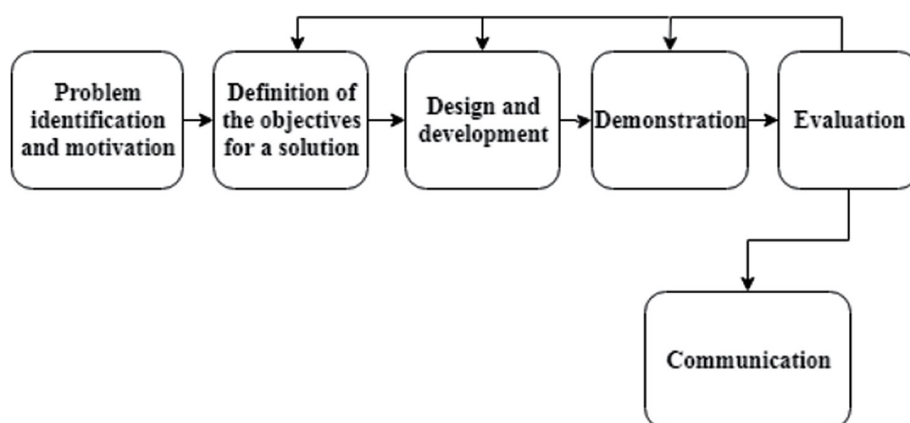
**Figure 2.** Sustainability Dimensions

**Source:** adapted from (Becker et al., 2015)

It is considered that, with regard to the dimensions of sustainability (Figure 2), ICT can enhance the incorporation of these dimensions to include concerns in the field of software reuse, open source, cloud computing, virtualisation, dematerialisation process, digital transformation and information security (Reis, Carvalho, Silveira, Marques, & Russo, 2021).

### 3. METHODOLOGY

The research methodology adopted is Design Science Research, given the specificity of the issue.



**Figure 3.** Design Science Research steps

**Source:** Adapted from (Peppers, Tuunanen, Rothenberger, & Chatterjee, 2007)

The methodology scheme is shown in Figure 3. The DSR iterative process includes six steps: problem identification, the definition of expected results, design and development, demonstration, evaluation and communication. Thus, applying the DSR methodology, in this context, allows us to identify the problem underlying the theme of gender equality, enhancing the design of instruments that allow the development of awareness-raising actions, namely, through testimonies and successful professional experiences.

#### 4. EXPERIENCE WITH HIGHER EDUCATION STUDENTS

Given the scope of the phenomenon under study, it is intended to create a multidisciplinary team whose objective is to create synergies in order to characterize the state of the art in the field under study and act accordingly, making the best use of the various areas involved. They are, therefore, specific objectives of the project, the use of instruments/tools in order to characterize the state of the art in several scientific areas inherent in the characterization of Gender Equality in the fields of science and technology, as well as the design of instruments to develop awareness-raising actions to break the socio-cultural taboos, namely through successful professional testimonies and experiences.

It is intended to create working tools to raise awareness among students, initially at the level of secondary education, about the role of women in the field of engineering/information and communication technologies. It is also considered that this objective should be reconciled with sustainable development in order to also include the importance of women's participation in engineering/technologies. Thus, and in view of the objectives of the Organization of United Nations that has been developing efforts in order to promote the participation of women.

As an example, the “Engineers for a day” project is presented, which responds to the objectives of the Agenda for Equality in the Labour Market and in Companies (Comissão para a Cidadania e a Igualdade de Género, 2020). In this way, it aims to contribute to the Program to combat choice by women and men from different professional areas. The project led to the realization of several activities, namely: thematic events, expert lectures, sessions with female engineers (Commemoration of the International Day of Girls in ICT), sessions with engineering and/or technology students, visits to companies and Universities/Polytechnics, integration in the contents of subjects in the curriculum of primary and secondary education, campaigns, exhibitions, news, information sheets, among others.

The objectives presented by the initiative, “Engineers for a day”, emphasize (Comissão para a Cidadania e a Igualdade de Género, 2020): to combat sexist prejudices and stereotypes about what is supposed to be proper and suitable for women/girls and men /boys; to demystify the dominant idea that there are academic and professional areas more typical of men and others that are more typical of women; to deconstruct, with students, prejudices and stereotypes about the professional and knowledge areas associated with Engineering and Technologies; to promote a freer choice of these areas of study by girls; promote informal mentoring networks at local and regional level, with female professionals and with girls who study these areas; sensitize schools and educational agents to the problem of the separation of the sexes by occupations, including professionals, and in particular to the scarcity of women in the fields of Technology and Engineering; mobilize educational agents for cross-cutting strategies for this issue in their activities; involve local authorities and encourage them to fight and prevent occupational imbalances between women and men.

Another experience carried out with students from a technology college (Silveira, Reis, Carvalho, Tomé, & Sanches, 2020), in which the challenge of developing sustainable software was proposed, revealed that students are motivated to link software development with the issue of sustainability in the various dimensions. This experience also allowed us to assess the relevance of developing more actions in order to encourage participation, thus fostering the students' hunger for software development, combining the scientific component with solving practical and social problems. In this initiative, it was possible to see the special commitment and moti-

vation of the female elements of the team, as they planned a solution with a social impact, and which contributes to the sustainability of the planet.

Palma (2001) states that “to make computer science more attractive to women, make it more like mathematics”. In this perspective, computer science courses should emphasize the teaching of mathematical logic so that girls feel attracted to the area. Another perspective of attracting girls is to include the concepts of sustainable software development in computer science courses.

## 5. FUTURE RESEARCH DIRECTIONS

Previous studies (Reis, & Silveira, 2020) show that it is possible to assess the implementation of awareness-raising actions, within the scope of gender equality, incorporating concerns about sustainability in the five dimensions: human, technical, economic, social and environmental.

Given the scarcity of women in the fields of Technology and Engineering, it is considered that identifying the effects/impacts that ICT projects may have on technical, economic, environmental, social and individual sustainability, teaching how to incorporate sustainability factors and dimensions into daily practice, can be very inspiring goals.

As future work, we intend to continue teaching the incorporation of the principles and dimensions of sustainability in software design. It is also considered the development of an approach that analyses (initially through the questionnaire) the reasons for choosing engineering courses (secondary education students) and then implement concrete actions. Another aspect of future work involves incorporating actions from the “Impulso Jovens STEAM” Program. The “Impulso Jovens STEAM” Program aims to promote and support initiatives aimed exclusively at increasing the higher graduation of young people in the fields of science, technology, engineering, arts and mathematics (STEAM), in line with the new needs of the labour market (Governo da República Portuguesa, 2021).

## 6. CONCLUSION

Building on concerns in the field of IS and ICT sustainability, it is considered that this research can contribute to the creation of integrated solutions, in various axes, to help solve the most pressing challenges in the world and enhance the use of IS for people, always bearing in mind sustainability and the SDG (UNDP, 2021). Concerns underlying sustainability, more specifically in terms of the human dimension, are linked to SDS 5 gender equality and in this sense women’s participation in engineering courses is urgent given their potential for society (Silveira & Reis, 2021).

Regarding the experience reported by the students (Tomé & Sanches, 2020), it is emphasized that with this type of projects: we intend to outline a future, a future that we as students would like to be implemented and, in this way, it is important to ensure that there is sustainability in software development. Therefore, the intention is to prepare a survey in order to gather information about the subject. Another component of future work that is also considered relevant is the search for successful cases in order to disseminate this information as a motivating factor. It is also intended to promote the factors and dimensions of sustainability as an inspiring aspect.

From the perspective of students, it is important to carry out awareness-raising/dissemination actions with practical applications that incorporate the Sustainable Development Goals from a

perspective of sustainability in ICT, as well as to disseminate testimonies and successful professional experiences in the field of the subject, as well as to promote mentoring networks. Indeed, it is urgent to promote the balance between women and men in the STEAM areas, promoting equal opportunities and moving towards a fairer and more sustainable world.

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# Students During Pandemic. Time Spent Studying and Courses

Rejla Bozdo<sup>1</sup>

## Keywords:

Covid-19;  
Students;  
Education



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**Abstract:** A great percentage of 94% of students were out of school worldwide during the peak of school closings, in April 2020, according to the World Bank. The pandemic year of Covid-19 posed education all over the world in a context of huge uncertainty. Students and schools had to navigate through options of either hybrid, remote learning, or no schooling at all. For the families, 2020 was a year with great stress and panic. Lockdowns changed people's lifestyles, so they moved to a new set of habits and consumer behavior.

This research aims to investigate students' behavior during 2020 regarding the variables: level of professional knowledge gained during 2020, the need for courses other than the academic ones, how many courses were taken as a response to the need and the number of hours dedicated to studying compared to the amount of time spent before 2020.

An online survey was conducted among students of higher education institutions, in Albania, which shows that more than 47.2% of the respondents have spent fewer hours studying during 2020 compared to the time they used to study before the pandemic. Regarding other courses taken during this period, considering to add value to their professional career, more than 60% of respondents declared that they did not take any additional courses, even though when asked about the need to attend these courses they answered with a mean of 3.68 in a scale (1 to 5, where 1 is not at all and 5 is too much).

## 1. INTRODUCTION

In 2020 the World faced the Covid-19 pandemic and, at the same time, measures taken to manage the risk of coronavirus have spread. According to the World Bank, at the peak of school closures in April 2020, 94 percent of students were out of school worldwide (World Bank, 2021). Governments suspended face-to-face teaching in schools, making 2020 the year of the largest disruption to education in history. Even in Albania, measures of movement restrictions and quarantine were taken, which changed the lifestyle for everyone. All activities were concentrated within homes and the limited time to go out increased the amount of time indoors, thus creating more free time.

Due to the COVID-19 pandemic, higher education intuitions shifted to online learning or distance education programs, as one of its advantages is that it can allow students to learn at their convenience since it is needless to attend training centers and universities (Knibel, 2001).

There is a lot to discuss if the remote learning during the pandemic was effective, taking into consideration also the mental health conditions of the students and academic staff under the pressure and stress caused by the critical situation of infections in each country, therefore creating an unusual lifestyle.

According to Economy Policy Institute (2020) research, regarding online learning and teaching, it showed that they are effective only if students have consistent access to the Internet and computers, and if teachers have received targeted training and support for online instructions. These needed requirements for effectiveness have been largely absent for many, especially in the first

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months of the pandemic. This absence of remote education during the pandemic has impeded teaching and learning (Economy Policy Institute, 2020).

“One of the most critical opportunity gaps is the uneven access to the devices and Internet access critical for learning online. This digital divide has made it virtually impossible for some students to learn during the pandemic.”, states Economy Policy Institute, adding that the school lockdowns that started in the spring of 2020 reduced instructional and learning time, which are known to impede students’ performance, with disparate impacts on different groups of students (Economy Policy Institute, 2020).

Economy Policy Institute uses PISA data from 2018 for the United States to show that, while students have spent extensive time online prior to the pandemic, that time was heavily spent on social activities, browsing or seeking information, playing games, or accessing email, while what we also know is that remote learning demands that students ignore the distractions that come from the online world (Economy Policy Institute, 2020). In this context, online education poses the risk of exposure to increased screen time for the learner (Pokhrel and Chhetri, 2021).

The year 2020 was a year of anxiety and stress for most people. That stress may have caused apathy, even among students, by not translating the free time available to study into a genuine interest for studying. This research explores the extent to which student have felt the need to attend courses during 2020 and how much they have turned this need into action to take a course. Another goal of the research is to find out if students have spent more or fewer hours studying compared to the period before 2020.

## 2. RESEARCH METHODOLOGY

An online survey was conducted among students of higher education institutions, in Albania, of which 87.4% were female and 12.6% were male. The average age of all respondents is 22.1 years. Data gathered was processed with SPSS, Version 22, using descriptive statistics, correlation and linear regression.

Variables investigated for this research paper are: Gender, Professional Knowledge Gained, Need for Courses, Courses Taken.

***Professional Knowledge Gained*** – represents the level of professional knowledge gained from students during 2020 on a scale from 1 to 10 (1 is not at all, 10 extremely much);

***Need for Courses*** - represents the need of students to take different courses (others than the ones in the academic program) during 2020 on a scale from 1 to 5 (1 is not at all, 5 extremely much);

***Courses Taken*** - represents if respondents have taken courses or not during 2020 (yes/no) - (courses others than the ones in the academic program)

***Gender*** – Male/Female

This paper aims to give answers to the following research questions regarding the students’ behavior during 2020:

- At what level did students gain professional knowledge?



- At what level they needed to take courses of any kind?
- Did students take courses (outside the academic program)?
- Did students study more or fewer hours during the pandemic compared to the period before 2020?
- What is the relation between the need to take courses and the action of taking courses during the pandemic?

### 3. RESEARCH RESULTS AND FINDINGS

In this online survey participated 254 students of higher education institutions, 87.4% female and 12.6% male (Table 1).

**Table 1.** Gender of respondents

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	222	87.4	87.4	87.4
	Male	32	12.6	12.6	100.0
	Total	254	100.0	100.0	

Source: Own calculations

Students rated at a level of 61.9% (6.19/10) professional knowledge gained during the pandemic, while 73% (3.65/5) was the level of need for courses during 2020 (Table 2). Only 39.9% of respondents took courses during 2020 (Table 3).

**Table 2.** Means for variables in study

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Professional_Knowledge	253	1	10	6.19	2.217
Courses_Need	252	1	5	3.65	1.280
Courses_taken	253	1	2	1.60	.491
Valid N (listwise)	252				

Source: Own calculations

Data from students in this survey showed that the need to take courses of any type other than the ones in academic program is 3.65, on a scale from 1 to 5 (1 is not at all, 5 extremely much), where 34.9% have scaled extremely much (5) and 21.8% very much (4).

**Table 3.** Respondents data on Courses taken

Courses_taken		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	101	39.8	39.9	39.9
	No	152	59.8	60.1	100.0
	Total	253	99.6	100.0	
Missing	System	1	.4		
Total		254	100.0		

Source: Own calculations

This study shows that 47.2% of students have studied fewer hours in 2020 compared to the period before 2020 (Table 4).

23.4% studied the same number of hours as before 2020, while 29.4% responded that they have studied more hours during 2020 compared to the period before the pandemic.

The data shows that there is a weak negative correlation between the variables Courses Needed and Courses Taken (Table 5).

**Table 4.** Hours of the study compared to the period before 2020

Study Hours _Comparison		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than before 2020	119	46.9	47.2	47.2
	More than 2020	74	29.1	29.4	76.6
	The same as 2020	59	23.2	23.4	100.0
	Total	252	99.2	100.0	
Missing	System	2	.8		
Total		254	100.0		

Source: Own calculations

**Table 5.** Correlation of Courses \_Needed and Courses \_Taken

Correlations		Courses _Need	Courses _taken
Courses _Need	Pearson Correlation	1	-.211**
	Sig. (2-tailed)		.001
	N	252	252
Courses _taken	Pearson Correlation	-.211**	1
	Sig. (2-tailed)	.001	
	N	252	253

\*\* Correlation is significant at the 0.01 level (2-tailed).

Source: Own calculations

Linear Regressions for these two variables, where the Dependent Variable is Courses taken, show that only 21% of courses taken are as a result of the need perceived to take a course.

**Table 6.** Linear Regression – Dependent Variable: Courses \_Taken,  
Independent variable: Courses \_Needed

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.211 <sup>a</sup>	.044	.041	.481

a. Predictors: (Constant), Courses \_Need

Source: Own calculations

#### 4. CONCLUSION

The data gathered from 254 students, of average age 22.12 years, where 87.4% were female and 12.6% were male, who responded in this online survey, shows that:

- Even though during pandemic 2020 there was more time available to study as people had fewer outdoor activities, 47.2% of students have studied fewer hours in 2020 compared to the period before 2020. The factors that affected this can be the subject of another study.
- The level of professional knowledge gained during 2020, is 6.19 on a scale from 1 to 10 (1 is not at all, 10 extremely much).
- The need for courses during 2020 is at the level of 3.65, on a scale from 1 to 5 (1 is not at all, 5 extremely much), where 34.9% have been scaled extremely much (5) and 21.8% very much (4).
- Only 39.9% of respondents have taken courses (outside the academic program) during 2020.
- There is a weak negative correlation between the need and the action for taking courses. 21% of the courses taken are explained by the need of taking those courses. Other factors have affected the decision to take those courses. These factors may be the subject of another study.

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# Innovations in Online Education in Post-COVID-19

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## Keywords:

Skill;  
Competence;  
Innovation;  
Online education



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**Abstract:** The COVID 19 pandemic found the management of universities and many university teachers well prepared, but others only partially acquainted with the use of electronic tools in teaching. Many universities in Slovakia have been working for a long time (ten to fifteen years) with technical support for education and supplement the full-time form of teaching with thematic e-learning packages, for instance in the moodle system. They can work with them in full-time and distance education. However, the COVID-19 pandemic redirected teaching from full-time teaching exclusively to a mediated technically supported approach to online education. The paper aims to define and analyse online education in terms of digital skills and competences requirements. Particular attention is paid to the key digital skills and competences of higher education teachers working in a new educational reality framed by the effects of digital transformation, which requires higher education educators to create and apply innovations in online education at universities.

## 1. INTRODUCTION

The pandemic of the new coronavirus COVID 19 has brought to the fore the need to respond in a new way to an unexpected and new situation that has forced new demands on learning and education. The new trends that the pandemic has evoked in the development of society can be described by the single term digital transformation. It represents a new trajectory of economic and social development, with digitalisation affecting almost all areas of life and work, including education and job training.

Especially in the field of higher education, the digital transformation raises new requirements, especially in terms of preparing for new skills that allow teachers to use digital technologies in online education and students to participate in the educational process in the online environment. The onset of digital transformation has been rather gradual in the recent past, but the pandemic of the new coronavirus COVID 19 has significantly accelerated this digital transformation. It is, therefore, necessary to study the new challenges and opportunities that digital transformation brings to higher education. Also due to the fact that after the eventual end of the COVID 19 pandemic, it is not possible to expect a return to the so-called normal, but it is necessary to prepare for the so-called “new normal”, which means the new educational reality in which digital technologies will play an increasingly important role. The world has changed significantly under the influence of the exogenous factor of the COVID 19 pandemic. The perspective of higher education requires that educators prepare for the new approach, which is likely to be a hybrid model of education.

The forms and methods of education at universities have inevitably adapted to the requirements of the times. In higher education, the pandemic of the new coronavirus required respecting and adapting to a new type of educational reality in virtual conditions. It required students and university teachers to improve their work with digital technologies and develop their digital skills and digital competences, and formulated an urgent call for university leaders to ensure relevant learning conditions in a virtual environment.

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## 2. METHODOLOGY AND AIMS

The paper will aim to present the issues of online education, digital skills, digital competences and innovations in education, which currently significantly characterize the processes of learning and education at universities. The ability to apply digital skills and develop them into digital competencies - for both students and teachers - is a basic prerequisite for how to operate effectively and successfully in a virtual online learning environment.

Online education requires from university teachers a gradual transition to adaptation and improvement of professional and pedagogical skills and educational processes, gradual modification of educational processes, resp. to the transformation of forms and methods of education.

The background of the paper should reflect the following question: a) To what extent and how has higher education changed? What are the possibilities of online education during the COVID-19 pandemic and what can be the expectations in the post-COVID period? How does online education reflect the educational needs of university students? b) To what extent digitization has developed in terms of methods, content and pedagogical activities of university teachers? How effective is online education? Has an era of real digitization of education started?

## 3. KEY COMPETENCES

The digital transformation of learning and education at universities requires the so-called building of professional capacities that are linked to new skills and competences, especially key competences for working with digital technologies.

The definition of key competences in the European Higher Education Area took place for the first time in 2006, when the Council and the European Parliament adopted a Document on Key Competences for Lifelong Learning, recommending that the Member States “develop key competences for all as part of lifelong learning strategies and use them” as the so-called European reference framework.”

This document defines competences as a combination of knowledge, skills and attitudes appropriate to a given context. As the names of the eight key competences cannot fully capture the overall framework of knowledge, skills and attitudes that the competence encompasses, a short definition has been developed for each competence. After completion and approval by the European Parliament and the Council of the EU, the original document was issued as a Recommendation on key competences for lifelong learning and was renamed the European Reference Framework.

It contains eight key competencies:

1. communication in the mother tongue;
2. communication in foreign languages;
3. mathematical competence and basic competences in science and technology;
4. competence to work with digital technologies;
5. competence to learn;
6. social and civic competences;
7. a sense of initiative and entrepreneurship;
8. cultural awareness and understanding of artistic expression.



The European Reference Framework defined the competence to work with digital technologies as follows: “Competence to work with digital technologies means a certain and critical use of information society technologies at work, in leisure time and communication. The prerequisite is a basic knowledge of information and communication technologies, i. the use of computers to obtain, evaluate, store, generate and exchange information and to communicate and cooperate within the network via the Internet.”

Digital competence is considered one of the key skills. However, digital competence is a broader and more universal concept, as evidenced by the EU Council Recommendation (2018), which states that digital competence includes components such as information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well - being and cyber security), intellectual property issues, problem-solving and critical thinking.

Individuals with digital competences should demonstrate that they know:

- (a) understand how digital technologies can contribute to communication, creativity and innovation, and should know the opportunities, constraints, impacts and risks they present;
- (b) understand the general principles, mechanisms and logic of evolving digital technologies and know the basic functions and uses of various devices, software and networks,
- (c) have a critical approach to the validity, reliability and impact of the information and data available through digital means and be familiar with the legal and ethical principles associated with working with digital technologies,
- (d) to use digital technologies to promote their active citizenship and social inclusion, cooperation with others and creativity in pursuing personal, social or business goals.

#### **4. INNOVATIONS IN EDUCATION AND ONLINE EDUCATION**

Innovations in education are of particular importance because education plays a crucial role in creating a sustainable future. Serdyukov states (2017) that innovation, therefore, is to be regarded as an instrument of necessary and positive change. Any human activity (e.g. industrial, business, or educational) needs constant innovation to remain sustainable. The author quotes Theodore Levitt, saying that creativity is thinking up new things. Innovation is doing new things.

Serdyukov (2017) states that in education, innovation can appear as a new pedagogic theory, methodological approach, teaching technique, instructional tool, learning process, or institutional structure that, when implemented, produces a significant change in teaching and learning, which leads to better student learning. So, innovations in education are intended to raise productivity and efficiency of learning and/or improve learning quality.

Innovations in education in pandemic can be seen in three steps: Firstly, as an adjustment or up-grading of the teaching process. Secondly, as the modification of the process, as the innovation that significantly alters the process, performance, or quality of an existing product. Thirdly, as the transformation of the system, which represents dramatic conversion (as online education, networked learning and mobile learning).

Today, an overwhelming majority of innovations are tangible, technology tools (laptops, iPads, smartphones) or technology-based learning systems and materials, e.g., learning management system (LMS), educational software, and web-based resources.

The Council Recommendation of 22 May 2018 (2018 / C 189/01) on key competences for lifelong learning stipulates learners need excellent educators to develop the wide range of skills and attitudes they need to live and work. Differences in education and training outcomes depend mainly on individual characteristics and family background. However, teachers and trainers have the greatest influence on students' learning outcomes in educational institutions. They play a key role in introducing new teaching and learning methods, stimulating creativity and innovation, overcoming bias and maximizing potential in increasingly heterogeneous classrooms (p. 16).

Further on, the above document emphasizes the development of the competencies of teaching staff which is a current and increasingly urgent priority of the EU. For these reasons, the Commission will pay attention to innovation in pedagogy, which will include support for flexible curricula, support for interdisciplinary and cooperative approaches, support for professional development to improve innovative learning practices, including the use of digital tools and their contribution to teaching.

The need for an approach to innovate teaching, especially in higher education, with the support of digital technologies, is linked to the forecast that by 2025, half of all EU job vacancies will require higher education qualifications, usually in tertiary education. The skills developed through these training programs are generally considered to be stimuli for productivity and innovation.

The digital competences of teachers and university teachers have been the subject of independent research under the auspices of the Joint Research Centre (JRC) of the European Commission, resulting in the European Framework of Digital Competences for Educators (DigComp) in 2013, revised in 2016 and 2017) face new challenges, they increasingly need wider and more sophisticated sets of digital competences. The ubiquitous digital tools and the role of teachers to help students become digitally competent requires them to develop their digital competences.

The European Framework of Digital Competences for Teachers is a scientifically sound framework for the development of digital competences for teachers, using an agreed common language and approach. It is intended for teachers of all levels and types of schools, from teachers of kindergartens and primary schools, teachers of secondary general and vocational education and training, teachers of special schools, teachers of universities and adult education, as well as in non-formal education. The European framework aims to provide a general model of digital competences for specific model developers in the EU Member States, which should be used in the training and in-service training of teachers and educators.

Their digital competencies cover six areas:

1. Professional engagement refers to the use of digital technologies in a wider professional environment, e. g. in communication with colleagues, students, parents and other parties.
2. Digital resources are subject to search, creation and modification, management, protection and sharing.
3. Teaching and learning relate to teaching, guidance, collaborative learning and self-directed learning.
4. Assessment refers to the use of evaluation strategies, analysis of evidence, feedback and other planning.
5. Strengthening pupils/students refers to the accessibility of education and inclusion (inclusion) of pupils, differentiated and personalized teaching, activation of pupils/students.
6. Facilitation (facilitation) refers to the formation and development of digital competences of pupils/students.

The first and second areas represent the professional competences of the teacher. The second, third, fourth and fifth areas represent the pedagogical competencies of the teacher. The sixth area represents the competencies of the pupil/student.

According to Dudová (2020) digital competence requires proper knowledge and understanding of the nature of the tasks and opportunities of using information society technologies in everyday contexts, personal life, social life, study and work. It includes mastering basic computer applications (word processor and spreadsheet, databases, storing and managing information, understanding the opportunities and potential risks of working with the Internet when sharing information - phishing), understanding the ethical principles and principles of networking and using the information to support their creative and innovative processing.

## 5. SURVEY ON ONLINE EDUCATION

Based on the previous considerations, findings and recommendations the survey on online education was carried out in a target group of university students.

In this part we will present the results of a survey focused on online education at the University of Economics and Public Administration Management in Bratislava.

The survey was conducted in March - April 2021 on a sample of 118 respondents. The respondents were students in the 2nd year of master's studies just before the end of their studies.

### 5.1. Research questions

Research questions were formulated as follows:

1. Do students have enough experience to be able to assess online education? What do they consider to be the biggest advantage and the biggest disadvantage of online education?
2. Have students acquired sufficient skills in online education to be able to assess differences in the readiness of higher education teachers for online education?
3. Can students identify the new requirements that online education places on a university teacher in terms of pedagogical performance in online education, online consultations, processing of educational content in online education (moodle presentations) and creating an atmosphere in online education?

### 5.2. Aim of the survey

The questionnaire survey aimed to find out what are the knowledge and attitudes of students in master study towards online education. The questions focused on online education from the aspect of the student, teacher, content of education and technical platform:

- How do students perceive and characterize online education?
- What do they consider to be the biggest advantage and the biggest disadvantage of online education?
- What new requirements does online education impose on teachers? Does the teacher require special prerequisites and special training?
- Can the content of education be presented to the student clearly and effectively in online education?
- Which are the biggest problems of students in online education?

- How do students evaluate the technical platform in online education and individual consultations?
- Would they support the retention of some elements of online education after the pandemic?

The questionnaire was used in the survey. A questionnaire was specifically created to find out the respondents' opinions on several aspects related to online education. The questionnaire contained 20 questions, in which the respondents could mark 1 answer or more answers. Here, a series of selected questions and relevant answers of respondents will be presented.

### 5.3. Survey results

Researched issues were divided according to the areas they covered, so author was interested in answers about the characteristics of online education, students' experiences with online education, assessing the capacity and readiness of teachers for online education (digital competences, communication with students, atmosphere in online teaching, barriers in online learning), assessment of the advantages and disadvantages of online education, assessment of the technical platform used for online education and online consultations.

### 5.4. How do respondents characterize online education?

Respondents were able to use the following characteristics of online education in their response:

- a) Distance learning is online teaching through a technology platform based on information and communication technologies (webex, teams, zoom, skype, etc.)
- b) Distance education is online teaching using technical means and methodological procedures, through which the teacher presents the curriculum (content of education) and evaluates study results.
- c) Distance education as online teaching is an innovation in higher education.

They could make a multiple-choice of alternative answers.

The results show that respondents used all three alternatives and reported all combinations of responses. They are able to adequately characterize online education. It was important to find out that they accept online education as a pedagogical innovation in higher education.

### 5.5. How do respondents evaluate online education in terms of their own experience?

Respondents had to choose one answer:

- a) Online education suits me overall.
- b) Online education suits me better than it does not.
- c) I consider online education to be equivalent to full-time education.
- d) Online education does not suit me more than it does.
- e) Online education does not suit me.

Respondents stated that online education suits them overall - a) with 50 points, b) with 29 points. Some of the respondents consider online education to be equivalent to full-time education. Only 14 respondents stated that online education did not suit them more than it suits them and 3 respondents stated that online education does not suit them.

### 5.6. How do respondents perceive the difference between online education and full-time education?

Do you think that the content of education in online education can be presented to the student as clearly and effectively as in full-time education? Respondents had to choose one answer:

- a) Yes.
- b) Rather yes.
- c) I can't judge.
- d) Rather not.
- e) No.

The most numerous answers were alternatives a) with 37 points, b) with 32 points, d) with 17 points. This means that in terms of learning outcomes, respondents do not consider online learning and full-time learning to be different (answers a) plus b) scored 69 points). Only 4 respondents said that they could not answer the question. On the contrary, the answers d) with 17 points and e) with 2 points (a total of 19 points) suggest that a certain group of respondents see the difference between online education and full-time education, respectively. They are critical of online education.

### 5.7. What do respondents see as the biggest advantage of online education?

The question was: What do you consider to be the biggest advantage of online education? The respondents could mark multiple answers:

- a) Possibility to study at home.
- b) Possibility to save time and not move to university premises.
- c) Opportunity to study online and achieve equally recognized study results.
- d) The moodle system contains everything I need to successfully complete the study.
- e) Our university has responded well to the pandemic situation and provides a full-time replacement for full-time study through online education.
- f) Other (fill in):

The most marked were the alternatives b) with 70 points, a) with 62 points, followed by e) with 53 points, c) with 49 points and d) with 36 points.

This means that respondents value time savings and study results that they consider equally recognized. They also appreciate the university's rapid response to the outbreak of the pandemic and the immediate transition to online education. With this measure, they were able to continue their studies and meet the conditions for completing individual subjects.

### 5.8. What do respondents see as the biggest disadvantage of online education?

The question was: What do you consider to be the biggest disadvantage of online education? Respondents could mark several alternative answers:

- a) Lack of communication with the teacher about the content of education.
- b) Lack of suggestions from classmates.
- c) Weak exchange of information and little interaction from classmates.
- d) Excessive social isolation between individual participants in online education.
- e) Online learning does not provide any opportunity to work with classmates.
- f) Other (fill in):

They received the most ratings d) with 52 points, c) with 41 points, b) with 39 points, followed by a) with 30 points and e) with 15 points. This suggests that respondents are aware of the importance of social contact with classmates in their studies, as they receive many stimuli and help from successful classmates in perceiving education to perceive and evaluate issues related to the content of education. It is important to note that in online education, they also perceive a lack of communication between teachers and students in terms of the content of education. Many people are afraid to formulate questions in online teaching and ask them to the teacher when they do not perceive the verbal or non-verbal support of classmates that is characteristic of full-time education.

### **5.9. How do respondents evaluate online education based on their experience?**

Based on my own experience, I consider online education to be:

- a) an excellent instrument of training.
- b) a very good instrument of training.
- c) a good instrument of training.
- d) a satisfactory instrument of training.
- e) an unsatisfactory training of training.

Respondents gave the most points to alternatives b) with 30 points and c) with 30 points, followed by a) with 25 points. Other alternatives: d) with 6 points and e) with 1 point. Although a positive evaluation of online education prevails (alternatives b plus c), a significantly smaller proportion of respondents described online education as an excellent tool for education. This suggests that, in its current form, online education has certain shortcomings and reservations.

### **5.10. How do respondents perceive the readiness of a university teacher for online teaching?**

In online education, I noticed that new requirements are placed on the teacher?

Respondents had a choice of several answers:

- a) The teacher should also have technical skills and work with WEBEX.
- b) The teacher should align the spoken word with technical support.
- c) The teacher should emphasize the goal of education at the beginning of the lesson.
- d) The teacher should use the presentation appropriately and supplement it with current information.
- e) The teacher should motivate students to learn by activating questions, continuous evaluation of students' answers, evaluation of student presentations, etc.

According to the respondents' assessment, the most points were attributed to alternatives a) with 73 points, b) 52 points, d) 42 points, e) 31 points and c) with 18 points.

This suggests that respondents (students) do expect and require from the teacher technical skills in working with the technical platform WEBEX while linking and supplementing online presentations with current information on the presented topic, motivational incentives, continuous evaluation of students' answers and the ability to immediately evaluate students' online presentations (if any). case occurs). We can state that students have very clear expectations regarding teachers' pedagogical skills, which must be complemented by technical skills and the ability to work with a technical platform suitable for online education.



### 5.11. The proper preparation of the teacher for online education?

The aspect was examined by the question: Do you think that online education requires special preconditions for the teacher? Respondents could indicate several options:

- a) He/she should make more use of non-verbal (non-verbal) keys (eg smile than positive feedback).
- b) He/she should involve students more in communication and information exchange.
- c) He/she should make more use of students' judgment.
- d) He/she should make more use of student experiences.
- e) He/she should build more on the imagination of students.

Respondents marked the answers in the following order: b) with 55 points, a) 42 points, the alternatives c) with 13 points, equally the alternative e) with 13 points, d) with 11 points. These results suggest that students in online education also expect those teacher activities that are more typical of full-time education (as teacher questions and students' answers, group communication and information exchange, student assessment of problems, application of experiences, problem solving and use of imagination). A significant requirement applies to the non-verbal communication and non-verbal keys of the teacher (smile as positive feedback or as an expression of creating a positive atmosphere in teaching).

### 5.12. How do respondents perceive and evaluate special teacher training for online education?

Do you think that a teacher should be specially prepared for online education? Respondents had to mark one answer:

- a) Every teacher needs special preparation for online education.
- b) Some teachers need special preparation for online education.
- c) Teachers do not need special training for online education.

Respondents marked c) with 59 points, b) with 24 points and a) with 9 points.

This finding is very important, as it confirms that respondents expect a smooth (trouble-free) mastery of the role of the teacher in online education, especially in mastering the technical platform of online education. They require teachers to be specially trained for this task. This is a stimulus for teachers themselves and university management in the field of academic growth and the development of comprehensive pedagogical skills of teachers during and after the COVID-19 pandemic.

### 5.13. What causes the teacher the biggest problem in online education?

Respondents could mark several answers:

- a) Focus on teaching (fluctuating attention).
- b) Difficulty of the curriculum.
- c) Running the teacher away from the topic.
- d) Length of a lesson (could be shorter).
- e) Excessive teacher focus on moodle presentation.

Respondents gave the most points alternative a) with 64 points, followed by d) with 33 points, e) with 22 points, b) with 11 points and c) with 5 points. The results suggest that students closely observe the teacher's activities during online teaching (attention fluctuation), but they can also assess the complexity of the curriculum, which in connection with the need to master the technical side of online education places special demands on the teacher.

#### **5.14. What suits respondents in online teaching in terms of teacher performance?**

Respondents were requested to consider the following: In online education, it suits me that:

- a) The teacher sticks to the presentation and emphasizes the most important thing by voice.
- b) The teacher is able to explain the theory and provide practical examples.
- c) The teacher can verbally (by voice) emphasize what I should pay attention to.
- d) The teacher does not let himself be disturbed by the behaviour of students, because he usually does not see them.
- e) The teacher has his teaching goal and goes for it.

Respondents had the option to choose multiple answers. They expressed their assessment as follows: b) with 55 points, a) with 49 points, c) 45 points, e) with 36 points and d) 32 points. It turned out that the most important aspects of a teacher's performance are the ability to explain the theory and supplement it with practical examples, the use of non-verbal keys (voice) in teaching while sticking to the set educational cognitive goals.

#### **5.15. What do respondents value most about the teacher in online education?**

They should have marked multiple answers:

- a) The teacher is always well prepared for online education.
- b) The teacher is in a good mood.
- c) The teacher is able to link current information with the content of online education.
- d) The teacher has well-thought-out assignments for students and is able to explain them clearly.
- e) The teacher allows students to publish the prepared presentations.

The most points were attributed to alternative answers a) with 67 points, followed by c) with 59 points, b) with 56 points, d) with 45 points and e) 24 points. Respondents confirm that the professionalism of teachers remains the most important aspect of online education, both in terms of content and ways of presenting the curriculum, cooperation with students and making the results of their work (assignments) public.

#### **5.16. Respondents' opinions on teacher's performance?**

Respondents were asked to assess the teacher's performance based on the following statements:

In online education, I noticed that:

- a) The teacher performs just as well as in full-time teaching.
- b) The teacher must be extremely focused on online teaching in order to achieve the same performance.
- c) The teacher is subject to the influence of the environment and disturbance, which disrupts his performance.

- d) The teacher follows the curve of student fatigue, therefore he inserts activating questions for students into the interpretation.
- e) The teacher is able to provoke and lead a dialogue with students.

The highest number of points was obtained by alternatives a) 64 points, followed by e) 37 points, b) 32 points, d) with 21 points and c) with 13 points. This suggests that respondents (students) pay the most attention to and evaluate teachers' performance in online teaching, their ability to engage in dialogue with students, the teacher's focus on performance in the online environment, the ability to activate students with questions and possible environmental and disruptive influences.

### 5.17. Assessment of survey results

Based on the obtained results, author state that the students in the period March 2020 - March 2021 gained enough experience to answer all questions in a relevant way.

Online education was suitably characterized by respondents as the teaching through a technology platform, the use of technical means and methodological procedures, through which the teacher presents the curriculum (content of education) and evaluates study results and innovation in higher education.

They identified the possibility of saving time, not moving to university premises and studying at home, as the biggest advantage of online education. They also expressed the satisfaction that the university responded well to the pandemic situation and started to provide a full-fledged replacement for full-time study through online education.

The biggest disadvantage of online education was excessive social isolation between individual participants in online education, weak exchange of information and little interaction from classmates, and the lack of communication with the teacher about the content of education.

If teachers can combine the cognitive side of educational content with the technical skills necessary for online learning, they gain respect and recognition from students.

In the answers, the respondents generalized their experience and knowledge of the teaching styles of several teachers who taught in the online education system during that period. Therefore, their scoring is of considerable importance and can lead to several recommendations:

- Online learning requires teachers to be precisely trained and innovated in the ways they present their content.
- Under the pandemic conditions, pedagogical innovation in online education has rapidly passed from the adjustment and upgrading of the teaching process, through innovations altering the process, performance and quality of the ways of teaching and at present, the pedagogical innovation aims at the transformation of the system that represents a dramatic conversion.
- Therefore, teachers need to continuously improve their pedagogical and technical skills and face cope with new challenges associated with online education.

## 6. FUTURE TRENDS IN RESEARCH

The survey indicated the future trends in research that could be focused on some other research questions combined with the online education (Matúšová, 2021):

- What has the pandemic in higher education changed?
- What are the possibilities of online education during the COVID-19 pandemic and what can be the expectations in the post-COVID period? How does online education reflect the educational needs of students of individual levels of study, fields of study and subjects?
- To what extent has the digitization of education achieved in terms of methods, content and pedagogical activities of teachers? What new demands on the management of education and pedagogical staff have been caused by the time of COVID-19?
- How effectively is online education applied in current practice at universities? Is there an era of real digitization of education?
- How does the management of higher education institutions react and reflect on the changes caused by the pandemic situation in the approach to the education of students (young adults)? How does university management ensure and monitor the quality of education, which takes place in the form of online education with technical support? How does online education affect the quality of education? What measures need to be taken to maintain the required level of quality of education?
- How do pedagogical staff cope with the new requirements of online education in terms of the content of subject education and the need for pedagogical innovation?

## 7. CONCLUSION

A pilot questionnaire survey confirmed that students understand and can properly address the issue of online education. They are sensitive to the differences between presence and online education, aware of significant advantages and disadvantages of online education. University teachers who apply technical platforms for online education are judged soberly. Students appreciate their preparation for online education, the way of presenting the content, communication with students, creating an atmosphere facilitating interaction among students, the possibility of presenting their assignments via technology platforms.

Respondents were well aware of the new demands placed on teachers in online education, which relate to mastering the topic, its new way of presentation in teaching, the need to apply activation questions to students, the ability to conduct dialogue, to link theory and practice. They especially appreciate the teacher's ability to work with the technical platform of online education, synchronized connection of the image (presentation) and the teacher's interpretation, explanation. They draw attention to the need for special training of teachers to work with the technical platform of online education.

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# Potential Corruption of Science About COVID 19

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## Keywords:

Corruption;  
Sars-CoV-2;  
Symptomatic;  
Asymptomatic;  
Presymptomatic;  
Postsymptomatic



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**Abstract:** Covid-19 is the disease. When someone is PCR test Sars-CoV-2 positive – it does not necessarily mean that such person is sick or spreads the virus. Clinical evaluation is needed to determine such information. The author of this paper examines the hypothesis that only sick (symptomatic) persons or persons with high viral load (under certain circumstances – coughing, sneezing and maybe loud talking and singing) can transfer Sars-CoV-2 to others.

*This paper aims to analyse and evaluate other methods of testing for SARS-CoV-2 than PCR from nasopharyngeal swabs (or saliva/throat/front nose samples). Suggested is PCR testing from real clinical face masks samples to evaluate the condition of the test subject and his ability to spread the virus. Potential corruption is in scientific claims that PCR testing from nasopharyngeal swabs (or saliva/throat/front nose samples) is so-called “gold standard”.*

*A critical overview of current literature on this topic was provided and research with surface and air samples collections in hospitals in rooms with only symptomatic and only asymptomatic patients. Recommendations for public policy are done.*

## 1. INTRODUCTION

Coronaviruses (CoVs) are a large family of enveloped, single-stranded, zoonotic RNA viruses. Four CoVs commonly circulate among humans: HCoV2-229E, -HKU1, -NL63 and -OC43. However, CoVs can rapidly mutate and recombine leading to novel CoVs that can spread from animals to humans. The novel CoVs severe acute respiratory syndrome coronavirus (SARS-CoV) emerged in 2002 and Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012. The 2019 novel coronavirus (SARS-CoV-2) is currently causing a severe outbreak of disease (termed COVID-19) in China and multiple other countries, threatening to cause a global pandemic. In humans, CoVs mostly cause respiratory and gastrointestinal symptoms. Clinical manifestations range from a common cold to more severe diseases such as bronchitis, pneumonia, severe acute respiratory distress syndrome, multi-organ failure and even death (Zimmermann, P., & Curtis, N., 2020).

Although coronavirus disease 2019 (COVID-19) is characterized by fever and respiratory symptoms, some patients have no or mild symptoms (Park, S. K., Lee, C. W., Park, D. I., Woo, H. Y., Cheong, H. S., Shin, H. C., ... & Joo, E. J. 2021). Coronavirus disease 2019 (COVID-19) emerged in Hubei Province, China in December 2019 and has become a global pandemic, with hundreds of thousands of cases and over 165 countries affected. Primary routes of transmission of the causative virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), are through respiratory droplets and close person-to-person contact (Amirian 2020).

This paper aims to analyse and evaluate methods to determine asymptomatic, presymptomatic or postsymptomatic spreaders. This paper examines the hypothesis that only a sick (symptomatic) person can transfer Sars-CoV-2 to others.

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Used are methods of legal sciences, literature research about the topic, own research with surface and air samples collections in hospital in rooms with only symptomatic and only asymptomatic patients. Discussions with experts and air samplers companies were done as well.

Discussions if asymptomatic SARS-CoV-2 carrier can spread the virus are still quite inconclusive and there is a lack of methodology to prove such claims. Viral load measurement is one potential way: “study sheds light on the frequency of asymptomatic SARS-CoV-2 infection, their infectivity (as measured by the viral load) and provides insights into its transmission dynamics and the efficacy of the implemented control measures.” (Lavezzo, E., Franchin, E., Ciavarella, C., Cuomo-Dannenburg, G., Barzon, L., Del Vecchio, C., ... & Crisanti, A. 2020).

Cohort study of symptomatic and asymptomatic patients with SARS-CoV-2 infection who were isolated in a community treatment center in Cheonan, the Ct values in asymptomatic patients was similar to those in symptomatic patients. Viral molecular shedding was prolonged. Because transmission by asymptomatic patients with SARS-CoV-2 may be a key factor in community spread, population-based surveillance and isolation of asymptomatic patients may be required (Lee, S., Kim, T., Lee, E., Lee, C., Kim, H., Rhee, H., ... & Kim, T. H. 2020).

However, there is no scientific evidence that viral load levels can cause that asymptomatic SARS-CoV-2 carrier can transmit the virus to others. Only one very interesting study proofed scientifically that such option is maybe possible: “The low concordance of SARS-CoV-2 detection between filters and nasopharyngeal swabs indicated that the number of viral particles collected on the face mask filter was below the limit of detection for all patients but those with the highest viral loads.” (Smolinska, A., Jessop, D. S., Pappan, K. L., De Saedeleer, A., Kang, A., Martin, A. L., ... & van der Schee, M. P. 2021). However this study was done in a way: “Patients were instructed to breathe normally into the face mask for between 30 and 60 min during which they were asked to cough 10 times and speak out loud for 1 min.” (Smolinska, A., Jessop, D. S., Pappan, K. L., De Saedeleer, A., Kang, A., Martin, A. L., ... & van der Schee, M. P. 2021). So, not clear is whether face masks were in case contaminated by SARS-CoV-2 by loud speaking or coughing or by speaking out loud.

As an epidemic progresses over time, suspected cases are examined and tested for the infection using laboratory diagnostic methods. Then, time-stamped counts of the test results stratified according to the presence or absence of symptoms at the time of testing are often reported in nearly real-time. Nevertheless, it is important to note that the estimation of the asymptomatic proportion needs to be handled carefully since real-time outbreak data are influenced by the phenomenon of right censoring (Mizumoto, K., Kagaya, K., Zarebski, A., & Chowell, G. 2020).

There is no clear evidence if presymptomatic people can spread SARS-CoV-2. Some studies trying to prove this possibility. However such studies are mainly based on mathematical models or case studies which are not appropriate methods.

As expected, the proportion of pre-symptomatic transmission increased from 48% (95% CrI: 32–67) in the baseline scenario to 66% (95% CrI: 45–84) when allowing for negative serial intervals, for the Singapore data, and from 62% (95% CrI: 50–76) to 77% (95% CrI: 65–87) for the Tianjin data. When the incubation period is larger, it is expected that these proportions will be higher and when it is smaller, they are expected to be lower. Hence, a large proportion of transmission appears to occur before symptom onset, which is an important point to consider when planning intervention strategies (Ganyani, T., Kremer, C., Chen, D., Torneri, A., Faes, C., Wallinga, J., & Hens, N. 2020).

The possibility of presymptomatic transmission increases the challenges of containment measures. Public health officials conducting contact tracing should strongly consider including a period before symptom onset to account for the possibility of presymptomatic transmission. The potential for presymptomatic transmission underscores the importance of social distancing, including the avoidance of congregate settings, to reduce COVID-19 spread (Wei, W. E., Li, Z., Chiew, C. J., Yong, S. E., Toh, M. P., & Lee, V. J. 2020).

Doubts about above mentioned methods based on case studies and mathematical models were raised after research done in Wuhan between January 23 and April 8, 2020. All city residents aged six years or older were eligible and 9,899,828 (92.9%) participated. No new symptomatic cases and 300 asymptomatic cases (detection rate 0.303/10,000, 95% CI 0.270–0.339/10,000) were identified. There were no positive tests amongst 1,174 close contacts of asymptomatic cases (Cao, S., Gan, Y., Wang, C., Bachmann, M., Wei, S., Gong, J., ... & Lu, Z. 2020).

## 2. METHODS BASED ON SARS-COV-2 AIR SAMPLING

Only logic and possible methods to detect whether someone spreads SARS-CoV-2 from his respiratory tract (fecal - oral and fecal aerosol route considerations are out of scope of this paper) can be based on studies focusing on air sampling. Only such an approach can evaluate whether so called symptomatic or presymptomatic or postsymptomatic persons can be potential SARS-CoV-2 spreaders.

Studies in this way are quite rare and obviously connected to so called environmental detection.

Viable SARS-CoV-2 was isolated from air samples collected 2 to 4.8 m away from the patients. The genome sequence of the SARS-CoV-2 strain isolated from the material collected by the air samplers was identical to that isolated from the newly admitted patient. Estimates of viable viral concentrations ranged from 6 to 74 TCID<sub>50</sub> units/L of air and concluded that patients with respiratory manifestations of COVID-19 produce aerosols in the absence of aerosol-generating procedures that contain viable SARS-CoV-2 (Lednický, J. A., Lauzard, M., Fan, Z. H., Jutla, A., Tilly, T. B., Gangwar, M., ... & Wu, C. Y. 2020).

However, some studies were inconclusive in this way. SARS-CoV-2 RNA was not detectable by air samplers, which suggests that the airborne route is not the predominant mode of transmission of SARS-CoV-2 (Cheng, V. C. C., Wong, S. C., Chan, V. W. M., So, S. Y. C., Chen, J. H. K., Yip, C. C. Y., ... & Yuen, K. Y. 2020).

To address the airborne transmission mode of SARS-CoV-2 air samples were collected in the largest hospital in Iran. Results indicated that all collected samples were negative in terms of the viral RNA. There were not detected any positive readings 2 m from the patients' beds (Faridi, S., Niazi, S., Sadeghi, K., Naddafi, K., Yavarian, J., Shamsipour, M., ... & MokhtariAzad, T. 2020).

## 3. PROOF OF CONCEPT

On the basis of inconclusive results based on mentioned air sampling studies made in hospital – the author of this paper decided to make his own research in this way while hypothesis was that air samplers can detect SARS-CoV-2 in symptomatic Covid 19 patients rooms.

Patients agreed with the survey and hospital management as well. However later on hospital (in the Czech republic) did not want to be mentioned in any study and name of the hospital is not mentioned because of this wish. Symptomatic and postsymptomatic/asymptomatic. Covid 19 patients were located in different areas of the hospital – location for symptomatic (respiratory or pneumonia) only and postsymptomatic or asymptomatic/postsymptomatic only.

Air dehumidifiers with HEPA filters were used with the volume of dried air 300m<sup>3</sup>/hour what was sufficient to recirculate the air in patients' rooms within 2 hours. Three rooms were investigated in rooms with asymptomatic/postsymptomatic patients and no SARS-CoV-2 was detected on HEPA filters (swabs were transferred to laboratory). Surface swabs were clean as well even below patients' beds and on other places (except one positive sample close to one door – could be from doctors' shoes). Toilets were not investigated.

Investigated was one room with one symptomatic patient with respiratory problems (strong coughing plus pneumonia) and one patient with heavy pneumonia (severe disease). SARS-CoV-2 was detected on HEPA filter of the dehumidifier placed in the room and even on the HEPA filter placed in the corridor in front of the room of these two patients. This indicates that wind could move SARS-CoV-2 even into the hospital's corridor when the nurse opened the door. There was obviously opened window in this patient's room. This survey was done in April 2020.

Investigated were surfaces in this room as well with positive swabs below both patients' beds and toilets were investigated as well – also positive swabs. Interesting was that positive swabs were found even in toilet ventilation 2 metres high.

The author concluded that symptomatic or maybe even postsymptomatic patients can potentially spread the virus and asymptomatic persons most probably not.

There is a problem in the definition “symptomatic” and “postsymptomatic” while the patient has developed dangerous pneumonia but does not have symptoms like coughing or sneezing. Observed patient with pneumonia was expected by doctors to be sent home soon, however, the high volume of ground-glass opacities occurred in his lungs within one week.

This small survey brought precious information to the author of this paper despite was not representative.

The survey was unintentional proof of concept of the idea to test individuals on SARS-CoV-2 while using their face masks and similar methods. This option found out the author of this paper after mentioned survey.

#### **4. SARS-COV-2 TESTING FROM AIR SAMPLERS PLACED IN FACE MASKS**

In this chapter are summarised findings of clinical studies while air samplers were placed in SARS-CoV-2 positive patients in the hospital. The test was taken from PVA strips placed in face masks or from face mask filters. Surprisingly such studies do not have many followers until now. A novel method to detect SARS-CoV-2 in exhaled breath using sampling strips fixed within facemasks that can be readily removed and analysed using RT-qPCR (face-mask sampling was introduced (Williams, C. M., Pan, D., Decker, J., Wisniewska, A., Fletcher, E., Sze, S., ... & Barer, M. R. 2021).

In 66 hospitalised patients 38% were FMS positive within 24 h of a routinely positive SARS-CoV-2 PCR by nasopharyngeal swab. Higher FMS viral loads were associated with higher IS-ARIC (International Severe Acute Respiratory and Emerging Infections Consortium mortality and deterioration scores) deterioration and mortality scores, respiratory symptoms at the time of sampling and shorter intervals between symptom onset and sampling (Williams, C. M., Pan, D., Decker, J., Wisniewska, A., Fletcher, E., Sze, S., ... & Barer, M. R. 2021).

Testing for SARS-CoV-2, using face mask filters and nasopharyngeal swabs collected from hospitalized COVID-19-patients, showed that filter samples offered reduced sensitivity (8.5% compared to nasopharyngeal swabs). The low concordance of SARS-CoV-2 detection between filters and nasopharyngeal swabs indicated that the number of viral particles collected on the face mask filter was below the limit of detection for all patients but those with the highest viral loads (Smolinska, A., Jessop, D. S., Pappan, K. L., De Saedeleer, A., Kang, A., Martin, A. L., ... & van der Schee, M. P. 2021).

## 5. FUTURE RESEARCH DIRECTIONS

SARS-CoV-2 testing from air samplers placed in face masks is the prospective way of research that can potentially influence public health policy worldwide. More robust clinical testing should be recommended in this way. Conclusions on potential patients' early treatment should be investigated collaterally since this approach enables predict severity of the disease immediately.

## 6. CONCLUSION.

Potential corruption is in scientific claims that PCR testing from nasopharyngeal swabs (or saliva/throat/front nose samples) is so called "gold standard". Suggested is PCR testing from face masks samples to evaluate the health condition of the test subject and his ability to spread the virus". Protected should be really sick people and not make focus on people with no symptoms of Covid 19 who do not exhale SARS-CoV-2.

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# The COVID-19 Challenge and the Sustainability of the Bulgarian Banking Sector

Svilen Kolev<sup>1</sup> 

## Keywords:

Bank management;  
Banking system;  
Regulations



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**Abstract:** *The paper examines the effects and the challenges posed by the COVID-19 pandemic on the banking sector in Bulgaria. The research describes the response from the global and European regulatory authorities. An emphasis is placed on the national regulatory measures and the condition of the banking system in Bulgaria. Financial soundness and sustainability indicators about the banks operating in Bulgaria on aggregate basis are analyzed. The recent developments regarding the position of the banking sector and lending dynamics are also viewed. Conclusions and a brief discussion about possible future challenges and prospects are made, in terms of a potential subsiding of COVID-19.*

## 1. INTRODUCTION

After the Global Financial Crisis of 2008-2009, the Basel Committee on Banking Supervision launched the post-crisis regulatory reform with the publication of the so-called Basel III standard (BIS, 2010) in December 2010. It was implemented in the European Union (EU) through the Capital Requirements Regulation and the Fourth Capital Requirements Directive. In 2017, the Basel Accord of 2010 was extended by a document published by the Basel Committee on Banking Supervision entitled “*Basel III: Finalizing post-crisis reforms*”. Thus, the Basel III reform, often referred to as Basel IV (BIS, 2017), should be implemented by the EU Member States by January 2023.

The post-crisis regulatory reform agenda, which began with Basel III, addressed many of the shortcomings of the pre-crisis regulatory framework revealed in the wake of the Global Financial Crisis. In 2008 and 2009, banks were not capitalized enough to withstand the worst shock to the financial system since the Great Depression. The increase in banks’ regulatory capital since then is a projection of the efforts of policymakers to support the banking system and increase its resilience. Since June 2011, the level of Common Equity Tier 1 (CET1), the highest quality capital of banks, in the EU is constantly increasing and at the end of 2020 exceeded 15,6%, which is far below the minimum required 7%. The development in the leverage ratio is quite similar, currently over 5,8%, which is again well above the minimum requirement of 3%.

The strong capital position of the European banking sector is one of the key factors in ensuring that the spread of the coronavirus in the spring of 2020 does not significantly affect the banking sector. Thanks to the high level of CET 1 and the support measures provided by regulators and supervisors, banks are able to maintain lending to the economy without having to restrict lending standards and the flow of credit to their customers, which did not allow further worsening of the economic recession.

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To a large extent, the developments for the banking sector in Bulgaria are similar. The main purpose of the paper is to examine the impact of COVID-19 on the banking sector at EU level and in Bulgaria. The study describes the regulatory response at the global and European level. The main emphasis is placed on the national regulatory measures and the sustainability of the banking system in Bulgaria.

## 2. THE REGULATORY RESPONSE

In 2008, following the shock of the Global Financial Crisis, the regulatory and policy response was perceived as insufficient and overdue. Now the response to the unprecedented crisis posed by the COVID-19 pandemic is timely, significant and swift. And more importantly, the European institutions and regulators have coordinated a common action plan in different areas, using a diverse range of tools. As a result, the brief increase in market volatility was quickly contained.

With regard to monetary policy, in March 2020 the ECB announced a comprehensive package of measures (ECB, 2020a), including quantitative easing, as well as performing additional long-term refinancing operations in the March-June 2020 period. Significant liquidity under favorable conditions in the most severe months of COVID-19 shock was provided. In June 2020, the envelope of the Pandemic Emergency Purchase Program (PEPP) was increased by €600 billion to a total of € 1.35 trillion (ECB, 2020c).

In terms of regulations, in a very short time, EU legislators have undergone the so-called “quick fix”<sup>2</sup> on changes to capital requirements regulations. It entered into force at the end of June 2020 and allowed a reduction of certain risk weights for certain banks’ exposures, which automatically increased their capital adequacy. On the other hand, also in March 2020, the Single Supervisory Mechanism (SSM) provided temporary capital and operational reliefs allowing banks to continue lending without undermining their capital ratios (ECB, 2020b).

Furthermore, the European Commission (EC) has announced a recovery plan for Europe, including a €750 billion instrument, the amount of which will be raised through the capital markets (EC, 2020).

According to EBF calculations (2020), banks in Europe receive a capital relief of about 200 basis points on average from their average level of CET 1, which was used to absorb the initial hit of the crisis, allowing the banking system to start 2021 without disruption in its resilience and sustainability.

## 3. BANKS AND THE COVID-19 CHALLENGE

At the end of the second quarter of 2020, an increase in capital adequacy was observed in the Bulgarian banking system as a result of some regulatory changes. The first one was due to the so-called “quick fix”. The second measure was the real increase of the equity of the banks due to the ban imposed by the Bulgarian National Bank (BNB) on dividends payments. This measure ensured that an additional BGN 1.3 billion (€665 million)<sup>3</sup> would be retained in the Bulgarian

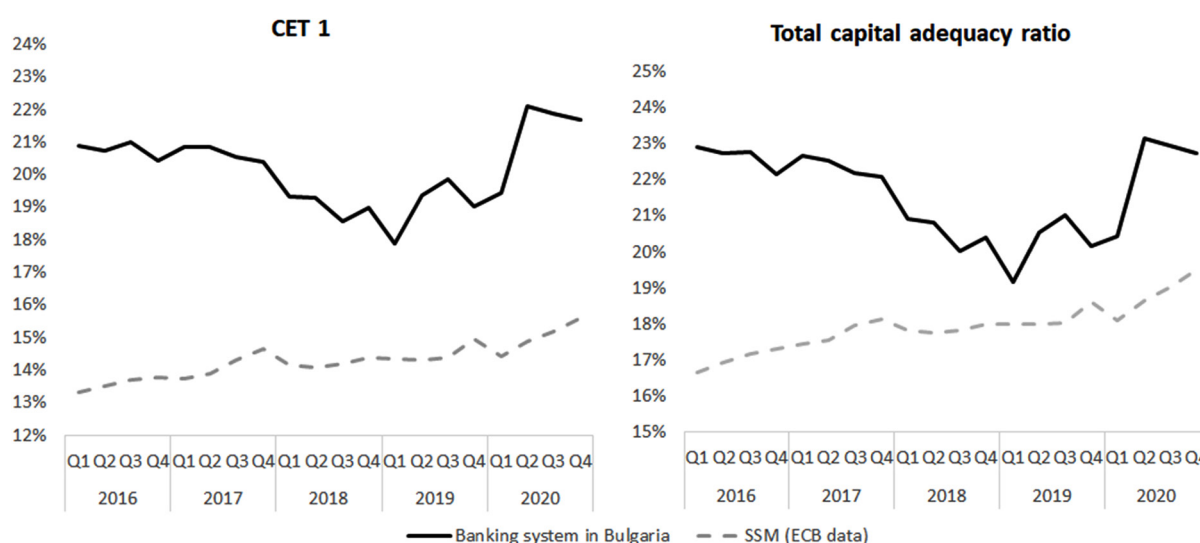
<sup>2</sup> Regulation (EU) 2020/873 of the European Parliament and of the Council of 24 June 2020 amending Regulations (EU) No 575/2013 and (EU) 2019/876 as regards certain adjustments in response to the COVID-19 pandemic

<sup>3</sup> The Bulgarian currency – the Bulgarian lev (BGN) – is pegged to the euro with a fixed exchange rate of 1.95583 BGN for 1 EUR since the 1st of July 1997

banking system. According to the BNB estimates, cumulatively the two measures increased the level of the capital adequacy of the banking sector in Bulgaria by about 4 percentage points (Hristov, 2020).

At the end of 2020, the CET 1 for the entire banking system increased to 21.69% from 19.44%, as it was at the end of the first quarter of 2020. At a system level, the total capital adequacy ratio rose to 22.74% from 20.45% for the same period.

The capital adequacy ratios of banks in Bulgaria are above the average levels for the banks participating in the Single Supervisory Mechanism, which, according to the ECB, at the end of 2020 were 15.62% for CET 1 and 19.51% for the total capital adequacy ratio. The dynamics of the ratios could be observed in Figure 1.



**Figure 1.** CET 1 and total capital adequacy ratio for the banks in Bulgaria and for the banks participating in the Single Supervisory Mechanism

Source: BNB, ECB

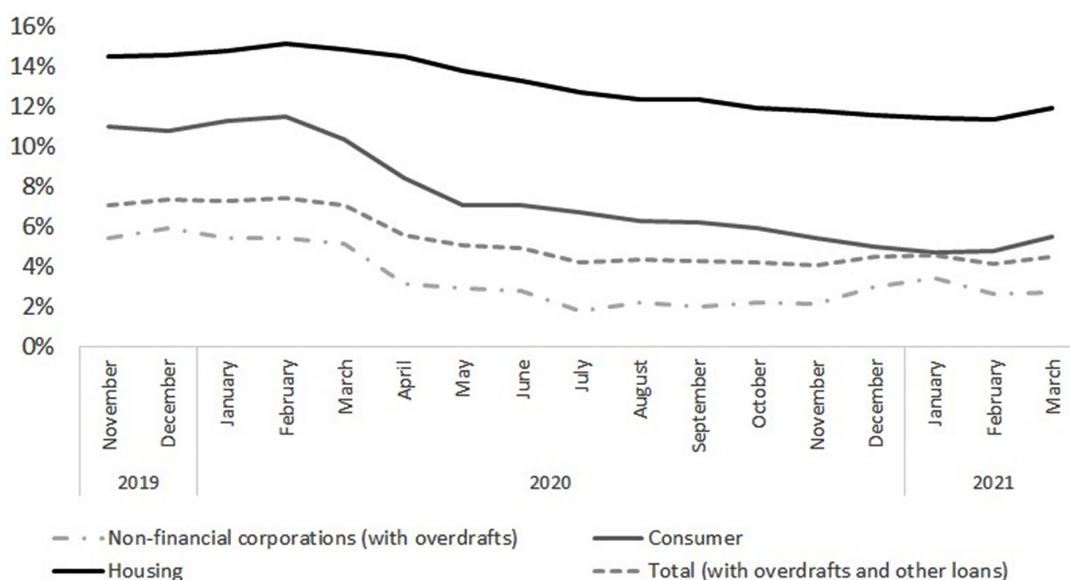
According to Regulation (EU) № 575/2013, in the first quarter of 2020, a risk weight of 100% was applied to the Bulgarian government bonds denominated in euro, which led to an increase of the risk-weighted assets for the Bulgarian banks. Meanwhile, in relation to the COVID-19 pandemic, in the first quarter of 2020 the BNB announced measures for the banking sector (Bulgarian National Bank, 2020), including capitalization of the total banking system profit for 2019 in the amount of BGN 1.6 billion (€818 million). The BNB's decision considering banks not to distribute dividends offset the effect of the increased risk weight on the Bulgarian government bonds denominated in euro in the second quarter of 2020. The full capitalization of the total banking system profit is expected to be fully met by the banks after the relevant regulatory approvals (Association of Banks in Bulgaria, 2020). In addition to the capitalization of all profits in the sector, the measures of the BNB include a significant reduction in foreign exposures bearing higher-risk and the cancellation of the planned two increases in the Countercyclical Capital Buffer (CCyB).

According to the decision of the EC from April 2020 for the so-called “quick fix”, part of the EC's actions in the banking sector, in response to the effects of the coronavirus, the Bulgarian government bonds denominated in euro were again equaled to those in local currency, which

means an applicable risk weight of 0% to 2023. This would lead to a reduction of the weights of some risk-weighted assets of banks and, accordingly, to an increase in capital adequacy, thus building stronger resilience and underlining the sustainability of the sector.

According to BNB data, compared to the end of March 2020, the total risk exposures for the banking system decreased by BGN 6.1 billion (8.9%, €3.12 billion) to BGN 62.8 billion (€32.1 billion). The exposures for credit risk under the standardized approach were the main contributor to the decline (by BGN 5 billion (€2.56 billion), or by 10%), where the impact from the changes in the Capital Requirements Regulation was greatest. The share of risk-weighted exposures for credit risk in the total amount of risk exposures decreased to 90.9% at the end of June 2020 from 91.1% at the end of March 2020. The share of exposures to position, currency and commodity risk decreased to 0.5% at the end of the period from 0.6% (at the end of the first quarter of 2020), while the share of exposures to operational risk increased to 8.6% from 8.3% three months earlier, the BNB data showed. With regard to the amount of capital exceeding the capital requirements and certain capital buffers, the BNB reported a quarterly increase by BGN 1.4 billion (€716 million) to BGN 4.8 billion (€2.45 billion) due to the decline in the total amount of risk exposures and in the capital requirements and capital buffers, calculated on this basis.

The desired effect of these measures is related to maintaining the lending activity and providing relief to banks' borrowers - companies and households, through the approval of the Procedure for deferral of loan payments<sup>4</sup>, proposed by the industry in April 2020. The BNB statistics confirm that this effect has been achieved so far (Radev, 2020). As of the end of 2020, not only we are not witnessing stagnation in lending, but loans to companies and households are increasing on an annual basis, by 3% and 8.2%, respectively. According to the ECB, credit growth in the euro area is 7% on an annual basis for corporates and 3.1% for households (ECB, 2020d). Credit growth dynamics could be observed in Figure 2.



**Figure 2.** Credit growth dynamics in the period from November 2019 to March 2021  
(annual rate of change) (%)

Source: BNB

<sup>4</sup> Procedure for deferral and settlement of liabilities payable to banks and their subsidiaries – financial institutions in relation to the measures taken by the authorities of Republic of Bulgaria to limit the COVID-19 pandemic and its consequences

Since the European Banking Authority (EBA) provided the opportunity to use public and private moratoriums back in April 2020, banks in Europe have begun to reschedule loans to their customers affected by the crisis (EBA, 2020a). According to the EBA, at the end of June 2020, under the different moratorium schemes in Europe, loans of over €871 billion were rescheduled (EBA, 2020b). According to the EBF (2020), more than 5 million individuals and more than 2 million legal entities have benefited from the various rescheduling measures taken by the EU Member States.

In Bulgaria, the measure also benefited many individuals and legal entities affected by the pandemic. According to BNB data, at the end of 2020 nearly 130,000 requests of companies and households with a total value of nearly BGN 10 billion (€5.12 billion) were approved. The data includes deferrals, which expired at the end of the reporting date, as well as for voluntarily resigned borrowers who initially applied for the moratorium.

#### 4. FUTURE RESEARCH DIRECTIONS

Future research directions would be related to the subsiding of the COVID-19 pandemic and to the analysis of the preparedness of the banking sector for driving the recovery phase of the economy. It has to be seen what would be the direction which the regulators could follow regarding keeping, amending or prolonging certain regulation reliefs. A more comprehensive econometric study could be developed, with the main aim to try to quantify COVID-19 effects on lending, savings and some financial positions of the banking sector.

#### 5. CONCLUSION

The banking sector withstood the initial shock caused by the spread of COVID-19, in parallel with the restrictions imposed by governments to limit the negative impact on public health, through a much stronger position than in the 2008-2009 period. This is an evidence that 10 years since the introduction of the Basel III standards, policymakers, together with the banking sector itself, have been able to significantly improve the resilience through which banks better manage significant stress on the financial system.

The conservative approach of the Bulgarian regulator has also prepared the banks in Bulgaria to the maximum extent. Due to its solid capital position, lending to companies and households in the country not only did not decline, but even increased, which is a prerequisite for the leading role that banks play in the recovery phase of the coronavirus crisis.

#### ACKNOWLEDGMENT

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#### DISCLAIMER

*The views expressed by the author in this paper are his own and do not necessarily represent the views of the Association of Banks in Bulgaria, neither engage the organization nor its members in either way.*



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# COVID-19 Effects on SMEs Businesses in the Durres Region

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## Keywords:

SME;  
Lockdown;  
Income;  
Employees



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**Abstract:** *The effects of Covid 19 have hit the global economy; therefore, the Albanian economy could not be excluded from these effects. This paper examines the issues that small and medium enterprises in Albania are facing under the current conditions identifying the most significant difficulties the SMEs are facing. SMEs have been severely affected, starting with the illnesses of the employers, quarantine and lockdown of the businesses reduced demand for different products and insufficient supply. The purpose of this paper is to analyse the effects that Covid-19 had in small and medium enterprises regarding the consequences of restriction measures taken by the government had in terms of production, income, number of employees reduction, the way of doing business and how ready are these companies to return in the post-Covid period. The data were gathered through structured questionnaires and analysed by the authors. The result shows that Small and Medium Size Enterprises have been heavily affected by Covid-19 in terms of income, way of doing business and in reducing the number of employees.*

## 1. INTRODUCTION

Durres is one of the most important economic regions in Albania with a significant number of small and medium-sized enterprises. Being a port city, Durres hosts about 8000 small and medium-size enterprises becoming the most important economic centre of the country. The spread out of the Covid-19 pandemic that started on March 9<sup>th</sup>, 2020 in Albania, had an immediate effect on all country's economy. Soon after the pandemic was declared, the government declared a full lockdown by closing all activities but those of supply chain, essential services, and necessary public services. This had an immediate effect on the small and medium-sized enterprises, for most of them were forced to stay closed for a relatively long period (until the end of May 2020) creating a direct negative impact on their overall balance.

## 2. METHODOLOGY

To get information on the impact of Covid-19 on small and medium-sized enterprises, questionnaires were compiled. These questionnaires were built to reveal some information on the effect that Covid-19 had on their operation, financial performance, and employment. They had to answer the following questions:

- The company had to declare their juridical status if they were physical persons or juridical entity, joint venture, or limited responsibility type.
- Their ownership status and the origin of the capital (is it an Albanian or foreign company)
- They had to declare if their company fall under one of the categories:
  - A company with an annual throughput of 5 million ALL,
  - A company with an annual throughput between 5-8 million ALL,
  - A company with an annual throughput of over 8 million ALL,

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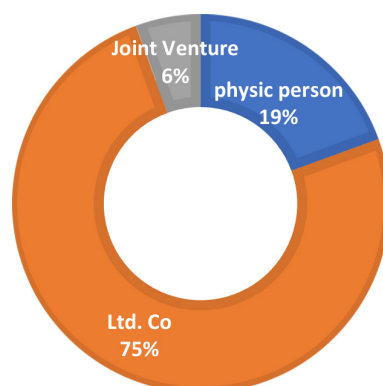
- If the company had received any bank loan before the pandemic,
- If yes, did they have any postponement of the instalments,
- If the above answer was “no”, the reasons:
  - Was the postponement request refused?
  - There was no answer from the bank.
- Has the Covid-19 affected in the due time payment of the duties?
- What is the number of employees of the company?
  - 1-10
  - 11-20
  - 21-50
  - Over 50
- How have the Covid-19 restriction measures affected the company’s activity?
  1. No effect
  2. Little effect
  3. They have significantly affected the company’s performance
  4. They have severely affected the company’s performance
  5. The company has gone bankrupt
- How have the Covid-19 restrictions affected the company’s income/revenues?
  - They are reduced up to 10%
  - They are reduced up to 15%
  - They are reduced up to 20%
  - They are reduced up to 25%
  - They are reduced up to 30%
  - They are reduced by over 30%
- Has your company benefited from any financial support from the government during the lockdown period?
- If the above answer is yes, please define the amount benefited and its destination (if it was a support for the staff payment or support to the production/services of the company)
- Have you been forced to reduce staff number due to Covid-19 restrictions? If yes, what percentage of the staff has been reduced?
  - 5%
  - 10%
  - 15%
  - 20%
  - 30%
  - Over 30%
- Has Covid-19 affected the way you normally operate?
  - No
  - Little
  - Has affected
  - Has significantly affected
  - Has extremely affected

- Has your company started preparations to come back to normality after the Covid-19 end?
  - We have not started some preparations
  - We do not have any idea what to do
  - We have started possible options
  - We have prepared the returning strategy

All questionnaires were sent to more than 2000 different companies. Only 216 (10,8% of the respondents) companies responded. The questionnaires were sent and collected by using google forms.

### 3. RESULTS

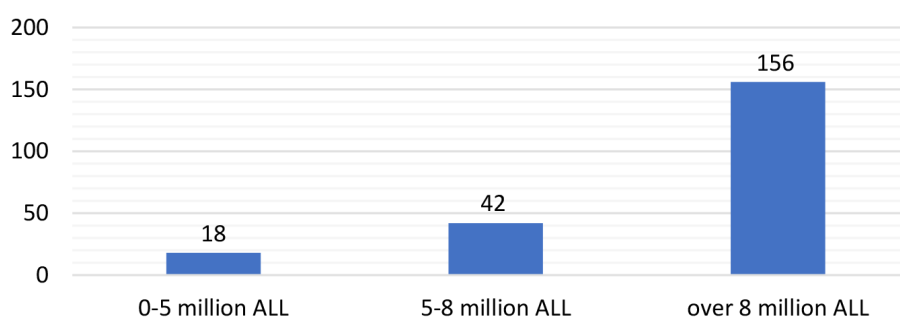
All the responses were collected and analysed to reveal the effect that Covid-19 had on the Small and Medium Size Companies in Durres Region. Most of the companies (162) that responded were companies with limited responsibilities (75%), followed by physic persons (42) or 19% of the respondents and the rest (12) were joint ventures (6%)



**Chart 1.** Juridical status of the companies

**Source:** Authors' research

Regarding the ownership type, all the companies (100%) were owned by Albanian owners. Most of the companies (156) were with an annual throughput of over 8 million ALL (72,2%), the rest was with a turnover of 5-8 million ALL (19,4%) and 0-5 million (8,4%).



**Chart 2.** Annual turnover in million ALL

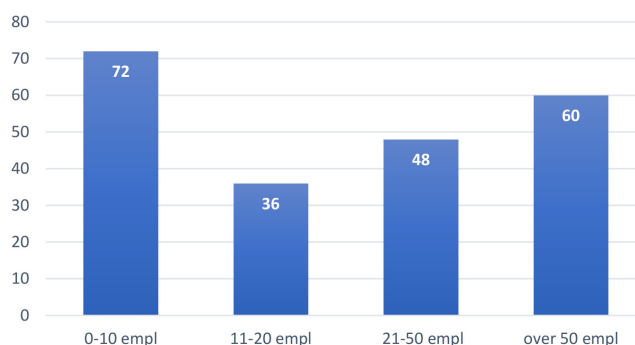
**Source:** Authors' research

Most of the companies (120) declared that they had received a bank loan for running their business (55,5%) and most of them (70%), (84) declared that they had requested to the banks to re-negotiate their instalment terms due to Covid-19 difficulties they have in paying in time

their instalments. A part of them (23%) received a negative response from the bank refusing to postpone their instalment payments, and the rest (77%) declared that they did not receive an answer at all from the banks.

Responding to the question: “Has the Covid-19 affected in the due time payment of the duties?” 144 of the companies (67%) responded with “Yes” and 72 companies (33%) responded “No”.

The size of the companies regarding the number of employees is shown in the following chart.

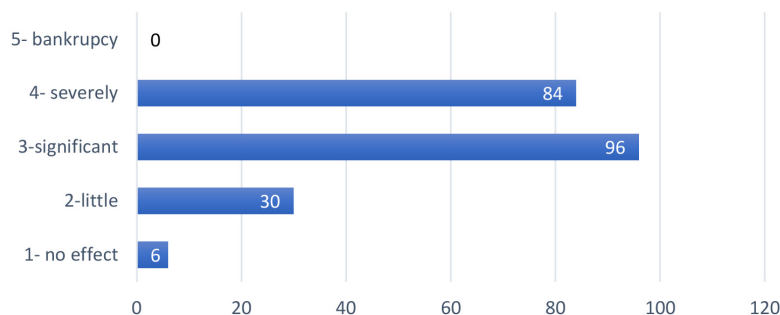


**Chart 3.** Company size according to No. of employees

**Source:** Authors' research

The question on “How have the Covid-19 restriction measures affected company’s activity?”, referring to a scale from 1 (no effects) to 5 (the company has gone bankrupt) the result was 3,19 which falls between 3 (Has significantly affected the company’s performance) and 4 (They have severely affected the company’s performance).

Out of 216 companies, 6 responded that they had no effect at all in their overall performance, while 84 companies (38,8%) responded that they had little effect caused by Covid-19 restriction measures. Most of the companies (96), (44,4%) responded that they were significantly affected by restriction measures and 30 companies out of 216 (13,8%) were severely affected in their overall performance. Only 6 companies declared their activity was not affected by the restriction measures imposed by the government during the period March 2020 February 2021. Finally, the respondents stated that their activity in most of the cases was significantly affected to severely affected with a score of 3,19 (out of scale 1-5). The results are shown in the following chart.



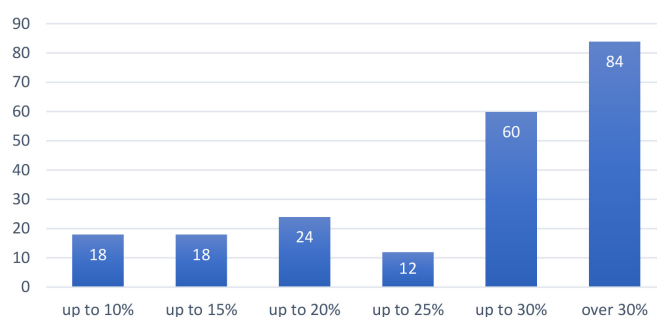
**Chart 4.** The effect of Covid -19 measures

**Source:** Authors' research

Another indicator this study has analysed is income reduction. For this reason, the respondents (companies) were asked to what degree their incomes were affected by restriction measures



scaling the effect from 10% to 30% or more. According to the responses collected, all companies declared that they had a reduction in their incomes. The degree of the reduction was as follows: 18 companies (8%) declared that they had an income reduction up to 10%, 18 declared that their incomes were reduced up to 15%, 24 companies (11%) had a reduction of incomes up to 20%, 12 companies (5,5%) were affected in their income reduction up to 25%. Most of the companies were significantly affected and heavily affected. Out of 2016 companies, 60 (27,7%) declared they lost up to 30% of their income and 84 companies (38,9%) declared that their incomes were severely affected and reduced by more than 30%.

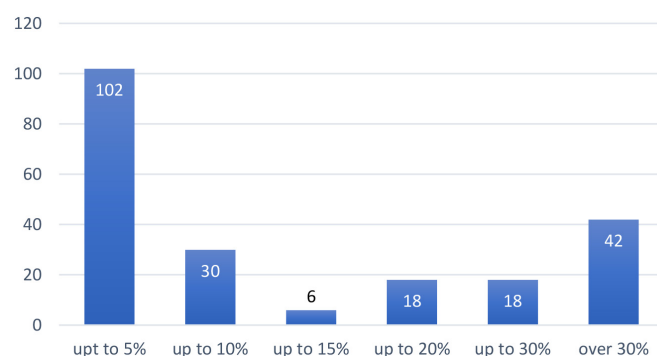


**Chart 5. Income reduction (%)**

Source: Authors' research

There was no specific information provided by the companies regarding the amount allocated to them by the government support.

The companies responded to the question: “Have you been forced to reduce staff number due to Covid-19 restrictions?”, as follows: most of the companies, 102 out of 216 companies (47,2%) responded that they were forced to reduce 5% of their staffed, and the rest were forced to reduce more. Only 42 companies (19,4%) were forced to reduce more than 30% of their staff. The following chart shows the reduction of the staff due to the restriction measures. The rest (36%) of the companies were in between these figures.



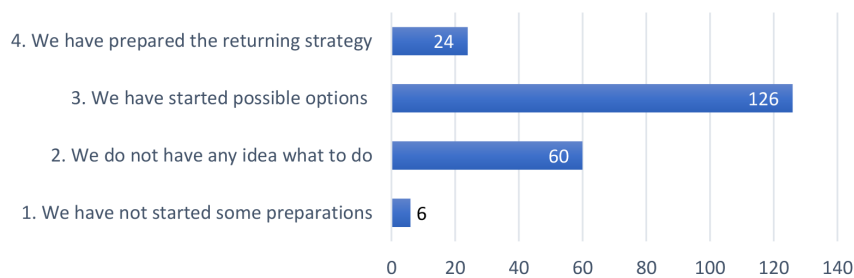
**Chart 6. Staff reduction due to restrictions**

Source: Authors' research

Regarding the question “Has Covid-19 affected the way you normally operate?” using a classification score 1-5 (from no effect [1] to “extremely has affected [5]). The overall score to this question was 3,42, which shows that Covid -19 has significantly affected the way they normally do business.

The returning post-Covid-19 strategy of the SME was another issue that was evaluated through the responses provided. The question was: “Has your company started preparations to come

back to normality after the Covid-19 will be over?”, and there were 4 possible answers. The following graph shows the respondents scores:



**Chart 7.** How ready are companies to return to normal

**Source:** Authors' research

The final score is 2,83 which means that companies are not yet prepared to return, and they have not prepared any returning strategy to come back to normal.

#### 4. CONCLUSIONS

Covid-19 pandemic, created a lot of difficulties for the businesses due to the restrictions that the government took to prevent the spreading of the infection. These measures forced businesses to lock down or work with reduced time. On the other hand, the restriction on people's movement, affected severely the demand for products and services, therefore affecting business performances. This paper revealed that the Covid-19 pandemic has affected in different dimensions the performance of the businesses. It showed that businesses had difficulties paying back bank loans and there was no postponement period granted from the banks to facilitate the payment.

Businesses had difficulties paying taxes and other duties because they suffered a significant reduction in their incomes and there was no financial support from the government to the production. There were some financial supports, to some of the SMEs for employee's wages, but this was not to all the SMEs and according to respondents this support was not granted to all the businesses. No evidence was provided since some businesses did not benefit from this governmental aid. To survive, businesses had to reduce their expenses, and reduce staff number, thus contributing to the unemployment growth.

Another important issue which deals with returning strategies of the SME is that most of the Small and Medium Size companies are not ready to adapt themselves to the new post-Covid environment and have no strategy for how to return to normal.

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# Innovations as a Means of Restarting Tourism in the Slovak Republic in the Period After COVID-19

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## Keywords:

Tourism;  
Innovation;  
Sustainability



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**Abstract:** *The competitiveness of tourism and its sustainability is conditioned by the ability of tourism stakeholders to use the existing innovation environment. Empirical results support the fact that the tourism sector shows differentiated innovation behavior in the sector of services. Economic performance in tourism determines the type of innovation and the type of business. The paper focuses on innovations, which, together with other factors, are considered to be the driving force behind a possible restart of tourism in the Slovak Republic in the period after COVID-19. Innovations are understood as creative activities that induce deliberate change that will bring in technical, technological, economic, or social benefits. They are an essential part of modern business. Using a questionnaire survey, PESTLE analysis and SWOT analysis, a survey focused on the application of innovations in tourism was conducted. The target group was represented by travel agencies in a selected region of the Slovak Republic.*

## 1. INTRODUCTION

Tourism is a set of activities and relationships of entities in the environment of the market mechanism. In conditions of strong competition at the international, national and local levels, the economic efficiency of tourism is determined by the requirements of economic, social, environmental and technological sustainability on the supply side and the requirements to satisfy the needs of the tourism participant on the demand side. Tourism performs important economic functions in the country's economy, contributes significantly to GDP, employment rates and is linked to other areas of business. It also has a positive impact on the social environment and the cultural development of the region in which it takes place.

Innovation is an important factor that helps the development of tourism, as well as the development of tourism companies. Evaluation of economic effects of innovations in tourism is associated with the creation of economic added value of tourism service providers, linked with job creation and stabilization of employment in localities where other economic activities are not sufficiently represented. Income, employment and investment multiplier effects can be monitored in statistical reporting based on data from individual tourism destinations at the national level.

The sustainability of tourism development in the Slovak Republic has been radically disrupted due to the COVID-19 pandemic and requires consolidation towards standard conditions of supply and demand. The first consolidation measure in the Slovak Republic was done by the implementation of systemic support for tourism, which despite the current turbulent period flows into tourist destinations in the Slovak Republic and the consumption of the local population.

Consumption in tourism by the tourist participant, customer, traveler, is determined by the offer. Innovation and the innovation environment in tourism are key factors in the supply of tourism in the current turbulent socio-economic period.

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## 2. SELECTED ECONOMIC ASPECTS OF TOURISM IN THE SLOVAK REPUBLIC

The Slovak Republic has an ideal geographical location in the middle of Europe. It is administratively divided into eight self-governing regions (Picture 1). Its rich history of several thousand years and the influence of surrounding nations have left an enormous cultural heritage which inter alia include Celtic settlements, Roman fortifications, Old Slavic cult sites, mansions, fortified castles of nobility, medieval mining towns, Renaissance and Baroque palaces, Greek Catholic and Orthodox wooden churches.



**Picture 1:** Administrative division of Slovakia

All of them form majestic jewels, impressively set in beautiful natural scenery. There are the smallest mountains in the world, the Tatras, the largest Karst area in Central Europe, untouched by civilization forests. Only a few countries in the world are endowed with as many diverse underground karst formations as in Slovakia.

Thanks to its location, the cultures of the West and the East have alternated in Slovakia and have left the mixture of cultures and styles of architecture, from old to new growing cities to current projects, reflecting the latest trends. The colorful life of ancestors, their creativity and art are present on the territory of the country, especially by (open-air) museums in nature and monument reserves of folk architecture. Thanks to these unique exhibits, domestic and foreign visitors can still admire the unique elements of traditional folk architecture and folk culture. Many unique customs of folk traditions have been preserved up to this day, whether in the form of folk architecture, music, folk songs and dances, unique customs and costumes, folk art and crafts.

Slovakia is endowed with immense underground wealth and mineral water springs, whose healing power and beneficial effects on the human body are therapeutically utilized in many spas and specialized healing facilities which belong to the oldest and best in Central Europe. Thanks to the dense river network and varied relief, Slovakia provides various conditions for summer and winter sports, including biking, climbing and river rafting.

Slovakia is also known by its local products, which represent the historic regions through regional brands, including the brands as Kopanice, Záhorie, Hont, Podpoľanie, Ponitrie, Karsticum, Malodunajsko-Galantsko, Gemer-Malohont, Horehronie, Pohronie, Nitrava and Novohrad. The label confirming the originality of a local product can be awarded to a certified product, service, or experience.





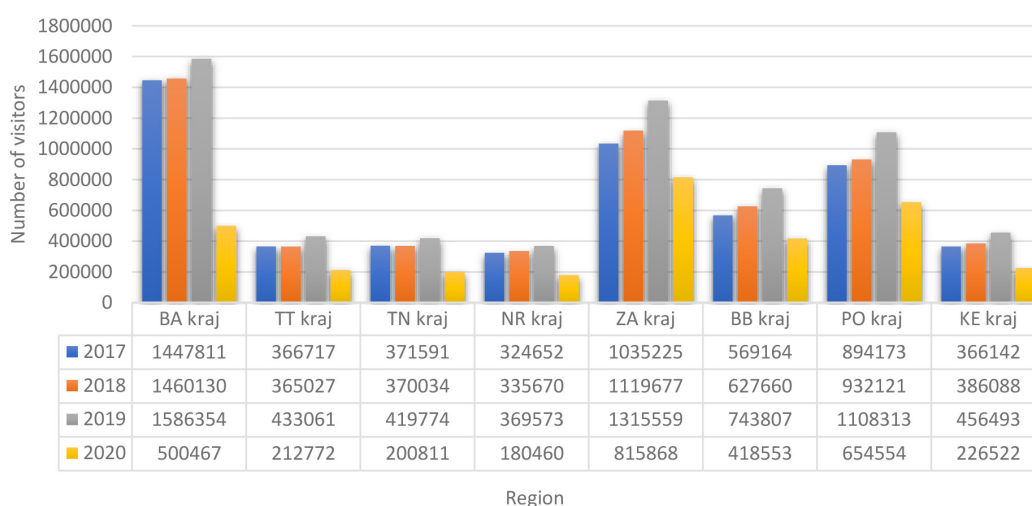
one trillion euros. It is assumed that the number of reservations compared to the same period of 2019 will decrease by an incredible 60-90%, which will have a devastating effect on hotels and accommodation facilities, travel agencies, all modes of transport and hit their loss of income by up to 85%. A similar scenario will occur in sectors linked to tourism. About 6 million workers will lose their jobs directly in the tourism sector alone.



**Figure 1.** Share of tourism in the GDP of the Slovak economy

**Source:** Statistical Office of the Slovak Republic

During the pandemic, there is a significant drop in the number of visitors to accommodation facilities in Slovakia. If the situation in Slovakia is compared, the number of visitors in 2020 compared to 2019 decreased by up to 50.1% (Figure 2).



**Figure 2.** Number of visitors in accommodation establishments in 8 regions of the Slovak Republic

**Sources:** Ministry of Transport and Construction of the Slovak Republic

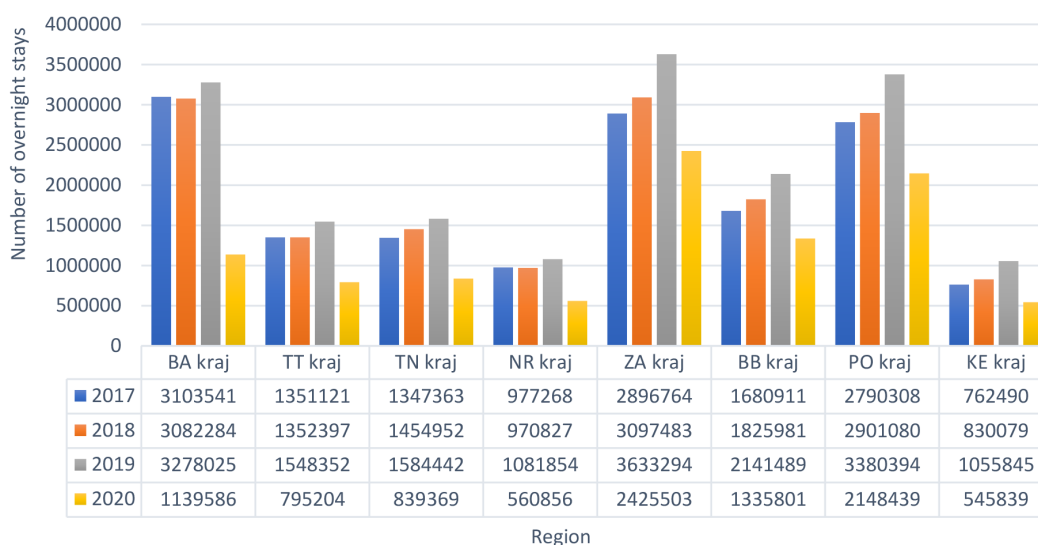
A comparable situation has also occurred in the number of overnight stays of visitors in accommodation facilities. In Slovakia in 2021, there was a drop of 44.7% compared to 2020 and 2019. The situation in the number of overnight stays in individual regions of Slovakia is presented in Figure 3.

Revenues from tourism by regions are presented in Figure 4 in the observed period of 2018 and 2019. In 2020, the drop in revenues was higher than 60 %.

According to data from DATAcube statistics, the number of foreign visitors to Slovakia decreased during the corona pandemics in 2020 from 2,475,094 by 65.5% to 854,011. The number of domestic visitors to Slovakia in 2020 was 2,355,996, a decrease of 40, 47% compared to 2019.

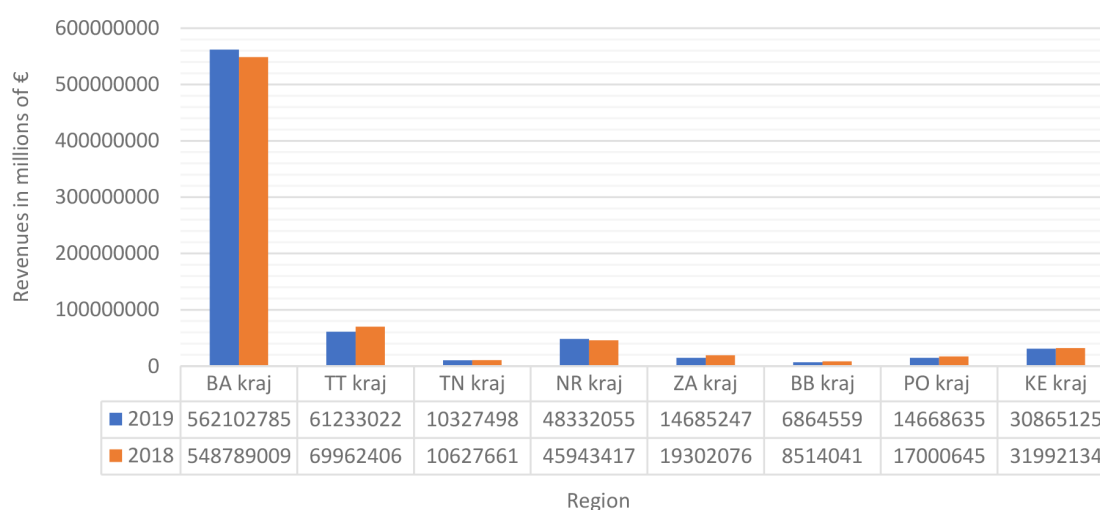


In the number of overnight stays of foreign visitors in Slovakia, the drop in 2020 compared to the previous year 2019 was by more than 62%.



**Figure 3.** Number of overnight stays in accommodation establishments in 8 regions of the Slovak Republic

**Sources:** Ministry of Transport and Construction of the Slovak Republic



**Figure 4.** Revenues from tourism by regions of the Slovak Republic

**Sources:** Ministry of Transport and Construction of the Slovak Republic

The largest number of visitors was registered in the Žilina region. The second most visited region in Slovakia was the Prešov region, on the territory of which the High Tatra mountains are located, which attract domestic and foreign tourists with their nature. In 2020 the Bratislava Region (with the capital Bratislava) took third place. As regards foreign visitors, in 2020, the most visited was the Bratislava region followed by the Žilina and Prešov regions.

The most sought-after regions, which are preferred by domestic visitors and at the same time with the largest number of overnight stays by domestic visitors, are the regions of Žilina, Prešov, Banská Bystrica and Trenčín. The Bratislava Region takes fifth place out of eight regions in Slovakia, as regards the number of domestic visitors. The most preferred region for domestic and foreign visitors is the Žilina region.

### 3. INNOVATIVE ENVIRONMENT AND TOURISM

From the aspect of companies, innovation is becoming a prerequisite for their survival facing to strong competition. In Slovakia, small and medium-sized enterprises predominate in tourism, therefore the emphasis is mainly put on the increase and upkeep their competitiveness.

Innovation is defined as the successful creation, introduction and use of innovations in the economic and social spheres, the renewal and expansion of the range of products and services and related markets, the creation of new production, supply, distribution, change management, work organization, working conditions, qualification and job skills of labor force. These characteristics of innovation can be also found in the field of tourism.

The sustainable supply of tourism products is influenced by how tourism enterprises are able to transform their own innovative results, as well as their own potential, through inputs into tourism production. The transfer of innovations is also realized at the level of partners of tourism enterprises within the creation of joint products. In this case, the innovation potential is shared and its efficiency is promoted. The innovative environment can thus result in positive innovative achievements in tourism.

The innovative behavior of tourism companies is more focused on non-technological innovation. The results of non-technological innovation are reflected and promote the internal heterogeneity of tourism. Compared to manufacturing, innovation in tourism services is driven by practical experience rather than research activities. In practice, the consumption of an innovated product is thus motivated by price and other bonuses from providers that stimulate demand, thus creating space for a new experience. New product quality or a new service production process are therefore often imitated and imitations dominate the tourism industry. In addition, they are seldom accompanied by R&D costs and, in line with the low knowledge intensity of the tourism services production, imitations are therefore a very logical reality.

On the other hand, non-technological innovations gain justification for tourism service companies and create preconditions for the achievement of financial and non-financial effects. The reason why to promote marketing and organizational innovations in tourism is that their implementation is separated from direct contact with the client. It means that their imitation is limited and thus increases the scope of revenues from innovation. Tourism enterprises are clearly the users of innovation, not their producers, and do prefer incremental innovation.

The above facts were also confirmed by a pilot survey in a selected region - the Prešov Region in Slovakia. The target group was represented by travel agencies operating in the region.

The survey aimed to find out:

- a) to what extent and which types of innovations are most often used by travel agencies;
- b) which possibilities of product innovations do travel agencies apply;
- c) which innovations in marketing and management, including innovations in IT and control systems are applied by travel agencies;
- d) how do travel agencies respond to new challenges and trends from the external and internal environments with regard to innovation.

Innovations in tourism need to focus on the development, improvement, adaptation and commercialization of processes, products, organizational structures and new approaches and business models. The preferences of customers in tourism are also connected with their willingness to experiment more and try new platforms.

Tourism, due to the nature of its services, is a key market for the implementation of collaborative consumption. Collaborative consumption is the sharing of goods or services by a group of people. While in normal consumption the individual pays the full cost of the goods and retains exclusive access to it, in collaborative consumption, more consumers have access to the goods and share the costs.

The collaborative platform is most often used in the accommodation, transport and catering sectors, which are key areas of tourism. Depending on the nature of the relationship between users and providers, following transactions can be distinguished:

- a) P2P (Peer-to-Peer) - goods, services or resources offered by a private individual to other private individuals.
- b) P2B (Peer-to-Business) - goods, services or resources provided by individuals to businesses and vice versa (thus also B2P).

In the accommodation sector, this platform allows homeowners to rent individual rooms or entire properties to visitors on a short-term basis. Accommodation is booked through the platform (or website), with the operator/transaction broker receiving a commission. Accommodation platforms can be divided into three groups: a) platforms for renting accommodation, b) platforms for exchanging accommodation, c) free accommodation.

Platforms operating in the transport sector represent an environmental approach to saving the environment by offering excess fleet capacity. They provide registration for the demand and supply side of the market. They differ mainly according to the type of transport service, such as a) transport over short distances, b) transport over long distances, c) transport by institutional cars, d) transport by private cars.

The catering platform is based primarily on activities such as offering meals together in private homes. With the rapid development of gastronomic tourism combined with the authenticity of traditional local dishes, the relevant residents began to offer a specific product through platforms - offering food directly at home. In addition to the price advantage, a strong impulse for the use of this service is the authentic way of getting to know and experience the local culture of the spot and the possibility of social interactions with residents.

In the survey, it was confirmed that the business activities in tourism in the post-COVID 19 period will unnecessarily have to consider other groups of innovations that will help start tourism in the domestic conditions of the Slovak Republic. It turned out that travel agencies do differ in their approach towards business as well as towards innovations.

The results of the survey have confirmed that travel agencies identified many approaches how to create product, process, marketing and managerial innovations. They include, inter alia, the renewal of proven products, new ways in supply and new products on the tourism market that include a new combination of existing services. Travel agencies were aware of the need to introduce innovations in products, innovation in forms of offers, innovative ways of marketing, sig-

nificantly more effective ways of collection of customers' opinions, information, feedback and communication with customers in the current period of breakthrough digital transformation in the field of trade in services. It must not be forgotten that all new and unobserved products and services packaged in new packaging become attractive, and with good management and marketing, above all a competitive product.

In the innovation processes of companies and tourism entities, we have identified specifics that can be described as accelerators of sustainable growth:

- a) Consumption of tourism products is motivated by price and other bonuses from providers that stimulate demand, and so in the next phase of the product life cycle in the market, there is an increase in sales due to increased demand.
- b) Product and process innovations in tourism are limited by the fact that they are mostly in the group of incremental innovations. Marketing and managerial innovations are implemented in practice without direct contact with the client.
- c) The promotion of incremental, not radical, innovations is due to the low knowledge intensity of the production of tourism services.
- d) Consumer adaptation and personalization are key factors in tourism innovation.
- e) The quality of the innovative environment of the economy in which the tourism enterprises operate has a positive effect on the penetration of innovations into tourism, and thus on the performance that tourism achieves.
- f) The key factors in increasing business performance in tourism are determined by consumer-oriented innovation management.

The correct choice of evaluation parameters of innovations and innovation performance, as well as the monitoring methods, have a decisive impact on the analysis and assessment of innovations referring to the productivity and economic growth of tourism and economic subjects in tourism.

This is confirmed by the definition of a tourism destination's competitiveness: The competitiveness of a tourism destination is determined by the site's ability to optimize the attractiveness of a place to residents and non-residents, provide quality, innovative and attractive tourism services (eg providing the right value for money) to consumers and gain market and global market share. available resources to support tourism are used efficiently and sustainably.

#### **4. CONCLUSION**

The future of tourism is influenced by the social, economic, political, environmental and technological challenges posed by new innovative solutions. Innovation is a catalyst for the development of tourism.

The cause of the current critical development is the outbreak and impact of the COVID-19 pandemic. Measures taken by governments around the world have responded to threats to human health and life by introducing strict quarantine measures to reduce the rate of spread of COVID-19. The measures taken had a significant impact on the slowdown in the countries' economic activities.

As a result of the measures taken, a large part of business entities and their employees could not achieve income with a consequent effect on their overall financial condition and ability to pay liabilities. The pandemic has left a significant impact on the tourism sector, which has so far been

considered the largest service sector, leading to many social and economic changes. If we assess the development of the numbers of visitors, overnight stays of visitors and revenues of tourism visitors at the national level of the Slovak Republic and in 8 regions in Q1 2019 and 2020, a clear decline in almost all regions and all monitored parameters is statistically confirmed.

Innovation is becoming an important driver of tourism and travel agencies, as innovation is updating the product portfolio, thus improving the company's market position, including strengthening its competitiveness in the post-coronary crisis.

Therefore, the priority in the coming period will be to ensure sustainable growth and development of tourism through innovation. Implement product, process, marketing and managerial innovation activities that act as a catalyst for tourism development.

## ACKNOWLEDGMENT

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# Applied Theory of Markets and Sustainable Growth – A Different Perspective

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## Keywords:

Political market;  
External effects of ignorant  
politics;  
Retaining of civilization  
standards



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**Abstract:** *The term “sustainable growth” the authors will apply to the social and partly economic field and not to ecology – natural environment, which is usually the case. The use of the term “applied theory of markets” derives from the fact that a new insight of markets functioning will be discussed – based on empirical facts and data if necessary. This paper will start from the Arrow-Debreu model (1954) and its interpretation as a theory by Radner (1970 in: Majumdar 1998). It will be argued that the absence of considering all possible markets although they proved to be functioning, brought unwanted consequences, which in some respect are threatening to turn the civilization clock back and are pushing contemporary priorities. From the view of the applied theory of markets, the sources of destructive national politics becoming reality in some countries will be discussed and possibly explained.*

## 1. INTRODUCTION

Literature on the role of markets more or less deals with the challenge of what value they can offer, and which should be the role of the collective action to control the market mechanisms. Here let us bring in the basic divergence between F. A. Hayek who believed that state planning means The Road to Serfdom and real socialism, where markets were only partially allowed. For us, however, another fact will be at the forefront - those markets emerge and function beyond our will unless regulated of course. We are starting from the Arrow-Debreu model from 1954 where crucial is the difference in information at the disposition of different economic agents which should lead to a competitive market, meaning that market equilibrium will thus be achieved for every commodity.

If so, we must accept the fact that the markets will emerge when in any area of human interest and activity the conditions presented above will be fulfilled. Humankind has made immense improvements in all kinds of technology – also in the field of economic policy. But this sometimes drives us into false convictions that we can regulate everything that has been formed (not by us, but) through our activities. As on the markets (as a rule unorganized) individuals are participating, their goals and motives can essentially differ from those accepted as democratically accepted and formalized values and goals in a certain society. In this way, in a civilized society, the institutional setting will allow and give the regulators the power to avoid the damage that the markets could cause to the society and its sustainability if and when they are threatening to cause negative external effects.

The term “markets” has been in English texts now massively used when discussing financial markets. The authors of this paper will, however, stick to the original term meaning the place where all kinds of supply and demand meet.

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We will take advantage of the method as applied theory can be built based on empirical facts and proven experience respectfully. The facts encircling the two examples used, are so evident and are clearly understood also from a point of view of an average informed person. With the help of developments marking the migration challenge and “alternative facts” plus hostile speech embedded in some countries’ top-level politics, we will try to prove that there exists a widespread misunderstanding of what markets actually mean and how they shape our business and social environment. We will argue that they offer a solid example and empirical experience of how markets emerge from nothing thus explaining their real nature, emerging and functioning.

This paper tries to answer the question of whether the example discussed here is causing negative external effects and is endangering the sustainable growth of countries concerned. The first hypothesis is that a part of political market has been depressed and excluded from national mainstream policies leading to the fact that benefits of renaissance and enlightenment did not enter critical mass of pores in regions concerned. The second hypothesis is that the example of depressed (marginal political) market has been causing negative external effects and should be treated with the help of measures of market regulation.

Considering the conclusions that the facts presented in this study offer it is clear that apart from typically environmental and business sustainability public policy should focus also on regulation of political market. Political agents should use the measures at their disposal to assume the achieved level of enlightenment and civilization standards and thus social sustainability.

## **2. SUSTAINABILITY AND SUSTAINABLE GROWTH**

Although predominantly used in the field of environmentalism, sustainability includes at least two additional fields: social and economic. Since it is most often elaborated in this chapter, we consider the environmentalist approach but beware the fact that those are social and economic issues that are very much connected with markets.

Since 2012 the OECD’s New Approaches to Economic Challenges initiative has attempted to bring together new thinking about rapid technological change, globalization, and sustainability. The so called ‘new economic narrative’ consists of three elements (OECD 2019, p. 5): (1) new conception of economic progress (this means a deeper understanding of the connection between growth, human wellbeing, a reduction in inequalities and environmental sustainability to be considered by economic policymaking and politics; (2) new frameworks of economic theory and analysis (new holistic views on how economies work, and new tools and procedures to help policymakers devise policy; (3) new approaches to economic policy (including a wider set of policy and institutional changes, new frameworks and examinations, to accomplish modern social and economic goals).

Sustainability responsibility is more and more handed also to businesses in accordance with consumers purchasing behaviours. So now, more than 90 percent of CEOs state that sustainability is important to their company’s success (Hoffman, 2018). Companies develop sustainability strategies, market sustainable products and services, and publish sustainability reports for consumers, investors, activists, and the public. Based on the current surveys (Hoffman, 2018), this trend will not diminish soon: 67 % of business school students want to incorporate environmental sustainability into their future jobs, 88 % think that learning about social and environmental issues in business is necessary and advantageous. For business schools it is important to meet this demand: in the USA, courses dedicated to business and society increased from 34

% in 2001 to 79 % in 2011, and specific academic programs on business sustainability can now be found in 46 % of the top 100 US Master of Business Administration (MBA) programs. Data presented at the World Economic Forum's Sustainable Development Impact Summit in 2019 (Anstey, 2019) prove that ever stronger devotion to market transformation shows effect through greater demand for products and services complying with (mostly environmental) sustainability principles. Another measure of making businesses more sustainable is ranking of companies. The newest as for now is the Corporate Knights Global 100 Index presented at the World Economic Forum's virtual annual meeting in Switzerland in late January 2021. It is aiming to become a benchmark for corporate sustainability every year (The CEO Magazine, 2021) and is enlisting top Global 100 companies among 8,080 which competed for this ranking.

In our research, we put focus on social environment. One dimension here would be the sustainability of the business environment. Our analysis (Lazar, Ovin and Ašanin Gole, 2021, p. 13-14) proves that we must distinguish between (political) instability which can propel innovation and competition (World Bank Blogs, 2014) and instability caused by inappropriate political discourse and practice, which by abandoning of achieved civilization standards also endangers basis principles on which internal and external business trust is based. In this way we come to sustainability which could best be explained by the term sustainability of civilization standards. Especially our case of political discourse used in this article as well as excessive migration flows simply endanger the sustainability of the business environment and achieved civilization level in the host countries. Here one should especially consider the Županov (1983) sequence of influence where business change influences social change. Included in this model the change usually starts with technology change, while through examples used in this paper it becomes affected by processes outside the field that up to now resulted in the rise of civilization standards.

### 3. "NEW" POLITICAL MARKET

When developing the democracy and promoting the values of renaissance and enlightenment the driving political factors (parties) have been acting similarly as Napoleon's or Nazi forces when wishing to conquer Russia – they have been concentrating only on "progressing" units neglecting the situation in the theatre behind the lines. And yet it proved crucial for the whole campaign and the outcome of both wars. In the same way, as has proved today, liberal democracy which politics contributed a great deal to the era of longest peace and economic stability in newer history, has systematically neglected the developments in the theatre behind. Here typical is the process in the USA where middle income class position has clearly deteriorated in last decades (for data and analyses see Krause & Sawhill, 2018). Promoting openness of ideas, trade and people movements established politics failed to see that in the backstage the economy and people could not culturally and economically completely follow and cope with the developments and became losers in these processes. Regarding the industries typically agriculture, mining and metal industry often representing the whole regions fell out of focus. Liberal democracy has failed to perform from the perspective of the backstage and has concentrated only on the sectors and regions (new technologies and regions) that were predestined to be the winners in these processes – becoming economically and politically more and more influential. It is important to note, that these levels have stabilized and nurtured the relations with achieved civilization norms encompassed in the term "political correctness".

But in an open democracy, this backstage never ceased to be a political market. The robustness of establishment in parliamentary democracy could only push it away from power. However, the growing disparity between nominally accepted values and real effects of the developments on

the backstage enlarged the pressure towards the elite. In the last decades, this pressure could be more and more materialized by the help of new ICT possibilities enabling communication and connection also beyond formally prescribed steps and processes – parties, NGOs, trade unions.

From the market point of view therefore in back theatre there always has been the demand for public services, which was neglected. As it could not achieve anything using adopted political style and discourse, it adopted a most direct one – ignoring cultivated politically correct addressing of opponents. Becoming relevant by numbers and strength of its voice it attracted the supply of parties with standings that from today's perspective are rightists, and which focused on the backstage problems and promises to resolve them. To prove that they are sincere, the suppliers adopted this part of the political market's discourse.

Now, these parties inhabited the political markets from Europe's four largest countries – Germany, the United Kingdom, France, and Italy up to most EU countries like Austria, Belgium, Denmark, Greece, Hungary, the Netherlands, Poland, Slovenia, Sweden, and Switzerland (World Economic Forum, 2017, p. 23).

Promising to improve the dissatisfied audience's position they are addressing mass audiences of dissatisfied people with populist demagoguery, poisoning public discourse and the roots of a democratic culture, furthermore, enabling politicians to propagate distorted views, misrepresent facts surrounding policy issues, defame opponents, and so on. Politicians sense that they can exist and thrive as outsiders to the mainstream. This favours those who have pre-existing celebrity, or who can find strong institutional bases of support for their anti-establishment views (Carter-Ruck, 2018, p. 31-32). All this is combined with social media with Twitter obviously being the most suitable for maintaining the link to their electorate. The adopted narratives here can have a greater influence on opinions than rational argumentation (Bayer & Bárd, 2020, p. 58), which usually uses more equilibrated discourse.

The need to recognize this part of political market is of utmost importance if we want to protect the achieved civilization level. We encounter the phenomenon of hate speech, rhetoric that targets, vilifies, or is intended to intimidate minorities and other groups in society, more and more often also in politics - by state agents, public figures, and other influential persons. According to Butler and Collins (1996, p. 33) democratic nature (from a market view) easily becomes a hostage of the personal ambition of the founder or current charismatic leader. The approach embedded in the European Community's discourse and condemning of political power which disrespects human rights and ignores the values of the international community (Bayer & Bárd 2020, p. 60) up to now had practically no effect on such unwanted practice. As elaborated below we opt rather for a more holistic treatment of the entire political market.

#### **4. WAKED OUT NATIONALISM AND POLITICAL MARKETS STATISTICS**

Nationalism has always been a feature across Europe's political spectrum. In recent decades, however, there has been a boom in voter support for right-wing and populist parties across Europe. Let us start with Germany - the EU's strongest economy with the biggest population. Here the AfD (Alternative für Deutschland - Alternative for Germany) has become the biggest opposition party in their parliament - Bundestag. The next example is Spain, where Vox has become the third-largest force in the Spanish parliament, as they only entered parliament for the first time. The rise of support for right-wing and populist parties is partly to voters' frustration with the political establishment, but mostly it is due to concerns about globalization, immigration, a dilution of national identity, and

the European Union. The right-wing parties rise is seen also in the European Parliament, where nine far-right parties formed a new bloc, called Identity and Democracy (ID) (BBC, 2019).

The development of the AfD party and their member numbers in Germany from 2013 to 2019 is rising (Statista 2020). The AfD was formed in 2013 with 17.687 members. Until 2019 the number of party members rose to 34.751. AfD is a German nationalist and right-wing populist political party, known for its opposition to the European Union and immigration.

Not much different are trends in other EU countries – below we present the statistics on the percentage of votes acquired by nationalist parties in most recent national elections in EU countries (BBC, 2019): Hungary - Fides 49,0 %, Austria – Freedom Party 26,0 %, Switzerland – Swiss People's Party 25,8 %, Denmark – Danish People's Party 21,0 %, Belgium – New Flemish Alliance 20,4 %, Estonia – Conservative People's Party – 17,8 %, Finland – The Finns 17,7 %, Sweden – Sweden Democrats 17,6 %, Italy – The League 17,4 %, Spain – Vox 15,0 %, France – National Rally 13,0 %, Netherlands – Freedom Party 13,0 %, Germany – Alternative for Germany 13,6 %, Czech Republic – Freedom and Direct Democracy 11,0 %, Bulgaria – United Patriots 9,0 %, Slovakia – Our Slovakia 80 %, Poland – Confederation 6,8 %, Slovenia – Slovenian National Party 4,2%, Greece – Greek Solution 3,7 %, Cyprus – ELAM 3,6 %.

The data presented above include only political parties which openly advocate the rightist positions. Their success on the political market, however, is partially attracting also other spectrums of political market supply<sup>3</sup>.

However, just by the changed practice of ruling parties the political market cannot be normalized. There is also a process on the media landscape that should not escape our attention. It is directly enlarging the wrong informed (other than uninformed, which has less tragic consequences) electoral body, adds to the disorientation of the public, which then influences and sometimes completely changes political handling. Here we invite the reader to check the revealing video of Rosling and Rosling (2014) presentation to the representatives on media. Especially in the EU transition countries introduction of the media market additionally harmed the transparency when news on facts and developments are concerned. After the transition in the '90s most public media in these countries underwent normalization processes regarding the media market. Mostly newspapers dealing with “serious topics” (at least treated so by public) were privatized owners and were subject to typical restructuring following business principles. For journalists, the era of unstable employment and precariat has started. To keep the job or any kind of professional arrangement they have to perform in a way that helps the sale. Spreading to their online versions most newspapers came up mostly with the articles' titles, that promised interesting news to the reader. Although mostly in the text on shocking news they do not come true, the title itself triggers the mind of a reader in a direction of typical fake news (Žurnal 24, 2021<sup>4</sup>; Večer, 2021<sup>5</sup>). Referring

<sup>3</sup> As a good example here serves the Slovenian Democratic Party – earning 24,9% of votes at 2018 elections. Although aiming at conservative party image after it entered the cabinet at the beginning of the COVID – 19 crisis in March 2020, this party not only demonstrated sovereigntist but also anti-immigrant and nationalist position and is in a rule earning 20% - 25% of popular votes since.

<sup>4</sup> »I did not vaccinate because I am a minister, but...« such was a title in the news on the Slovenia's minister for health J. Poklukar. In the time where everybody was expecting the »fourth delta wave« in Slovenian language - it implies, that the minister is joining to the naysayers. What effects quite some readers to get their blood pressure high and wakes hope to the naysayers – »look, he takes the privilege not to take the vaccine as he is a minister« is in the text explained as one would expect and with completely different effect: »... but because I believe in science«. Let us add that the author of this news even comes from the State news agency STA (!).

<sup>5</sup> »Are vaccinated people more prone to new COVID 19 variant infection?« such was a subtitle for a new



to the topic of this paper it seems that known measures are not applicable to regulate the media market, but we must have the patience and some luck that most people come to their senses. Here the educational system must fight the publics' longing for hedonism (of which parts are news that is fast accessible, interesting, and easy to understand and process) which is an uneven battle.

Here we can only stress that the situation on the political markets in leading western countries (including the USA of course) requires recognition of the whole political market by all of the political parties. In a functioning democracy, sustainability will not be achieved by focusing just on progressive sectors of the economy and society but will have to provide opportunities also for sectors that once were leading, are today still essential but are exposed to severe international competition.

Unlike in "old" EU members with quite strong democratic experience in some "new" EU members democratic experience may not be strong enough to oppose deterioration of democratic standards and normal communication forms and to influence and change the majority voters' sentiments towards the democratic outcome. We must not forget that the parties now exercising nondemocratic policies in those states won their mandates on the political markets and democratic elections. However, the question remains about how democratic sentiments are embedded in these countries' voters. As Slovenian anthropologist stresses "according to social and cultural track real democracy for Slovenians is just a direct democracy and not a parliamentary one – for Slovenians, the last one is a synonym for the absence of democracy" (Vuk Godina, 2021). It is unreal that one could expect such personal responsibility to make the Swiss model of referendums work. Her thought can be completed with the thought of a guest at N1 TV (2021). Here a Serbian journalist S. Stupar stresses among others, that "...we are not for democracy, we are old settlers. We do not like processes requiring from us to do this and then this – no, we prefer to make it short and so we need a leader and not a parliament – he will solve everything in our name". He was discussing Serbia, but it is not hard to recognize that the model is applicable to the belt of former socialist EU members sharing history and experience of countries who for a certain period had to fight against foreign masters and share some unpleasant experience with parliamentary democracy (Ovin, 2017, p. 177-188).

Despite the furore that some Višegrad representatives' positions are causing in the EU, the latter should take their attitude seriously in order to analyse and fight long existing similar style in their home political market. In this way, one could expect sustaining of democratic rule, which can be based only on the holistic treatment of entire political market. The dimension of this task of course exceeds academic discussion. It is, however, the fact that in times of instability and cluelessness the occurrence of a strong leader represents so much wanted consolidation of (political) power even if occurring through abandoning of democracy with all its negative consequences.

According to the facts presented above, one could hardly deny that ignoring its role in political programs of ruling parties the political market containing population and regions out of central focus has been causing external costs. Driven by democratization of the media now these structures no more need an intermediate to present their views, expectations and requirements. They do not do it in a way that has been established in liberal democracy as an achievement of renaissance and enlightenment but are expressing them directly and not filtered through princi-

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window in an article which soundly discussed the endeavours of public health representatives to attract more people to get vaccinated. In a separated window the text basing on the Maribor hospital's statistics denies such possibility but adds that the journal is still waiting for the answer from Ljubljana central hospital regarding this possibility (?!). So the incriminated subtitle has absolutely no ground in any fact and it cannot serve anything else then to falsely attract the naysayers to vaccination and to disorientate the public.



ples of political correctness. Representing a market they have attracted the suppliers of political power who had adopted the style of political communication that means retardation seeing from achieved civilization standards as those developed in businesses.

## 5. FUTURE RESEARCH DIRECTIONS

The present research was to prove that due to failure to recognize it as such, in the case used, relative high external costs have been caused. So it is understandable that the international community as well as even most developed countries did not develop corresponding market policy networks. To do so they however could only lean on research. Regarding the (up to now marginal) political market the literature on the roots of the processes causing negative external effects in the field of social sustainability is well represented. Again here it is believed that especially institutional frame regarding conditions for carrying out of political functions should also be reconsidered. Reorienting of policies here does not need much additional research as this paper is stressing it is the market that will also in the future define the democratical outcome of competition in the political sphere.

## 6. CONCLUSION

This chapter tries to wake awareness of the fact that one of the patterns of human interaction is also establishing a market as soon as the conditions are fulfilled. This has always been here, will be so in the future, and has been especially enabled by communication technology<sup>6</sup>. According to the facts presented above, the market which we have been using as an example and was considered in this chapter emerged by itself, however with official policies setting the ground for its appearance. Their functioning now obviously is endangering social stability and prosperity and is thus directly endangering social sustainability. So it is of utmost importance that national and international policies recognize the issue of pauperization of (especially national) policies if their appearance and functioning are not treated from a market perspective. Measures that could be implemented in the case of the political market should be based on democratic principles, which means all social actors should be informed and the majority should support collective action to regulate it.

When the problems, which have been caused by an overlooked part of the political market are concerned the measures should, by all means, be focused on strengthening of democracy – we should not allow the reached standards of human dignity and safety developed since the renaissance and enlightenment to regress. Regarding the measures, it is a clear case for the governing policies, and they could consist of:

- Governing policies of liberal democracy should recognize the fact that certain groups of society (and regions) were not included in benefits of liberal democracy and change the policy;
- Bring voters in favour of civilization progress opinion from transparent at the protests to elections.

However, there is another process arising and which may reduce the government's market control measures by reducing the fall of civilization standards. Although brought up by angry desperados and using their vocabulary on the top political level, now have to digest it by themselves

<sup>6</sup> Technology is of course enabling markets with strong external effects. So the COVID – 19 pandemics enabled winners such as controversial “scientist” and anti-vaccination activist Judy Milkovits who attracted millions of followers with her Facebook and Instagram profiles. If it was proved that they oppose the national campaign(s) for their commercial interest, the juridical system should probably be checked for its tolerance.

being a ruling party. So in Slovenia, a provision was put by ruling parties in the Parliament so as to forbid insulting of people, here the meaning of course themselves.

Following the facts presented in this paper, we consider the first hypothesis (a part of the political market has been depressed and excluded from national mainstream policies) as confirmed. Also, the second hypothesis (the depressed marginal political market has been causing negative external effects) has been confirmed with the help of the facts presented in the article. Considering the conclusions that the facts presented in this study offer it is clear that apart from typically environmental and business sustainability public policy should focus also on the regulation of the political market. Political agents should be using the measures at their disposal to astute the achieved level of enlightenment and civilization standards and thus social sustainability.

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# The Lessons Learned from the Great Recession

Csaba Kurtucz<sup>1</sup> 

## Keywords:

Global economic crisis;  
Federal Reserve;  
GDP



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**Abstract:** *The lessons learned from the crisis management of the 2008 Great Recession stem from significant structural differences between the two centers of the world, the United States and the eurozone. In the case of the United States, a monetary, fiscal and political union is realized, with a single economic policy, operates as a coherent unit, uniting the three areas. In the case of the eurozone, we can talk about a monetary union. The crisis has highlighted the structural flaws of the eurozone because without a unified fiscal policy no effective economic policy can be achieved. The symptoms of the euro area crisis weren't the consequences of the global economic downturn; rather the stalling of the integration process, the lack of real convergence, and the weaknesses of monetary and fiscal policy were the problems that have been brought to the fore and exacerbated by the crisis.*

## 1. INTRODUCTION

The lessons learned from the crisis management of the 2008 Great Recession stem from structural differences between the two centers of the world the United States and the eurozone. This topic now is extremely relevant, as it was one of the worst global economic downturns since the Great Depression. More than ten years have passed since the crisis began, growth has started in some centers, but it can be seen that the crisis has long-lasting consequences, such as over-indebtedness in developed countries which redraws the relations of world economic centers. Each center took a different path, which is also due to their structural differences. The United States was already a monetary, fiscal, and political union and saw the recovery in a different way than the eurozone. The United States risked a larger deficit to stimulate the economy and executed expansionary monetary policy in a form of serious “quantitative easing”, which has led to the current unsustainable level of public debt. However, quantitative easing started again in 2020 because of COVID-19 and FED’s balance sheet is bigger than ever. The euro area, on the other hand, is just a monetary union and the fiscal and political union is not realised. During the 2008 crisis, the European approach focused on tight fiscal policy and operated with a primary aim to prevent the over-indebtedness of the eurozone countries. The eurozone compared the United States introduced a smaller amount of quantitative easing during the 2008 crisis. After 2018 the years to come will still be about the crisis, but only in different ways: challenges such as debt reduction versus growth and withdrawal of incentives will come to the fore. Due to the different structures of the two centers, they will follow different trajectories.

## 2. METHODOLOGY

Different methods for data collection were used, in some chapters from books, periodicals, journals and central bank publications, which were mainly the theoretical background chapters and some data-linked chapters. In other chapters, macroeconomic and economic policy processes were illustrated. Therefore, they were accessed from databases such as Trading Economics, which also compiles data from the CIA, World Bank, and IMF.

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### 3. RESULTS

#### 3.1 United States crisis management

The financial crisis emerged from the United States which has caused serious problems for the whole world. All countries have faced major challenges and significant measures have been put in place to bring economic stability. Crisis management was partly implemented through coordinated cooperation and partly within the framework under national competence. Some countries got help from international financial organizations. Bankruptcies caused by the financial crisis have spread to the whole economy. It caused reduced production, job losses, factory closures, rising public debt which are just a few examples of the global problems that required economic policy intervention.

The United States is the world's largest economy, a monetary, fiscal, and political union: its GDP was \$ 18,569 billion in 2016, nearly 25% of world GDP, and its population was 324 million. The country's public debt was 106.1% of GDP in 2016. The United States economy is largely determined by its internal market, which generates huge demand, and its competitive advantage is based on high value-added products. The first figure shows that, as a result of the crisis, U.S. GDP growth slowed from the first quarter of 2008 and then began to decline in the fourth quarter. The decline was at its lowest point in the second quarter of 2009, when it stood at -4.6%. This was followed by a reversal of the trend and the economic stimulus was taking effect: the economy started to expand from the first quarter of 2010, with a growth of 1.9%. Between 2011 and 2017, GDP fluctuated between 1-3.8% and has not been able to exceed the 3.8% growth rate which the economy reached in the first quarter of 2015. It was clear that the crisis unfolded – GDP first slowed and then fell. A recession is a state of decline for two consecutive quarters for the U.S. economy, which was six quarters at the time of the 2008 crisis.



**Figure 1.** United States GDP annual growth rate (YoY), 01.2007.- 12.2017.

**Source:** Trading Economics (2019a)

The first figure also shows how growth reversed the downturn with the start of the stimulus and how GDP reached 2.3% in the third quarter of 2017. The U.S. has successfully emerged from the crisis on the basis of GDP indicators and has been growing steadily since 2010 on the observed timeline (Figure 1).





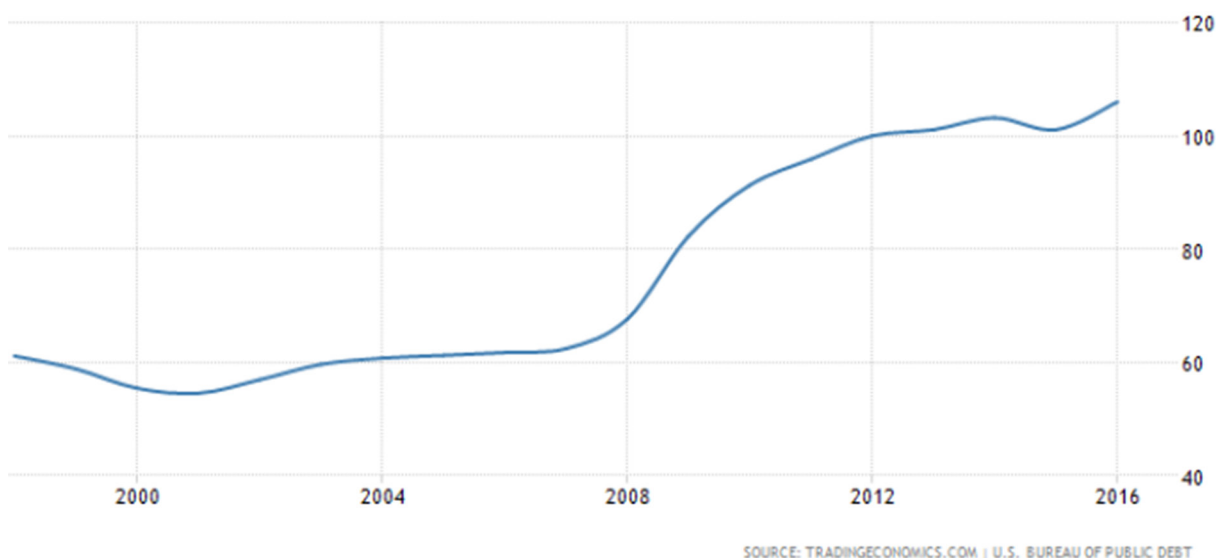
**Figure 2.** United States unemployment rate, 01.2007.- 12.2017.

**Source:** Trading Economics (2017b)

As a result of the crisis, the unemployment rate rose above 5% in June 2008. After a year in June 2009, it was already above 9% and in November it exceeded 10%, but as the economy recovered the trend changed and the unemployment rate declined and stood at 4.1% in November 2017. Correlation can be detected in declining GDP and rising unemployment: a 4.6% year-on-year decline in GDP accompanied by a nearly 4% increase in unemployment between June 2008 and June 2009. However, the decline in unemployment responds more slowly to GDP growth. Between September 2009 and September 2010, GDP grew by 2.8% year on year quarterly, while unemployment fell by 0.5%. Thus, the decline in unemployment, the job creation, is slower. In the trend over the period under review, GDP fluctuated between 1% and 3.8%, and the trend in unemployment continued to decline. As the first step in crisis management, the bankrupt banks were consolidated, and the United States assisted the banking system through the Federal Reserve (FED) and the U.S. National Deposit Insurance Fund. The overall goal was for weaker banks to be bought by stronger competitors. The capital injection also flowed into the automotive sector: since so many people were employed in the automotive industry, their help was also important in the development of further unemployment. These steps were vital to restoring confidence and stability.

The United States saw the recovery differently than the eurozone, as higher deficits were also risked stimulating the economy. FED started an expansionary monetary policy and executed a serious amount of quantitative easing (QE) to stimulate demand. After the banks were consolidated the main problem was the rising unemployment which was resulting in declining demand. So the FED introduced QE, which was designed to stimulate economic growth and create jobs. The central bank can stimulate the economy with low-interest rates, which increases investment and consumption, but if interest rates cannot be further reduced or interest rates could be reduced but the transmission mechanism does not work, unconventional central bank instruments are used. The purpose of unconventional instruments is to keep inflation close to the target, to avoid deflation, to prevent the collapse of financial intermediation and to reduce the economic downturn to stimulate the economy. Basically, we can distinguish two situations: one of them is when we cannot apply further interest rate cut because the base rate is close to zero, but further monetary easing is needed. This was the case in the United States in 2009 when further interest rate cuts couldn't be made. The other one is when even above-zero base rate intervention

is justified – if the transmission mechanism is breached – this was the case in the EU in 2009. According to the QE method, three types can be distinguished: liquidity-providing instruments for commercial banks, direct credit market interventions, and government security purchases. According to another taxonomy, three types can be distinguished as well: credit easing, which aims to improve lending conditions in the private and banking sectors, quantitative easing, which aims to increase the volume of the central bank balance sheet, and qualitative easing, which aims to change the qualitative composition of the balance sheet. Central bank intervention is a welfare gain, as the state is able to raise funds indefinitely by issuing risk-free government securities. Before the recession, the FED already had \$ 700-800 billion worth of treasury bills on its balance sheet. In November 2008, the FED began buying (QE) mortgage-backed securities (MBS) worth \$ 600 billion. In March 2009, it reached \$ 1,750 billion worth of treasury bills, MBS and debt, culminating in June 2010, when it had already reached \$ 2,100 billion (Federal Reserve, 2010).



**Figure 3.** United States Government debt to GDP, 01.1998.- 01.2017.

**Source:** Trading Economics (2017a)

However, the first amount of incentives proved to be weak: strong economic growth was lagging behind, allowing FED to execute QE 2 from November 2010. This meant another \$ 600 billion of stimulus (The Balance, 2011). QE 3 was announced in September 2012, under an indefinite-term, \$ 40 billion-a-month MBS asset purchase program, while keeping interest rates low until mid-2015 (Money CNN, 2012). The Federal Open Market Committee (FOMC) announced in December 2012 that it would increase the volume of open-ended purchases to \$ 85 billion a month and stipulated that these purchases would be maintained until unemployment fell below 6.5% and inflation expectations do not exceed two percent by half a percentage point over two years, which was the committee's long-term goal. On February 1, 2014, Janet Yellen became the new president of the central bank and in October the FED terminated its bond-buying program (New York Times, 2014).

From 2011, however, an interesting trend unfolded in the structure of U.S. debt: certain trends and conditions seemed to be reversed, as China was no longer the number one creditor of the United States. According to the data, the Asian country has been replaced by the US Federal Reserve. The FED's government securities portfolio rose to \$ 1,108 billion in January, pushing China in second (The Balance, 2018).

### 3.2 Eurozone crisis management

The euro area is an economic and monetary union that is a group of countries within the European Union where the euro is the official currency. The monetary union is not considered to be a fiscal and political union. Eurozone countries are economically heterogeneous, but Germany, for example, has a competitive advantage and its economy is characterized by high value-added products such as machinery and vehicles.

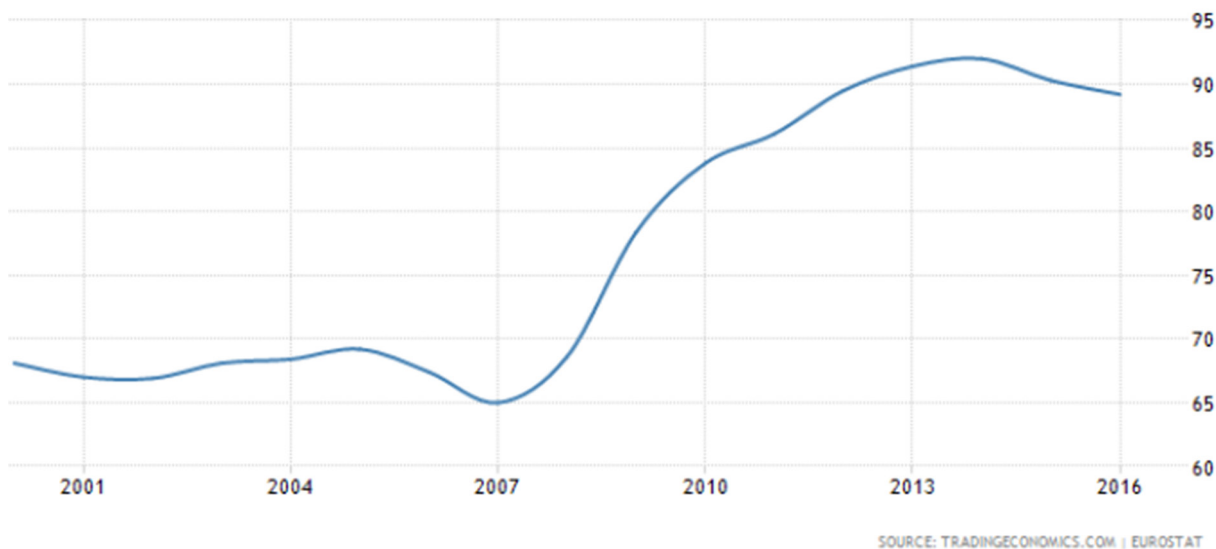


**Figure 4.** Eurozone GDP (YoY), 01.2007.- 12.2017.

**Source:** Trading Economics (2019b)

Fiscal policy may vary from country to country in the eurozone, but there are guidelines to follow. The Stability and Growth Pact was established to reach budgetary discipline. It stipulated that the budget deficit should not exceed 3% of GDP and public debt 60% of GDP. The European Central Bank (ECB) is responsible for the monetary policy of the countries in the euro area. The European Monetary Authority pursues a different policy from the FED, as its main task is to ensure price stability and in addition, to play an active role in rescuing the European financial system. The recovery of the eurozone differed from the United States recovery between 2007 and 2017. In the case of the euro area, after a downturn in 2008, in 2012 the economy fell into a recession again (Figure 4.). The stimulus-induced recovery was also smaller, as it did not exceed 2.4% for the euro area, in contrast to the US level. The development of GDP shows that although the economy grew in 2010, it did not last long, as in 2012 there was a decline again. GDP growth in the euro area suggests that crisis management has not been as successful as in the United States. The ECB didn't formally conduct quantitative easing at first, but provided virtually unlimited liquidity to the euro area banking system and played a major role in managing the euro area sovereign debt crisis. Since May 2010, it has been buying the riskiest government bonds of the monetary union on the market, for which it has initially spent around € 70 billion. The euro area interest rate wasn't reduced as the interest rate in the United States. The ECB's communication is rather controversial, as the ECB is guarding over price stability in their official announcements. Accordingly, the European Monetary Authority wants to avoid suspicions of money printing. Due to the ailing economy in the eurozone and a successful QE in the US, the ECB launched a € 60 billion monthly asset purchase program in May 2015, which was raised to € 80 billion from March 2016 (ECB, 2016). The amount of debt grew between eurozone countries and some member States had huge public debt. The debt crisis started to become a serious

problem for the euro area (Figure 5.). Greece, Ireland, Portugal and Spain are the countries with excessively high debts. These countries needed to find a solution so that fiscal austerity does not contract their economies.



**Figure 5.** Eurozone Government debt to GDP, 01.2000.- 01.2017.

**Source:** Trading Economics (2017c)

If we compared the eurozone and the U.S. we can see that unemployment rate was 4.1% in the U.S. in October 2017, while the unemployment rate for the eurozone was 8.8% . In addition, however, the euro area debt was 89.2%, compared with 106.1% in the United States, reflecting the cost of economic growth and low unemployment.

#### 4. FUTURE RESEARCH DIRECTIONS

After the 2008 Great Recession in 2020, a virus called COVID-19 caused another global economic downturn. For future research directions, it would be interesting to compare the two different kinds of crises and how the United States and the eurozone reacted differently to the COVID-19 crisis.

#### 5. CONCLUSION

The 2008 Great Recession has highlighted the structural differences between the two centers of the world, the United States and the Eurozone. In the case of the United States, a monetary, fiscal and political union is realized, which with a single economic policy, operates as a coherent unit. In the case of the eurozone, we can talk about only a monetary union. The 2008 crisis has highlighted the structural flaws of the eurozone because without a unified fiscal policy no effective economic policy can be achieved. The symptoms of the euro area crisis weren't the consequences of the global economic crisis; rather the stalling of the integration process, the lack of real convergence, and the weaknesses of monetary and fiscal policy were the problems that have been brought to the fore and exacerbated by the crisis (Magas, 2011). The crisis management of the United States is considered to be more successful, in which the single economic policy has played an important role – as long as the eurozone doesn't deepen integration, it will not be able to address vulnerabilities between its countries.

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# Assessing Government Involvement in the Balkan Countries' Economies

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Angel Angelov<sup>3</sup> 

## Keywords:

Government;  
Fiscal policy;  
Balkan countries;  
Cluster analysis



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**Abstract:** *The extent to which the government intervene the marketplace and the government's role in the economy is an important factor, determining the economic results achieved by a country. In the academic literature, the question of whether the promotion of this participation contributes to an improvement of the development of a nation or, on the contrary, can contribute to a loss of competitive advantages, is debatable. This study focuses on the degree of involvement of national governments in the economies of the Balkan region countries. For the purpose of analysis, a cluster analysis is applied, through which the Balkan countries are divided into several groups (clusters), characterized by different degrees of government participation. Three periods are considered - before and in the first years of the global economic and financial crisis, as well as just before the current COVID-19 pandemic. The analysis is supplemented by an assessment of the impact of individual clusters on the economic development of these countries.*

## 1. INTRODUCTION

Economic literature has for a long time debated on the extent to which government should be involved in the redistribution of economic goods and resources. The two major schools of economic thought, the Classical and the Keynesian, have adopted diametrically opposed positions on the role of government and its ability to influence a country's economic development. While the representatives of the Classical school advocate the free market and a limited degree of state interference in the economy (mostly functions relating to protecting private property, maintaining public order and national security), J. M. Keynes and his followers see government and its policies as a major player influencing the national economy.

Steinberg and Saideman (2002) believe that the degree of state influence on the economy is determined by the ability of the state, and in particular on the government's decisions ability, to influence the main market forces of supply and demand, hence impact price levels. That involvement is based on two fundamental elements, namely, the state involvement in economic processes through various types of investment, government consumption and publicly owned enterprises, on the one hand, and by applying the instruments of taxation, implementing social policies and providing budget transfers and subsidies as forms of distributing and redistributing economic resources, on the other.

Currently, the dilemma of state interference or non-interference in the economy remains topical. Globally, there is a considerable array of examples illustrating the extent to which governments take an active part in managing a country's national economy. The influence of government during an economic downturn and in times of national or global crises when it attempts to mitigate such crises has a particularly strong impact. It is important to strike a balance between the extent to which the market can self-regulate, and the extent to which the state and its institutions intervene in economic

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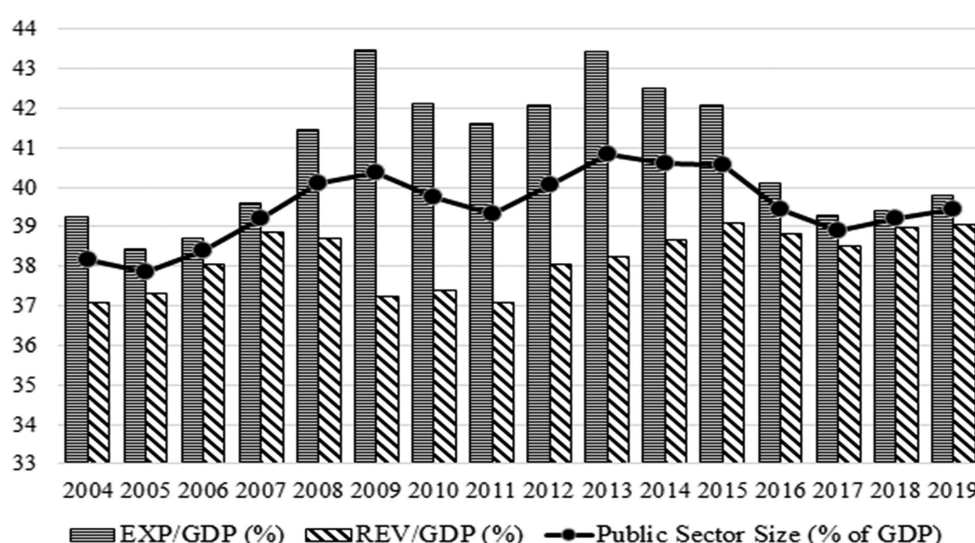
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processes. Theory focuses, on the one hand, on market system deficiencies, including the inability of the market mechanism to distribute the available resources most efficiently (Nita, 2011) and the generation of other exogenous negative effects, and the need for government intervention, and on the other hand, on excessive state interference, inefficient policies, corruptive practices, the additional cost of state oversight of the private sector and the ensuing government failures (Krueger, 1990). Stiglitz (1997) concluded that government interventions in East Asian countries and in the U.S. have had a relatively positive effect on economic development, which could be used as a good point of reference for other countries as well. He has identified six key roles through which the state has contributed to the significant growth of those economies, namely: investing in human capital by developing the educational system, promoting R&D, supporting the financial sector to mitigate the risk of financial instability, investing in infrastructure (including transport but also institutional infrastructure), ensuring environmental protection and providing for a social safety net. Tanzi (1997) pointed to several important factors influencing the government role in the economy, notably: public attitude, the level of economic development and the complexity of the functioning of the market, the openness of an economy, the level of technological development and, to a large extent, the expertise of the people engaged in public administration.

Research often addresses the issue of how the level of government intervention in the economy is measured. Most commonly, the indicators used aim to show the size of the public sector as measured by the size of government spending (in GDP terms) or based on revenue collected through taxation, social security contributions and levies (again, in GDP terms), considering that the second approach underlies the redistribution function of the modern state.

Despite the abundance of research on the size of the public sector in a particular country or a multi-country entity, it is hard to single out a specific level of government intervention in the economy that would be applicable to all countries and would universally facilitate the improvement of their economic positions. This study does not aim to discover such a critical point. Rather, the study sets out to analyse the degree in which the governments of countries in the Balkan Region are involved in managing their national economies and to group those countries by distinguishing between those that typically exhibit more substantial government involvement and those that rely to a larger extent on market self-regulation. The object of analysis in this study covers the following countries: Bulgaria, Greece, Serbia, North Macedonia, Romania, Montenegro, Slovenia, Croatia, Albania, Turkey and Bosnia and Herzegovina.

Countries in the Balkan region cannot be treated as similar to those having a high degree of government involvement if compared to certain countries in Central or Western Europe, let alone Scandinavian countries, where there is a high degree of redistribution of public goods and resources using the government budgets. The above-mentioned indicators for assessing the extent of government involvement in economic processes exhibit a certain rate of dynamics in the period 2004–2019. Figure 1 shows that, on the average, Balkan countries have registered a gradual, although smooth, increase in terms of the indicator that measures the size of public revenue in GDP terms (from 37.1 % in 2004 to 39.1 % in 2019). In that period, public spending reached considerably higher levels (as high as 43.4–43.5 % in 2009 and 2013), leading to budget deficits, i.e. through their actions, governments get actively involved in economic processes; moreover, they do so using additional domestic or international financing. This is particularly evident during the global financial crisis of the late 2008, and in the several years in its aftermath. The figure below illustrates that the dynamics in public spending is more notable than that in national revenues, with a gradual decline and convergence toward the amount of public revenue observed post-2013.



**Figure 1.** Size of public sector in the Balkan Region in the period 2004–2019

**Source:** Data on government budget implementation published by the finance ministries of Balkan countries

Based on Figure 1, it can be concluded that around 40 % of GDP in the Balkan Region was distributed through the public sector; following the global financial crisis, an intensification of the redistribution function of the state can be observed in the countries in the region, while there is a decrease in government consumption and investment.

## 2. DATA AND METHODOLOGY

The study uses an approach that involves a non-hierarchical clusterization procedure. The number of clusters is pre-determined, whereby the main purpose is to group countries into three clusters, which are:

- Balkan countries with a high degree of government involvement in managing the economy (Cluster 1),
- Balkan countries with a moderate degree of government involvement in managing the economy (Cluster 2), and
- Balkan countries with a low degree of government involvement in managing the economy (Cluster 3).

Clusterization used data about revenue (as a percentage of GDP) and expenditures (as a percentage of GDP) in eleven Balkan countries. The selection includes data for three years in the period 2004–2019, namely: 2004, 2009 and 2019. The aim in selecting those years is to compare the degree of government involvement at the start and the end of the period analysed above, while including 2009 as a reference year, i.e. to establish the effects of the global economic crisis.

## 3. RESULTS AND DISCUSSION

The data shown in Table 1 enable the conclusion that in countries such as Greece, Slovenia and Croatia, there is a considerable degree of government involvement in the economy. Those three countries fall into the first cluster in all three of the years analysed (2004, 2009 and 2019). While in 2004 only Croatia, Greece and Slovenia fell into the first cluster, in 2009 they were joined by another three Balkan countries: Bosnia and Herzegovina, Serbia and Montenegro.

**Table 1. Cluster Membership**

Country	2004		2009		2019	
	Cluster	Distance	Cluster	Distance	Cluster	Distance
Albania	3	5.007	3	0.000	3	5.892
Bosnia and Herzegovina	2	1.385	1	2.853	2	1.203
Bulgaria	2	1.155	2	2.733	2	4.025
Croatia	1	1.895	1	1.133	1	1.968
Greece	1	3.669	1	6.072	1	3.641
Montenegro	2	3.363	1	4.079	1	2.511
North Macedonia	2	3.368	2	2.628	3	0.567
Romania	3	3.590	2	2.869	3	2.578
Serbia	2	0.876	1	5.985	2	2.907
Slovenia	1	2.494	1	1.599	1	3.413
Turkey	3	1.686	2	0.045	3	3.190

**Source:** Authors' calculations based on SPSS

Towards the end of the analysed period, and particularly in 2019, Bosnia and Herzegovina and Serbia drop out of the group of countries having a significant government involvement in economic development. The main cause of that result may be the shrinking of government actions through the spending part of their countries' budgets. Greece also exhibits a shrinking of direct government involvement in the economy through the spending part of the budget; however, the role of the state in terms of revenue collected has increased (seeking to achieve fiscal consolidation of public finance in an effort to contain the growing government debt and in keeping with its commitments to international creditors (Nenkova and Angelov, 2020)), i.e. a strengthening of redistribution processes is observed. In Croatia and Slovenia, an activation of the state is also evident in the revenue part of the budget, along with retaining a stable position in terms of spending as a percentage of GDP. Of the three years examined, 2009 was the year when the scope of the first cluster was the largest, which confirms to a certain extent the data from Figure 1 above, indicating that the public sector involvement in economic development was most pronounced in the first years of the global economic crisis.

In 2004, the cluster of countries with a moderate government involvement in the economy included Bosnia and Herzegovina, Bulgaria, Montenegro, North Macedonia and Serbia. In 2009, Bulgaria and North Macedonia remained part of that cluster, while Montenegro, Serbia and Bosnia and Herzegovina dropped out. Simultaneously, Turkey and Romania joined this cluster. At the end of 2019, the cluster of countries with a moderate government involvement shrank, and comprised only three countries - Bulgaria, Serbia and Bosnia and Herzegovina. The data support the conclusion that, similarly to the first cluster, the number of countries in that cluster also went down at the end of the period under examination, which brings us to conclude that government involvement in economic processes has decreased in comparison to a decade earlier. Based on the analysis of the three years, the continuous presence of Bulgaria in the cluster of moderate government involvement clearly stands out. This is due to the relatively sustainable level of public sector involvement, with an increase in the public revenue/GDP indicator by about 4 p.p. in 2019 from the 2009 value, and a decrease in the public spending/GDP indicator by about 2 p.p. over the same period.

The third cluster, containing countries with low degree of government involvement in economic processes, typically features Albania. The low percentage of public revenue resulted in low levels of government involvement in the economy through investment and direct financing of activities through the government budget. In addition to Albania, that cluster included Turkey

and Romania in 2004, while in 2019, as noted earlier, the cluster of countries with a lower degree of government involvement expanded the most, to include also North Macedonia, Turkey and Romania, i.e. largely due to the shrinking of budget expenditure, about 40 % of the Balkan countries qualified as countries with a lower degree of government involvement.

The overall dynamics of the three clusters in terms of the two indicators of the analysis that have been used in the clusterization can be traced in Table 2 below, showing the final cluster centres by year. Countries from the first cluster display a considerable upward shift in 2019 from 2009 in terms of budget revenue, while at the same time the direct government activity through the expenditure side of the budget declines. In the second cluster, there is a decline in the redistribution policy through the revenue side of the budget at the start of the economic crisis when compared to 2004, while 2019 saw a considerable government involvement of the countries from that cluster in their economies. The cluster of countries with a low degree of government involvement exhibits a gradual increase in the values of the analysed indicators towards the end of the analysed period, largely due to the inclusion of countries which had had a significantly higher level of government involvement and had gradually moved into the cluster of a lower degree of government involvement.

**Table 2.** Final Cluster Centre

	Cluster 1			Cluster 2			Cluster 3		
	2004	2009	2019	2004	2009	2019	2004	2009	2019
<b>REV/GDP</b>	42.46	42.03	45.91	38.49	32.82	40.75	29.31	26.14	30.96
<b>EXP/GDP</b>	47.74	48.86	45.93	38.07	38.00	39.67	32.69	33.21	33.77

**Source:** Authors' calculations based on SPSS

For the purposes of the analysis, it is important to observe what the differences among the clusters are in time. That can be done by examining the results of the differences among the final cluster centres shown in Table 3 below. In 2009, the differences between countries falling into the first and countries falling into the other two clusters grew. At the beginning of the global economic crisis, the degree of differences between the countries of the second and third clusters decreased. In 2019, the similarity among the three clusters in terms of government involvement in economic processes increased. The countries from the first cluster no longer stood out that sharply from the countries falling into the second and the third cluster. At the same time, the difference between the second and the third cluster grew as compared to 2009.

**Table 3.** Distances between Final Cluster Centres

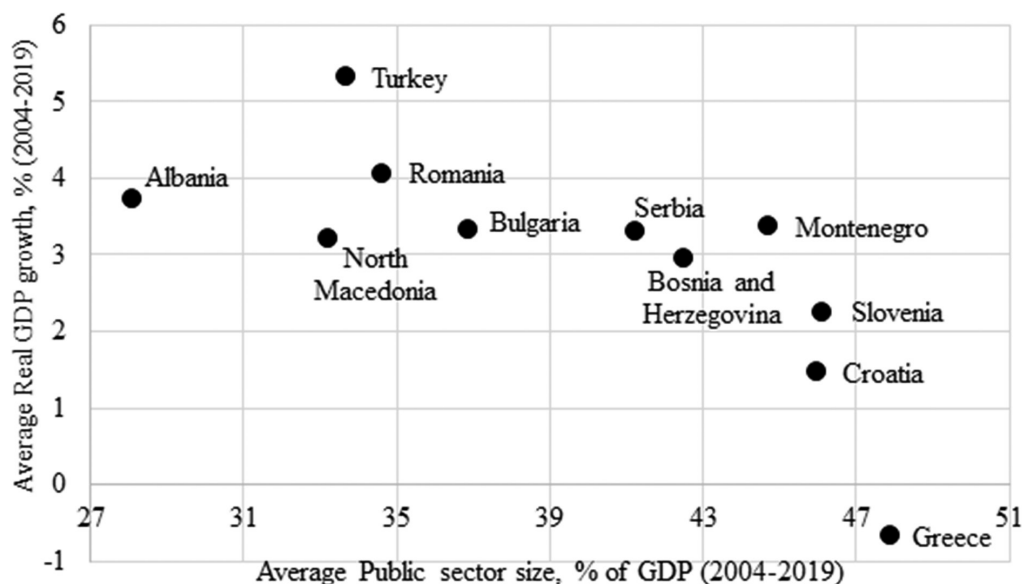
2004				2009				2019			
Cluster	1	2	3	Cluster	1	2	3	Cluster	1	2	3
1		10.45	19.99	1		14.24	22.30	1		8.11	19.26
2	10.45		10.65	2	14.24		8.21	2	8.11		11.42
3	19.99	10.65		3	22.30	8.21		3	19.26	11.42	

**Source:** Authors' calculations based on SPSS

The purpose of this study is, on the one hand, to differentiate the individual Balkan countries based on the degree of government involvement in the management of the national economy and, on the other hand, to track the impacts of their higher or lower degree of government involvement on economic development. To that end, the average rate of real economic growth was traced throughout the period 2004–2019 (based on the annual change using data from the International Monetary Fund (2021)).



The data indicate that among the eleven Balkan countries included in our analysis, the three that display the highest average rate of real economic growth are indeed countries that, in 2019, belonged to the third cluster (Turkey, Romania and Albania), i.e. countries with a lower degree of government involvement in the economy. At the same time, the three countries characterized by the lowest economic growth rate are actually the three ‘permanent representatives’ of the first cluster, i.e. the cluster which includes the Balkan countries with a high degree of government involvement in the economy. Figure 2 below illustrates the linkage between the average rate of GDP growth for each one of the analyzed countries during the period 2004–2019 and the average size of its public sector (as a percentage of GDP) calculated by averaging the above-mentioned indicators for assessing the degree of government involvement in the economy during the period 2004–2019.



**Figure 2.** Relationship between the degree of government involvement and the economic growth rate of Balkan countries in the period 2004–2019

Source: Authors' calculations

It should be noted that the country featuring the lowest degree of government involvement, Albania, generated the highest growth in the conditions of the onset of the global economic crisis in 2009. It is important to point out that, there is a tendency to generate positive rates of economic growth over the period 2004–2019, paired with a relatively balanced government involvement in the economy of Albania. Angelov and Nikolova (2021) explained that trend with the low level of tax burden in countries such as Albania and the prevalent use of indirect taxation (especially until 2010, when the annual growth of Albania's economy is quite high and the share of revenues collected from indirect taxes is approximately 1.6 times higher than income tax revenues). In that context, one should not hasten to draw premature and definitive conclusions claiming that government involvement in the economy has, by default, a deterring effect, but rather explore an option where that involvement can be optimized in order to ensure conditions for a sustainable economic growth.

#### 4. CONCLUSION

This study enables observation of the role of government involvement in the management of Balkan economies during the period 2004–2019. The analysed data reveal several periods of increasing government involvement and some periods of limited involvement. The results of



the cluster analysis show that certain Balkan economies rely primarily on a more substantial government involvement, while in other countries, governments play much more limited functions, although the general tendency is for the role of those governments to increase gradually. It is noteworthy that at the end of the analysed period the countries in the Balkan Region exhibit a higher degree of similarity in terms of government involvement. Over the last three years (2017–2019) of the analysed period, the role of government in economic processes grew stronger. This development should be analysed in greater detail at some future point, especially in the context of the COVID-19 pandemic, where we have witnessed an even more active government involvement through a range of economic and social measures. It is recommendable for each Balkan country to seek for the optimal (potentially acceptable) level of government involvement that would facilitate the most favourable development of its economy, and to put more effort in boosting the efficiency of public spending and consequently improve the outcome of government involvement in economic processes on the Balkans.

## ACKNOWLEDGMENT

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# Analysis of the Process of Regionalisation and Regional Socio-Economic Development in the Republic of Bulgaria

Krassimira Zagorova<sup>1</sup> 

## Keywords:

European Union;  
Territorial units;  
Republic of Bulgaria;  
Planning regions;  
Gross domestic product;  
Socio-economic  
development



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**Abstract:** Users of European statistical data have expressed their objective need for harmonization of the statistical methods and approaches in order to enable the provision of comparable analytical data for the entire European Union (EU). With the accession of Bulgaria as an EU member country, the systematization of the country's regions is implemented on the basis of the adopted thresholds for territorial classification of the European Union, by introducing a three-level regionalization (zoning), in agreement with the criteria of the territorial units NUTS level 1, NUTS level 2 and NUTS level 3. From this perspective, the paper focuses exclusively on key economic indicators at NUTS level 2 on the territory of the Republic of Bulgaria, more particularly on the gross domestic product per capita, employment and unemployment rates, level of socioeconomic activities by country's regions, and reveals, in conclusion, the pronounced imbalances in the development of individual regions.

## 1. INTRODUCTION

Regional statistics are the cornerstone of the European Union's statistical system and provide the sound basis for comparability of the key indices and indicators among the member countries of the Community. Users of European statistical data have expressed their objective need for harmonization of the statistical methods and approaches in order to enable the provision of comparable analytical data for the entire European Union (EU). In an effort to facilitate the acquisition, analysis and publication of harmonised regional statistics, the EU has introduced a common classification of territorial units for statistical purposes (NUTS). The legal framework governing the classification of the territorial units was established by Regulation (EC) № 1059/2003 of the European Parliament and the Council of the EU as of May 2003 and ensures the stability of the regional statistics over time.

With the accession of Bulgaria to the EU, the systematization of the country's regions is implemented on the basis of the adopted European classification of territorial units through the introduction of a three-level regionalization (zoning) in agreement with the applied criteria of the territorial units NUTS level 1, NUTS level 2 and NUTS level 3. The main document governing the process of regionalisation in the Republic of Bulgaria was the Regulation (EC) № 176/2008 of the European Parliament. At the national level, the territorial boundaries of the country's regions are regulated under the Regional Development and Public Works Act of the Republic of Bulgaria.

Determining the regional boundaries of the Community member countries, particularly in Bulgaria, is of utmost importance not only for the comparability of data from the statistical database analyses but also for their proper European funding. The level of the socio-economic development and the standard of living in the regions of the individual countries defines their access to the financial resources of the European cohesion<sup>2</sup> funds.

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<sup>2</sup> The Cohesion Fund, established in 1994, provides funding for projects mainly in the field of the environment, as well as in areas related to sustainable development and energy, which imply benefits not only for the envi-

The Cohesion Policy of the European Union identifies three levels of access, i.e. classifies three types of regions, which for the 2014-2020 programming period are as follows:

- regions with gross domestic product (GDP) per capita and purchasing power standard (PPS) below 75 % of the EU average;
- regions with GDP per capita and purchasing power standard between 75 and 90 % of the EU average;
- regions with GDP per capita and purchasing power standard above 90 % of the EU average.

The highest level of access to the European Cohesion Funds is granted to the first level NUTS regions.

## 2. REGIONALIZATION IN THE REPUBLIC OF BULGARIA CONSISTENT WITH THE EUROPEAN UNION CLASSIFICATION OF TERRITORIAL UNITS FOR STATISTICAL PURPOSES

According to the adopted EU nomenclature of territorial units for statistical purposes (NUTS), the territory of Bulgaria is divided into three levels, namely: NUTS level 1 with two zones (regions), NUTS level 2, covering six planning regions and NUTS level 3 with twenty-eight districts (see Table 1 and Figures 1 and 2).

**Table 1.** Subdivisions of NUTS levels 1,2 and 3 on the territory of the Republic of Bulgaria

Level	Subdivisions	Number
NUTS 1	Zones (regions)	2
NUTS 2	Planning regions	6
NUTS 3	Districts	28

**Source:** Regulation (EC № 176/2008 of the European Parliament and the Council of the EU (2008)

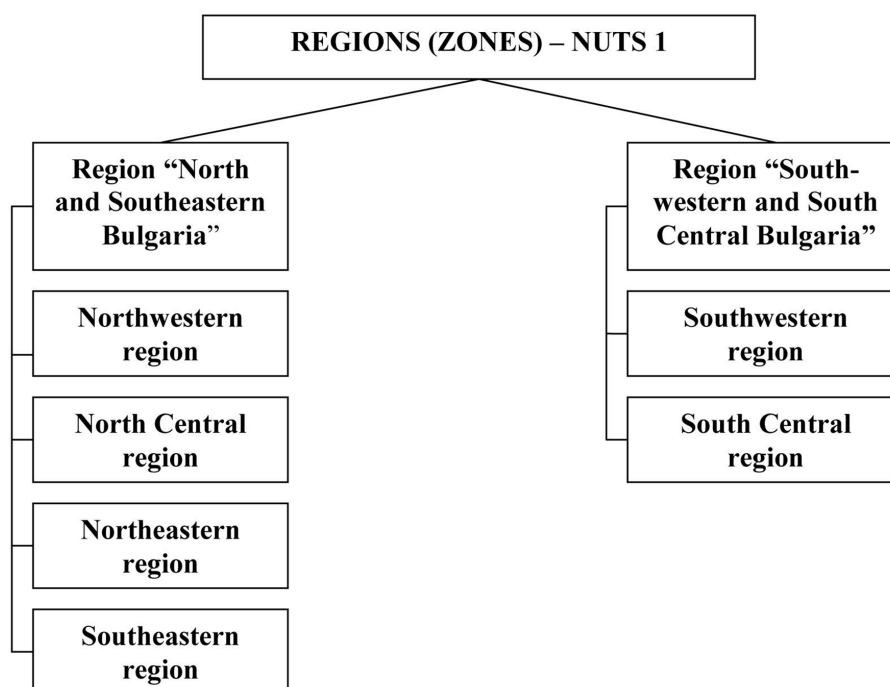
The two zones established at NUTS level 1, as well as the six planning regions at NUTS level 2, do not constitute administrative territorial units and serve mainly for the purposes of statistical analysis. Their establishment is intended primarily for statistical reporting data of the territorial units in accordance with the requirements of the European Commission and the Statistical Office of the European Union - Eurostat. The regions of the third hierarchical NUTS level 3 correspond to the 28<sup>th</sup> districts on the territory of Bulgaria. The territorial scope of the zones (regions), forming NUTS level 1 for the Republic of Bulgaria is presented in Figure 1.

In agreement with Regulation (EC) 176/2008 of the European Parliament and Order № RD 07-24/17.01.2013 of the National Statistical Institute (NSI) of the Republic of Bulgaria, as well as demographic and economic factors, the territorial scope of the six planning regions in the Republic of Bulgaria at NUTS level 2 covers:

- (1) *the Northwestern region* – with the districts of Vidin, Vratsa, Lovech, Montana and Pleven;
- (2) *the North Central region* – with the districts of Veliko Tarnovo, Gabrovo, Razgrad, Ruse and Silistra;
- (3) *the Northeastern region* – with the districts of Varna, Dobrich, Targovishte and Shumen;
- (4) *the Southeastern region* – with the districts of Burgas, Sliven, Stara Zagora and Yambol;

ronment but also for the development of trans-European networks related to transport infrastructure, technical assistance, etc. in the member countries whose gross national income per capita is less than 90 % of the EU average. For the 2014—2020 programming period, the Cohesion Fund provided funding for 15 member countries: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

- (5) *the South-western region* – with the districts of Blagoevgrad, Kyustendil, Pernik, Sofia district and Sofia city;
- (6) *the South-central region* - with the districts of Kardzhali, Pazardzhik, Plovdiv, Smolyan and Haskovo.



**Figure 1.** Territorial scope of the regional structure at NUTS level 1 and 2 in the Republic of Bulgaria

**Source:** Order № RD 07-24/17.01.2013 NSI. Republic of Bulgaria. SG No.13, (2013a)

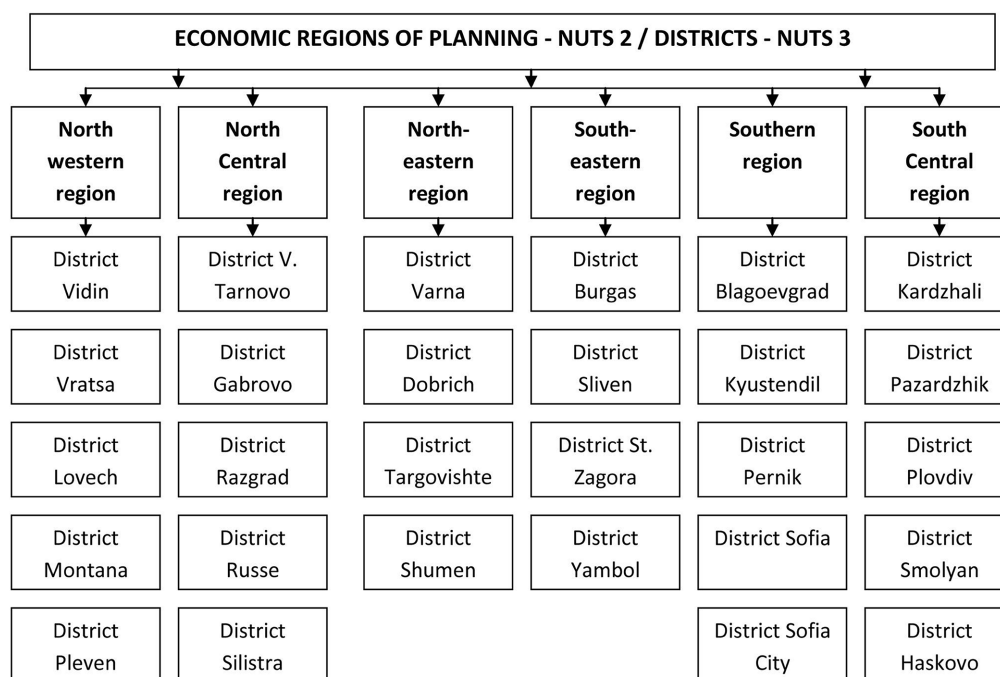
The regions comprising NUTS level 2, constitute administrative territorial units covering the territory of the individual districts in the Republic of Bulgaria as specified by NUTS level 3. The regional structure at NUTS levels 2 and 3 is illustrated in Figure 2.

The administrative-territorial units at these levels are the result of the division of the country’s territory into regions, allowing for decentralized governance through local self-government bodies of authority. Accordingly, the regions at the respective levels are also viewed as a territorial basis for the implementation of the country’s policy for regional (local) development. In determining the scope of the regions, regulatory factors and some additional considerations are also taken into account, which are to ensure the planning and implementation of strategically oriented regional development programmes, relative to the specific advantages and the likely potential of the territorial units.

As regards the implementation of strategically oriented regional development programmes, in the country’s process of regionalization, fully considered were not only the normative threshold values of population density but also some further criteria and characteristics such as (Dokova, 2015, p. 71):

- the geographical characteristics of the districts, so as to bring together and consolidate the districts with similar geographical features and potential into a given territorial unit (planning region);
- the firmly established traditional economic, cultural and educational links between the individual (mostly neighbouring) districts;

- the integrating functions and possible effects of the European transport corridors, passing through the territory of Bulgaria as a factor of economic and social development;
- the role of large urban centres, as well as small and medium-sized cities, in the pursuit of strategies for integrated regional and local development;
- the territorial organisation of health and education-related services as a factor for improved quality of the regional environment and their increased competitiveness;
- the specific nature of the environment, as well as the conditions critical for the adoption of a more integrated approach to environmental protection to help create the essential pre-requisites for more sustainable development.



**Figure 2.** Territorial scope of the planning regions at the NUTS level 2 and the districts at the NUTS level 3 in the Republic of Bulgaria

**Source:** Order № RD 07-24/17.01.2013 NSI. Republic of Bulgaria. SG, No. 13, (2013b)

The analysis of the regional development process should address the distinctive advantages of bigger cities having the potential to implement activities requiring better educated and highly skilled workers and restricting the activities for low-skilled employees. Small settlements, including the Bulgarian villages, have the opportunity to form the so-called local initiative groups (LIG), through which to initiate their own projects, contributing to the improvement of their socio-economic, cultural and educational development, diversification of economic activities designed to stimulate employment and subsequent income growth of the local population.

Exemplar programmes as to the undertaking of regional initiatives for the benefit of the local communities funded by the European Structural Funds are, for instance: 1) The programme «Regional development, 2007-2013»; 2) The Programme «Regions in Growth, 2014-2020»; 3) The procedure «Development of tourist attractions» with immovable cultural heritage assets, state property; 4) The procedure «Culture and sports in school» through the priority axis «Regional educational infrastructure», et al.



### 3. REGIONAL DIFFERENCES IN THE SOCIO-ECONOMIC DEVELOPMENT OF THE REGIONS IN THE REPUBLIC OF BULGARIA

According to Dokova, (2015), “The statistical data shows that Bulgaria has embarked on the process of transition to a market economy with relatively insignificant regional disparities compared to the other EU member countries and potential candidate countries. Regardless of the different dynamics of the regional development during that period, the higher economic growth of the Southwestern region (including the capital Sofia) is clearly differentiated, and observed readily is the fact that the differences between the other regions are substantially smaller. No other country has demonstrated such convergence at NUTS level 2, which would be a definite advantage of the country’s regional development at a higher level of development” (p. 71).

Nevertheless, despite the foregoing, there exist pronounced imbalances in some regions at NUTS level 2, on the territory of Bulgaria, in terms of their socio-economic development, related to the growth of productivity, the structure of the economy, the effectiveness of the social and economic activities at the local scale, etc. This is also reflected in the extremely low degree of development of the Northern part of the country as against the southern part of Bulgaria. The established imbalance in the development of Northern and Southern Bulgaria is mainly due to the negative demographic trends that affected the labour market in an adverse way, the feeble business activity, underdeveloped transport infrastructure, unfavourable structure of regional economies in the North of the country, as well as the lack of interaction between neighbouring (close) regions, as opposed to the initiatives for inter-municipal and inter-regional cooperation in the Southern part of Bulgaria.

Bulgaria’s intraregional differences depend largely on the presence of bigger urban centres where production, services, education, science and cultural life are brought together. The country’s major cities (approximately five in number) have been developing as dynamic centres with a profound impact on the emergence of agglomeration territories<sup>3</sup>. Such are the territories around the cities of Sofia, Plovdiv, Varna, Burgas and Russe.

Compared to the average level of economic development of EU member countries (28), gross domestic product (GDP) per capita, as well as the income of the population of Bulgaria are significantly lower than those of the developed European countries. According to data from the National Statistical Institute of the Republic of Bulgaria, for the 2015-2019 period, Bulgaria consistently occupies the last position in terms of that indicator. For the 2015-2019 period, GDP per capita of the country is respectively: 47% of the EU average level (28) for 2015; 48% of the average level in the EU (28) for 2016; 50% of the EU average (28) for 2017, 51% of the average level in the EU (28) in 2018 and 53% of the 2019 average (see Figure 3).

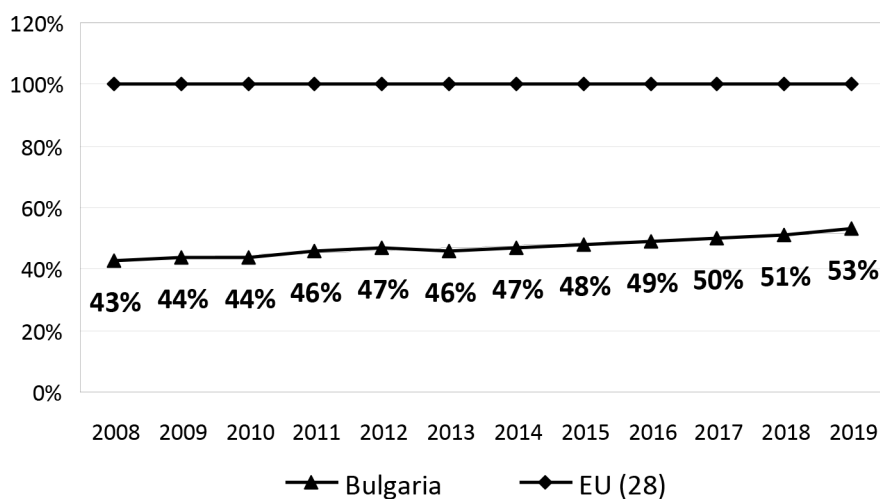
The gross domestic product per capita of the country one year after its accession to the EU – as of 2008 is 43% of the EU average (28), which is indicative of an extremely slow growth rate in the surveyed indicator over a period of 12 years.

Of the Bulgarian regions at NUTS level 2, according to Eurostat data, with the highest GDP per capita (in PPS)<sup>4</sup> as of 2019 is the South-West Region, but even for this region the GDP per

<sup>3</sup> Agglomerations in urban planning are settlement formations that arise as a result of connecting large cities and smaller settlements located around them in a common urbanized territory.

<sup>4</sup> The Purchasing Power Standards (PPS) or Purchasing Power Parity (PPS) indicator is a de facto artificial currency that eliminates differences in price levels between countries. Thus, an equal quantity of goods and services is bought with one unit of PPS in all member countries of the Community.

person is below 75 % of the EU average (28). Located in the Southwestern region is the capital of Bulgaria, with a great concentration of significant amount of social, economic, cultural and educational activities, providing better opportunities for business, employment and living opportunities for approximately 1.5 million people of the population of the country. The latter is also confirmed by the NSI data for 2020, reporting an average unemployment rate 3,6% for the Southwestern region, and as for the capital – Sofia city that coefficient being 0,8%, which is the lowest for the country. The North-West Planning Region is reported to have the lowest employment rate and an unemployment rate of 13,2%.



**Figure 3.** GDP per capita of the Republic of Bulgaria in purchasing power standards relative to the EU average (28)

**Source:** National Statistical Institute. Republic of Bulgaria, (2021)

The needs of the regions in Bulgaria are related to the implementation of such activities that will result in increased direct investment and improved regional competitiveness, as each of the regions in the country is defined as lagging behind compared to the regions of the leading member countries of the Community. Improving the competitiveness, socio-economic level, as well as the quality of life of the population and bringing it closer to the standard of developed European regions requires regional policies to be oriented towards economic sectors and industries with high added value, to activities related to research development, technological transfer, product development, organisational, technological innovation, etc.

#### 4. CONCLUSION

In conclusion, the characteristic features established in the social and economic development of the regions of Bulgaria presuppose the following set of inferences:

1. The statistical data analysis of the indicators for the gross domestic product and gross value added at regional level, distinguishes the Southwestern Planning Region, within which is located the capital of Bulgaria, and whose GDP average per capita for 2019 is 68 % above the national average, as the region with the best socio-economic indicators. At the opposite extreme, the poorest region that might be set apart both on the territory of Bulgaria and on the territory of the EU is the Northwestern region, with an average GDP per capita of BGN 10 477, which is 39 % lower than the average value of the indicator for Bulgaria and is only 26% of the average value of the indicator for the regions in the European Community.

2. Observed is a heterogeneous dynamics of employment in the different districts and regions on the territory of the country. The unemployment rate in the least socially developed Northwestern Planning District by 2020 was 13,2% with the average rate for the country being – 5,2. Against the background of weak economic employment in the Northwestern Region, it is the Southwestern region again, that is perceived as the region with the highest level of employment, and with an average unemployment rate of 1,6 points lower than the national average and 9,6 points lower than the most underdeveloped region on the territory of Bulgaria.

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# Directions for Reducing Excessive Import Dependence of Ukraine's Economy

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## Keywords:

Import dependence;  
Import substitution;  
Trade policy;  
Competitiveness;  
Globalization;  
Ukraine



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**Abstract:** *The purpose of the study is to substantiate the directions and methods of reducing excessive import dependence of the Ukrainian economy. To achieve the goal of the study, the following methods were used: comparison, grouping, averages, seasonal smoothing of time series, factor analysis. The level and dynamics of import dependence of the Ukrainian economy are estimated. A comparative analysis of the import dependence of the Ukrainian economy with the import dependence of the economies of other countries was made. It is proved that the level of import dependence of Ukraine's economy is excessive. The main reasons for excessive import dependence are identified. The negative consequences of excessive import dependence have been studied. Foreign experience of increasing competitiveness and reducing import dependence is analyzed. The effectiveness of national programs to increase domestic production is summarized. Directions to reduce excessive import dependence are proposed. The concept of rational protectionism is substantiated.*

## 1. INTRODUCTION

The domestic market of Ukraine has a large number of imported goods. The volume of imported services is also growing. These are both investment goods and services and consumer goods and services. Large volumes of imports are an obstacle to stable economic growth. The national economy is becoming overly dependent on external conditions. Large volumes of imports require significant volumes of exports. Ukrainian exports are mainly raw materials. The development of raw material exports in Ukraine has environmental limitations. It cannot meet the growing needs of imports in the long run. Largely due to these reasons, Ukraine's trade balance is chronically deficient.

The purpose of the study was: 1) assess the level and dynamics of import dependence of Ukraine's economy, 2) compare the import dependence of Ukraine's economy with the economies of other countries, 3) identify the causes and consequences of excessive import dependence, 4) develop recommendations to reduce import dependence.

## 2. METHODOLOGY AND DATA

To achieve the goal of the study, the following methods were used: comparison, grouping, averages, seasonal smoothing of time series, factor analysis. Several indicators have been proposed in the literature to assess the level of import dependence (Grabner, 2018). Among the possible options, the indicator of the ratio of imports to GDP was chosen. This figure is simple and easy to calculate. For international comparisons, countries were grouped according to the following criteria: import volumes, export volumes, GDP (PPP), population, GDP (PPP) per capita. The method of determining countries similar to Ukraine according to the set criteria was applied.

The information bases of the study were: 1) statistical data of the State Statistics Service of Ukraine; 2) World Bank national accounts data; 3) Trade Map of the International Trade Centre.

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### 3. RESULTS

The current level of import dependence of Ukraine's economy as a whole was formed in the late 1990s. After the collapse of the Soviet Union, economic growth in Ukraine began in 1999. Before that, for seven years each year, there was a decline in production. In 1999, the ratio between imports and GDP was 0.49. It was the same in 2019. During 1999-2003, the ratio between imports and GDP was on average 0.53, and during 2015-2019 - 0.54. That is, the averages show that in the early 2000s and late 2010 the level of import dependence of the economy was at about the same level.

The dynamics of import dependence during 1999-2019 were closely linked to economic growth. As soon as the phase of economic growth began, the indicators of import dependence grew at the same time. Conversely, as soon as there was a decline in business activity, the indicators of import dependence decreased. During 2000-2019, according to annual data, this pattern was observed 13 times and, only 6 times the pattern was not observed. The lowest rate of import dependence (0.48) was recorded in 2009 during the Great Recession 2007-2009. The highest rate of import dependence (0.57) was recorded in 2000 during the phase of economic growth.

One of the main problems of Ukraine's economy is to ensure sustainable economic growth. The growth that continued during 1999-2008 was interrupted by the Great Recession 2007-2009. In terms of the decline in real GDP in 2009, among European countries, Ukraine was second only to Latvia (-15% and -18%, respectively). The seasonally adjusted monthly time series of industrial production indicates that starting from August 2012, industrial production began to decrease again every month. This process accelerated after the political crisis, which began in November 2013.

The decline in industrial production lasted until January 2016, after which the next phase of growth began. But it was also short-lived. In October 2019, even before the start of the COVID-19 pandemic, industrial production began to decline again monthly. As a result, as of April 2021, the level of industrial production in Ukraine was approximately at the level of March 2001. This partly explains why the level of import dependence in the early 2020s was approximately at the level of the early 2000s.

In contrast to imports, exports relative to GDP tended to decline during 1999-2019. If in 1999 the ratio between exports and GDP was 0.54, in 2019 - was 0.41. In 2000-2004, this figure averaged 0.59; in 2005-2009 - 0.47; in 2010-2014 - 0.47; in 2015-2019 - 0.46. Thus, exports grew at a slower pace than imports. As a result, the negative trade balance increased. During 2000-2004, the trade balance was positive. On average, it amounted to UAH 11 billion per year. In the following years, the trade balance was already negative. In 2005-2009 - UAH 29 billion on average per year; in 2010-2014 - UAH 82 billion; in 2015-2019 - UAH 215 billion. Thus, foreign exchange earnings from exports did not cover the cost of imports.

Import dependence on consumer goods also increased during 1999-2019. This is evidenced by the share of sales of consumer goods produced outside Ukraine. This indicator is calculated and published by the State Statistics Service of Ukraine. Table 1 shows the average data for the periods during 2000-2019. During 2000-2004, the share of all imported consumer goods was 25.4%. During 2015-2019, it increased to 45.6%. It is most likely that the expansion of imported consumer goods will continue.



**Table 1.** Share in sales of imported consumer goods

	2000-2004	2005-2009	2010-2014	2015-2019
<b>All goods</b>	25,4	33,4	40,0	45,6
<b>Food</b>	7,3	11,0	13,4	17,3
<b>Non-food</b>	40,0	45,7	56,5	65,8

Source: State Statistics Service of Ukraine, 2000-2019; own calculations

After the collapse of the Soviet Union, the production of consumer goods declined significantly. This is especially true of non-food consumer goods. In particular, in 1990, 15 washing machines, 38 bicycles, 3,784 pairs of shoes, 23 square meters of fabrics, and 7,934 electric lamps were produced per 1,000 population (State Statistics Service of Ukraine, 2000-2019). In 2019, 7 washing machines, 3 bicycles, 561 pairs of shoes, 2 square meters of fabrics, 21 electric lamps were already produced per 1,000 population. In 2019, a significant part of non-food products was produced from raw materials of a foreign customer and was directed mainly to exports (clothing and footwear). Domestic demand for non-food consumer goods is currently met mainly by imports.

The high level of import dependence of Ukraine's economy is also confirmed by comparisons with other countries. For comparison, countries were grouped according to the following criteria: 1) the absolute value of imports, 2) the absolute value of exports, 3) the volume of GDP (PPP), 4) population, 5) the volume of GDP (PPP) per capita. Six countries were selected for each group. Average indicators of import dependence were recorded for the period 2015-2019. The grouping of countries and the use of data for the period made it possible to eliminate the influence of other factors.

In 2019, Ukraine imported goods worth \$60.7 billion. About the same amount of merchandise imports had Greece (\$62.2 billion); Bangladesh (57.7); Morocco (51.1); Colombia (50.4); Pakistan (50.1); Argentina (49.1). For this group of countries, the ratio between imports and nominal GDP during 2015-2019 was 0.18. For Ukraine, this ratio, according to the World Bank, was 0.42. Within the group, the import dependence ranged from 0.11 (Argentina) to 0.41 (Morocco).

The second group included 6 countries in terms of merchandise exports. In 2019, Ukraine exported goods worth \$ 49.9 billion. About the same amount of merchandise exports had Colombia (\$39.5 billion); Peru (45.1); Bangladesh (47.5); Nigeria (53.6); Kazakhstan (57.7); Argentina (65.1). For this group of countries, the ratio between imports and nominal GDP during 2015-2019 was 0.14. Within the group, the import dependence rate ranged from 0.11 (Argentina) to 0.21 (Bangladesh).

The third group included 6 countries based on gross domestic product at purchasing power parity. In 2019, this figure for Ukraine amounted to \$562 billion. About the same amount of GDP (PPP) had Romania (\$645 billion); Austria (536); Algeria (517); Chile (512); Kazakhstan (509) and Peru (436). For this group of countries, the value of import dependence during 2015-2019 averaged 0.30. Within the group, the import dependence rate ranged from 0.18 (Kazakhstan) to 0.40 (Romania).

The fourth group included 6 countries in terms of population. Countries with the same population have about the same amount of domestic consumer demand. In 2019, the population of Ukraine was estimated at 41.6 million. About the same population had Argentina (45.8 million); Algeria (44.7); Iraq (41.2); Poland (38.2); Morocco (36.2); Peru (33.0). For this group of countries, the value of import dependence during 2015-2019 averaged 0.26. Within the group, the import dependence rate ranged from 0.11 (Argentina) to 0.42 (Poland).

The fifth group included countries according to the criterion “Gross domestic product at purchasing power parity per capita”. This indicator roughly reflects the productivity of the economy and living standards. In 2019, the gross domestic product in Ukraine at purchasing power parity per capita amounted to \$13.3 thousand. Approximately the same value of the indicator had Peru (\$13.4 thousand); Paraguay (13.2); South Africa (13.0); Egypt (12.3); Algeria (12.0); Ecuador (11.9). For this group of countries, the value of import dependence during 2015-2019 averaged 0.24. Within the group, the import dependence rate ranged from 0.19 (Peru) to 0.30 (Paraguay).

A total of 19 countries were selected for groupings. These are quite different countries in terms of economic potential and the degree of integration into world trade. Therefore, in addition to the 5 groups, an additional group of countries was formed. Countries of this group according to some criteria are the closest to Ukraine. The selection criteria for this group were: 1) territory, 2) population, 3) type of economy, 4) size of exports, 5) size of imports, 6) GDP (PPP), 7) GDP (PPP) per capita. The group includes the following countries: Algeria, Iraq, Colombia, Morocco, Peru, and Chile. For this group of countries, the value of import dependence during 2015-2019 averaged 0.23. Within the group, the import dependence rate ranged from 0.16 for Colombia to 0.41 for Morocco.

Table 2 shows the average import dependence for all groups during 2015-2019. All of them are less than the indicator of import dependence of Ukraine's economy. The ratio between imports and GDP during 2015-2019 in Ukraine was 0.42 according to the World Bank, and 0.54 according to the State Statistics Service of Ukraine. Thus, the import dependence of Ukraine's economy is excessive.

**Table 2.** Average by groups indicators of import dependence during 2015-2019

	Criteria for grouping	Countries	Imports/GDP
1.	The absolute value of imports	Argentina, Bangladesh, Greece, Colombia, Morocco, Pakistan	0,18
2.	The absolute value of exports	Argentina, Bangladesh, Kazakhstan, Colombia, Nigeria, Peru	0,14
3.	GDP (PPP)	Austria, Algeria, Kazakhstan, Peru, Romania, Chile	0,30
4.	Population	Algeria, Argentina, Iraq, Morocco, Peru, Poland	0,26
5.	GDP (PPP) per capita	Algeria, Ecuador, Egypt, Paraguay, Peru, South Africa	0,24
6.	Set of 7 criteria	Algeria, Iraq, Colombia, Morocco, Peru, Chile	0,23

**Source:** World Bank, 2019; International Trade Centre, 2019; List of countries, 2019; own calculations

High import dependence is normal for small countries and countries-industrial centers. Small countries cannot physically produce all the necessary goods and have high levels of import dependence. Countries-industrial centers import large volumes of raw materials and at the same time in large quantities export finished products. Today, China is such an industrial center worldwide, and Poland - in Central Europe. Ukraine is neither one nor the other. Ukraine is the third-largest in Europe (after the Russian Federation and Turkey), and the eighth-most populous. Therefore, its indicators of import dependence are abnormally high.

Excessive import dependence of the Ukrainian economy was formed as a result of a set of interrelated factors. Among the main reasons are the following: low competitiveness of products; imperfect management and marketing in enterprises; imperfect trade, investment, industrial, innovation policy; corruption in public administration in favor of foreign producers.

After the collapse of the Soviet Union, a significant part of the products produced in Ukraine turned out to be uncompetitive by world standards. Due to imperfect economic policy and several other factors, a significant number of enterprises failed to modernize their production to world standards. The opening of the domestic market took place spontaneously, without taking into account the competitiveness of enterprises. Under the pressure of legal and illegal imports, many enterprises with development potential closed. Imperfect investment policy has not allowed large enterprises to connect to global chains of innovative products.

An import-dependent model of the economy has been formed in Ukraine. Competitive productions today work mainly on imported equipment, using imported technologies and partly raw materials. Transnational corporations have established networks in Ukraine for servicing and repairing imported equipment, which uses imported spare parts and consumables. This trend strengthens the technological dependence of the economy.

Excessive import dependence poses some risks to stable economic growth. First, there is a chronic trade deficit. Ukraine's economy is currently in a phase of stagnation. When the growth phase begins, imports of goods and services will increase at the same time. The structure of Ukrainian exports is imperfect with a significant share of raw materials. In 2020, the share of exports of plant products was the largest and amounted to 24% (of which 19% were cereals). Increasing grain exports has its limits. The level of plowed land in Ukraine is one of the highest in the world. At the beginning of 2020, the area of arable land in Ukraine was 328 square kilometers, or 54% of the total area (State Statistics Service of Ukraine, 2019).

Second, the over-openness of the economy makes it highly dependent on external conditions. External conditions are beyond control. The situation in world markets is difficult to predict. At the same time, the impact of negative external conditions on the national economy can be quite large. During the Great Recession 2007-2009, the rate of GDP decline in Ukraine was one of the largest in the world.

Third, in conditions of excessive dependence on imports, the finances of enterprises and households are affected by exchange rate fluctuations. Due to several factors, exchange rate fluctuations occur in Ukraine quite often. An increase in the value of a convertible currency causes an increase in the value of imported goods in the national currency. This leads to an increase in production costs, rising prices in the consumer market, and lower living standards.

The ways to reduce excessive import dependence are closely related to the reasons for its occurrence. As a result of globalization, there is ongoing competition for a place in the world division of labor. There is also competition for a place in global value chains and foreign direct investments. Therefore, the key task of the Government is to increase the competitiveness of the economy and improve the investment climate.

Import substitution should start with traditional goods that do not require high technology. This is evidenced by the experience of countries that have successfully modernized their economies (South Korea, China, and Chile). In particular, the basis of the economy of the Republic of Korea before the rapid development in the early 1960s was agriculture and the light industry. Then the production of other consumer goods began to develop. In the 1970s and the 1980s, heavy industry and high technology developed.

The development of traditional goods production is also important for reducing unemployment. Ukraine has positive examples in this regard. In the early 2000s, Ukraine imported large quantities of cut flowers from the Netherlands and even from Ecuador. To date, these imports have been replaced by competitive domestic production, which has created additional jobs.

In the production of innovative goods, it is necessary to join global value chains. In this regard, a promising area is information technology. Creating software does not require large investments and imported materials. The field of information technologies is a promising area of job creation. In manufacturing and agriculture, jobs are currently declining due to the processes of robotics, automation, mechanization, and so on.

An important direction in reducing import dependence in Ukraine is the development of energy efficiency. The real sector of the Ukrainian economy spends relatively much energy per unit of output. Housing and communal services also spend energy resources inefficiently. A significant part of energy resources is imported. In 2020, the product group “27 - mineral fuel, petroleum, and petroleum distillation products” had the largest share in imports of goods (14.3%). Areas of reducing energy imports are to increase the efficiency of energy use in the real sector and housing and communal services, increase own production of mineral energy, increase the share of renewable energy sources.

In the context of the problem of import dependence, it is not profitable for Ukraine to liberalize its foreign trade. This is especially true of foreign trade agreements with dynamically developing countries with great export potential (China). Existing bilateral free trade agreements between Ukraine and Norway and Switzerland have further increased the import dependence of the Ukrainian economy. It is impractical for developing countries to liberalize trade relations with industrialized nations. This thesis was substantiated by Stadwell (2014) in the context of industrial development. Ukraine should make full use of the potential of free trade agreements in force.

Associations of local producers pay much attention to supporting domestic production. They come up with initiatives to place public procurement among local producers, put forward localization requirements for foreign investors, implement state import substitution programs, and strengthen the fight against smuggling. The possibility of inefficient production with the prospect of increasing their competitiveness was substantiated by Reinert (2007). According to Reinert (2007), it is better to have an inefficient manufacturing sector than not to have one at all. During the 1990s, the Verkhovna Rada of Ukraine adopted a package of laws on the protection of local producers from subsidized and dumped imports, on state regulation of imports of agricultural products, on the application of special measures on imports. In 2011, the Cabinet of Ministers of Ukraine approved the State Program for the Development of Domestic Production.

Import substitution in the context of reducing the economy's dependence on imports is a protectionist measure. Protectionism and liberalism have both positive and negative effects. The free movement of goods, services, and capital enable developed countries and multinational corporations to achieve the highest efficiency. But at the same time, liberalism is widening the development gap between rich and poor countries. Inequality between rich and poor countries continues to grow (Schwab, 2020). The Washington Consensus policy has not contributed to the economic growth of developing countries (Reinert, 2007), while protectionism helps to reduce this gap. Due to lower overall efficiency, it is possible to reduce the gap between poor and rich countries. This is a compromise between developed and developing countries. It can be interpreted as “rational protectionism”.

## 4. CONCLUSION

The import dependence of Ukraine's economy is abnormally high. This is confirmed by comparisons with other countries. Directions for reducing the import dependence are to increase the competitiveness of goods and services, more efficient use of imported materials. Protectionist policies promote the emergence of competitive industries, reduce import dependence and reduce the gap with developed countries.

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# Development Management of Innovation Businesses in Light of Slovak Enterprises

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## Keywords:

Innovations;  
Business;  
Development management;  
Start-ups



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**Abstract:** *Small and medium-sized enterprises represent the largest scale of private enterprises both on an international and national (Slovakia) scale. These are often the companies that launch new conceptual solutions and improve existing products or services. Start-ups have a strong drive and expand entrepreneurial activity through innovation. In the period of the COVID-19 pandemic, start-up initiatives have an even greater opportunity to emphasize their business activity, as they can conduct their activity online and are not strictly tied to specific locations unlike other types of SMEs. This paper is addressing the field of entrepreneurship, management and development of innovative businesses. The aim of this paper is to present the latest research results in the field of innovative and start-up businesses in Slovakia. The article reflects on the up-to-date theoretical background of the issue based on empirical research on innovative activity of the SME sector with a special focus on start-ups.*

## 1. INTRODUCTION

From the perspective of various human activities, entrepreneurial activity is one of the oldest activities of humans. The origins of this activity date back a long time in history, and they are directly connected with the business and trading activity of people. As the expression itself suggests, entrepreneurship means looking for the appropriate opportunity in the business environment to be commercialized. It is, therefore, a repetitive activity aimed at exchanging and trading goods, and make profit by conducting this activity.

Entrepreneurship is a primary and necessary activity of the functioning national economies and the world economy as well. The entrepreneurial sector is launching products for customers in order to satisfy their needs, as well as employs by offering workplaces for people. Private enterprises represent a significant factor in regional development, they are closely linked to other business entities, which are located in their scope of business activity. They provide a positive contribution to society in the forms of taxes, and fees paid for local, regional and the national economy.

The business process is not only about production but also about a successful combination of financial, entrepreneurial, human and intellectual capital, as well as material resources, which are necessary to conduct business. Entrepreneurial activity is based on the supply and demand on the market, while businesses are taking advantage of market opportunities. Successful market players will become those enterprises, which find a gap for their commercial activities, thus overtaking their competitors on the market.

It is evident that entrepreneurship is an important element not only in terms of local economy but also in broader social and economic context, which can result in a number of positive effects for all beneficiaries. It should be noted that entrepreneurship is a demanding human activity characterized by numerous negative aspects represented mainly by the risk, uncertainty, need for investment and an uncertain return. Business management with a focus on development should look for the balance of the mentioned aspects, as well as make balance between further determinants of entrepreneurship.

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When referring to the term „entrepreneurship“, it is also important to mention „competitiveness“ as a further concept. In connection with solving the issue of development of Slovak enterprises, it is important to mention that introduction of innovation and technological development will increase competitiveness. Innovation is a crucial progressive factor for the business to remain and maintain its activity in a competitive environment (Pomffyova, Kozarova, 2017). According to Sprova et al. (2020), innovation initiates increased productivity, contributes to efficiency of the company's activity and improvement of utilization of human resources. Customers of a company characterized by the above mentioned features are offered new, innovative products and services, which can flexibly contribute to satisfying the need of the customer.

The past decade has been characterized by several imbalances, economic recession and economic downturn. In order for the country's economy to recover, the increased activity of the small and medium-sized business sector is essential. Smaller business units, together with large enterprises can fill the economic space, and make the economy strong and resilient against different imbalances.

The following parts of the article will introduce the theoretical approach related to the issue in the context of the entrepreneurial activity of small and medium-sized businesses. The second part of this contribution will introduce partial results obtained by the implementation of a research project.

## **2. THEORETICAL BACKGROUND**

The theoretical background related to the discussed issue is presented in the first part of the article. We rely on the scientific contributions and literature of domestic and foreign authors in order to outline the current approach and reveal current trends in development of innovative entrepreneurship.

The entrepreneurial activity of small and medium-sized enterprises is in accordance with the basic principles of market-oriented economies, which can explain why to devote attention to their development activities and comprehensive support. In terms of national economy, small and medium-sized businesses have several functions – social and economic- that have to be mentioned. The sector of small and medium-sized enterprises is represented by different business units, which include self-employed entrepreneurs, farmers, family businesses and smaller (usually single-person) companies. Entrepreneurship in form of small and medium-sized enterprises means a high burden for the entrepreneur, who is not only the owner of the business but also should be a good manager, strategist, trader, buyer, marketer, etc. Increasing activity of smaller businesses results in gaining important position of these entities in the national economy.

New business entities are often established as a reaction to market conditions, situations on the labour market and trading activity. Considering the current conditions and the business environment, establishing new businesses or development activity of the existing enterprises requires the introduction of innovation, resulting in innovative activities, which will help these business entities to grow and develop as well as gain competitive advantage.

These tendencies are in line with the concept of sustainable economy and sustainable entrepreneurship, which was also emphasized by Koraus et al (2017). Long-term sustainable activities are the key to economic recovery. The development of economic activity of business entities is

highly dependent on the general economic situation as well as the quality of the business environment. This environment provides a space for business entities and determines a corridor for them to develop and conduct their activities, which have to be accepted by businesses in order to grow and remain on the market (Koisová et al., 2017).

However, sustainable economic development suggests the implementation of attributes, which will transform different business units to become catalysts of the business environment (Pirmatov et al., 2017). Innovation as a basis for “predatory type” businesses helps them to develop and gain new customers thanks to their ability to satisfy needs that have never been satisfied before, or have not been satisfied on the required level expected by the customer. Introduction of innovative trends can help companies to address new market segments. These facts are also supported by Kaszowska-Mojša, J. (2020), who emphasized that innovation as a driving force of business activities requires a well-prepared strategy, which should be a part of the strategic management of the entire company. The strategy of implementation and managing the innovation activities requires a high level of creativity, monitoring of the market, customer preferences and the latest trends. Besides the mentioned experts, the Slovak team of authors Kohnova, Papula, Salajova (2019) have also focused their attention on evaluation of the applied strategic management approaches.

Monitoring the behaviour of business entities can help other enterprises to find the right direction for their business activities. Valuable information can be obtained about the market behaviour of businesses, which can reveal the competitive behaviour of other business entities as well. Evaluation of Slovak business entities is provided by the team of authors lead by Závadský (2020). The author team under the leadership of Urbaniková (2020), focused their attention on innovative and development activities of small and medium-sized enterprises, with a specific emphasis on enterprises owned by families. Family businesses have a special position and apply different management approaches, as well as the developed different approaches towards the business philosophy.

From the earlier scientific papers, we can learn about many different attributes that contribute to the interest, need and opportunities of implementing business activities through innovation. Jaskova (2018) emphasizes the interconnectedness of business activity development in a specific region as small and medium-sized businesses are linked to the local market on which the entrepreneurs conduct their activities. The cooperation of these enterprises by forming clusters helps them to learn new processes, gain new ideas, new products that they can launch on the market. We should not underestimate the influence of the environment, ecology and the international environment the businesses experience during their innovative activities (Prokopenko, Eremenko & Omelyanenko, 2014). All the authors agree that the engine of innovation is the pro-innovative enterprise. According to Horehájová and Marasová (2018), business entities are naturally expected to take the initiative themselves to launch innovative products as well as to take a risk associated with launching an innovative idea. All the mentioned factors have significant impact on functioning of business entities. The environment, which is sharpened by competition, ongoing trends and the business environment will determine the foundation and development of highly innovative businesses – start-ups (Hudakova, 2018). It is necessary to support these businesses as they provide new solutions, technologies, improvements, which will help the development of all economic entities operating on the market.

Innovative activities of business entities differ due to many determinants. One of the key factors that indicate the basic framework of company operation is the national economic sector in which the company operates. The innovative activities of engineering companies differ from the innovative activities of agricultural entities or companies in the service sector (Koraus et

al., 2020). The authors provide an interesting assessment of influences, which define the dimensions, determine the factors influencing the innovation and development potential of Slovak companies operating in the sector of small and medium-sized businesses. In this case, we also need to emphasize the interconnection of innovation and the sustainable development of the region, where the businesses are operating. As a conclusion to theoretical part of the paper, we can entirely agree with the team of authors represented by Prokopenko et al., (2019), who emphasize that the need for innovation is closely connected to the need for investment. Investment is a driving force of business development, but it has to be covered by sufficient amount of resources. Therefore, innovation is not only essential part of innovative strategy, but also has to be included in the financial management of the company.

Innovation and innovative activity of the business sector is a key to combat economic recession attacking the national and regional economy, and as well can be a solution for economic revival. The emergence and implementation of innovation into business activities, and subsequently into the everyday life of end users of the innovative products, help some of the proactive and developmental incentives e.g. new ideas, network cooperation of business entities, monitoring of the market, to become better than the competitors. Among the most frequent innovators it is necessary to mention the small and medium-sized enterprises, which are highly flexible and agile. Most of the innovative activities come from business units called start-ups. The above mentioned are all reasons to conduct research regarding the issue of development activities and management of these activities among the Slovak small and medium-sized businesses.

### **3. AIM, MATERIAL AND METHODS**

The scientific contribution deals with the issue of development of businesses with a focus on innovation in the Slovak business environment. This is a challenging, interesting and widely discussed issue, which deserves the attention of all interested in the topic in terms of current economic and pandemic situation. The research findings are important not only for scientists but also the enterprises, regarding their existence, development and management.

The subject of the paper is the field of entrepreneurship and management of innovative enterprises. The aim of the contribution is to present the latest research results in the field of innovative entrepreneurship and start-ups in Slovakia. The partial objective is to address attention on the development of these types of enterprises and emphasize their importance in terms of local, regional and national economy.

In the article we rely on the current theoretical knowledge of professionals and experts, and these sources of information integrate among the secondary sources. The article is not predominantly based on secondary sources, since we have interest in presenting the latest results obtained in business practice. As a source of primary information, we provide results of different research phases in the examined field. These results are directly based on our field research and business practice, obtained during the last few months as part of the research and scientific work of the author.

Different starting points were applied, which determined the selection of methodological tools. After considering the limitations and the scope of the work, we decided to apply the basic scientific methods, descriptive statistics and interviews vs observation as qualitative method. The mixed methodological approach created good circumstances for evaluation of the current situation in the selected research field.

#### 4. RESULTS AND DISCUSSION

In the empirical part of the paper, we deal with the presentation of partial research results, which were obtained in field research of small and medium-sized enterprises (including the highly innovative types of enterprises as the start-ups) operating in Slovakia. The research data were obtained based on two surveys conducted parallel but mainly is based on the research focusing on the management of the innovative forms of businesses. The partial results come from the mentioned surveys conducted parallel, focusing on a specific group of small and medium-sized enterprises, the family-owned businesses. Similar to the non-family type of businesses, family-owned small and medium-sized enterprises heavily rely on intensive involvement in innovative activities in order to stay competitive in the market. In a hypercompetitive environment, the one who is faster, better, more innovative and providing better solutions will win over the competitors. This is also the basis of innovation in terms of entrepreneurship.

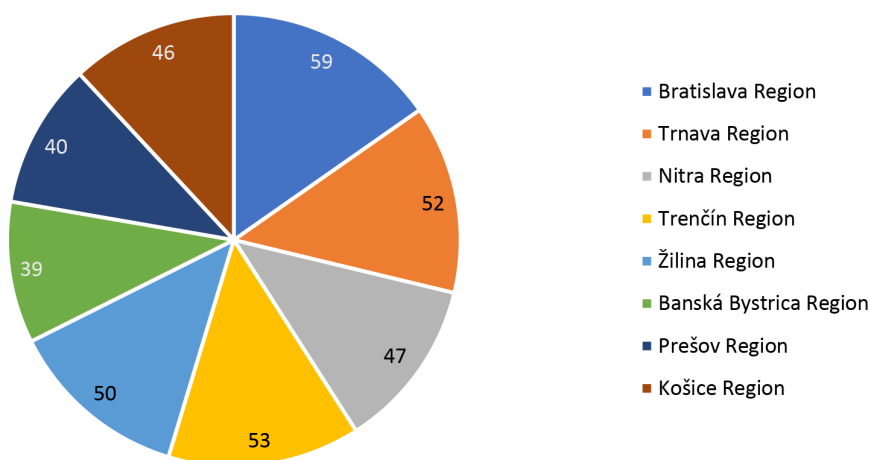
The research activities, conducted as a part of the projects *VEGA 1/0813/19 Managing the development of innovative and start-up forms of businesses in international environment and verification of INMARK concept*, and *GAAA 5-5/2020 Development of family business in Slovak regions* were primarily oriented on entrepreneurship in the sector of small and medium-sized enterprises and the specific group having a family business character. As both of the researches are extensive and lasted several years, we could obtain enough data and information as well as evaluated results, which serve as a basis to formulate generalizations, but especially conclusions and recommendations for everyday business practice. It is necessary to mention that we are limited in presenting our research results, which is why we decided presenting partial results based on the defined attributes that we consider interesting for a wider scope of public.

The examination of entrepreneurial activity oriented on the sector of small and medium-sized enterprises has focused among other aspects on evaluation of innovation, management of development and innovative activity of business entities. Why innovation is important? It is necessary to emphasize that no development takes place without innovation. Obtaining better market position, sustaining competitiveness, and gaining competitive advantage are also led by innovation. Currently, the market is saturated and represented by foreign and domestic enterprises competing with each other, which develop diverse economic relation with the sector and the national economy. Therefore, innovation is called the engine of development as it helps not only the enterprises, but the whole economy (local, regional, national and transnational). In this context should be mentioned the interest of the EU to promote innovation as an engine of the competitive economy. If the Slovak small and medium-sized companies want to be successful and be able to succeed in a demanding business environment, not only in domestic but the foreign markets as well, they have to be innovative and focus on innovative activities. We can talk about several basic forms of innovative activities of companies, which can be manifested in the form of product innovation, innovation of services, innovation of technologies, innovation of business processes, innovation in business management, innovation in marketing as supporting activities in the field of commercial activities of enterprises.

Due to the widely discussed and interesting issue and the limited space to discuss it in this contribution, we will discuss the selected aspects of the management of an innovative business. We examined up to twenty factors related to innovation activity in small and medium-sized enterprises. We approach the current presentation in terms of five aspects of innovation, which we process and evaluate separately for conditions of micro-small and medium sized enterprises.



In each category, based on the size of the company, we monitored five innovative factors, which we identified as F1, F2, F3, F4 and F5. These factors were the following: F1 – product or service innovation, F2 – innovation of technological process, F3 – innovation of financing, F4 – innovation in management and F5 – innovation in communication with the customer. The research was conducted in 2019 and 2020 in Slovakia among the companies that have met the predefined criteria. These criteria were the following: size of the company determined by the number of employees – complied with the valid Recommendation of the European Community 2003/361/ES on the categorization of enterprises into micro, small and medium-sized enterprises. The selected enterprises carry out their business activity on the territory of Slovakia. As a part of the research, we also paid special attention to the identification of those business units, which meet the characteristics of innovative start-ups. We have addressed 500 business units in all self-governing regions of Slovakia (Bratislava Region, Trnava Region, Nitra Region, Trenčín Region, Žilina Region, Banská Bystrica Region, Prešov Region, Košice Region). The research sample was formed by the enterprises, which showed a willingness to share all the information necessary to meet the research objectives. The research sample was finally made up of 386 enterprises. The distribution of these enterprises is presented in Graph 1.



**Graph 1.** Distribution of enterprises in the research

Source: own calculation

As the first subgroup, the subgroup of micro enterprises was evaluated. Based on the valid classification in the category of micro enterprises, 211 business units met the defined criteria from the total number of enterprises involved in this research. There were 49 start-ups identified in this group. Information was obtained from the enterprises, and then five innovative factors were evaluated. Respondents could select their answer in a questionnaire, and at the same time had to indicate significance on a scale from 1 to 5, with the value 5 indicating the highest level of significance. The results are presented in Table 1.

**Table 1.** Evaluation of innovation factors in the selected group of companies (achieved score)

Innovation factors	Group of micro enterprises (N=162)	Group of start-ups (N=49)
<b>F1 (product innovation, service innovation)</b>	4.04	4.75
<b>F2 (innovation of technological process)</b>	4.11	4.89
<b>F3 (innovation of financing)</b>	2.96	2.12
<b>F4 (innovation in management processes)</b>	2.83	3.43
<b>F5 (innovation in communication with customers)</b>	3.29	4.42

Source: own research and calculation



As it is shown in the research results, innovation in start-ups in the greatest measure is related to innovation of technological processes followed by product resp. service innovation. A third was indicated the communication with the customer. In the case of micro enterprises, the rank of importance was similar with a lower emphasis on individual factors. Therefore, the success of start-ups is determined by factors F2, F1 and F5. The following group, where the obtained information was processed was formed by small and medium-sized enterprises from different regions of Slovakia. The research sample in this category is represented by 175 business units. The evaluation based on 5 factors was also processed in this group of businesses. The responding companies provided their answers for the questionnaire survey as well as evaluated the innovation factors. The results are presented in Table 2.

**Table 2.** Evaluation of innovation factors in the selected group of companies (selected score)

Innovation factors	Group of small enterprises (N=110)	Group of medium-sized enterprises (N=65)
<b>F1 (product innovation, service innovation)</b>	4.13	3.77
<b>F2 (innovation of technological process)</b>	3.97	3.75
<b>F3 (innovation of financing)</b>	3.34	2.82
<b>F4 (innovation in management processes)</b>	2.99	3.36
<b>F5 (innovation in communication with customers)</b>	3.28	3.08

Source: own research and calculation

The survey results of small and medium-sized enterprises show a different approach to individual factors. In the group of small enterprises, the most important factors listed were product vs service innovation, technological innovation, and the third most important factor turned out to be the innovation in financing. The latest can be explained by the forecast that small businesses would like to finance development activities in order to grow and expand, as well as potentially become medium-sized businesses on the market. In the case of medium-sized enterprises we have obtained interesting results. Compared to all the groups of businesses involved in the research, medium-sized companies show the lowest score in the case of all the listed factors. The first two factors are considered to be the most important for them but reported lower importance to the rest of the listed factors compared to smaller enterprises. The third most important factor is innovation in management, which might refer to effort on strategic management in the turbulent business environment, and the need for qualified management and other forms of business management.

## 5. FUTURE RESEARCH DIRECTIONS

Entrepreneurship is always an up-to-date and required topic for discussion, not only among professionals, but the active discussion is also provided by the representatives of the entrepreneurial sector. The individual effort of enterprises to be ahead of competitors automatically directs them towards looking for new opportunities, innovate the existing products and services. Further development of innovation is in the hands of those companies, which maintain to be innovative, work constantly on the development of new products, follow the changes in the business environment as well as accept the market requirements. In order the innovative companies to grow successfully, it is crucial to ensure the appropriate legislative, entrepreneurial and economic environment by the state. It is not happening in all the countries. The appropriate environment for innovative forms of entrepreneurship can be ensured by the appropriately chosen economic and innovation policy, supporting investment into innovation and remove barriers to entrepreneurship. In further research, it will certainly be interesting to examine the impact of the COV-

ID-19 pandemic on innovation activities of business units of different size and category, as well as examine those aspects that have affected them positively or negatively. The mentioned aspects are challenges of future research and will make it possible to assess the impact of the economic crises caused by COVID-19 when the pandemic is over. These challenges are not only local, regional or national but will be an interesting research issue in transnational terms as well.

## 6. CONCLUSION

Entrepreneurship is the basis of developed market economies, as, without economically highly active business units, the market mechanism would not function. The economic environment of Slovakia and the EU, with a focus on the entrepreneurial sector, is mainly represented by small and medium-sized enterprises, which have different features than the transnational companies and other bigger forms of business units. This paper points out the importance of small and medium-sized enterprise sector many times, the need for the existence of this type of businesses, which in cooperation with bigger business units ensure the smooth operation of the market economy.

Based on the presence of many negative and positive factors of the business environment, the management of small and medium-sized enterprises should focus on development activities. The further development of businesses often depends on the ability to launch innovations. Otherwise, the customers can turn to competitors. In this contribution, we oriented on the evaluation and presentation of research findings in the field of management of innovative business development in the Slovak business environment. The most valuable turned out to be the following facts:

- 1) Our research has shown that there is a high level of innovation in the sector of small and medium-sized businesses with a special focus on start-ups.
- 2) A bit lower innovative activity than start-ups have the small and medium-sized enterprises.
- 3) Small enterprises show a relatively high level of innovative activity, mainly in the regions where these types of business or products offered by them are absent, and gain a competitive advantage before arrival of new business units.
- 4) The business units participating in these research activities are focusing mainly on selected factors of innovation activity: F1- innovation of product resp. service, F2 – innovation of technological process, F3 – innovation of financing, F4 – innovation in management activities, F5 – innovation in communication with customers.
- 5) Enterprises are interested in new trends in their sector by monitoring the market, surveying their customers and following the activity of competitors.

In the forthcoming period, it will therefore be necessary for the management of these enterprises to pay increased attention to monitoring the market, developing innovative products resp. services. This is the only solution how to remain successful, not only on regional and national, but on global market as well.

## ACKNOWLEDGMENT

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# Empirical Analysis of State-owned Enterprises' Non-Financial Reporting: The Case of Ukraine

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## Keywords:

Non-financial reporting;  
Directive 2013/34/EU;  
Directive 2014/95/EU;  
Management report;  
State-owned enterprises



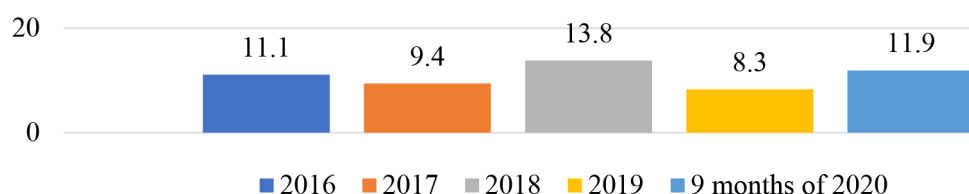
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**Abstract:** *The paper puts forward the following fundamental hypothesis: assurance of transparency and quality of non-financial reporting of SOE, the decisive role in the regulation of which belongs to the state as the owner of assets, requires effective, efficient regulatory support that can ensure the achievement of sustainable development. The study provided evidence that the number of Ukrainian SOE that prepare management reports has increased since the introduction of the relevant legislation. The practical value of the study is to improve existing and introduce new tools for assessing the impact of institutional factors on financial and non-financial disclosure by SOE regarding compliance with the principles of sustainable development in a transitional economy.*

## 1. INTRODUCTION

The state is the largest owner of assets in Ukraine and plays an important role in the functioning of the national economy and for countries with economies in transition. One-tenth of the economy is generated by the public sector. Around one million employees work at state-owned enterprises. The value of assets of state-owned enterprises is one-fifth of the average value of assets of Ukraine.

At the same time, state-owned enterprises are most represented in the industries where activities are causing significant fiscal risks, resulting in losses of revenues to the state budget. Sectoral affiliation of state-owned enterprises is mainly oil and gas, transport, energy, food and agriculture, mechanical engineering, chemistry and coal mining (Fig. 1).



**Figure 1.** The share of the public sector in the economy of Ukraine for the period from 2016 to 9 months of 2020, %.

**Source:** Ministry of Economy of Ukraine, 2019.

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In addition, the vast majority of the largest state-owned enterprises are monopolies, the profitability of which is determined by non-market factors, such as state regulation of tariffs. The best state-owned enterprises operate in such areas as oil and gas transportation, transportation, energy, food and agriculture, mechanical engineering, chemistry and coal mining. The enterprises which are considered the TOP-5 largest state-owned enterprises worked in the following industries: oil and gas (PJSC National Joint-Stock Company “Naftogaz of Ukraine”); transportation (PJSC “Ukrzaliznytsia”); energy industry (SE “National Atomic Energy Generating Company” Energoatom “, SE” Energorynok “, State Specialized Enterprise” Chornobyl Nuclear Power Plant “) (Ministry of Economy of Ukraine, 2019)

Thus, there is a situation in Ukraine, when state-owned enterprises are most represented in those industries in which doing business does not contribute to the preservation of national wealth (oil and gas, energy, transportation) and industries that are not attractive in terms of doing business (education, health, nature management). State-owned enterprises depend on the implementation of important functions of conservation of non-renewable natural resources (oil and gas industry), provision of public social services (electricity generation, water supply and sewerage, education, health care) at the national level.

This situation addresses the necessity to widespread the use of tools designed to promote the preservation of national wealth, human capital development, the disclosure of economic, environmental and social consequences of state-owned enterprises and the achievement of sustainable development of the country with an economy in transition.

An effective tool for disclosing these aspects in countries with economies in transition are various non-financial reports, which are based on the recommendations of various international initiatives. Due to the defining role of the state as the owner of assets in regulating the activities of state enterprises, the importance of national policy, which is implemented through the adoption and adjustment of various regulations in Ukraine is dominant. This postulates the need for an in-depth analysis of the national regulatory and legal support for the activities of state-owned enterprises and the identification of regulations on information support for monitoring sustainable development.

Not aiming to assess such information provision at the global and national levels, the present study aims to assess the state of implementation of non-financial reporting by the largest Ukrainian state enterprises and identify areas for improving the institutional support of non-financial reporting as a determining factor in promoting non-financial reporting in transition economies. The main focus of the study is to identify institutional tools to increase the accountability and transparency of state-owned enterprises in countries with economies in transition. The sequence of research with an institutional approach involves the following stages:

- assessment of the state regulatory and legal support for non-financial reporting of state-owned enterprises, in particular on the preparation of management reports;
- empirical identification of the state of introduction of non-financial reporting by the largest state-owned enterprises and identification of aspects that cause the current introduction of non-financial reporting;
- substantiation of institutional factors of macroeconomic regulation aimed at strengthening accountability and transparency of state-owned enterprises to society.



The starting point for solving this problem is the thesis that strengthening the transparency of state-owned enterprises in countries with economies in transition is in the segment of further adaptation of regulations to the requirements of international recommendations on non-financial reporting, thus giving the boost to the modernization of national legislation.

## 2. LITERATURE REVIEW AND PROBLEM STATEMENT

The theory and practice of non-financial reporting concern an increasing number of foreign and domestic companies that join current trends of disclosure of information on sustainable development. That is why representatives of both domestic and foreign scientific communities investigate problems of the development, implementation and improvement of non-financial reporting. Thus, researchers from different countries critically evaluate the implementation of non-financial reporting, its scope, prospects (Oliinyk, Kucheriava, 2019) and study the impact of non-financial information disclosure on corporate social responsibility (Crowther, 2017).

Also, it is necessary to highlight the studies, devoted to theoretical and practical issues of implementation of Directive 2014/95/EU provisions. Arvidsson (2018) disclosed the crucial challenges in combining the sustainability reporting practice and non-financial reporting practice provided by the EU Directive (2014/95/EU). The author focused on stakeholder expectations and information needs and a strong increase of information asymmetry.

The industrial aspects of non-financial reporting practices are also studied by the scientists, in particular, the issues related to disclosure of specific data by energy companies within the implementation of EU directive requirements (Oliinyk, Kucheriava, 2019; Dumitru and others, 2019). Many works are devoted to a retrospective analysis of non-financial reporting development, including papers, prepared by public organizations (Caputo and others, 2020; Venturelli and others, 2019; Oliinyk, 2019).

Special attention is paid by a large group of authors to SOEs' non-financial reporting by issues: evaluation of non-financial reporting practice (Manes-Rossi and others, 2020), formats and approaches of disclosure of non-financial data (Pena, 2019).

Summing up the mentioned above information it is necessary to note the lack of investigations devoted to the assessment of SOEs non-financial reporting compliance with regulatory frameworks (Directive 2014/95/EU, national legislation).

## 3. RESEARCH DESIGN, METHODOLOGY AND DATA PROCESSING

The issues of climatic change, respect for human rights, the incidence of poverty and aggravation of social problems as a result of the COVID-19 pandemic are encouraging more and more companies to implement and report on sustainable development policies. According to the 2020 KPMG survey, 80% of N100 companies (reporting of top 100 companies by income level in 52 jurisdictions) (a total of 5,200 N100 companies) prepare non-financial or sustainable development reporting (the result has improved by 5% compared to 2017). Sustainability reporting has grown particularly strongly in three countries: Kazakhstan (+34%), Slovakia (+21%) and Germany (+19%). Among the G250 companies (250 largest companies by income in the world, according to Fortune 500 list, ranking 2019) by the income level in the world, reporting is prepared by 96% of companies (KPMG, 2020).

The impetus for the growth of the share of companies preparing non-financial reporting was the adoption of EU Directives (primarily Directives 2013/34/EU and 2014/95/EU) and the development of a system of responsible investment (investment taking into account ESG factors). Thus, according to the estimate provided in the biennial report of the FSRI Foundation in the United States, 12 trillion US dollars (which is 38% more than in 2016) are invested in assets, subject to ESG-strategies (Matos, 2020, p.7). At the end of 2019, the Principles of Responsible Investment (PRI), which govern the largest global network of institutional investors committed to taking ESG aspects into account in their investment processes, extended to more than 2,500 signatories managing assets in the amount of more than 85 trillion US dollars (Matos, 2020, p.8).

In 2017, Ukraine adapted its national laws to the requirements of Directive 2014/95/EU by amending the Law *On Accounting and Financial Reporting in Ukraine*. According to the Law, large and medium-sized enterprises prepare a management report – “a document containing both financial and non-financial information which characterizes the status and prospects of the enterprise development, as well as reveals the main risks and uncertainties of its activities”.

The Ministry of Finance of Ukraine has developed guidelines on the types of disclosure of non-financial information in the management report (indicative structure of the report, types of information to be disclosed, etc.).

Surveys conducted in Ukraine on transparency and accountability of companies show a small share of companies that prepare non-financial reports. Thus, according to the research by the Center for the Development of Corporate Social Responsibility, in 2014, among the TOP-100 largest companies in Ukraine, non-financial reporting was prepared by 14 companies; in 2015 – 17, in 2016 – 12, in 2017 – 16 (Transparency Index of Ukrainian Companies' Websites, 2017); in 2019, 13 non-financial reports of various forms were prepared (according to GRI standards or with their elements, Progress Reports on Implementation of the Principles of the UN Global Compact, etc.), as well as 31 Management Reports. According to the research of the Ukrainian Companies Transparency Index 2019, state-owned companies have shown a higher level of openness than private ones. The researchers have concluded that the greater openness of state-owned companies is the result of the corporate governance reform of state-owned companies in Ukraine.

As part of the reform to ensure greater transparency of state-owned enterprises, the Ministry of Economic Development and Trade of Ukraine has recommended state-owned companies to disclose (in accordance with the Guidelines for Transparency and Activity of Economic Entities of the Public Sector of the Economy, approved by the Order No. 116 of the Ministry of Economic Development and Trade of Ukraine dated February 11, 2015) the following categories of information: purpose and objectives of the company; results of financial and economic activities (liquidity, profitability, efficient use of the property and their changes within 3 years; accrual and transfer to the budget, in accordance with the laws, of dividends, net profit); performance results; information on procurement and investment; average monthly remuneration of employees, including management, remuneration arrears, etc.

Transparency is one of the main principles of corporate management of state-owned enterprises in the world (OECD Principles of Corporate Governance). By signing the Association Agreement with the EU, Ukraine has assumed responsibilities to increase transparency and competitiveness in public procurement (to ensure competitive procurement and guarantee access to information on public procurement, in particular for state-owned enterprises), to strengthen anti-corruption efforts, as well as to implement policies rising corporate management (OECD, 2015).

A higher level of transparency of commercial companies in Ukraine, including state-owned enterprises, is possible, in particular by increasing the share of companies that prepare non-financial reports.

The relevance of the study of non-financial reporting of state-owned enterprises of Ukraine is predetermined by the following two aspects. Firstly, state-owned enterprises make a significant contribution to the economic, social and environmental functions of states for social development and have a significant impact on the achievement of global and national Sustainable Development Goals. On the other hand, non-financial reporting of state-owned enterprises is a source of information for both stakeholders and the public as a whole with regard to the most significant achievements, which is common practice in foreign countries but requires additional research and ideas for implementation by businesses in Ukraine.

In addition, it should be noted that during the COVID-19 pandemic and within the post-pandemic period, the issues of non-financial reporting of enterprises become relevant, as the spread of COVID-19 has an unpredictable and sometimes devastating impact on economic development and the financial system in most countries, which has manifested itself in the form of complicated business conditions, reduced activity of businesses in the markets, a sharp decline in living standards, deteriorating access to public services (including educational and medical). This requires involving business in solving current and future social and environmental problems.

It is natural that in the conditions of uncertainty caused by the COVID-19 pandemic, it is important to investigate the information support of state-owned enterprises in detail, as the asymmetry of accounting and financial reporting information of state-owned enterprises is due to insufficient data or their distortion, which leads to fiscal risks. In addition, lack of non-financial information and fragmentary presentation of data do not allow to assess the status and prospects of the enterprise, as well as to identify the basic risks and uncertainties of such enterprises.

In most countries with a high level of development and income, non-financial reporting contains a balanced and comprehensive analysis of development, performance and status of the enterprise, which includes key performance indicators for a particular area of activity, as well as information on future development, research and development, propensity to price, credit, liquidity and cash flow risks. The non-financial report contains, *inter alia*, information on compliance with the corporate management code, which applies to the company, an explanation of the reasons for failure to apply certain provisions of the corporate code, etc.

According to the laws of Ukraine, the management report is submitted only by large and medium-sized enterprises, with the latter including only financial information. Management reports for potential investors and companies are a source of information on the management's vision of the results of activities that cannot be obtained from financial reporting, including social and environmental aspects, progress and prospects for the future, existing risks and uncertainties. Such a report does not duplicate financial statements and notes to them but is a separate report with its purpose and objectives, submitted along with the financial statements.

At the same time, we should agree with the opinion of scientists that Ukraine, both in the scientific and professional environment at the interstate level, has no single approach to the unification of non-financial reporting and harmonization of key indicators of companies with macro indicators of CSR in relevant areas. This is quite correlated with the non-financial reporting of state-owned enterprises, for which a management report is a tool for communicating with

stakeholders on how the largest Ukrainian coal, electricity, engineering, transport, food and chemical enterprises manage their impact on the economy, society and environment arising in connection with their basic activities.

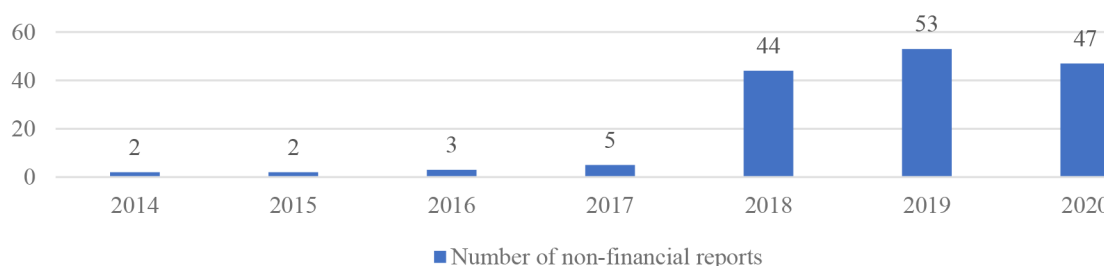
The relevance of the research of non-financial reporting of the state-owned enterprises is also predetermined by the fact that such enterprises have numerous means to influence non-financial indicators. Timely and high-quality reporting of the largest state-owned enterprises of Ukraine provides information on their social responsibility, contribution to sustainable development, risk management at the micro level, etc. However, the mechanisms for presenting information are imperfect and not uniform.

The research aims at analyzing the impact of legislative changes on the level of preparation of non-financial reporting by Ukrainian state-owned enterprises, which according to the Ministry of Economic Development, Trade and Agriculture of Ukraine are in the Top 100 state-owned enterprises.

Non-financial reporting of Ukrainian enterprises is studied in the following sequence:

1. Selection of respondent enterprises – among the largest state-owned enterprises of Ukraine, which are required to submit non-financial reporting, the most profitable are oil and gas, as well as electricity and transport enterprises. However, one of the reasons for the low operational efficiency of state-owned enterprises is a weak system of corporate management, which does not contribute to profitability and sets conflicting goals, which leads to poor management. Strong links between state-owned enterprises and relevant ministries are a safeguard against external competition. The institutions are often actively involved in the management of state-owned enterprises. However, the activities of such enterprises are not always effective and beneficial to society. This leads to the inevitable conflict of interests, necessitates decisions on privatization of such enterprises (which is taken into account in the analysis procedure).
2. The parameters for the preliminary selection of enterprises are: the enterprise is in the TOP-100 largest state-owned enterprises of Ukraine and has experience in non-financial reporting.
3. Data collection and accumulation of information take place through familiarization with non-financial reports of respondent enterprises, conceptual bases of their reporting, as well as analysis of other non-financial information according to the criteria selected in accordance with EU Directives on ESG Reporting (environment, social and personnel policy, human rights and fight against corruption and bribery).
4. Summarizing the results of expert evaluation of non-financial reports of selected companies in the context of compliance with the national laws and EU Directive requirements for disclosure of management reports and other non-financial statements (if available) through review of practical aspects, features and general trends in the company reporting. The sources of information are non-financial reports of the coal industry, energy, engineering, oil and gas, transport, food, agriculture and chemical enterprises, as well as other enterprises, for 2018, which are posted on their corporate websites.
5. The method of data collection is a systematic targeted observation while analyzing the dynamics of non-financial reporting of the TOP 100 largest state-owned enterprises of Ukraine and expert evaluation of the results.

According to the results of the analysis, it is found that after the adoption of amendments to the national laws with regard to the necessity to prepare non-financial reporting, the level of preparation and public disclosure of non-financial reports by the state-owned enterprises has increased (figure 2).



**Figure 2.** Dynamics of preparation and public disclosure of non-financial reports by the state-owned enterprises of Ukraine

**Source:** summarized by the authors according to non-financial reporting of the state-owned enterprises.

In 2018-2020, non-financial reports were prepared by almost 50% of all the state-owned enterprises: in 2018 – 44; 2019 – 53; 2020 – 47 (Ministry of Economy of Ukraine, 2019).

The research has also revealed that the practical aspects of preparing non-financial reporting were not typical of the largest Ukrainian state-owned enterprises until 2018. In 2014-2020, only Naftogas of Ukraine National Joint Stock Company prepared non-financial reporting. In 2016-2017, SE Enerhoatom National Atomic Energy Generating Company, SE Ukrenerho National Energy Company, Ukrzaliznytsia PJSC and SE Mystetskyi Arsenal National Art and Culture Museum Complex started preparing non-financial reporting.

In our opinion, the main reasons that providing a legislative framework for a management report has not affected the fact that all state-owned enterprises began preparing such reports include:

- in accordance with the law, management reports are submitted along with the annual financial statements, which in fact imposes obligations to prepare such reports on the financial structures of companies;
- the issues of administration of collecting and analyzing the management report remain open. Although the reports are submitted to the statistical bodies, such bodies do not control their timely submission and analysis of the information provided;
- rules of administrative liability for violation of the procedure for submission and public disclosure of management reports are applied little, if any.

The research has also revealed that Oil and Gas (100%), Chemical Industry (100%) and Electricity (65%) state-owned enterprises show the highest level of preparation and public disclosure of non-financial statements, with the lowest level of Coal Mining enterprises (30%) (Table 1).

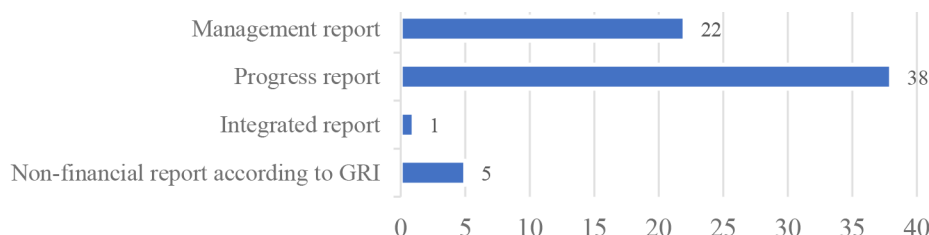
The choice of types of non-financial reporting by state-owned companies, in our opinion, depends on the requirements of the law. Analyzing non-financial reporting of the state-owned enterprises shows that more than a third of enterprises prepare reports in the form of a management report (38%). At the same time, 22% of the state-owned enterprises disclose non-financial information mainly in management reports, which are part of the Annual Information of the Issuer of Securities or the Annual Reports of Enterprises.



**Table 1.** Dynamics of preparation and public disclosure of non-financial reports by the state-owned enterprises of Ukraine in terms of scope of business

No	Scope of activities	Number of enterprises	Preparing non-financial reporting						
			2014	2015	2016	2017	2018	2019	2020
1.	Coal industry	10	0	0	0	0	4	4	3
2.	Electricity	17	0	0	0	0	11	13	11
3.	Engineering	8	0	0	0	0	3	4	4
4.	Oil and Gas	2	1	1	1	1	2	2	2
5.	Transport	21	0	0	0	1	9	12	10
6.	Food and Agriculture	6	0	0	0	0	0	2	3
7.	Chemical Industry	3	0	0	0	0	3	3	3
8.	Other	33	0	0	0	0	12	13	11
TOTAL		100	1	1	1	2	44	53	47

**Source:** summarized by the authors according to the non-financial reporting of the state-owned enterprises. The practical aspects of preparing non-financial reporting in accordance with International Reporting Standards (according to GRI standards (or with GRI elements), integrated reporting or progress reports) are not common among Ukrainian state-owned companies. Only 7% of the state-owned enterprises prepare reports according to international standards (Figure. 3).



**Figure 3.** Types of non-financial reports prepared by the enterprises included in the TOP-100 largest state-owned enterprises of Ukraine in 2018

**Source:** summarized by the authors according to the non-financial reporting of the state-owned enterprises.

Among the state-owned enterprises which prepare non-financial reports, the share of those which prepare management reports increased from 72% (in 2019) to 86% (in 2018).

From 50% (in 2018) to 41.5% (in 2019) of enterprises prepared management reports which were disclosed as part of the Annual Information of the Issuer of Securities, Annual Reports of Enterprises, Labour Reports or Reports of the Executive Body.

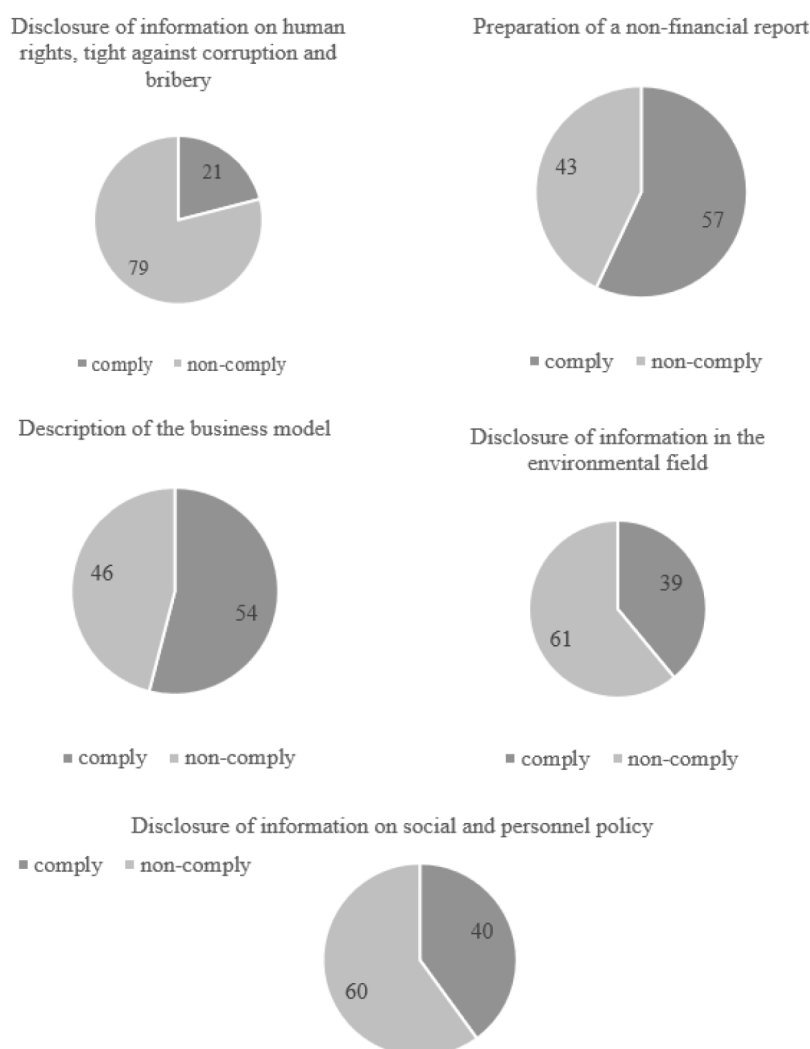
Among the enterprises, only 13% (in 2019) and 16% (in 2018) prepared and disclosed non-financial reports in accordance with the requirements of international non-financial reporting standards.

Naftogas of Ukraine NJSC (since 2015), SE Enerhoatom National Atomic Energy Generating Company (since 2016), SE Ukrenerho National Energy Company and Ukrzaliznytsia PJSC (since 2017), Ukrhydroenergo PJSC (2019) were the first to prepare non-financial reports according to the GRI (Global Reporting Initiative) Standards. It should be noted that the non-financial report of Enerhoatom National Atomic Energy Generating Company, *Generating Energy for Sustainable Development* for 2018 was awarded platinum awards in three categories: *Print Media*, *Annual Report* and *Corporate Social Responsibility* (disclosure of information on sustainable development) of the international MarCom Awards in the field of corporate communications. Also, in 2018, Enerhoatom was awarded the Deloitte Sustainability Report Award



– The Green Frog Award (GFA) 2018 for showing the best sustainability indicators and strategic commitments published in the Company's Non-Financial Report. Non-financial reports of Enerhoatom National Atomic Energy Generating Company are presented not only in a printed form, but also in a bilingual interactive version (website).

Six companies among the 57 state-owned enterprises preparing non-financial reports made them in several forms. For example, Ukrhydroenergo PJSC and Enerhoatom National Atomic Energy Generating Company prepare non-financial reports in GRI format, as well as management reports. Since 2017, Ukrzaliznytsia PJSC has been preparing reports in the form of an integrated report, which reveals both financial and non-financial indicators, which give a comprehensive view of the company's strategy, corporate management, performance and prospects in order to comprehensively show its economic, social and environmental impact. The reports for 2017-2019 have been prepared in accordance with the requirements of the International Standard for Integrated Reporting (IR International Framework) and the International Standards for Reporting on Sustainable Development *Global Reporting Initiative* (GRI SRS, the main option of compliance (Core).



**Figure 4.** The results of the analysis of compliance of non-financial reports for 2018-2020 with the requirements of Directive 2014/95/EU.

**Source:** summarized by the authors according to the non-financial reporting of the state-owned enterprises.

Since 2010, Ukrenerho National Energy Company has been preparing Annual Reports, which reflect information on corporate management, social policy and labor protection, environmental policy, and since 2017, the company has been preparing non-financial reports according to GRI Standards.

In 2018, in addition to the management review (management report), Turboatom JSC prepared and disclosed the management report on the company's website in the Annual Information of the Issuer of Securities.

The analysis of non-financial reports has shown that the level and quality of information disclosure on environmental, social and personnel issues, human rights, anti-corruption and bribery are different. Figure 4 shows the results of the analysis of compliance of non-financial reports for 2018-2020 with the requirements of Directive 2014/95/EU, formalized in the form of criteria.

#### **4. RESEARCH RESULTS**

Most often, the state-owned enterprises in non-financial reports disclose information on the business model of enterprises (95%), environmental and social issues (68% and 70%, respectively). Only 37% of enterprises disclose issues of human rights, anti-corruption and bribery.

21 companies (37% of all the companies having reports) fully comply with EU Directive Requirements in terms of disclosure of information on ESG areas in non-financial reports. The analysis has revealed that the highest level of compliance with Directive 2014/95/EU in terms of disclosure of the information is shown by those state-owned enterprises which have a long reporting practice (before 2018) and prepare non-financial reports in accordance with the national laws and international standards, especially GRI. However, some companies included in this group have been preparing management reports only since 2018.

16 enterprises (or 28% of all the enterprises having reports) disclose three out of the four relevant ESG criteria and have a compliance rate of 75%. Most companies in this group do not disclose information on human rights, fight against corruption and bribery.

One third of the state-owned enterprises which prepared non-financial reports within the period 2018-2020 (33.3%) have a compliance level of 25%. The enterprises of this group disclose one of the reporting criteria, and according to the analysis, it is a description of the business model. This group includes the companies which prepare management reports in the Annual Information of the Issuer of Securities.

The analysis of the content of non-financial reporting has revealed that national enterprises, including state-owned ones, do not actually assume responsibilities to achieve the UN Sustainable Development Goals. Thus, according to the Transparency Index of Ukrainian Companies 2019, only 10 companies out of the 100 largest taxpayers in Ukraine published information on the company's contribution to the achievement of CSR in their non-financial reports for 2019. Among the state-owned enterprises, only Enerhoatom National Atomic Energy Generating Company, Ukhidroenergo PJSC and Ukrzaliznytsia PJSC provided information on their contribution to the achievement of the UN Sustainable Development Goals in their non-financial reports for 2019.

At the same time, the share of companies integrating CSR into their corporate strategies for social responsibility or sustainable development and into corporate reporting on these issues

is growing. According to a KPMG survey in 2020, 69% of N100 and 72% of G250 companies link their business to CSR and cover this fact in corporate sustainability reporting. Compared to 2017, the reporting of companies that cover the issues of achieving CSR has increased by 30% for N100 companies and by 29% for G250 companies (KPMG, 2020, p.44).

The results of the analysis of the practical aspects of non-financial reporting of the state-owned enterprises show that despite the legal requirements adopted for the preparation of management reports, only half of the largest state-owned enterprises prepare non-financial reports, mostly in the form of management reports.

The quality of non-financial reports of state-owned enterprises depends on experience, regulatory requirements and standards the company uses while preparing non-financial statements. 37% of all the state-owned enterprises which prepare non-financial reports fully comply with EU Directive Requirements with regard to the disclosure of information on ESG areas in non-financial reports. 28% of enterprises have a level of compliance of 75% within the period of 2018-2020, with a third (33.3%) of the state-owned enterprises which prepare non-financial reports having a level of compliance of 25%.

Among other things, the results of the analysis of the dynamics of non-financial reporting of the TOP-100 largest state-owned enterprises of Ukraine enabled to identify of many problematic aspects related to the public disclosure of reports:

1. Management reports are posted by enterprises in the section *Financial statements* (for example, SE Production Association “O. M. Makarov Pivdennyi Machine-Building Plant”).
2. Businesses post management reports irregularly, with the information appearing late in some cases.
3. Most often, the management report discloses such information as:
  - 1) probable prospects for further development;
  - 2) information on development;
  - 3) information on the conclusion of derivatives or transactions in derivative securities (namely the task and policy of the issuer to manage financial risks, including insurance policy for each major type of anticipated transactions, with hedging transactions used; information on the issuer's exposure to price, credit, liquidity and/or cash flow risks);
  - 4) a report on corporate management (namely information on its corporate management code; on the voluntary application of corporate management codes of stakeholders, information on corporate management practices applied in excess of statutory requirements; information on the general meeting of shareholders (participants); board, information on the executive body, description of the main characteristics of internal control and risk management systems, list of persons who directly or indirectly own a significant stake, information on any restrictions on the rights of participation and voting of shareholders (participants) at the general meeting of the issuer; appointment and dismissal of officials; powers of officials).

However, there is a problem with misinterpreting and misunderstanding the notions *management report* and *management review*. The analysis has shown that among the enterprises quite often the management review is called the management report. The Board of the Audit Chamber of Ukraine explained the practical aspects of applying international auditing standards, which, inter alia, contained systematic requirements for the management report and management re-

view within the regulatory framework. Comparison of the requirements for the preparation of the management review and management report, defined by the Laws of Ukraine No. 3480-IV *On Securities and Stock Market* dated February 23, 2006 and No. 996-XIV *On Accounting and Financial Reporting in Ukraine* dated July 16, 1999, showed as follows:

- the management report prepared in accordance with the requirements of Law No. 996 covers more issues than the Management Report prepared in accordance with the requirements of Law No. 3480;
- in case of preparation of the report on the management of the enterprises which are not issuers, the information on corporate management of such enterprise is not specified in the Management Report.
- In addition, the difference between these reports is also in the reporting subjects:
- the management review is made by issuers, except for issuers, which are not joint-stock companies and which have not made a public offer of securities other than shares, and whose securities are not admitted to trading on the stock exchange (part eight of Article 40 of Law No. 3480);
- the management report consists of both issuers of securities whose securities are admitted to trading on stock exchanges or in respect of which a public offering has been made, and other enterprises of public interest, as well as medium-sized enterprises.

## 5. DISCUSSION AND CONCLUSION

In countries with economies in transition, the existence of state regulation of the non-financial reporting process in the context of information support for monitoring the achievement of sustainable development is due in some way to the need to overcome the limited rationality of management of non-financial reporting. This necessitates the search for an effective mechanism for organizing non-financial reporting, which would solve the problem of meeting the needs of stakeholders to disclose information on the impact of business activities on the economy, environment and society.

Drawing on the experience of EU Member States and countries with economies in transition shows that there are two models for implementation of the provisions of Directive 2014/95/EU into national legislation: amendments to existing legislation on non-financial reporting; development of a fundamentally new legislative act, the norms of which regulate the preparation, submission and publication of non-financial statements.

The results of a purposeful study of the experience of developed EU countries in the field of regulation of non-financial reporting directed the authors to find ways to further improve Ukrainian legislation on these issues and identified the following areas:

- in order to stimulate the spread of non-financial reporting practices, it is advisable to introduce a policy of support and encouragement of enterprises that compile non-financial reports, educational activities for the preparation of non-financial reporting, awarding the best enterprises that prepare non-financial reporting, etc;
- in order to avoid information asymmetry and ensure comparability of non-financial reporting information, it is advisable to determine at the regulatory level, a list of mandatory (key) industry indicators that fully disclose relevant information about the company and its impact on the economy, environment and society;
- in order to provide information on monitoring the achievement of CSR, mandatory (key) and sectoral indicators of reporting should be linked to the national program of their

- achievement (national development tasks), which, among other things, will allow state enterprises to integrate CSR into their development strategies;
- the introduction of the “report or explain” principle enshrined in the EU directive requirements;
- taking into account the practice of non-financial reporting of foreign companies and state enterprises (large taxpayers, TOP-100 largest state-owned enterprises), it is advisable to settle the issues of voluntary non-financial reporting;
- in order to ensure the quality of information disclosed in non-financial statements, it is advisable to enshrine at the legislative level the need for its due diligence;
- defining the mechanism of administration of non-financial reporting, in the particular collection and generalization of reporting, analysis of the submitted information, control over observance of norms of the legislation concerning preparation of such reporting at the legislative level.

There is a technical problem with the difficulty of finding information on websites of enterprises. This negatively affects the level of transparency of data on the performance of economic entities. It is advisable to improve the regulatory and organizational framework for non-financial reporting of enterprises in Ukraine and countries with economies in transition, namely to form an optimal list (package) of indicators to be reflected in the reports, clearly define posting of management reports on official websites, based on the international experience of such reporting.

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# Macro-Environment Factors Determining SME Development in the Slovak Republic

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## Keywords:

Macro environment;  
Micro, small and medium enterprises;  
Gross wage;  
Unemployment;  
Regional GDP



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**Abstract:** *Business in the segment of small and medium enterprises has its specifics. Due to their size, these companies have several advantages over large companies, but also several disadvantages. An important factor for the development of the economy is the performance and success of small and medium-sized enterprises, which depend not only on their ability to effectively use production factors or internal resources but also on the structure and quality of the business environment. The presented paper aims to describe the development of the macroeconomic environment in the Slovak Republic and its impact on the development of SMEs through the analysis of selected specific national economic indicators, as well as to outline other possible directions. By analysing selected macro indicators, we want to capture the development trends of the environment in which SMEs carry out their business activities, and which can significantly affect them.*

## 1. INTRODUCTION

The impact of the environment on the company can be positive, but also negative. It is up to the decision and ability of the company how to analyze all the influences, know the direction of their operation and apply them to the current environment in which it finds itself. An important part is to realize that the impact of the environment is different for each company. What is a problem for one company can bring opportunities for development to another (Vodák et al., 2016). As the environment of the company, we understand the part of the environment and the elements that affect it and with which it is in direct contact. We can further divide the environment of the company into macro-environment and micro-environment. An environment that affects the ability to effectively meet the needs of the target market is called a microenvironment. It includes suppliers, intermediaries, distribution channels, consumer markets, competition, the public, and, of course, the company itself. We divide the macroenvironment into six parts, namely: demographic, economic, political, cultural, natural and technological environment (Matúš, Ďurková, 2012).

The term macro-environment most often refers to the external environment of the company, which brings it various opportunities, but also risks. If a company wants to reduce risks as much as possible and, conversely, take advantage of all opportunities, it needs to know the best possible external environment, which is constantly changing. However, it cannot influence this environment in almost any way, it only has to adapt sufficiently to it (Kotler, 2007). The macroenvironment can be characterized as the “envelope” of the microenvironment, which is based on factors that the company can not influence. This macro environment is the same for companies, but it affects each company

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differently. The reason for these different influences is that each company is different and otherwise sensitive to the surrounding stimuli (Grasse, et al., 2010). The socio-demographic environment belongs to the most important parts of the macro-environment for companies. Demography deals with the people who make up the markets themselves. It should be borne in mind that rural residents have a different interest in products than urban residents. Interest also changes with age, gender, or even education. A very important factor is also the demographic changes of the population from large cities to rural settlements, or the transfer of students from one part of the country to another. Human needs are the main reason for the existence of businesses. In other words, people are the driving force behind the market development. Large and diverse demographics offer opportunities as well as challenges. Especially in times of rapid world population growth and overall demographic change, traders must monitor demographic developments, human needs and interests. The reason is that changing demographics means changing the market, and changing markets means the need for adjusted business strategies (Claessens, 2015). The economic environment consists of factors that affect consumers in terms of their spending structure, shopping habits, but also purchasing power. Purchasing power is determined mainly by consumer incomes, the ability to save and at the same time the possibility of drawing loans. Companies need to monitor the development of income in individual regions. The basic factors that we can observe in terms of the macroeconomic environment are (Vodák et al., 2016): regional gross domestic product, economically active population, inflation, nominal wages and unemployment. Regional gross domestic product (regional GDP) is the most frequently used aggregate to measure production in the region. This is the total final production of goods and services produced in a given region for the observed period by production factors located in this region. The economically active population of the region includes all persons, regardless of gender, who make up the labor supply for the production of goods and services. Inflation is a manifestation of the general imbalance of the economy, which is characterized by a permanent rise in the price level. (Klíková et al., 2019) The amount of nominal wage is the result of the relationship between demand and supply of labor, it is the price of labor. Unemployment is “a socio-economic phenomenon where the supply of labor is less than the demand for it.” (Jánošová, 2012)

The object of our research are micro, small and medium-sized businesses. For a clear specification and identification of the subject of the research, we relied on the guidelines of the European Commission (EC), which defines an enterprise as an entity that performs an economic activity, regardless of its legal form. The determining factor is the economic activity, not the legal form. Therefore, self-employed persons and family businesses engaged in craft or other activities, companies, partnerships, or associations regularly engaged in economic activity may also be included among enterprises. Following the European Commission's Recommendation, 2003/361/EC on the definition of SMEs, small and medium-sized enterprises include enterprises with less than 250 employees, an annual turnover not exceeding EUR 50 million and a total annual balance sheet not exceeding EUR 43 million. The individual size categories of SMEs are determined according to the limit values of the above criteria, while we distinguish three categories: micro-enterprise, small business and medium business.

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. Since 1996, the Slovak Republic has been further divided into 79 districts. Districts represent official statistical units corresponding in the nomenclature to NUTS 4 units, resp. LAU 1.

**Table 1.** Categories of small and medium-sized enterprises as recommended by the European Commission 2003/361 / EC

	<b>Micro-enterprise</b>	<b>Small business</b>	<b>Medium business</b>
<b>Employees</b>	< 10	< 50	< 250
<b>Annual turnover</b>	≤ 2 mil. EUR	≤ 10 mil. EUR	≤ 50 mil. EUR
<b>Balance sheet total</b>	≤ 2 mil. EUR	≤ 10 mil. EUR	≤ 43 mil. EUR

Source: European Commission Recommendation 2003/361 / EC on the definition of SMEs available at: <https://eur-lex.europa.eu/eli/reco/2003/361/>

**Table 2.** Territorial-administrative and statistical arrangement of the territory of the Slovak Republic

<b>Unit</b>	<b>Number</b>	<b>Territorial unit</b>
<b>NUTS 1</b>	1	Slovakia
<b>NUTS 2</b>	4	Bratislava Western Slovakia Central Slovakia Eastern Slovakia
<b>NUTS 3</b>	8	regions
<b>NUTS 4/ LAU 1</b>	79	districts
<b>NUTS 5 / LAU 2</b>	2 927	village

Source: <https://www.minv.sk/?uzemne-a-spravne-usporiadanie-slovenskej-republiky>

The primary source of data for the processing of quantitative indicators for the SME sector and socio-economic indicators are databases and data of the Statistical Office of the Slovak Republic, Datacenter and Eurostat for the period from 2010 to 2020. We used regression-correlation analysis. Using a regression-correlation analysis, we evaluated the dependence of the development of the number of SMEs in individual regions of the Slovak Republic on selected macro-economic indicators: wages, economically active population, regional GDP and unemployment rate. We monitored the impact of these indicators on the development of the number of SMEs in the regions of the Slovak Republic. The course of the dependence is expressed by the analytical form of the regression line (1).

$$\eta i = \beta_0 + \beta_1 x_i \quad (1)$$

Where  $\beta_0$  and  $\beta_1$  are the unknown parameters of the straight line.  $\beta_0$  is the absolute term of the regression line – loc. constant and  $\beta_1$  is the regression coefficient.  $\beta_1$  expresses how many units of measure the value of the dependent variable changes on average if the explanatory variable changes by one unit of measure. The correlation coefficient (2) expresses the dependence between two data. According to the value of the correlation coefficient, we can determine whether the correlation is positive (+1) or negative (-1). If the correlation value approaches 0, it indicates little or no dependency.

$$r = \frac{\sum x_i \cdot y_i - \frac{1}{n} \sum x_i \cdot \sum y_i}{\sqrt{\left[ \sum x_i^2 - \frac{1}{n} (\sum x_i)^2 \right] \cdot \left[ \sum y_i^2 - \frac{1}{n} (\sum y_i)^2 \right]}} \quad (2)$$

**Table 3.** Cohen's scale

From	To	Correlation force
+/- 0,00	+/- 0,20	weak to no correlation
+/- 0,21	+/- 0,40	weak
+/- 0,41	+/- 0,60	moderate
+/- 0,61	+/- 0,80	strong
+/- 0,81	+/- 1,00	very strong

Source: <https://doi.org/10.5296/ijhrs.v10i1.16488>

To correctly evaluate and interpret the results of the correlation analysis, we used the Cohen scale, which determines the type of correlation based on the value of the correlation coefficient.

## 2. LINEAR REGRESSION ANALYSIS OF THE DEVELOPMENT OF THE NUMBER OF SMES IN THE REGIONS OF THE SLOVAK REPUBLIC AND SELECTED MACROECONOMIC INDICATORS

When examining the influence of selected macroeconomic factors on the development of the number of SMEs in the regions of the Slovak Republic, we proceeded from the statistical model of linear regression. Due to the limited scope of the contribution, we focus on only 4 macroeconomic indicators: regional GDP, economically active population of the region, unemployment rate in the region, the number of nominal wages in the region.

**Table 4.** Development of the number of SMEs in the regions of the Slovak Republic

Region/ Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Region of Bratislava	111969	115256	117545	121735	124110	114238	122774	126464	122 576	130498
Region of Trnava	57629	56890	56425	56690	56644	52971	55528	56559	55184	58500
Region of Trenčín	57385	56565	55587	55765	54801	51938	53677	54273	53006	56270
Region of Nitra	65938	65331	65665	67731	68104	64569	68103	68947	67724	72000
Region of Žilina	72329	75535	72512	74502	75534	72365	75386	76199	76552	81581
Region of Banská Bystrica	57098	56394	55870	57385	57409	53952	55856	56650	55849	58425
Region of Prešov	72928	72680	71379	71694	70871	66766	69404	70616	72148	77992
Region of Košice	57449	56957	56625	57999	57768	54209	56394	57423	56802	60477

Source: [www.sba.sk](http://www.sba.sk)

The development of the number of micro, small and medium-sized enterprises in individual regions of the Slovak Republic shows various trends. Our paper aimed to find out what is the dependence of the development of the number of SMEs in individual regions on selected macroeconomic indicators.

When analyzing the dependence of the development of the number of SMEs in the regions on the development of the nominal monthly wage in the region, the values of the correlation coefficient in five regions are close to zero, which means that there is a slight to almost no depend-



ence. The opposite trend is in the regions of Bratislava, Nitra and Žilina, where there is a strong to a very strong dependence of the development of SMEs on the development of nominal wages. In these three cases, the chosen regression line explains the variability to about 60%, the other part represents unexplained variability, the influence of random factors and other unspecified influences.

**Table 5.** Linear regression analysis of the development of the number of SMEs in the region from the development of the nominal wage for the years 2010 to 2019

Region	Shape of a linear regression line	Regression coefficient	Correlation coefficient (r)	Correlation force
Region of Bratislava	$y = 22,753x - 1419,6$	22,753	0,779	strong
Region of Trnava	$y = 2,7481x + 795,08$	2,7481	0,03	weak to no correlation
Region of Trenčín	$y = -34,918x + 2834,5$	-34,918	0,404	weak
Region of Nitra	$y = 47,863x - 2351,1$	47,863	0,779	strong
Region of Žilina	$y = 40,324x - 2108,6$	40,324	0,814	very strong
Region of Banská Bystrica	$y = 18,727x - 185,59$	18,727	0,18	weak to no correlation
Region of Prešov	$y = 14,833x - 258,52$	14,833	0,374	weak
Region of Košice	$y = 24,723x - 458,13$	24,723	0,321	weak

Source: ŠÚ SR, own processing

When analyzing the dependence of the development of the number of SMEs in the regions on the development of the unemployment rate in the region, the values of the correlation coefficient in 5 regions are close to zero, which represents a slight to no dependence (Trnava and Banská Bystrica region). The opposite trend is in the regions of Nitra and Žilina, where there is a strong negative dependence of the development of SMEs on the development of the unemployment rate. In these two cases, the chosen regression line explains the variability at the level of 50%, the other part represents unexplained variability, ie the influence of random factors and other unspecified influences.

**Table 6.** Linear regression analysis of the development of the number of SMEs in the region from the development of the unemployment rate in the region from 2010 to 2019

Region	Shape of a linear regression line	Regression coefficient	Correlation coefficient (r)	Correlation force
Region of Bratislava	$y = -0,1757x + 26,069$	-0,1757	0,581	moderate
Region of Trnava	$y = 0,0803x + 1,71$	0,0803	0,041	weak to no correlation
Region of Trenčín	$y = 0,7865x - 35,811$	0,7865	0,415	moderate
Region of Nitra	$y = -1,4191x + 104,63$	-1,4191	0,708	strong
Region of Žilina	$y = -0,8764x + 74,692$	-0,8764	0,674	strong
Region of Banská Bystrica	$y = -0,5363x + 44,805$	-0,5363	0,121	weak to no correlation
Region of Prešov	$y = -0,4949x + 50,466$	-0,4949	0,302	weak
Region of Košice	$y = -0,9035x + 65,801$	-0,9035	0,325	weak

Source: ŠÚ SR, own processing

When analyzing the dependence of the development of the number of SMEs in the regions on the development of the number of the economically active population in the region, the values of the correlation coefficient in all regions approach zero, which represents a slight to almost no dependence. In these cases, the chosen regression line explains the variability at the level of approximately 10% to 23%.

**Table 7.** Linear regression analysis of the development of the number of SMEs in the region from the development of the number of economically active population in the years 2010 to 2019

Region	Shape of a linear regression line	Regression coefficient	Correlation coefficient (r)	Correlation force
Region of Bratislava	$y = 0,6798x + 262,71$	0,6798	0,480	moderate
Region of Trnava	$y = 0,6767x + 253,48$	0,6767	0,227	weak
Region of Trenčin	$y = -0,0758x + 305,43$	-0,0758	0,376	weak
Region of Nitra	$y = -0,6713x + 393,19$	-0,6713	0,066	weak to no correlation
Region of Žilina	$y = 0,0943x + 329,59$	0,0943	0,289	weak
Region of Banská Bystrica	$y = 1,0644x + 264,16$	1,0644	0,21	weak
Region of Prešov	$y = 0,1569x + 383,34$	0,1569	0,065	weak to no correlation
Region of Košice	$y = 2,3015x + 236,74$	2,3015	0,404	moderate

Source: ŠÚ SR, own processing

When analyzing the dependence of the development of the number of SMEs in the regions on the development of the value of regional GDP in the region, the values of the correlation coefficient in five regions are close to zero, which expresses a slight to almost no dependence. The opposite trend is in the regions of Bratislava, Nitra and Žilina, where there is a strong to a very strong dependence of the development of SMEs on the development of the value of regional GDP. In these three cases, the chosen regression line explains the variability to approximately 69%, the other part represents unexplained variability, the influence of random factors and other unspecified influences.

**Table 8.** Linear regression analysis of the development of the number of SMEs in the region from the development of the value of regional GDP for the years 2010 to 2019

Region	Shape of a linear regression line	Regression coefficient	Correlation coefficient (r)	Correlation force
Region of Bratislava	$y = 319,2x - 16118$	319,2	0,768	strong
Region of Trnava	$y = 510,86x - 27975$	510,86	0,311	weak
Region of Trenčin	$y = -136,92x + 14812$	-136,92	0,478	moderate
Region of Nitra	$y = 281,05x - 10472$	281,05	0,748	strong
Region of Žilina	$y = 271,3x - 11626$	271,3	0,831	very strong
Region of Banská Bystrica	$y = 68,235x + 3042$	68,235	0,118	weak to no correlation
Region of Prešov	$y = 90,751x + 630,94$	90,751	0,258	weak
Region of Košice	$y = 194,26x - 1869$	194,26	0,271	weak

Source: ŠÚ SR, own processing

### 3. CONCLUSION

Based on the results of our regression-correlation analysis, we can state that only in three regions of the Slovak Republic (Bratislava, Nitra and Žilina) there is a strong to very strong dependence between the development of the number of SMEs in the regions and selected macroeconomic indicators. Other regions show little to no dependence. Thus, the development of the number of SMEs in the regions is largely dependent on other quantitative as well as qualitative factors. Their analysis will be the subject of our further research.

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# SME Support on Regional Level in Republic of North Macedonia – The Role of the Business Centers within the Centers for Development of the Planning Regions

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## Keywords:

Business centers;  
SME;  
Regional development



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**Abstract:** *Entrepreneurship has received increased attention during the last few decades. Private entrepreneurship provides numerous opportunities for the economic development of society.*

*Entrepreneurship marks its peak through the development of small and medium-sized enterprises (SME). The advantages and attributions from SMEs have been widely accepted as a great influence factor on job creation and support of regional revitalization, based on the development of indigenous resources, great flexibility and promotion of industrial innovation. Entrepreneurship also provides a solid basis for sustainable local and regional economic development. It contributes towards decreasing the regional disparities both, within the country itself and among countries as well. SMEs are supposed to initiate economic development in underdeveloped regions with very high poverty levels and living standards, thus alleviating the economic and social integration of the country. Taking this into consideration, there is a need for local and regional structures in the country to concentrate their activities on providing various measures and activities aimed at initiating and stimulating the development of small and medium-sized enterprises.*

## 1. STATE OF THE ART IN REPUBLIC OF NORTH MACEDONIA

The most stable economic growth rates in the period 2011-2017 are in the Skopje planning region with an average economic growth rate of 2.42%, which is slightly higher than the average economic growth rate of 2.32% at the level of the whole economy. The economic growth in the Skopje planning region indicates the fact that this region, where 43% of the total GDP is generated, is the engine of economic activity and carrier of economic growth in the country. The very low economic development of other regions leads to greater instability in their economic growth and indicates their individual much smaller effect on national economic growth.

According to the data of the State Statistical Office, the number of active business entities in the Republic of North Macedonia in 2019 was 75 914. The data on the structure of active business entities by region shows that the highest share of 39.1% belongs to the Skopje Region, while the Northeast Region had the lowest share of 5.5%. The data on the structure of enterprise births in 2018, by statistical regions, shows that the highest share of 41.1% belongs to the Skopje Region, while the Northeast Region had the lowest share of 5.5%. (Regions in Republic of North Macedonia, State Statistical Office, 2020).

The companies from all regions, except the Skopje planning region, have limited access to the information for the relevant and available funds for different types of support of SMEs. It is important to note that the involvement of the various key stakeholders varies according to the

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planning region. While in the Skopje planning region several institutions for support of the business sector (such as chambers of commerce, incubators, bilateral chambers, post-project institutions - CEED, network of business angels, etc) are actively present, in most of the other regions only some of the private and public institutions are present and active.

Based on the Law for Balanced Regional Development, CRDs should also support the business sector in their regions. Therefore in 2011 business centers as the department for support of the business sector were established within the Center for development of the planning regions.

## **2. THE ROLE OF THE BUSINESS CENTERS**

The establishment of the Regional Business Centers in the eight planning regions is based on a decision of the Government of the Republic of North Macedonia held on August 29, 2011, based on the previously prepared analysis.

In the period from their establishment until 2018, their support to the business sector was limited and they were not recognized by many companies from the SMEs sector.

With aim of supporting the CRDs in the implementation of the measures as set in their Regional Programmes for Development of the Business Sector, the SIBRD project has supported the operation of all 8 Regional Business Centers whose main role is to strengthen SME support in the region by improving the services which are provided to the SME sector.

Through the projects in the last three years, business centers were supported to improve their services through organizing events, workshops, promotions, training for the business sector, etc. Until June 2019, the business centers have delivered several services to the business sector such as:

- Continuous updating of the Electronic Regional Database for Institutions and Companies that offer services for private sector development (non-profit, educational, local agencies and government agencies, consulting firms, lawyers, notaries, accountants, etc.);
- Continuous updating of the Electronic Regional Database for available “greenfield” and “brownfield” locations;
- Promoting Business Centers on social networks and regular updating of the FB page where all information useful for companies will be shared;
- Preparation of a list of possible Government and other sources of funding for the Business Sector updated on the website;
- Training for SMEs on different topics;
- Implementation of two innovative projects (per BC) with the active involvement of the business sector;
- Preparation of Register of entrepreneurs, companies and farmers divided into areas (industrial branches);

Based on their reports, and the offered services it was evident that the capacities of the Business Centres to support the business sector are still not on a satisfactory level.

Business Centres need further support to strengthen links and cooperation with the private sector through networking with all relevant national/regional institutions responsible for SME support.



Based on the above-mentioned findings, Business Centers within the Centers for Development of the Planning Regions have taken the first step to becoming hubs for networking with relevant national/regional institutions for SMEs by starting close cooperation with the Fund for Innovation and Technological Development (FITD).

### **3. SUMMARY OF THE RESULTS OF BCS BASED ON THEIR COOPERATION WITH FITD**

The analysis was prepared based on data collected concerning the achieved results of the Centres for development of the planning region (CRDs) regarding their direct support to SME sector for FITD Public Calls for Co-financed Grants for Technological Development, for Accelerated Economic Growth and Co-financed grants for start-ups and spin-off companies through offering expert support to the companies from their regions (<https://fitr.mk/zatvoreni-povici/#>).

The collected data were analysed for each of the regions separately, followed by comparative analysis to determine differences between the regions.

Through the voucher scheme, the companies had a possibility to receive mentor support in different fields during the process of application such as human resources management, increasing export, developing new products, expanding to the existing and new markets, marketing and branding, etc. Within the voucher scheme for the two calls, 179 companies have applied for receiving expert input. From 179 companies that have applied for expert support, 102 companies have received expert support.

Also, the established network of the business center with the business sector from the respective regions is on a lower level comparing to the others. However, the cooperation of BCs from all 8 regions with FITD enabled for the first time increase the number of companies that have applied from other regions.

Subsequently, the number of companies that have applied from the Skopje region to FITD has decreased from 60 % from the previous period to 45% in 2021.

### **4. CONCLUSION**

As the main pillar of regional development, small and medium enterprises (SMEs) constitute an important part of economic development and contribute considerably to regional economic development by creating new jobs, providing investment opportunities and forming the economic capital and potential required for sustainable economic growth. Availability of information and leveraging existing resources is essential for the progress of small and medium-sized enterprises both at the local and regional levels. In spite of the fact that the Business Centers have managed to establish links with SMEs and provide basic services to the business sector in the last few years, still, they don't play a significant role in SME support and stimulation of their innovative capacities. In the future, they should become the main networking hubs in the regions, through establishing partnerships with relevant SME support institutions and providing valuable information about existing services and funding opportunities.

The cooperation with academia will be added value and will ensure wider ownership of the regional development process.

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<https://fitr.mk/zatvoreni-povici/#>



# Yesterday CSR Initiatives, Tomorrow Social Enterprises

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## Keywords:

Social enterprises;  
Social economy;  
CSR



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**Abstract:** *The COVID-19 pandemic has left an overwhelming impact on socio-economic life around the world. In the current context, in which we are still facing a new coronavirus pandemic wave, the negative impact is becoming difficult to quantify. Therefore, it can be said that the world is in a moment of reflection, in which new opportunities must be identified in order to accelerate social and economic recovery. If in the past CSR initiatives were considered a breath of fresh air, today we look with confidence to a future in which there is a whole range of opportunities due to the activities of social enterprises. Therefore, this article aims to highlight the possibility of defining the social economy through social enterprises that offer a new way of doing business.*

## 1. INTRODUCTION

With more than 166 million confirmed cases and over 3.4 million deaths (World Health Organization, 2021), the COVID-19 pandemic will remain a turning point that did affect the whole world. In addition to the immeasurable loss of human lives in value, we are surprised by a major effect on the economy. Therefore, the main areas of interest that will need measures in order to reduce the consequences of tensions accumulated during this period are social and economic fields.

It is clear that 2021 will be a year of quantifying the effects of the pandemic, but also of the challenges in terms of finding solutions and measures to mitigate the existing socio-economic impacts. For this reason, and having a double vision of the impact, this article aims to open a new perspective between reducing the social and economic effects of the pandemic through the social economy.

The central idea will be to start from the concept of CSR, which was one of the main and indispensable pillars for the premise of achieving sustainable development, to a new business code that comes to develop the concept of “social economy” and materialize it through the existence of social enterprises.

## 2. CSR INITIATIVES IN ROMANIA

In recent years, both in theory and in practice, special emphasis has been placed on CSR, namely on the development of actions that converge towards social responsibility. But does the existence of then and now activities is sufficient to support the social economy? Is a question that we find an answer below.

Due to the important positions they hold in the Romanian market, multinational companies play a strategic role in economic and social development. Actions such as financial or material donations, sponsorship or volunteering are common approaches in the policy of large companies that are open to CSR activities. Although initially, multinational companies viewed CSR as a

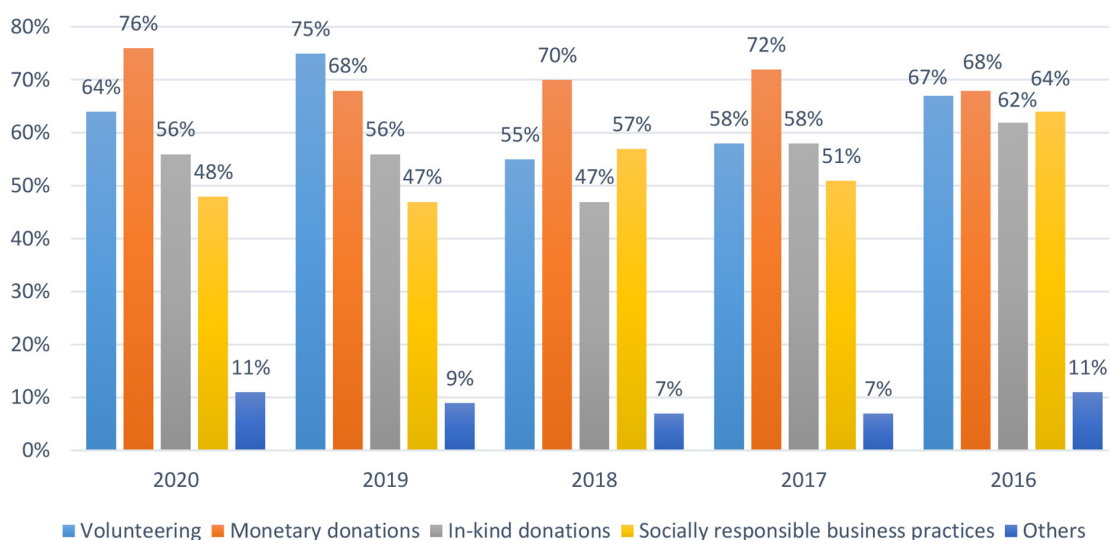
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“fashionable” concept that aimed to increase visibility, publicity and also to receive tax facilities under the aegis of involvement in actions that targeted social responsibility in the background, at present we can see an active managerial involvement that makes the decision-making process have a direct impact on society as a whole.

An online questionnaire conducted last year, in the midst of the COVID-19 pandemic, by Val-oria in partnership with CSRmedia.ro (Dynamics and Perspective of the CSR field, August 12 - September 29, 2020) reveals that CSR represents an important component of the business. Among the most important results that can be identified from the respondents’ answers, the following stand out:

- education and health are the main areas targeted by CSR and those that received the most support in 2019;
- 99 % of companies state that they carry out actions and projects such as CSR activities;
- 84 % of companies use the social media area to advertise after carrying out CSR activities;
- 79 % of companies see CSR as a sustainable business strategy;
- 65% of companies have introduced a special budget line for CSR within the PR & Marketing department although 41% of companies state that in 2020 there was a budget freeze;
- 15 % of companies have allocated in 2020 a CSR budget between 100,000-200,000 euros;
- to the multiple-choice question regarding the reasons why a company is involved in the CSR area, most of the answers were that CSR facilitates the promotion of the company’s products and services (56%), CSR is part of the company’s philosophy and values (53%) or because it exists an obligation imposed by the company’s policy (52%).

The main activities through which companies operate in Romania provide support to the community they belong are the following: cash donations, socially responsible business practices, volunteering, in-kind donations, other activities. The graph below shows an evolution of these activities in the last 5 years (2020-2016).



**Figure 1.** CSR activities used by companies to support the community

**Source:** Dynamics and Perspective of the CSR field (2020-2016), made by author

Therefore, averaging the percentages in the chart above, we can see that monetary donations are the main CSR activity used by companies operating in Romania in order to provide support to the community, followed by volunteering.

In addition, it should be noted that the COVID-19 pandemic has managed to arouse the empathy of companies that want to do something for society. Lately, the motivation of these companies is deeply noticed and the support of private entities come to give confidence to the local communities but also the educational and medical system in Romania.

### 3. SOCIAL ENTERPRISES IN ROMANIA

Beyond the CSR activities, which are extremely welcome during this period, there is a need for permanent actions that support both society and the economy. Also, the need to form a sustainable public-private partnership becomes an important strategic objective in the stated context. This desideratum can materialize through the existence of social enterprises, a concept that is quite well known internationally, but at a pioneering level in Romania.

In order to be able to debate the notion of social enterprise, we must first refer to the concept of social economy, also called “solidarity economy”. At the European level, there are differences in each country when it comes to the visibility of this concept, precisely because there are no identical legal regulations applicable in all these countries. In Romania, the social economy is regulated by Law no. 219 of 2015 on the social economy, whose methodological norms for application were adopted by Government Decision no. 585 of August 2016. The law on the social economy also sets out three fundamental objectives, namely: strengthening economic and social cohesion, employment and social services development. To achieve the objectives of the social economy, entities must carry out activities of general interest such as:

- the production of goods, the provision of services and/or the execution of works that contribute to the well-being of the community or its members;
- promoting activities that provide or generate jobs for people belonging to vulnerable groups;
- the creation and development of training programs for people belonging to vulnerable groups;
- the creation and development of social services in order to increase the insertion of people belonging to vulnerable groups, on the labor market.

Currently, in Romania, there is a resumption of the public-private partnership through which the authorities of central and local public administration can support social economy activities. In this sense, it is considered: the recognition of the role of social enterprises by granting a certificate and a social brand; developing mechanisms in order to support social inclusion enterprises; promoting and supporting the development of human resources in the social economy; active participation in certain approaches or activities related to the field of social economy; establishment of information and counseling centers in the field of social economy.

The Romanian Law no. 21/2015 defines two categories of entities that operate in the sphere of social economy: social enterprise (chapter II, art. 8-9) and social insertion enterprise of insertions (chapter III, art. 10-11). The social enterprise is defined as the legal person that carries out activities in the field of social economy, holds a certificate of social enterprise and respects the principles of social economy. Regarding the social enterprise certificate, it is granted for 5 years, with the possibility of extension, if the company meets the following criteria: a) acts for social purposes and/or in the general interest of the community; b) allocates a minimum of 90% of the profit for a specific social objective or statutory reserve; c) after the liquidation procedure they have the obligation to transfer the remaining assets to one or more social enterprises; d) ensur-

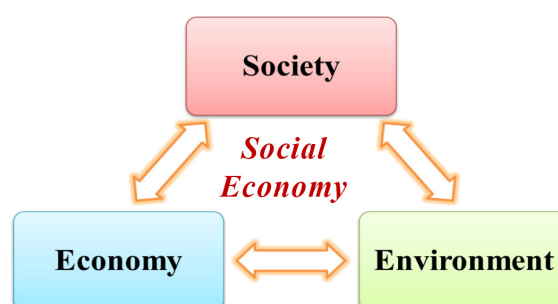
ing a fair salary level by applying the principle of social equity to employees which implies that there can be no pecuniary differences exceeding the ratio of 1 to 8. Social enterprise of insertion is a social enterprise that fulfills two conditions: a) at least 30% of the employees belong to a vulnerable group, and the cumulated working time of these employees must represent at least 30% of the total time worked by all employees; b) as the enterprise fights against exclusion, discrimination and unemployment, the main objective is the socio-professional insertion of disadvantaged people. The social enterprise of insertion status is certified by granting a social brand that includes a certificate valid for 3 years but also a specific element of visual identity that is used on certain documents according to the Visual Identity Manual (2016).

The dynamics of the social economy sector regarding the number of social enterprises operating in this area can be observed by accessing the Register of Social Enterprise Records, held by the National Agency for Employment. Between 2016 and March 31, 2021, the process of attestation of social enterprises was initiated, being granted 1641 certificates for social enterprises and 45 certificates for the social enterprise of insertion / social brand.

The effects of the COVID 19 pandemic can still be seen in Romania both socially and economically. From a social point of view, the effects will be visible in the medium and long term. On the one hand, we have a period in which online schooling was done, and the Romanian educational system was not prepared for such a situation, and on the other hand we have a worrying unemployment rate among young people. According to data published by the National Institute of Statistics (Electronic press release no. 160, 2021), the employment rate of the working-age population (category 15-64 years), in the first quarter of 2021, was 60.8%. Of this percentage, the employment rate was higher in men as opposed to women (70.3% in men compared to 51.0% in women) and higher in urban areas compared to rural areas (66.5% compared to 54.0%). The total unemployment rate in the first quarter of 2021 was 6.1%, and by age group, the unemployment rate reached the highest level (21.5%) among young people (15-24 years). Therefore, economic or social activity supposes the existence of factors that can only coexist through the mandatory interaction with human resources. And so, through the suffering caused to the human resource, the economic activity was fundamentally affected. Therefore, the existence and involvement of social enterprises become a necessary sine qua non condition for reducing disparities arising from the effects of the COVID-19 pandemic.

#### 4. FUTURE RESEARCH DIRECTIONS

Given that the COVID-19 pandemic is not yet a closed topic and, based on official information, the new strain is still a cause for concern worldwide, it is clear that we need to look for new research solutions.



**Figure 2.** The three-dimensional vision of the social economy

Source: Made by author



However, the growing interest in the social economy and “human affairs” seems to open up a horizon of new opportunities designed to offer an innovative three-dimensional vision, namely: society-economy-environment (Figure 2).

The social economy can provide many advantages and solutions to some real and current problems existing in Romania, but it is necessary for the public authorities to have greater openness and to fully support the activity of social enterprises. In addition, we must understand that we have the right to a healthy environment in order to live, we need a sustainable economy to meet our needs, but also a fair society that provides opportunities for everyone.

#### 4. CONCLUSION

The COVID-19 pandemic was an unpredictable shock to all mankind. At an unexpected time, most countries in the world were taken by surprise and national economies were inevitably affected. Under the auspices of a rhetorical question “qvo vadis” many states were hesitant to make timely decisions because medical cases were advancing rapidly and there was not enough reaction time to prevent all shortcomings. In such critical moments, we could observe how society and the economy suffered.

It is clear that society will recover and the economy will resume its trend, but it is very important to see how this happens. CSR activities are necessary and will always be a breath of fresh air for the community, but in Romania more is needed. We must look to the past and learn from our mistakes so that we can change the future, and the future is represented by the existence of humanity and business-oriented towards people and society. The role of social enterprises is to create a balance so that possible social disparities and inequities can be reduced. Romanian society needs to create opportunities through inclusion and increase the community’s standard of living.

Although there are multiple benefits, the issue of the social economy and thus of social enterprises are not well enough popularized so that real opportunities can be multiplied. The necessity for media debates, along with increasing cooperation between social-economic agents, as well as the facility of accessing new sources of funding could develop a whole series of good practice examples in order to support sustainable economic development.

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# Enterprise's Trust in Stakeholders: For a New Culture of Sustainability. Investigation on Companies Listed on the Italian Stock Exchange

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## Keywords:

Collaborative enterprise;  
ESG value;  
Engagement methods



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**Abstract:** *The premise of this study is that the essence and concreteness of stakeholder engagement, within sustainability practices, derive from the trust attributed by the company to the value of stakeholder contribution in terms of ideas, points of view and evaluation. The significance of stakeholder engagement processes and results expressed by the company is therefore a signal of this trust, indicator which can be identified and appraised by studying the corporate sustainability reporting systems. The work highlights the findings of an investigation carried out in this field, with the focus on the sustainability reports of large Italian listed companies. Alongside relevant positive examples, some areas of resistance to fully inclusive approaches emerge. Elements of reflection arise from this, in the perspective of the evolution of the corporate culture in terms of integrated sustainability, and quality of business decisions.*

## 1. INTRODUCTION

Many scholars and professionals have worked and written on stakeholder engagement and its relevance within a perspective of integrated sustainability for business and society and for the well-being of individuals. The seminal and broad definition of stakeholder given by Freeman and Reed (1983:91) is still effective in recalling how blurred are the boundaries delimiting the corporate entity, and how vast is the network identifying the community of interests around a company. Considering these interests is part of the path towards corporate social responsibility (CSR) – “the responsibility of enterprises for their impacts on society” (EC, 2011:6) – and sustainability, in the integrated approach – as the urgency to meet “the needs of the present without compromising the ability of future generations to meet their own needs” (UN, 1987:16) – and currently it is particularly critical given the huge collaborative efforts required to overcome the pandemic crisis and create new equilibria.

However, stakeholder engagement does not necessarily coincide with “responsible treatment of stakeholders” (Greenwood, 2007:320), nor with automatically positive contribution to CSR or sustainability. The significance of stakeholder engagement in these directions depends on the trust assigned by the enterprise to the ability of its wide community to act collaboratively, within “experience spaces” which are the basis of value and innovation in a broad sense (Prahalad & Ramaswamy, 2003:14). It is this trust, in fact, that leads to organising the engagement process in order to obtain actionable inputs and to then concretely take them into consideration within strategic planning paths, where the interlocutors continue to be involved with empathy and without judgment, according to a design thinking perspective (among others: Brown, 2008; Martin & Martin 2009; Kolko, 2015).

The theme of interlocutors’ trust in the enterprise has been widely and significantly treated (see e.g. Bandsuch et al., 2008; DiPiazza Jr & Eccles, 2002). Less academically and professionally

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explored is instead the enterprise's trust in stakeholders (ETiS); this theme is however inherently linked to the concepts of value co-creation (Barringer & Harrison, 2000; Ramaswamy & Ozcan, 2020), collaborative enterprise (Halal, 2001; Tencati & Zsolnai, 2009), reciprocity (Bosse et al., 2009; Fassin, 2012), quality of stakeholder engagement (Manetti, 2011), and open innovation (Wayne Gould, 2012). From an empirical perspective, it can be observed that corporate paths for sustainability, largely oriented towards the development of interlocutors' trust in the enterprise, do not always emerge as founded on the ETiS as well. This gap generates fragility of interlocutors' involvement and derives from business paradigms which are still divisive (on the one hand the company, on the other its interlocutors) rather than collaborative, as the challenges of sustainability would require. A company with an evolved approach to sustainability wants to question itself on the advisability of its strategies and actions, in the context of the whole system of ESG (environmental, social, governance) impacts generated. Such a company knows that the evaluation of these impacts cannot take place without stakeholders' contribution, through opinions and ideas. This is particularly true today because still immersed in the pandemic shock, all society is and feels called to collaboratively promote a new future based on overcoming stereotypes in all areas – including sustainability and business – and on supporting highly inclusive paradigms.

The ETiS indicates an advanced inclusivity phase of the company. In fact, it can only be based on an environment which ensures that stakeholders in turn trust the company – therefore it can only be based on a virtuous circularity. In this sense it represents an important indicator of a culture of sustainability understood as a dimension of transparency, collaboration, overcoming conventional business boundaries towards networks of experiences. The development of this culture requires extensive management skills in terms of openness to stakeholders, enhancement and fostering of their contribution, awareness of the “inter-stakeholder relations” and “mutually beneficial policies” (Post et al., 2002:23), necessarily “beyond dyadic” approaches (Rowley, 1997:887) and recognising that “the centre of starting, managing, and leading a business is a set of stakeholder relationships which define the business” (Freeman et al, 2010:291). Expressions of the ETiS level can be identified in company reports through the analysis of stakeholder engagement methods and, above all, of concrete reference to the results of such engagement. With the aim of providing useful elements to foster advanced approaches to interlocutors, this work highlights the results of an investigation on sustainability reports of a set of Italian listed companies, as indicated below.

## **2. INVESTIGATION OBJECT AND METHODOLOGY**

The analysis concerns the sustainability reports of the 40 Italian companies which are the Constituents of the FTSE MIB (Financial Times Stock Exchange Milano Indice di Borsa) as of May 1, 2021 (Borsa Italiana, 2021). These companies are evidenced in table 1. They belong to various super sectors: Automobiles and parts, 3 companies; Banks, 6; Construction and materials, 2; Energy, 4; Financial services, 4; Food, beverage and tobacco, 1; Health care, 3; Industrial goods and services, 6; Insurance, 3; Technology, 1; Telecommunications, 2; Utilities, 5 (Borsa Italiana, 2021). To appreciate the relevance of this sample, it should be considered that “The FTSE MIB is a benchmark index for the Italian equity markets. Capturing approximately 80% of the domestic market capitalization, the index is comprised of highly liquid companies in Italy” (Borsa Italiana, 2018:3). Therefore, studying the Constituents of this index means studying enterprises with wide impact on huge stakeholder networks, enterprises that go far beyond the borders of a Country and with respect to which there is a collective expectation of high ESG commitment. Given its overall scope, this set of companies is particularly emblematic in order to understand how widespread and evolved trust in interlocutors is today within large Italian companies. It should be noted that

among the purposes of the investigation there is absolutely not that of creating a ranking of the companies analysed; the study is in fact aimed at acquiring useful elements to understand the dimensions of trust in interlocutors and identify evolutionary paths, in a collaborative perspective.

**Table 1.** The analysed companies, Constituents of FTSE MIB (Financial Times Stock Exchange Milano Indice di Borsa) as of May 1, 2021

1	A2a	11	Cnh Industrial	21	Intesa Sanpaolo	31	Recordati
2	Amplifon	12	Diasorin	22	Inwit	32	Saipem
3	Atlantia	13	Enel	23	Italgas	33	Snam
4	Azimut Holding	14	Eni	24	Leonardo	34	Stellantis
5	Banca Generali	15	Exor	25	Mediobanca	35	Stmicroelectronics
6	Banca Mediolanum	16	Ferrari	26	Moncler	36	Telecom Italia
7	Banco Bpm	17	Fincobank	27	Nexi	37	Tenaris
8	Bper Banca	18	Generali	28	Pirelli & C.	38	Terna
9	Buzzi Unicem	19	Hera	29	Poste Italiane	39	Unicredit
10	Campari	20	Interpump Group	30	Prysmian	40	Unipol

**Source:** Borsa Italiana, 2021

The sources of the investigation work include the contents of the *Sustainability* section of the companies' websites<sup>2</sup>, with particular attention to the elements of sustainability reporting, however named and wherever presented (within sustainability reports, CSR reports, integrated reports, annual reports). In 38 cases out of 40, materials that refer to 2020 have been analysed (in 5 cases, only in Italian and in 7 cases only in English). Regarding the other 2 cases, the following resources have been analysed: in one case, only 2019 materials; in one case materials related to the period 2019-20. Therefore, in the majority of cases, sources referring to 2020 in both English and Italian resulted as easily accessible.

Each company has been analysed based on the checklist shown in table 2, which includes general profiles of stakeholder engagement (points from a. to c.) and signals of ETiS (points from d. to k.). Two spheres of ETiS have been identified in this work: a sphere 1, of ETiS *in the strict sense* (ETiS1) and a sphere 2, of ETiS *in a broad sense* (ETiS2). The former is intended here as a trust in the stakeholders engaged in paths of consultation and debate, that is trust in involved

<sup>2</sup> Companies' websites (accessed on May 2021):

- |   |  |
|---|--|
| 1. A2A, <a href="https://www.a2a.eu">https://www.a2a.eu</a>   | 21. Intesa Sanpaolo, <a href="https://group.intesasanpaolo.com">https://group.intesasanpaolo.com</a> |
| 2. Amplifon, <a href="https://corporate.amplifon.com">https://corporate.amplifon.com</a>                            | 22. Inwit, <a href="https://www.inwit.it">https://www.inwit.it</a>                                   |
| 3. Atlantia, <a href="https://www.atlantia.it/en">https://www.atlantia.it/en</a>                                    | 23. Italgas, <a href="https://www.italgas.it">https://www.italgas.it</a>                             |
| 4. Azimut Holding, <a href="https://www.azimut-group.com">https://www.azimut-group.com</a>                          | 24. Leonardo, <a href="https://www.leonardocompany.com">https://www.leonardocompany.com</a>          |
| 5. Banca Generali, <a href="https://www.bancagenerali.com">https://www.bancagenerali.com</a>                        | 25. Mediobanca, <a href="https://www.mediobanca.com">https://www.mediobanca.com</a>                  |
| 6. Banca Mediolanum, <a href="https://www.bancamediolanum.it">https://www.bancamediolanum.it</a>                    | 26. Moncler, <a href="https://www.monclergroup.com">https://www.monclergroup.com</a>                 |
| 7. Banco Bpm, <a href="https://gruppo.bancobpm.it">https://gruppo.bancobpm.it</a>                                   | 27. Nexi, <a href="https://www.nexi.it">https://www.nexi.it</a>                                      |
| 8. Bper Banca, <a href="https://istituzionale.bper.it">https://istituzionale.bper.it</a>                            | 28. Pirelli & C., <a href="https://www.pirelli.com">https://www.pirelli.com</a>                      |
| 9. Buzzi Unicem, <a href="https://www.buzziunicem.com">https://www.buzziunicem.com</a>                              | 29. Poste Italiane, <a href="https://www.posteitaliane.it">https://www.posteitaliane.it</a>          |
| 10. Campari, <a href="https://www.camparigroup.com/en">https://www.camparigroup.com/en</a>                          | 30. Prysmian, <a href="https://www.prysmiangroup.com">https://www.prysmiangroup.com</a>              |
| 11. Cnh Industrial, <a href="https://www.cnhindustrial.com">https://www.cnhindustrial.com</a>                       | 31. Recordati, <a href="https://www.recordati.it">https://www.recordati.it</a>                       |
| 12. Diasorin, <a href="https://diasoringroup.com">https://diasoringroup.com</a>                                     | 32. Saipem, <a href="https://www.saipem.com">https://www.saipem.com</a>                              |
| 13. Enel, <a href="https://www.enel.com">https://www.enel.com</a>   | 33. Snam, <a href="https://www.snam.it">https://www.snam.it</a>                                      |
| 14. Eni, <a href="https://www.eni.com">https://www.eni.com</a>  | 34. Stellantis, <a href="https://www.stellantis.com">https://www.stellantis.com</a>                  |
| 15. Exor, <a href="https://www.exor.com">https://www.exor.com</a>   | 35. Stmicroelectronics, <a href="https://www.st.com">https://www.st.com</a>                          |
| 16. Ferrari, <a href="https://corporate.ferrari.com">https://corporate.ferrari.com</a>                              | 36. Telecom Italia, <a href="https://www.gruppotim.it">https://www.gruppotim.it</a>                  |
| 17. Fincobank, <a href="https://fincobank.com">https://fincobank.com</a>  | 37. Tenaris, <a href="https://www.tenaris.com">https://www.tenaris.com</a>                           |
| 18. Generali, <a href="https://www.generali.com">https://www.generali.com</a>                                       | 38. Terna, <a href="https://www.terna.it">https://www.terna.it</a>                                   |
| 19. Hera, <a href="https://eng.gruppohera.it/group_eng/investors">https://eng.gruppohera.it/group_eng/investors</a> | 39. Unicredit, <a href="https://www.unicreditgroup.eu">https://www.unicreditgroup.eu</a>             |
| 20. Interpump Group, <a href="https://www.interpumpgroup.it">https://www.interpumpgroup.it</a>                      | 40. Unipol, <a href="https://www.unipol.it">https://www.unipol.it</a>                                |



stakeholders' ability to provide the company with a truly useful contribution to improve analyses, processes and results in a collaborative way; within this investigation, the ETiS *in the strict sense* was studied through the analysis of the dimensions indicated at the points from d. to g. of the checklist which represent signals of concrete consideration and effective enhancement in decision-making contexts of the point of view of the interlocutors specifically involved. The latter is intended here as a trust in the recipients (meant in a wide sense) of the reporting, and consequently in the evolutionary strength of transparency. This is the trust in the maturity of the recipients, in their ability to use information and reporting in order to formulate a rigorous evaluation of the company's processes and results, taking into account both aspects of strength and areas for improvement. Within this investigation, the ETiS *in a broad sense* was studied through the analysis of the dimensions indicated at the points from h. to k. of the checklist which represent signals of self-critical and balanced approach. The two areas of trust are both important and certainly linked in a framework that sees the ETiS in the strict sense representing a more inclusive and actively collaborative phase of the company and the ETiS in a broad sense representing a level of self-criticism that is important in itself and indispensable as a basis for higher levels of trust.

**Table 2.** The checklist defined for the analysis

Order number [1-40]

Company's name

<b>General profiles of stakeholder engagement</b>	
a.	Existence of a specific section on "stakeholders" within the company's reports available online or directly at the pages of the company website [1, this emerges; 0, does not emerge]
b.	Link to the materiality analysis [1, this emerges and is clear; 0.5 emerges but is not clear; 0, does not emerge]
c.	Description of the involvement methods and processes [1, this emerges and is clear; 0.5 emerges but is not clear; 0, does not emerge]
<b>Signals of enterprise's trust in stakeholders, in the strict sense (ETiS1)</b>	
d.	Direct reference to the contents (themes, objects) of the stakeholder involvement in terms of business strengths and business areas for improvement [1, this emerges; 0, does not emerge]
e.	Direct reference to the results (achieved conclusions) of the stakeholder involvement in terms of business strengths and business areas for improvement [1, this emerges; 0, does not emerge]
f.	Inclusion of perspective lines defined on the basis of the inputs indicated in point e), with an effective impact on planning [1, this emerges; 0, does not emerge]
g.	Inclusion of perspective lines (in terms of both positive profiles to maintain and criticalities to overcome) regarding the interlocutor involvement processes [1, this emerges; 0, does not emerge]
<b>Signals of enterprise's trust in stakeholders, in a broad sense (ETiS2)</b>	
h.	Highlighting, alongside the strengths, also the business areas for improvement at a strategic and managerial level, based on the orientation towards continuous improvement [1, this emerges; 0, does not emerge]
i.	Indication of commitments for future actions, in connection with the critical analysis mentioned in point h) [1, this emerges; 0, does not emerge]
j.	Effectiveness level (in terms of detail and incisiveness level) of the information in point i) [1, this is high; 0.5, is medium; 0, is low]
k.	From the environmental point of view, an overall analysis of the footprint generated by the company and an indication of the strategies to reduce or mitigate this footprint [1, these emerge and are detailed and deep; 0.5, emerge and are significant but not detailed and deep; 0, do not adequately emerge]

**Source:** Author's elaboration

This scheme of analysis has been defined by drawing on the conceptual framework and the network of logical references mentioned above, intrinsically underlying the concept of ETiS – particularly in the direction of the collaborative enterprise, reciprocity, quality of stakeholder engagement, open innovation. In defining the checklist points, it has been taken into account that the ETiS implies a continuous, not sporadic, dialogue with the interlocutors, in the prospect of "engaging stakeholders for long-term value creation" (Andriof et al., 2017:9). The scheme is also based on the reference to



the main standards on this matter – in particular to the sustainability reporting standards of Global Reporting Initiative (2016) and to the stakeholder engagement standards of AccountAbility (2015) – with special attention to the requirements of effectiveness and significance of reporting and engagement processes. The investigation concerns both objective profiles, linked to the existence of specific elements (e.g. the existence of a section on stakeholders within the company's reports), and profiles assessed based on the conceptual framework above indicated (e.g. the effectiveness level of the information). The assessments derived from a double cycle of evaluation performed by the author on all companies and from a further analysis carried out always by the author to resolve a few cases of slight difference that emerged between the first and second cycle of evaluation.

### 3. FINDINGS

#### 3.1. General approach to stakeholder engagement

In all analysed cases, a specific *section on "stakeholders"* (within the sustainability or integrated reports or at webpages) is evident, but the connection between the stakeholder involvement and the identification of the company priorities, within the *materiality analysis*, is clear only in 21 (52.50%) cases; is stated by the company but not clear in 12 (30.00%) cases; and does not emerge in 7 (17.50%) cases. A description of the stakeholder *involvement methods and processes* emerges and is clear in less than the majority of cases (in 19 cases, 47.50%); emerges but is vague and not clear in 11 cases (27.50%) – with generic reference to continuous dialogue or connection with the interlocutors or to undefined meetings; does not emerge in 10 cases (25.00%).

#### 3.2. Signals of ETiS in the strict sense (ETiS1)

*Direct references to the contents* (objects, themes) of the stakeholder consultation and involvement, in terms of business strengths and business areas for improvement, emerges only in 13 cases (32.50%) and lacks in the majority of cases (in 27 cases, 67.5%). *Direct references to the outcomes* (achieved conclusions) of the stakeholder consultation and involvement, in terms of business strengths and business areas for improvement, emerges only in 9 cases (22.5% of the total; 69.23% of the 13 positive cases indicated in the previous point), and lacks in more than three quarters of cases (31 cases, 77.5%). The inclusion of *perspectives defined on the basis of the outcomes* indicated in the previous point, with an effective impact on planning, emerges in all the 9 positive cases of direct reference to the results of the stakeholder involvement; it should be observed that when the company focuses on these results, it does not fail to enhance them and project them towards contexts for improvement. It is also important to note that all these cases concern companies with positive profiles h. and i. of ETiS2. Companies that express ETiS1 therefore emerge as a subset of those that express ETiS2, confirming the link mentioned in section 2. It should be observed, as a relevant area for future improvement, that the inclusion of perspectives (in terms of both positive profiles to be maintained and critical issues to be overcome) regarding the stakeholder engagement processes implemented in the observed period (2020 with two exceptions as indicated above) in no case emerges in detail.

#### 3.3. Signals of ETiS in a broad sense (ETiS2)

Regarding *highlighting, alongside the strengths, also the business areas for improvement* at a strategic and managerial level – in line with what required by the most relevant international principles in the field of sustainability reporting, and always based on the orientation towards continuous improvement – a critical analysis emerges in 21 cases (52.5%) and lacks in 19 cases

(47.5%). Indications of *commitments for future actions*, in connection with the critical analysis mentioned above, are present in 20 cases (50%): in fact, one of the 21 positive cases indicated in the previous point lacks in explaining these commitments, while the 19 negative cases indicated in the previous point fail to highlight a critical analysis and consequently to indicate coherent commitments. The *effectiveness* (level of detail and incisiveness) of information on the commitments is: high in 10 cases (25% of the total; 50% of the companies providing information on the commitments); medium in 7 cases (17.5% of the total; 35% of the companies providing information on the commitments); low in 3 cases (7.5% of the total; 15% of the companies providing information on the commitments). Thus, less than the majority adequately explains the commitment for the future. From the environmental point of view, an overall analysis of the footprint generated by the company and an indication of the strategies to reduce or mitigate this footprint emerge in 34 cases (85%) – the frame provided by the company being detailed and deep in 25 cases (62.5% of the total, 73.53% of the positive 34), being significant but not detailed and deep in 9 cases (22.5% of the total, 26.47% of the positive 34) – and do not adequately emerge in 6 cases (15%). Overall, the efforts to highlight the environmental approach emerges are high.

### 3.4. Positive examples

As highlighted above, studying the signals of trust in stakeholders within the Constituents of the FTSE MIB allows to understand the current extent and evolution of this trust within companies which, due to the extent of their impacts, are often assumed as reference by many other companies and with respect to which there are high collective expectations regarding ESG practices. It should be noted that the extensive and thorough analysis of materials useful for understanding these approaches – an easily repeatable analysis since observed materials are all online – leads to appreciate how interesting positive examples are not lacking, both in terms of: stakeholder involvement methods and consistent explanation of themes treated within consultations, debates or other forms of connection; and of concrete use, for the purpose of improvement, of the outcomes emerged through the involvement process. Only to give specific examples, Poste Italiane and Amplifon, among others, show positive practices in these contexts, sharing involvement tools and modes, explaining topics emerged within the spaces of connection with the stakeholders, and highlighting specific issues and responses based on the involvement. In particular, Poste Italiane expresses positive practices in enhancing the results achieved through the involvement (Poste Italiane, 2019:34ff.). With specific reference to the theme “Innovation and digitisation of products, services and processes”, it can be observed a useful example of logical link between involvement outcomes, impact analysis, priorities addressing and strategic commitment (Poste Italiane, 2019:43). Amplifon analytically distinguishes and incisively connects type of stakeholders and involvement activities with “Topics/concerns raised by stakeholders” and “Amplifon’s response” (Amplifon, 2020:114ff.). See for instance the case of hearing impaired individuals and the connected response/commitment in terms of “Development of a new communication approach aimed at fighting the stigma associated with hearing loss” (Amplifon, 2020:115).

## 4. OVERALL VIEW AND DIRECTIONS FOR FUTURE RESEARCH

The findings show some profiles of ETiS, significant in terms of general transparency and as positive practices both within the methods of involvement and within the enhancement of the results achieved through the involvement itself. However, some critical issues also emerge, attributable to forms of implicit resistance in assigning the role of co-creators of value to stakeholders and on which reflection is due in an evolutionary perspective of the corporate culture. The analytical

findings achieved and the comparison between the sphere 2 of trust – which results broader but not generally widespread – and the sphere 1 of trust – which is linked with ETiS2 but results narrower – converge towards this overall picture. Based on this investigation, within Italian listed companies – which represent an important reference for many all over the world – it can be observed that the level of ETiS is predominantly low today, especially that of ETiS1.

With regard to ETiS2, company commitments for the future, related to critical performance analysis, in most cases is not adequately explained. In the field of ETiS1, direct references to discussion topics emerged in the various stakeholder involvement contexts are not highlighted in most cases; direct references to outcomes emerged in the same contexts, in terms of company strengths and areas for improvement, are not highlighted in more than three quarters of the cases (see section 3). These are issues that can be traced upstream, within the development of the materiality matrix, in the identification of those that are company priorities for growing according to integrated sustainability. It should be considered that, based on what observed within this study, in some cases the external perspective of stakeholders flows into the materiality matrices only through the interpretations that internal company actors make of it, or as overlapped on what emerges from customer satisfaction analyses. It should instead be recognized and kept in mind that the voice of the interlocutors cannot express its full potential if not directly captured, and that stakeholder engagement does not coincide with the customer satisfaction analysis but concerns the involvement of interlocutors in a wider dimension. This dimension includes attention not only to the specific needs/expectations of the interlocutors, but also and especially to what is considered important by the interlocutors themselves for the purposes of overall, consistent and integrated company growth in the environmental, social and economic spheres. The expression of ideas with this projection requires a “training” of the stakeholder as she/he is called to contextualise the stakeholder engagement relationship with the company in the broad (and not *individualistic*) sense outlined above.

This work is suitable to be usefully articulated and detailed with respect to the different areas of enterprise's trust in stakeholders, and with attention to various samples of companies, identifiable based on significant profiles such as: company size, sector, geographical area, peculiarities of customers, supplier profiles, characteristics of the founders, composition of human resources. From the articulation of the investigation in the directions outlined, significant elements may emerge to identify the factors that influence the evolution of trust in interlocutors in the direction of the collaborative enterprise.

## 5. CONCLUSION

Within the listed companies analysed, the approach to stakeholders and non-financial topics (also in compliance with the Italian legislative decree no. 254/16 or other European regulatory references), is an important reality and thus an important reference for many other businesses. Expressive examples of ETiS emerge from the investigation, and are very relevant as good practices for the evolution of the culture of transparency, comparison, reporting. But we should look at the next, evolutionary, step. In fact, the picture which emerges is that of involvement activities which only in a minority of cases are organized and fully captured as opportunities for collaborative improvement and are often instead experienced – in the context of reporting processes – as moments whose meaning does not seem to be fully exploited.

These activities today emerge as predominantly deriving from a widespread and rooted culture of self-referential and celebratory approaches to sustainability, where the debate with the inter-

locutors appears too often more symbolic than effectively aimed at questioning paradigms in the perspective of mutual evolution (company–interlocutors/society), full awareness of the ESG impacts generated by the business, and co-creation of shared value. In general, it should be noted that the reference to critical issues and limits still appears too often as a taboo. A constructive balance between the protection of confidentiality and corporate transparency still does not seem to have been achieved.

Today, the company turns to the stakeholders to listen to them and identify their needs. However, it is not just a question of *listening* but also of giving a *voice* to known and unknown stakeholders. It is not just a question of identifying needs, but of evolving together, the company and its interlocutors as parts of the same community. Companies and their stakeholders have to work towards this new frontier, towards new paradigms based on systemically enhancing collaborative contexts, on continuously leading and fostering creative empathy and constructive trust.

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# The Standard & Poor's 500 Index and The Chaotic Growth Model

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## Keywords:

Financial markets;  
Financial crises;  
Equilibrium



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**Abstract:** *Standard & Poor's 500 Index (the S&P 500) includes the stocks of 500 of the most widely traded stocks in the U.S. It represents about 80% of the total value of U.S. stock markets. The basic aims of this paper are: firstly, to create the simple chaotic stock market index growth model that is capable of generating stable equilibrium, cycles, or chaos; secondly, to analyze the local stability of the S&P 500 index movements in the period 1932-1982; thirdly, to analyze the local stability of the S&P 500 index movements in the period 1982-2009; and fourthly, to discover the equilibrium levels of the S&P 500 index in the observed periods. This paper confirms the existence of the stable convergent fluctuations of the S&P 500 index in the observed periods. Further, two Elliot wave patterns were identified in the period 1932-2009. Also, the golden ratio can be used to define the equilibrium level of the S&P 500 index in the presented chaotic model.*

## 1. INTRODUCTION

Every stock in the S&P 500 index is shown in proportion to its total market capitalization. In other words, if the total market value of all 500 companies in the S&P 500 drops by 10%, the value of the index also drops by 10%. On the other hand, 10% movement in all stocks in the DJIA would not necessarily cause a 10% change in the index. The S&P 500 index includes companies in a variety of sectors, including energy, industrials, information technology, healthcare, financials and consumer staples. The S&P 500 uses a market capitalization weighting method, while the DJIA is a price-weighted index that gives companies with higher stock prices a higher index weighting. The S&P 500 is a member of a set of indexes created by the Standard & Poor's company. The S&P 500 ([www.standardandpoors.com](http://www.standardandpoors.com)) is a widely quoted stock market price index, second perhaps only to the Dow Jones Industrial Average. It includes 500 large American companies traded on NYSE and Nasdaq. The S&P 500 companies are selected by an index committee that meets monthly.

Chaos theory started with Lorenz's (1963) discovery of complex dynamics arising from three nonlinear differential equations leading to turbulence in the weather system. Li and Yorke (1975) discovered that the simple logistic curve can exhibit very complex behavior. Further, May (1976) described chaos in population biology. Chaos theory has been applied in economics by Benhabib and Day (1981,1982), Day (1982, 1983), Grandmont (1985), Goodwin (1990), Medio (1993), Lorenz (1993), Jablanovic (2012, 2013, 2016), Puu, T. (2003), Zhang W.B. (2006), etc.

## 2. THE MODEL

The equation used to calculate the short-run aggregate supply is:

$$Y_{s,t} = Y_{n,t} + \alpha (P_t - P_t^e) \quad (1)$$

In the equation (1),  $Y$  is the real output,  $Y_n$  is the natural level of real output,  $\alpha$  is the positive coefficient,  $P$  is the general price level,  $P_t^e$  is the expected general price level.

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In the short run, the supply of output depends on the natural rate of output ( $Y_n$ ) and on the difference between the price level and the expected price level, ( $P_t - P_t^e$ ). This relationship is expressed in the aggregate-supply equation.

The natural level of real output,  $Y_n$ , and the expected general price level,  $P^e$ , are given as:

$$Y_{n,t} = \beta Y_t \quad 0 < \beta < 1 \quad (2)$$

$$P_t^e = \gamma P_t \quad 0 < \gamma < 1 \quad (3)$$

where  $\beta$  and  $\gamma$  are the positive coefficients.

Further, it is assumed that

$$P_{s,t} = \nu P_t \quad 0 < \nu < 1 \quad (4)$$

where  $P_s$  is the stock price,  $P$  is the general price level.

On the other hand, GDP ( $Y$ ) is the sum of consumption ( $C$ ), investment ( $I$ ), government purchases ( $G$ ), and net export ( $Nx$ ):

$$Y_{d,t} = C_t + I_t + G_t + Nx_t \quad (5)$$

In this model, the consumption function displays the quadratic relationship between consumption ( $C_t$ ) and real output of the previous period ( $Y_{t-1}$ ). Real output is multiplied by the coefficient  $\mu$ , „the marginal propensity to consume“ (MPC). The MPC coefficient can be between zero and one.

$$C_t = \mu Y_{t-1}^2 \quad 0 < \mu < 1 \quad (6)$$

As regards investment in period  $t$ , it is taken to be the function of change in real output in the previous period, i.e.

$$I_t = \delta Y_{t-1} \quad \delta > 0 \quad (7)$$

where  $\delta$  stands for the capital –output ratio or accelerator.

Further, government spending function and net export function are given as:

$$G_t = \eta Y_{t-1} \quad 0 < \eta < 1 \quad (8)$$

$$N_{x,t} = \lambda Y_t \quad 0 < \lambda < 1 \quad (9)$$

where  $\eta$  and  $\lambda$  are the positive coefficients.

Macroeconomic equilibrium occurs when the quantity of real output demanded,  $Y_d$ , equals the quantity supplied,  $Y_s$ , or:

$$Y_{d,t} = Y_{s,t} \quad (10)$$

Now, putting (1), (2), (3), (4), (5), (6), (7), (8), (9) and (10) together we immediately get:

$$P_{s,t} = \left( \frac{\delta + \eta}{1 - \lambda} \right) P_{s,t-1} - \left[ \frac{\nu \mu (1 - \beta)}{\alpha (\lambda - 1) (1 - \gamma)} \right] P_{s,t-1}^2 \quad (11)$$

Further, it is assumed that the current value of the stock price is restricted by its maximal value in its time series. This premise requires a modification of the growth law. Now, the stock price growth rate depends on the current value of the stock price,  $P_s$ , relative to its maximal value in its time series  $P_s^m$ . We introduce  $p_s$  as  $p_s = P_s / P_s^m$ . Thus,  $p_s$  range between 0 and 1. Again we index  $p_s$  by  $t$ , i.e. write  $p_{s,t}$  to refer to the size at time steps  $t = 0, 1, 2, 3, \dots$ . Now growth rate of the stock price is measured as:

$$p_{s,t} = \left( \frac{\delta + \eta}{1 - \lambda} \right) p_{s,t-1} - \left[ \frac{\nu \mu (1 - \beta)}{\alpha (\lambda - 1) (1 - \gamma)} \right] p_{s,t-1}^2 \quad (12)$$

This model given by equation (12) is called the logistic model. For most choices of  $\alpha, \beta, \gamma, \mu, \lambda, \eta, \nu$ , and  $\delta$  there is no explicit solution for (12). Namely, knowing  $\alpha, \beta, \gamma, \mu, \lambda, \eta, \nu$ , and  $\delta$  and measuring  $p_{s,0}$  would not suffice to predict  $p_{s,t}$  for any point in time, as was previously possible. This is at the heart of the presence of chaos in deterministic feedback processes. Lorenz (1963) discovered this effect - the lack of predictability in deterministic systems. Sensitive dependence on initial conditions is one of the central ingredients of what is called deterministic chaos.

### 3. THE LOGISTIC MAP

It is possible to show that iteration process for the logistic map

$$z_t = \pi z_{t-1} (1 - z_{t-1}), \pi \in [0, 4], z_t \in [0, 1] \quad (13)$$

is equivalent to the iteration of growth model (12) when we use the identification:

$$z_t = \left[ \frac{\nu \mu (1 - \beta) (1 - \lambda)}{\alpha (\lambda - 1) (1 - \gamma) (\delta + \eta)} \right] p_{st} \text{ and } \pi = (\delta + \eta) / (1 - \lambda) \quad (14)$$

Using (12) and (14) we obtain:

$$\begin{aligned} z_t &= \left[ \frac{\nu \mu (1 - \beta) (1 - \lambda)}{\alpha (\lambda - 1) (1 - \gamma) (\delta + \eta)} \right] p_{st} \\ &= \left[ \frac{\nu \mu (1 - \beta) (1 - \lambda)}{\alpha (\lambda - 1) (1 - \gamma) (\delta + \eta)} \right] \left\{ \left( \frac{\delta + \eta}{1 - \lambda} \right) p_{s,t-1} - \left[ \frac{\nu \mu (1 - \beta)}{\alpha (\lambda - 1) (1 - \gamma)} \right] p_{s,t-1}^2 \right\} \\ &= \left[ \frac{\nu \mu (1 - \beta)}{\alpha (\lambda - 1) (1 - \gamma)} \right] p_{s,t-1} - \left[ \frac{\nu^2 \mu^2 (1 - \beta)^2 (1 - \lambda)}{\alpha^2 (\lambda - 1)^2 (1 - \gamma)^2 (\delta + \eta)} \right] p_{s,t-1}^2 \end{aligned}$$

On the other hand, using (13) and (14) we obtain:

$$\begin{aligned} z_t &= \pi z_{t-1} (1 - z_{t-1}) = \\ &= \left( \frac{\delta + \eta}{1 - \lambda} \right) \left[ \frac{\nu \mu (1 - \beta) (1 - \lambda)}{\alpha (\lambda - 1) (1 - \gamma) (\delta + \eta)} \right] p_{s,t-1} \left\{ 1 - \left[ \frac{\nu \mu (1 - \beta) (1 - \lambda)}{\alpha (\lambda - 1) (1 - \gamma) (\delta + \eta)} \right] p_{s,t-1} \right\} = \\ &= \left[ \frac{\nu \mu (1 - \beta)}{\alpha (\lambda - 1) (1 - \gamma)} \right] p_{s,t-1} - \left[ \frac{\nu^2 \mu^2 (1 - \beta)^2 (1 - \lambda)}{\alpha^2 (\lambda - 1)^2 (1 - \gamma)^2 (\delta + \eta)} \right] p_{s,t-1}^2 \end{aligned}$$

Thus we have that iterating (12) is really the same as iterating (13) using (14). It is important because the dynamic properties of the logistic equation (13) have been widely analyzed (Li and Yorke (1975), May (1976)). It is obtained that : (i) For parameter values  $0 < \pi < 1$  all solutions will converge to  $z = 0$ ; (ii) For  $1 < \pi < 3.57$  there exist fixed points, the number of which depends on  $\pi$ ; (iii) For  $1 < \pi < 2$  all solutions monotonically increase to  $z = (\pi - 1) / \pi$ ; (iv) For  $2 < \pi < 3$  fluctuations will converge to  $z = (\pi - 1) / \pi$ ; (v) For  $3 < \pi < 4$  all solutions will continuously fluctuate; (vi) For  $3.57 < \pi < 4$  the solution become “chaotic” which means that there exist totally aperiodic solution or periodic solutions with a very large, complicated period. This means that the path of  $z_t$  fluctuates in an apparently random fashion over time, not settling down into any regular pattern whatsoever. Also, for  $\pi = 2.6178$  then fluctuations will converge to  $z = 0.618$ . The Golden Ratio (golden mean, golden number, golden proportion) is 0.618. The Fibonacci sequence, starting with zero and one, is created by adding the previous two numbers (0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, ...). This sequence is significant because of the golden ratio. The ratio of any number in the Fibonacci sequence relative to the number directly to its right is approximately 0.618. The Golden Ratio (golden mean, golden number, golden proportion) is 0.618. Adding the number 1 to the Golden Ratio = Phi ( $\Phi = 1.618$ ). Both 0.618 and 1.618 are used interchangeably to represent the golden ratio because they represent the same geometric relationship. (Lidwell, Holden, and Butler, 2010, p.114).

#### 4. EMPIRICAL EVIDENCE

The main aims of this analysis are: i) to present stock market index (the S&P 500 index) growth stability in the period 1932-1982, and ii) to present stock market index (the S&P 500 index) growth stability in the period 1982-2009. This paper uses the non-linear, logistic model (15) because stock market index is computed from the prices of the selected stocks.

In this sense,

$$s_{t+1} = \pi s_t - \omega s_t^2, \quad \omega > 0 \quad (15)$$

where  $s$  - stock market index,  $\pi = (\delta + \eta) / (1 - \lambda)$  and  $\omega = [\nu \mu (1 - \beta)] / [\alpha (\lambda - 1) (1 - \gamma)]$

Firstly, we transform data on stock market index from 0 to 1, according to our supposition that actual value of stock market index,  $S$ , is restricted by its highest value in the time-series,  $S^m$ . Further, we obtain time-series of  $s = S / S^m$ . Now, we estimate the model (15). Secondly, data on *Standard & Poor's 500 Index (the S&P 500)* are transformed (Source: <http://www.macrotrends>).

net/2324/sp-500-historical-chart-data) from 0 to 1, according to our supposition that actual values of the S&P 500,  $S$ , is restricted by its highest value in the time-series,  $S^m$ . Further, we obtain time-series of  $s = S / S^m$  (see Table 1 and Table 3). Also, the Fibonacci ratios are associated to these Elliott wave patterns. It is supposed that the basic Elliott wave patterns exist in the periods: (i) Jun 1932-July 1982; and (ii) July 1982 – February 2009. The Elliot wave pattern consists of an impulse wave and a corrective wave. Impulse waves consist of 5 waves and moves in the direction of the trend. Waves 1, 3, and 5 moves in the direction of the trend, while Waves 2 and 4 move opposite to the trend. Corrective waves can be simple or complex. A simple correction consists of 3 waves (Wave A, B and C) which retrace a portion of impulse. The Elliot Wave Theory identifies (Frost A.J. & R.P. Prechter, 2006): (i) impulse waves that set up a pattern; and (ii) corrective waves that oppose the larger trend. The stock price movements are divided into: (i) trends (five waves in the direction of the main trend); and (ii) corrections (three corrective waves).

**Table 1.** Data on the Standard & Poor's 500 Index (the S&P 500) are transformed and Fibonacci ratios, Jun 1932-July 1982.

	the S&P 500	$S/S^m$	Fibonacci	ratios
<b>Jun-32</b>	84.78	0.111196	0.125	1/8
<b>1 Apr-46</b>	265.38	0.348067	0.3333	1/3
<b>2 Jun-49</b>	154.2	0.202245	0.2	1/5
<b>3 Aug-59</b>	531.22	0.696802	0.7	$\frac{1}{2}+1/5$
<b>4 Oct-60</b>	466.31	0.611602	0.618	55/89
<b>5 Oct-68</b>	762.44	1	1	1/1
<b>A Jun-70</b>	487.81	0.639801	0.625	5/8
<b>B Dec-72</b>	722.94	0.948193	0.9333	$3/5+1/3$
<b>C Jul-82</b>	285.93	0.37502	0.382	34/89

Source: <http://www.macrotrends.net/2324/sp-500-historical-chart-data>

The model (15) is estimated. The results are presented in Table 2 and Table 4.

**Table 2.** The estimated model (15): The S&P 500, Jun 1932-July 1982.

R=0.4982 Variance explained 24.820%		
N=8	$\pi$	$\omega$
<b>Estimate</b>	<b>2.524927</b>	2.030342
<b>Std. Err.</b>	0.614166	0.729660
<b>t(6)</b>	4.111146	2.782585
<b>p-level</b>	0.006278	0.031888

From Jun 1932 to July 1982, the Standard & Poor's 500 Index (the S&P 500) moved from 84.78 to 285.93. As we can see the pattern exactly follows the wave pattern described by Elliot Wave Theory. According to the logistic equation, for  $2 < \pi < 3$  fluctuations converge to  $z = (\pi - 1) / \pi$ , or  $(2.524927-1)/2.524927=0.60395$ . According to (14), the equilibrium value of the Standard & Poor's 500 Index (the S&P 500) was  $0.60395 \times 2.524927 / 2.030342$ , or  $0.60395 \times 1.2436$  or 0.7511 in the observed period. The equilibrium value of the Standard & Poor's 500 Index (the S&P 500)  $0.7511 \times 762.44 = 572.6687$  in the observed period.

**Table 3.** Data on the Standard & Poor's 500 Index (the S&P 500) are transformed and Fibonacci ratios, July 1982-February 2009.

	the S&P 500	P/P <sup>m</sup>	Fibonacci	ratios
<b>JuL-82</b>	285.93	0.125099	0.125	1/8
<b>1 Jul-87</b>	728.78	0.318853	0.3333	1/3
<b>2 Dec-87</b>	557.17	0.243771	0.25	2/8
<b>3 May-98</b>	1744.22	0.763124	0.75	1/2+1/4
<b>4 Aug-98</b>	1524.95	0.66719	0.66667	2/3
<b>5 Aug-00</b>	2285.63	1	1	1/1
<b>A Sep-02</b>	1172.37	0.512931	0.5	1/2
<b>B Oct-07</b>	1930.53	0.844638	0.85	33/5+2/8
<b>C Feb-09</b>	901.56	0.394622	0.4	2/5

Source: <http://www.macrotrends.net/2324/sp-500-historical-chart-data>

**Table 4.** The estimated model (15): The S&P 500, July 1982-February 2009.

R=0.58329 Variance explained 34.022%

N=8	$\pi$	$\omega$
<b>Estimate</b>	<b>2.628721</b>	2.216101
<b>Std. Err.</b>	0.555701	0.679140
<b>t(6)</b>	4.730456	3.263101
<b>p-level</b>	0.003223	0.017182

From July 1982 to February 2009, the Standard & Poor's 500 Index (the S&P 500) moved from 285,93 to 901.56. As we can see the pattern exactly follows the wave pattern described by Elliot Wave Theory. According to the logistic equation, for  $2 < \pi < 3$  fluctuations converge to  $z = (\pi - 1) / \pi$ , or  $(2.628721-1)/2.628721=0.61959$ . According to (14), the equilibrium value of the Standard & Poor's 500 Index (the S&P 500) was  $0.61959 \times 2.628721/2.216101$ , or  $0.61959 \times 1.18692$  or 0.7354 in the observed period. The equilibrium value of the Standard & Poor's 500 Index (the S&P 500) was  $0.7354 \times 2285.63 = 1680.8523$  in the observed period.

## 5. CONCLUSION

This paper suggests conclusion for the use of the chaotic stock price growth model in predicting the fluctuations of the Standard & Poor's 500 Index (the S&P 500). The model (12) has to rely on specified parameters  $\alpha, \beta, \gamma, \mu, \lambda, \eta, \nu$ , and  $\delta$ , and initial value of the stock price, and /or the Standard & Poor's 500 Index (the S&P 500),  $p_{s_0}$ . But even slight deviations from the values of parameters:  $\alpha, \beta, \gamma, \mu, \lambda, \eta, \nu$ , and  $\delta$ , and initial value of the stock price and/or the Standard & Poor's 500 Index (the S&P 500),  $p_{s_0}$ , show the difficulty of predicting a long-term stock price and / or Standard & Poor's 500 Index (the S&P 500).

A key hypothesis of this work is based on the idea that the coefficient  $\pi = (\delta + \eta) / (1 - \lambda)$  plays a crucial role in explaining local stability of the stock price, and/or the Standard & Poor's 500 Index (the S&P 500), where,  $\delta$  is the capital –output ratio or accelerator  $\eta$  is the government spending ratio,  $\lambda$  is the net export ratio. The estimated value of the coefficient  $\pi$  was **2.524927** in the period Jun 1932 - July 1982. The equilibrium price of the Standard & Poor's 500 Index (the



S&P 500) was 572.6687 in the observed period. Also, the Elliott wave pattern was observed. The Fibonacci ratios are included in the model. The equilibrium value in the modified model was 0.60395, while the golden ratio is 0.618. The estimated value of the coefficient  $\pi$  is **2.628721** in the period July 1982 - February 2009. The equilibrium price of the Standard & Poor's 500 Index (the S&P 500) was 1680.8523 in the observed period. Also, the second Elliott wave pattern is observed. The Fibonacci ratios are included in the model. The equilibrium value in the modified model was 0.61959, while the golden ratio is 0.618.

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[www.standardandpoors.com](http://www.standardandpoors.com))





# Volatility Estimation of Euribor and Equilibrium Forecasting

Llesh Lleshaj<sup>1</sup> 

## Keywords:

Euribor;  
Volatility modeling;  
GARCH forecasting;  
EMH



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**Abstract:** Euribor rates (Euro Interbank Offered Rate) rates are considered to be the most important reference rates in the European money market. The interest rates do provide the basis for the price and interest rates of all kinds of financial products like interest rate swaps, interest rate futures, saving accounts and mortgages. Since September 2014, this index has performed with negative rates. In recent years, several European central banks have imposed negative interest rates on commercial banks, as the only way to stimulate their nations' economies. Under these circumstances, the purpose of this study is to estimate the gap of the negative rates which are still increasing constantly. This fact puts in question the financial stability in many countries and the effect of monetary policy on stimulating economic growth around European countries. According to the daily data 2016 - 2021, this study has analyzed the volatility of the Euribor index related to efficient market hypothesis and volatility clustering. Applying advanced volatility econometric methods, GARCH volatility models are derived and the long-run equilibrium is predicted. Practical Implications are related to the empirical impacts that ought to be taken into consideration by the banking sector and other financial institutions to make decisions with the Euribor index.

## 1. INTRODUCTION

Euro Interbank Offer Rate (Euribor) is a reference rate that is constructed from the average interest rate at which Eurozone banks offer unsecured short-term lending on the inter-bank market. The maturities on loans used to calculate Euribor often range from one week to one year. These Euribor rates, which are updated daily, represent the average interest rate that Eurozone banks charge each other for uncollateralized loans. Euribor rates are an important benchmark for a range of euro-denominated financial products, including mortgages, savings accounts, car loans, and various derivatives securities.

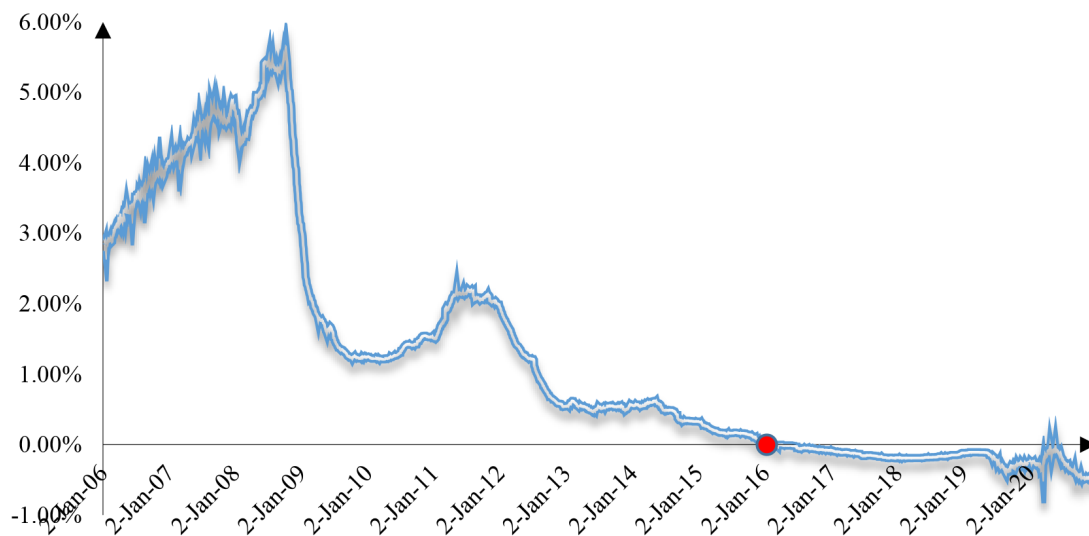
The global interest rates have been declining for many years and decades. This trend is related to fundamental factors. There are two prevailing views:

- The structural factors have pushed interest rates to record low levels. These structural factors include demographics and longer life expectancy. This affects individuals' propensity to save and invest.
- The lower interest rates are a reaction to the high financial leverage levels, which contributed to the global financial crisis. According to this view, lower interest rates are necessary to facilitate the deleveraging process, thereby they are expected to return to normal, in the future.

Euribor is not returning to equilibrium, it has been performing at negative rates for years. In figure 1 below, we will give the trend of the Euribor rate with 12 months' maturity.

For the first time, in February 2016, this rate has become negative and has continued with a negative trend until today. This performance with negative rates is presenting new challenges for the Eurozone, since such a rate performance has exceeded the medium term.

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**Figure 1.** Euribor trend with 12-month maturity

Whatever is part of the Eurozone or not, the economies of many European countries are significantly affected by the Euribor, with several challenges:

- They complicate the estimation of the lower policy rate bound in these economies,
- There is a situation that alters the relative incentives toward domestic and foreign currency denominated assets and liabilities when currency is different from Euro,
- Related to the required reserves' system, the lower return on foreign exchange reserve assets (at times, negative) is the scope for currency diversification, which is more limited.

According to the daily data 2016 - 2021, this study has analyzed the volatility of the Euribor index related to efficient market hypothesis and volatility clustering. Applying advanced volatility econometric methods, GARCH volatility models are derived and the long-run equilibrium is predicted. The aim of this research is to measure the financial stability of Euribor index and the effect of the euro monetary policy.

## 2. LITERATURE REVIEW

Euribor performance analysis must estimate in the three-time dimensions. There are three types of classification methods based on the time period, which are short-term forecasting, medium-term forecasting, and long-term forecasting (Montgomery et al., 2008). According to these researchers the short-term forecasting is used to forecast daily, weekly, and monthly basis forecasting, such as forecasting of the market model (Neslihanoglu et al., 2017), with typical forecasting volatility by using GARCH (1,1) model (Chia et al., 2016; Tsung-Han and Yu-Pin, 2013). In the financial investment field exists a relationship between volatility in the capital market and the greatest uncertainty or yield, known as “Risk and Return Tradeoff”-phenomenon. As consequence, in the low volatility share price, receiving capital gain, investors have to hold the share as a long-term investment. When the daily volatility of a share price is high, there could arise high increase or decrease of share prices which provides a space for trading in order to receive gain by the differences of the opening and closing share prices, which can be called as “High Risk High Return” (Hull, 2015). Volatility is also considered as fundamental to asset pricing and important information for investment (Kongsilp and Mateus, 2017). According to Blaskowitz and Herwartz (2009) in the benchmark models, like Euribor, the adaptive approach offers additional forecast accuracy in terms of directional accuracy and directional forecast value.

According to a study by the European Central Bank conducted by researchers Ivanova and Gutiérrez (2014), it was analyzed that the option-implied interest rate forecasts and the development of risk premium and state prices in the Euribor futures options market. They found out that the real-world option-implied distributions can be used to forecast the futures rate, while the forecasting ability of the risk-neutral distributions is rejected. Also, there is documented a negative market price of interest rate risk which generates positive premium for the futures contract. Whereas other authors Pelizzon, L., & Sartore, D., (2013), concluded that the Euribor rates cannot be used anymore as a benchmark for all market rates except credit risk indicators. They studied that credit risk and liquidity tensions in the short-term securities market are mainly unrelated to Euribor interest rate dynamics with central bank target rates. In accordance with the importance of Euribor volatility, Alfred (2019) found out that the Euribor-Overnight Indexed Swap (credit risk isn't a major factor in determining the OIS rate) spread incorporates rich information regarding future FX market uncertainty. He expressed that "this result supports the view that adverse information flow over the sample period is transitory, suggesting that market participants are mainly concerned about currency jumps during periods surrounding the crises, and prior crises jumps are generally ignored." The importance of Euribor volatility estimation is widely viewed as a risk indicator of financial distress associated with insolvency within the interbank lending market (Thornton, 2009). Therefore, this study motivates in estimating the Euribor volatility, because for years it performs with negative rates, causing the reduction of the monetary policy efficiency.

### 3. RESEARCH METHODOLOGY

The volatility of a variable is its standard deviation. Performing the annual standard deviation of the compounded returns, it is needed to highlight two main assumptions: *The first assumption* is that interest rates are not correlated over time or that the weak form of efficient market hypothesis approximately holds, i.e. the interest rates are not predictable from past interest rates. *The second assumption* is that the expected value of the interest rates is equal to zero. We make this assumption of zero mean return in calculation of standard deviation for a short period.

*Efficient market hypothesis (EMH):* The weak form of efficient market hypothesis (EMH) says that interest rates are almost unpredictable from their history. There are many tests of EMH in the academic literature and below we will perform one simple test for correlation between interest rates at time  $t$  and past returns at times  $t - 1, t - 2, \dots, t - k$ . Correlation for a variable with its own lags is called autocorrelation. The null hypothesis:  $H_0: Q = 0$  (no autocorrelation up to order  $k$ , lags =  $k$ ), this means the market is efficient. We are going to perform Ljung-Box Q test for this purpose. The Q statistics is based on the normalized sum of squared autocorrelations and has chi-squared distribution. Note that the underlying assumption of the Q test under the null hypothesis is the independent identical distribution for the interest rates:

$$Q = n(n+2) \sum_{j=1}^k \frac{\rho_j^2}{n-j} \quad (1)$$

Where  $\rho_j = \text{correl}(r_t, r_{t-j})$  with  $n$  data sample.

*Volatility Clustering:* Testing for volatility clustering performs the time varying amplitude of the interest rates. In order to test for volatility clustering we can test for autocorrelation of the squared interest rates. After squaring the interest rates we find autocorrelations (Ljung-Box Q test). We test the following null hypothesis:  $H_0: Q = 0$  (no autocorrelation of squared interest

rates up to order  $k$ , lags =  $k$ ), which means no volatility clustering, where  $\rho_j = \text{correl}(r_t^2, r_{t-j}^2)$  with  $n$  data sample.

*GARCH volatility models:* One of the most widely used models in risk management is the GARCH model, but this model is understood if we first know the ARCH model. ARCH (autoregressive conditional heteroscedasticity model) was introduced by Engel (1982), this model makes the prediction of time variance based on information obtained from daily squared returns. The ARCH(p) model is:

$$\sigma_t^2 = w + \alpha_1 r_{t-1}^2 + \alpha_2 r_{t-2}^2 + \dots + \alpha_p r_{t-p}^2 \quad (2)$$

The model includes an autoregressive structure in the form of a regression based on past square returns observations. This model is conditioned by past information and by the variance of returns which varies with respect to time. So, the variance of the dependent variable is a function of the retrospective values of the dependent variable, or exogenous variables. The generalized ARCH form is the GARCH model (generalized ARCH), introduced by Bollerslev (1986). The forecast of variance at time  $t$  is the weighted average of the long-term variances, i.e. from the forecast of variances and information on the squared returns. The general form of the GARCH(p,q) model indicates that the parameter “ $p$ ” is ARCH (p), while the parameter “ $q$ ” shows that we have  $\text{lag} = q$  of the variances:

$$\sigma_t^2 = w + \sum_{i=1}^p \alpha_i r_{t-i}^2 + \sum_{j=1}^q \beta_j \sigma_{t-j}^2 \quad (3)$$

The main properties of GARCH coefficients to satisfy a good model are: (1) positivity parameters and (2) stability parameters. In general a GARCH(1,1) model will be sufficient to capture the volatility clustering in the data, and rarely is any higher order model estimated or even entertained in the academic finance literature (Brooks, 2014). GARCH(p,q) model testing is performed by maximum log-likelihood method; this means that AIC and SIC information criteria are computed based on the negative log likelihood with added penalty for number of parameters included in the model. The smaller is the information criterion the better is the model.

#### 4. EMPIRICAL ANALYSIS AND FINDINGS

The Euribor rate data series is taken from official Thomson Reuters publications (from February 2016 to May 2021, the period in which Euribor rate performed negative values). The following are the statistical measurements of autocorrelation and the volatility model:

```
Autocorrelations of series 'y', by lag
      0      1      2      3      4      5      6      7      8      9     10
1.000 0.995 0.989 0.983 0.977 0.971 0.965 0.958 0.952 0.945 0.938
> Box.test(y, lag=10, type="Ljung-Box")

Box-Ljung test

data: y
x-squared = 11782, df = 10, p-value < 2.2e-16
```

**Figure 2.** Time series autocorrelations Q-test for EMH

**Note:** ‘y’ shows that the series of Euribor rate 12-month maturity.

**Source:** Author’s calculation in R programming.



We can observe from *figure 2* that autocorrelation values are outside of the 95% confidence intervals. Based on the Q test, the p-value of 2.2e-16 is very small, much smaller than 5% or 10% significance level. Thus, we reject the null hypothesis of no autocorrelation ( $Q=0$ ). Thus, rejecting  $H_0$  hypothesis may be either evidence against EMH (autocorrelation) or evidence of changing volatility, or both. So, Euribor rate is not an efficient market index.

```
Autocorrelations of series 'y^2', by lag
 0      1      2      3      4      5      6      7      8      9     10
1.000 0.993 0.986 0.978 0.971 0.963 0.955 0.947 0.939 0.931 0.922
> Box.test(y^2,lag=10,type="Ljung-Box")

Box-Ljung test

data:  y^2
X-squared = 11570, df = 10, p-value < 2.2e-16
```

**Figure 3.** Time series autocorrelations Q-test for Volatility Clustering

**Note:** 'y^2' shows that the series of Euribor rate squared 12-month maturity.

**Source:** Author's calculation in R programming.

We can observe from *figure 3* again that autocorrelation values are outside of the 95% confidence intervals. Based on the Q test the p-value of 2.2e-16 is very small, much smaller than 5% or 10% significance level. Thus, we reject the null hypothesis of no autocorrelation ( $Q=0$ ). So, Euribor rate is not an efficient market index because it has volatility clustering.

The reported coefficients in *figure 4* include the intercept for the Euribor rates equation ( $\mu$ ), and GARCH parameters: omega, alpha, beta. We can observe that all GARCH parameters are positive and that the model is not stable since  $\alpha + \beta = 0.5571 + 0.4639 = 1.021 > 1$ . The equation to be used in this case is:

$$\sigma_{t(daily,tomorrow)}^2 = 5.057 \times 10^{-8} + 0.55708r_{t-1}^2 + 0.46394\sigma_{t-1}^2$$

Therefore, this model can be used for the daily forecast of the Euribor rate volatility but not for the equilibrium rate volatility (long-run equilibrium).

```
Coefficient(s):
      mu      omega      alpha1      beta1
-1.8916e-01  5.0568e-08  5.5708e-01  4.6394e-01

Std. Errors:
based on Hessian

Error Analysis:
      Estimate Std. Error t value Pr(>|t|)
mu      -1.892e-01  8.914e-05 -2122.146 <2e-16 ***
omega    5.057e-08  1.522e-06   0.033   0.973
alpha1   5.571e-01  5.093e-02  10.939 <2e-16 ***
beta1    4.639e-01  4.176e-02  11.110 <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Log Likelihood:
2011.638      normalized: 1.608024
```

**Figure 4.** GARCH(1,1) model estimation.

**Source:** Author's calculation in R programming.

## 5. CONCLUSION

From February 2016, until now, Euribor 12-month maturity has been performing at negative rates, by presenting new challenges for the Eurozone in the monetary policies. Based on the daily data from 2016 to 2021, this study has analyzed the volatility of the Euribor index related to efficient market hypothesis and volatility clustering. GARCH volatility model helps us to figure out if there exists long-run equilibrium and how big is it. So, the biggest findings in this study are:

1. Even though we checked with the large length of lags (10 lags), there doesn't exist an equilibrium of Euribor index (12-month maturity).
2. The autocorrelation statistical approach and the Ljung-Box test shows a large correlation of the Euribor value. The statistical test was applied to the Euribor rates and the Euribor squared rates; due to this fact, both findings figure out that the Euribor rate is not an efficient market index.
3. The optimal GARCH model for the Euribor index (for negative rates) is GARCH(1,1), which parameters are positive but not stable. Therefore, this model can be used for the daily forecast of the Euribor volatility, but not for the long-run equilibrium volatility.
4. Also, we found out that the largest parameter weight in the GARCH(1,1) model (i.e. with the largest coefficient) is the squared rate and not the variance (per lag = 1). This phenomenon shows a big problem in forecasting volatility because the rate of return fluctuates more than the variance-variable according to lag = 1.

We conclude that the Eurozone monetary policy is losing its influential impact on the optimal financial stability of lending and deposit interest rates. This fact is a concern for the financial stability (more than short-term) in many countries, and the effect of monetary policy on stimulating economic growth around European countries.

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# Mechanisms for Developing a Portfolio of Projects Based on the Organization's Sustainability Strategy

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## Keywords:

Strategy;  
Sustainable development;  
Project management;  
Sustainability in projects;  
Projects portfolios



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**Abstract:** A large number of organizations choose sustainable development as their strategy. At the same time, the project format of the strategy implementation is growing, project management and strategic management are increasingly used in interconnections. However, the lack of mechanisms for translating the sustainable development strategy into the project portfolio is a pressing issue. The purpose of our research is to study the practice of translating a sustainability strategy into the projects of organizations, identify challenges and propose mechanisms for integrating a sustainability strategy in the formation of a project portfolio. The main method applied for the research is the method of analyzing case studies. We studied 3 cases of three organizations on the implementation of strategic principles of sustainability in specific projects of digitalization and telecommunications. The study demonstrated the lack of clear mechanisms for translating the sustainability strategy into a portfolio of projects. The authors' proposals, firstly, contribute to the development of the theory and methodology of project management and strategic management in their relationship; secondly, they may be of interest to professionals and managers developing a sustainability strategy and forming portfolios of projects for this strategy.

## 1. INTRODUCTION

The sustainable development concept first mentioned in 1987 in Brundtland Report, before known as World Commission on Environment and Development (WCED), has been widely spreading over the last few years in many countries, sectors of economy and enterprises. More and more organisations both in the public sector and business choose sustainability as one of the key strategic directions in their activities.

The sustainable development concept has become the important driver for the growth of the regions allowing them to create improved methods and tools for managing regional development. In the approach proposed by Kurganov M. (2020), special attention needs to be paid to systematization of “existing paradigms and approaches to organizing the management of programs and projects for the regional development within the perspective of the sustainable development concept”. According to Vafina K. and Gabrielov A. (2019), “sustainable development (SD) of territories is becoming an increasingly important task both at the national and regional level”.

Implementation of the sustainability concept into the strategies of organisations applies in modern life to all industries and sectors of the economy. The IT sector is one of the rapidly growing, develops new approaches into the formation of the projects portfolio taking into account the sustainability aspects of the organisational strategy. The attempt of analysis of the implementation of the sustainability strategy in IT companies has been made by Telkov O. (2019) when studying the possible effective ways to form and fulfill the sustainable development projects with the focus on the impact of

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“sustainable development projects in various companies in the IT industry and its relationship with financial and economic indicators and the overall level of sustainable development of the company”.

Introducing the importance of the social, economic and environmental aspects in the goals and objectives of the organisations, the modern leaders agree that this brings their companies to success in the long term perspective. They see the sustainability approach as one of the key factors to have a competitive advantage, minimizing the reputational risks and strengthening the brand.

The importance of developing the sustainability strategy in the organisation and its impact on the success has been studied by such authors as Müller R., Schoper Y. et al, Dalcher D., Silvius G. et al, Lobzov A., McGrath S., Duncan W. et al, Apenko S. N., Fomina Yu., Robertson M., Gareis R., Huemann M., Martinuzzi A., Weninger C., Sedlacko M. and others.

The growth and development of the organisations depend on the projects, programs and portfolios realization. Corporate project management systems implemented and maintained within the organisations aim to be based and fully aligned with the strategy, as well as goals and objectives. The attempts of the researchers have been made in defining the methods and tools for breaking down the strategic goals and objectives into the projects, programs and portfolios of the organisations. Specific approaches of implementation the project management system in the public sector authorities has been described in the work of Klimenko O., Kulakov V., Trofimov S., Ushenin A. (2018) with evaluating the “the importance of corporate culture adaptation to the implementation process”. According to Zyulyaeva V. and Perceva E. (2018), the problem of project portfolio formation is that many companies “face a large number of challenges at the implementation stage”. The authors see the project management system as one of the tools for implementation of the strategy, they propose the criteria to project portfolio selection.

However, the lack of mechanisms for translating the sustainable development strategy into the project portfolio is a pressing issue. The scientific literature and practice do not provide a clear answer to the question of how to take sustainability strategy into account when building a portfolio of projects.

## **2. PURPOSE AND OBJECTIVES**

The purpose of this research is to study the practice of translating a sustainability strategy into the projects of organizations, identify challenges and propose mechanisms for integrating a sustainability strategy in the formation of a project portfolio.

## **3. RESEARCH METHODOLOGY**

The main method applied for the research is the method of analyzing case studies. Three cases of three organizations have been chosen and analysed. The cases describe the implementation of strategic principles of sustainability in specific projects of digitalization and telecommunications. Due to the confidentiality policy, the names of the companies could not be provided in the paper.

The objects of the research are the three leading companies from the telecommunication industry, all of them located in the Russian Federation. The subject of the research has been defined as the strategy of sustainable development and the ways of its translation into the projects portfolios in these organisations. For this purpose, the open-source of sustainability reports for 2019 of the three companies have been used from the Russian Sustainability Reports Register ([www.rspp.ru](http://www.rspp.ru)).



To be able to collate the data from all three cases the proposed structure has been developed for analysis. The proposed structure is presented in the table 1.

**Table 1.** Case studies proposed structure

	Feature / characteristic	Description
1. <b>Strategy</b>	<ul style="list-style-type: none"> <li>• Sustainability concept and the strategy of the organisation?</li> <li>• Social aspect in the strategy</li> <li>• Economic aspect in the strategy</li> <li>• Environmental aspect in the strategy</li> <li>• Additional aspects (ESG-related, institutional)</li> </ul>	<ul style="list-style-type: none"> <li>• Is sustainability concept taken into consideration in the strategy of the organisation?</li> <li>• Is the social aspect defined in the organisation's strategy?</li> <li>• Is the economic aspect defined in the organisation's strategy?</li> <li>• Is the environmental aspect defined in the organisation's strategy?</li> <li>• Are there any additional aspects defined in the organisation's strategy? What are they?</li> </ul>
2. <b>Projects Portfolio</b>	<ul style="list-style-type: none"> <li>• Number of portfolios</li> <li>• Types of projects (internal/ external)</li> <li>• Alignment of the strategy with the project portfolio(s)</li> </ul>	<ul style="list-style-type: none"> <li>• How many portfolios are being implemented in the organisation?</li> <li>• What types of projects have been selected into the portfolio(s)?</li> <li>• Are the project portfolios aligned with the sustainable strategy of the organisation?</li> </ul>
3. <b>Mechanisms of Translation the Sustainability Strategy into Project Portfolios</b>	<ul style="list-style-type: none"> <li>• Ways of breaking down the sustainability strategy into projects portfolios</li> <li>• Methods, tools, mechanisms used by the organisations for this purpose</li> </ul>	<ul style="list-style-type: none"> <li>• How does organisation break down the sustainability strategy into project portfolio(s)?</li> <li>• What methods, tools and mechanisms do the organisation use for this purpose?</li> </ul>

**Source:** Compiled by the authors.

The three cases have been analysed according to the proposed structure and the consolidated data presented in the paper.

## 4. CASE STUDY 1

The large telecommunication company with more than 30 years of being in the market as one of the leading online services providers with branches in European countries and the USA. The ESG - report for 2019 was issued and published by the company in June 2020.

### 4.1. Strategy

The sustainability concept is taken into consideration in the business strategy of the organisation, the key message of which is that technology together with experience must serve people. The strategy covers both the Headquarter and all the subsidiaries that show the good and overall implementation of the sustainability strategy.

All the three aspects of sustainability (social, economic and environmental) are defined in the strategy of organisation.

In addition, ESG strategy exists in the organisation and is incorporated into the overall corporate business strategy. This shows the high level of commitment of the organisation to follow the sustainability principles.

One more additional fact is that the organisation has developed many corporate standard and policies related to sustainability topics (risk management, Code of Ethics, Code of Business Conduct, Legal Compliance Charter, etc.). This might show the high level of understanding and adoption of the sustainability principles in the everyday activities in the organisation.

## **4.2. Projects Portfolio**

The company fulfills both external (B2B, large scale) projects and internal projects.

The company fulfills a great variety of projects, the main types of them are:

- Social projects (Charity, Donor's days, language learn days, etc.),
- IT education (for technical and non-technical students, both for hard and soft skills),
- Multimedia,
- Partnership projects, joint projects,
- Supporting other providers' projects (solutions for other IT platforms).

Some of the projects are fulfilled with the company's partners, e.g. Pets' project (with food producers for pets).

As stated in the report, 7% of the revenue in the consolidated revenue structure belongs to the new initiatives (meaning, projects).

The company fulfils also programs, some of them were implemented for the first time driven by the corona crisis and restrictions.

There was an adaptable Covid-19 response made by the company, many new initiatives launched, digital transformation implemented in a wider range (AI, etc.), new services provided for the customers who were in lockdown restrictions.

The number of projects increases every year. One of the examples is the special platform for fundraising that the company launched in 2017. The number of successful projects that used this platform is growing 8% (from 2017 to 2018) and 20% (from 2018 to 2019).

As stated in the report, the projects portfolio consists of 100 plus projects in 2019.

At the same time, there is very little information about projects portfolios. Thus, the term "portfolio" is mentioned only 2 times in the report. One is the "product portfolio" and the second one is just stating the numbers of projects in the yearly portfolio. This could be a sign of the low maturity level of PP&P management and there is room for improvement.

## **4.3. Mechanisms of Translation the Sustainability Strategy into Project Portfolios**

One of the tools the company uses is specific organizational structures. To implement the strategy through the project's portfolio realization the company introduced the specific governing

ESG bodies such as the Board of Directors and the Management Board, which are responsible for incorporating the ESG strategy into the corporate business strategy. The next level for the support of planning, consolidation and implementation of the ESG initiatives is carried out by the Directors (HR Director, Social Project Director and IR Director).

The training for raising the awareness of the company's employees is mentioned in the report. The training as a method to raise the level of awareness of the sustainability aspects in the organizational strategy is applied.

There is no evidence provided in the report about the specific mechanisms for translating the sustainability strategy into the project's portfolios. Also, is not clear how the organisation applies all the corporate standards and policies for the realization of the projects and portfolios.

## 5. CASE STUDY 2

The largest integrated provider of digital services in the Russian Federation with branches in all the areas and regions of the country. The Sustainability report for 2019 was issued and published by the company in 2020.

### 5.1. Strategy

The business strategy was approved in 2018 and aimed for 2018-2022. The main message is to move from the role of the telecommunication operator and to become the digital partner. The business strategy is well defined, the SDGs are incorporated into the strategy in a very harmonized way.

Corporate standards and policies include the principles of sustainability and SDGs. The report stated that all the aspects are taken seriously into consideration – social, environmental and governance. The priorities in ESG are very well defined. It is stated in the report that the company acts to support and develop the sustainable social, environmental, cultural and economic growth of Russia.

### 5.2. Projects Portfolio

Among types of projects, it is mentioned that the company fulfills both external and internal projects. The company has also a well-defined classification of the projects with different dimensions (e.g. scale, localization, profit/non-profit, etc.).

There are external projects:

- big data,
- AI,
- digital transformation of Russian Federation,
- development and implementation of the new products and services,
- acquisition of other companies and businesses,
- cross-sector/industry programs and projects (in partnership with nuclear power companies, oil and gas companies, and others).

The company fulfills many social programs and projects, all of them are very well aligned with SDGs.

Among the social programs and projects the company mentions:

- educational projects (online University and others),
- conquests among the internet users in the “age” group (the oldest winner is 95 years old),
- training in soft skills and hard skills,
- charity projects,
- volunteers projects,
- corporate social responsibility projects.

At the same time, there is very little information about projects portfolios. Thus, the term “portfolio” is mentioned in the meaning “real estate portfolio” only 3 times in the report. This could be a sign of the low maturity level of PP&P management and there is room for improvement.

### **5.3. Mechanisms of Translation the Sustainability Strategy into Project Portfolios**

The way of translating the business strategy into the project’s portfolio includes strategy development and prioritizing the SDGs for the company. The company defines the SDGs with priority 1 (what is very important) and priority 2 (what is important).

One of the mechanisms described in the report is the development of KPIs of the programs and projects based on the business strategy and SDGs:

- Step 1. Define the key SDGs for the company (priority 1, priority 2),
- Step 2. Define the main directions, goals and objectives of the company from the strategy that are related to key SDGs,
- Step 3. Analyze the results of the main programs and projects and define if (and how) they contributed to the SDGs,
- Step 4. Plan the future programs and projects,
- Step 5. Define the KPIs of each program and project,

While making these steps, the company pays attention to the interrelated SDGs and adjusts programs and projects scopes accordingly.

As stated in the report, the company uses programs and projects quite successfully, while the portfolio management seems to be not very well developed and/or implemented. Thus, the above-described approach works well for the strategic level, program and portfolio level while the portfolio level has the lack of mechanisms for its formation in the organisation. If the company implements portfolio management, it could make the activities related to SDGs analysis more effective at a more consolidated level.

## **6. CASE STUDY 3**

The company was founded in 2003, it is the youngest compared with the case 1 and case 2 organisations. The company works in more than 35 areas and regions of the Russian Federation.

### **6.1. Strategy**

The main idea of the strategy is that corporate social responsibility is more than a company’s policy. It is a philosophy.

According to the report, mission, vision, strategy, goals and objectives, as well as main development directions and values are set and well defined. The company developed its business strategy 2018 – 2022 as the sustainable development strategy. The values are broken down to all business processes, as stated in the report. At the same time, the projects are not mentioned.

Among the values, corporate social responsibility seems to be one of the most important.

SDGs are well analyzed and priorities defined.

## 6.2. Projects Portfolio

The company fulfills external and internal projects.

Among the internal projects are:

- training for personnel,
- educational platforms (free lectures for all the people of Russia),
- new ideas from the employees,
- partnership projects,
- charity projects,
- social entrepreneurs competition.

The external projects are fulfilled for supporting, maintaining and developing the products and services of the company.

The term “portfolio” is used in the report in the meaning of “product portfolio” and that could mean that the PP&P management, and portfolio management, in particular, has a lot of room for improvement. There is no evidence in the report about the formation of projects portfolios.

## 6.3. Mechanisms of Translation the Sustainability Strategy into Project Portfolios

One of the ways to ensure that the corporate management includes the strategic goals and objectives into the project's portfolios is the specific structure. The company introduced specific Bodies that report directly to the CEO of the company.

The company analyzed the SDGs concerning the strategy of the organisation.

There is no evidence in the presented report about the specific mechanisms for translating the sustainability strategy into the project's portfolios. In addition, it is not clear how the organisation applies all the corporate standards and policies for the realization of the projects and portfolios.

The three cases have been analyzed and described according to the proposed structure. The consolidated data are presented in the table 2.

## 7. FUTURE RESEARCH DIRECTIONS

The analysis of three cases showed that the following are promising areas for the development of both the theory and practice of forming a project portfolio based on a sustainable development strategy. First, there is a need for a more pronounced institutional framework for the formation of

**Table 2. Consolidated Data form Case Studies Analysis**

	Feature / characteristic	Description	Case 1	Case 2	Case 3
1. Strategy	<ul style="list-style-type: none"> <li>Sustainability concept and the strategy of the organisation?</li> <li>Social aspect in the strategy</li> <li>Economic aspect in the strategy</li> <li>Environmental aspect in the strategy</li> <li>Additional aspects (ESG-related, institutional, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Is sustainability concept taken into consideration in the strategy of the organisation?</li> <li>Is the social aspect defined in the organisation's strategy?</li> <li>Is the economic aspect defined in the organisation's strategy?</li> <li>Is the environmental aspect defined in the organisation's strategy?</li> <li>Are there any additional aspects defined in the organisation's strategy? What are they?</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes (ESG, institutional Bodies and Standards, disaster responses)</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes (ESG, SDGs, disaster responses, cultural development, Bodies and Policies)</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes (SDGs, Bodies and Policies)</li> </ul>
2. Projects Portfolio	<ul style="list-style-type: none"> <li>Number of portfolios</li> <li>Types of projects (internal/external)</li> <li>Alignment of the strategy with the project portfolio(s)</li> </ul>	<ul style="list-style-type: none"> <li>How many portfolios are being implemented in the organisation?</li> <li>What types of projects have been selected into the portfolio(s)?</li> <li>Are the project portfolios aligned with the sustainable strategy of the organisation?</li> </ul>	<ul style="list-style-type: none"> <li>Two portfolios, as well as programs. Number of projects - 100 plus.</li> <li>Internal and External (External mostly for finance and economic reasons, internal for social and environmental aspects)</li> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>No data presented in the report</li> <li>Internal and External programs and projects</li> <li>Partially. All the programs and projects are very well aligned with the strategy as well as SDGs</li> </ul>	<ul style="list-style-type: none"> <li>No data presented in the report</li> <li>Internal and External programs and projects</li> <li>No data presented in the report</li> </ul>
3. Mechanisms of Translation the Sustainability Strategy into Project Portfolios	<ul style="list-style-type: none"> <li>Ways of breaking down the sustainability strategy into projects portfolios</li> <li>Methods, tools, mechanisms used by the organisations for this purpose</li> </ul>	<ul style="list-style-type: none"> <li>How does organisation break down the sustainability strategy into project portfolio(s)?</li> <li>What methods, tools and mechanisms do the organisation use for this purpose?</li> </ul>	<ul style="list-style-type: none"> <li>Way. Specific organisational structure (specific Bodies and Roles for Directors)</li> <li>Method. Training to raise the awareness of the sustainability aspects of organisational strategy of the company's employees</li> <li>No mechanisms provided in the report</li> </ul>	<ul style="list-style-type: none"> <li>Way. Prioritisation of the SDGs for the company (priority 1 and priority 2).</li> <li>Mechanism of setting KPIs of programs and projects based on key SDGs and key strategic goals and objectives. At the same time the is no evidence in the report about the formation of project portfolios and setting the KPIs on the portfolio level.</li> <li>No mechanisms provided in the report</li> </ul>	<ul style="list-style-type: none"> <li>Way. Specific organisational structure</li> <li>Way. The SDGs analyzed in relation to the strategy of the company</li> <li>No evidence of projects portfolio selection/formatation</li> <li>No mechanisms provided in the report</li> </ul>

**Source:** Compiled by the authors.



a project portfolio. The companies have projects and programs combined into portfolios. However, there are no methodological approaches, regulations and procedures for the formation of project portfolios. It is portfolio management that is still being paid little attention in organizations, which is a factor constraining organizational development. Secondly, it is necessary to link the management of portfolios of projects and strategies of organizations based on the principles of sustainability. At the moment, there is a gap between, on the one hand, fairly well-developed sustainability strategies, on the other hand, portfolios of projects and programs. Third, it is necessary to develop various mechanisms for integrating the sustainability strategy into portfolio management.

The analyzed cases showed that some mechanisms are available. They are associated with the presence of management entities responsible for integrating the sustainability policy into the management of projects and programs, as well as with the availability of an appropriate KPI system. However, such mechanisms are not enough and it is necessary to expand their range.

Promising mechanisms include the formation of institutions for the implementation of a sustainable development strategy in project portfolios (management structures and subjects, technologies and methods, procedures); the expansion of the use of KPIs that are consistent with both sustainability criteria and success indicators of the project portfolio; the formation of motivation of employees of organizations to comply with the principles of sustainability in the formation and implementation of the project portfolio.

## 8. CONCLUSION

The study confirmed the importance of the task of combining the processes of strategic sustainable development of organizations and the formation of a portfolio of projects and programs in these organizations. The facts of the presence of a set of measures for sustainable development in organizations, for the inclusion of the principles of sustainability in the organization's strategies, for the implementation of sustainability in various projects and programs of organizations were revealed. All these are positive facts that demonstrate the progress of companies towards implementing sustainable growth strategies through their projects. However, the fact that there are no sufficiently detailed and diverse mechanisms for taking into account the sustainability strategy in the process of forming a project portfolio was also recorded. Conclusions are drawn about the need for the development of such mechanisms, the most promising mechanisms that require research and elaboration are named.

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# European Taxes and Incentives to Support the Environmental Transition

Silvia Velarde Aramayo<sup>1</sup>

## Keywords:

Green taxes;  
Environmental tax policy;  
Green subsidies;  
Environmental expenditure



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**Abstract:** *The EU-27 has multiple environmental policy instruments among which revenues-based mechanisms and direct or indirect subsidies stand out. In the first group, around 142 taxes have been identified, whose objective is to reduce GHG emissions. The second group includes tax incentives divided into five very broad categories. To this must be added the spending on environmental protection that has grown until reaching 269 EUR billion in the last year (analyzed by Eurostat).*

*The tax structures in the EU-27, Iceland, Norway, and United Kingdom are quite similar and show how the main segment comes from taxes on energy followed by taxes on transport, and taxes on pollution or resources. Some of them, more than an environmental goal, has the purpose of collecting taxes. The article seeks to underline the need to jointly manage the revenues and expenditures policy in environmental matters and increase control over its use, implementation, recipients, and effectiveness.*

## 1. ENVIRONMENTAL POLICY INSTRUMENTS

A recent report of the European Commission (2020) prepared by the Austrian Institute of Economic Research and ECORYS Consulting Firm provides an overview of the *Environmental Policy Instruments* introduced to change the behavior of producers and consumers to reduce Greenhouse Gas (in advance, GHG) emissions.

Among this heterogeneous group of measures, two clear tax instruments are included. First, *revenue-based mechanisms* (like taxes, charges, fees, or penalties) and other international instruments (such as the European Emission Trading System that operates in all the EU countries plus Iceland, Liechtenstein, and Norway and restrict emissions from around 10.000 installations in the power sector and manufacturing industry, as well as airlines that operates between all these countries and that cover around 40% of the EU's GHG emissions<sup>2</sup>). Second, the indirect (tax incentives like tax credits or deductions) or direct economic *Subsidies* (such as incentives for electric cars or for companies to invest in environmental protection).

In that frame, *taxes* are divided into four main categories: energy taxes, carbon taxes targeting explicitly CO<sub>2</sub> emissions, vehicle taxes and taxes on non-carbon GHG emissions. At the same time, *tax incentives* can be divided into five broad categories: incentives for electric/hybrid vehicles, incentives for energy efficiency, incentives to promote the use of public transport, incentives that encourage investments in renewable energy sources, and incentives for green research and development<sup>3</sup>.

The Report *identified 142 taxes* whose target is to reduce GHG emissions across 33 countries *excluding taxes that fall into the scope of the Energy Tax Directive* (Council Directive 2003/96/EC of 27 October 2003, about restructuring the Community framework for the taxation of en-

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<sup>2</sup> See European Commission (2015) "EU ETS Handbook".

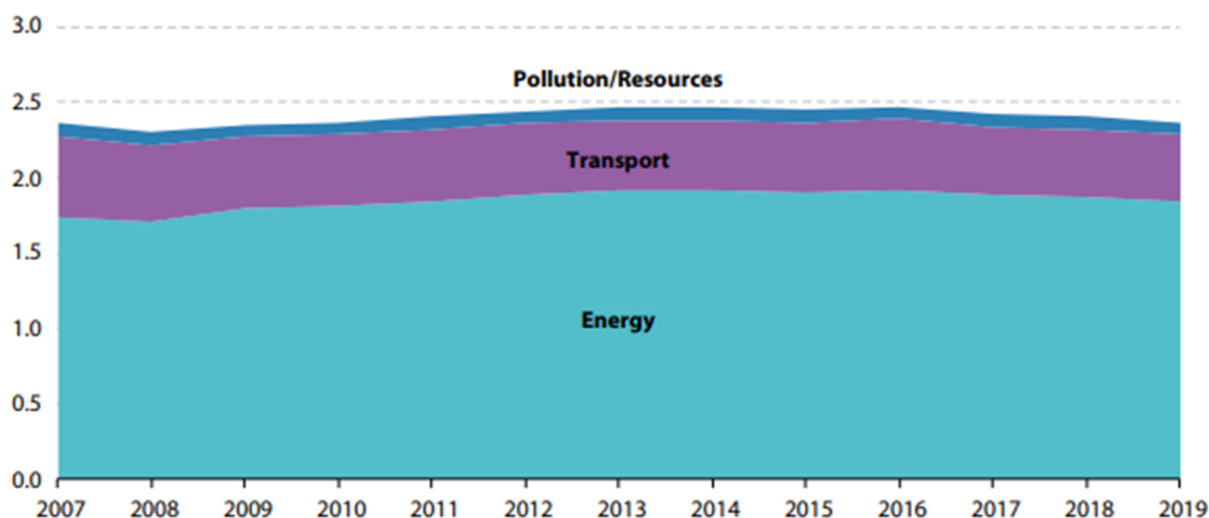
<sup>3</sup> For environmental incentives database see the Study for the European Commission-Directorate General of Environment. ECORYS (2012) Study on Incentives Driving Improvement of Environmental Performance of Companies. Final Report, Rotterdam, 2012.

ergy products and electricity) which are present in all the EU Member States. It must be borne in mind that the mentioned Directive will be reviewed soon and strikes directly at the heart of the European Green Deal's implementation presented by the European Commission in December 2019<sup>4</sup>, and included in the roadmap as “key action”<sup>5</sup>, and as part of the EU Proposal for the “European Climate Law”<sup>6</sup> to become our region in climate-neutral by 2050, reducing GHG emissions by at least 55% in 2030 (compared to levels in 1990).

It should be noted how, while the taxes differ across the countries included in the European Commission Report, no country does not use at least one tax to reduce GHS emissions. Nonetheless, in general, we can see how the taxes are divided into three main categories: *carbon taxes*, *vehicle taxes*, and *energy taxes*. To this, we must add that some countries apply taxes targeting non-carbon GHG emissions. All the taxes in European Countries show great similarities and according to the Ecorys Study «while the specific design of measures varies regarding tax rates, exemptions or the tax base, the activities targets are almost always the same across countries».

## 2. ENVIRONMENTAL TAXES REVENUE'S STRUCTURE

The information from the UE Directorate General on Taxation and Customs Union (2021) shows the same idea about the environmental taxes revenues<sup>7</sup>. The main part is energy products taxes (including CO<sub>2</sub> taxes), follow by transport taxes (excluding fuel, which is covered by the energy taxes) and pollution/resources taxes (group that remained particularly low). Total revenue from environmental taxes in 2019 has represented the 2.4% of the EU-27 GDP.



**Figure 1.** Environmental taxes revenues EU-27, 2007-2019 (% of GDP)

**Source:** European Commission, DG Taxation and Customs Union, 2021.

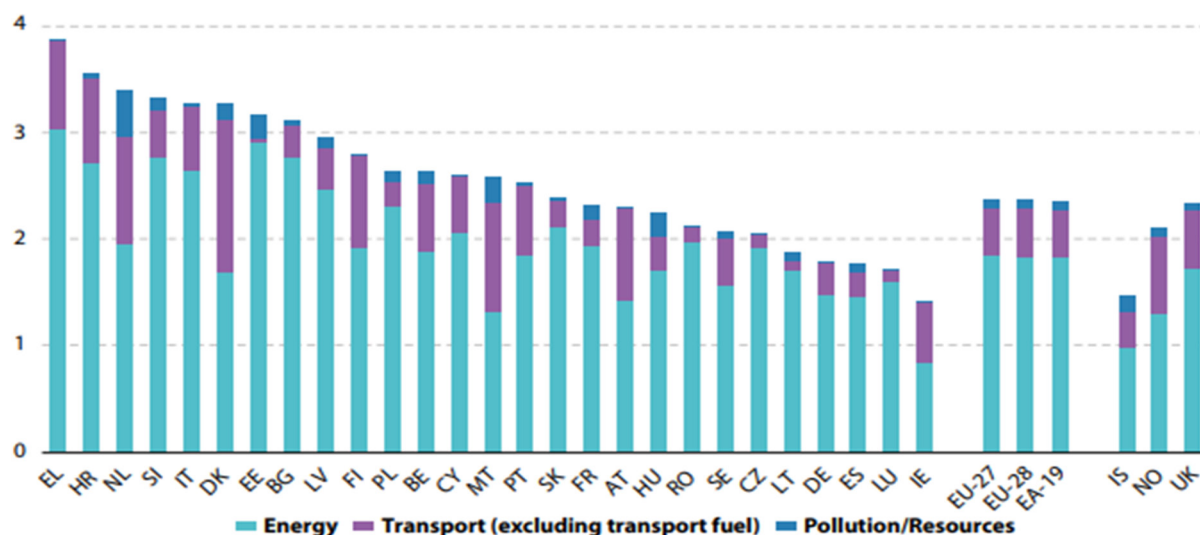
<sup>4</sup> See European Commission COM (2019) 640 final, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, the European Green Deal, Brussels, 11.12.2019.

<sup>5</sup> See ANNEX to the Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, The European Green Deal, Brussels, 11.12.2019.

<sup>6</sup> See European Commission, COM (2020) 80 final 2020/0036 (COD), Proposal for a Regulation of the European Parliament and of the Council establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law), Brussels, 4.3.2020.

<sup>7</sup> See European Commission (2021), Taxation Trends in the European Union. Data for the EU Member States, Iceland and Norway, Luxembourg, Publications Office of the European Union, June 2021

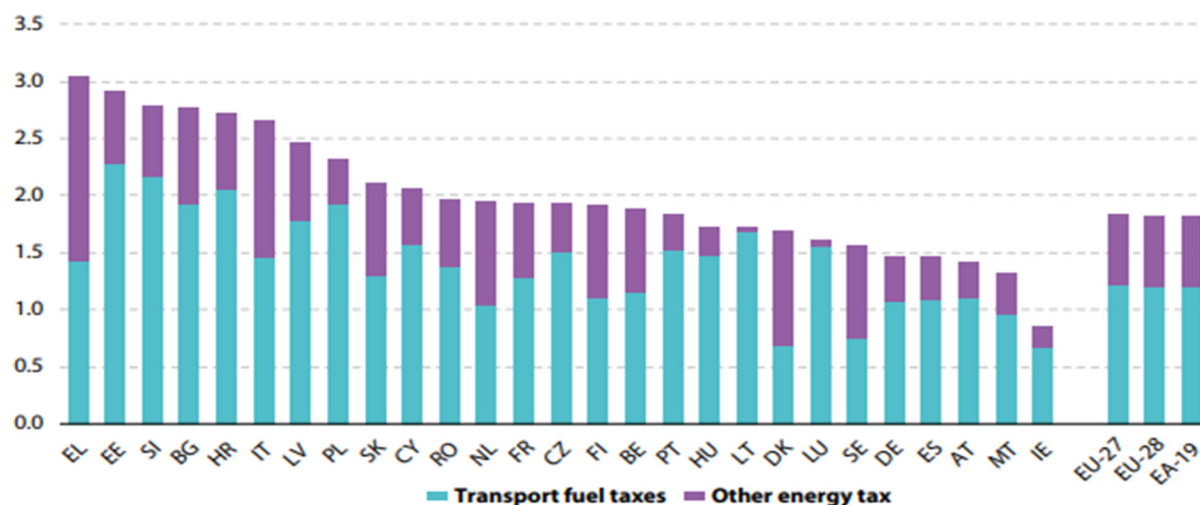
According to the European Commission, we can find the same tax structure in all the EU countries, Island, Norway, and the United Kingdom. Around the energy taxes that constitute almost 78% of EU-27 environmental tax revenues, we found the highest percentage in Belgium and Latvia, and the lowest in Denmark or the Netherlands, and regarding the non-fuel transport taxes which represent 19% of the European environmental tax revenues, the highest percentage is in Denmark and the Netherlands, and the lowest in Poland, Lithuania, or the Czech Republic. The pollution/resources tax revenues are only 3%.



**Figure 2.** Structure of Environmental taxes as % of GDP (2019)

**Source:** European Commission, DG Taxation and Customs Union, 2021.

Instead, around 2/3 of the total Energy Tax Revenues in the EU are raised through taxes on transport fuel and, for example, in Lithuania and Luxembourg transport fuel represents over 95% of energy tax revenues, whereas it represents around 40% in Denmark. Excluding these two countries, the highest tax revenues percentage are in Greece, Estonia, and Slovenia (between 2.8% and 3%) whereas the other five countries are below 1.5% of the GDP (Spain, Germany, Austria, Malta, and Ireland).



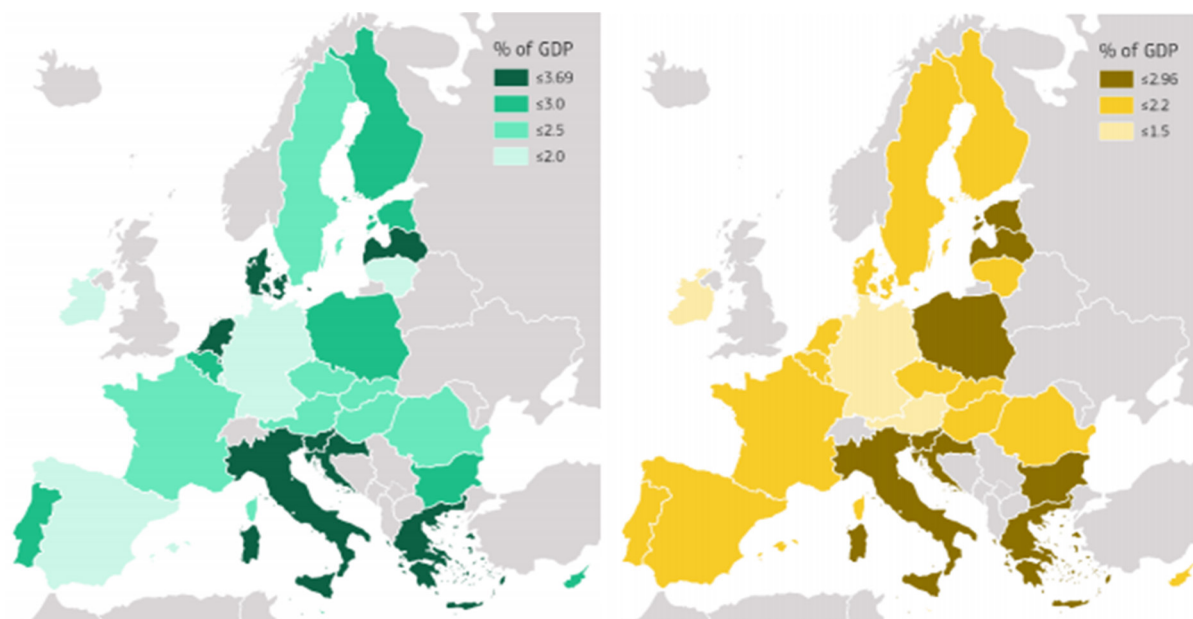
**Figure 3.** Energy taxes revenues by Member State as % of GDP (2019)

**Source:** European Commission, DG Taxation and Customs Union, 2021 based on Eurostat data

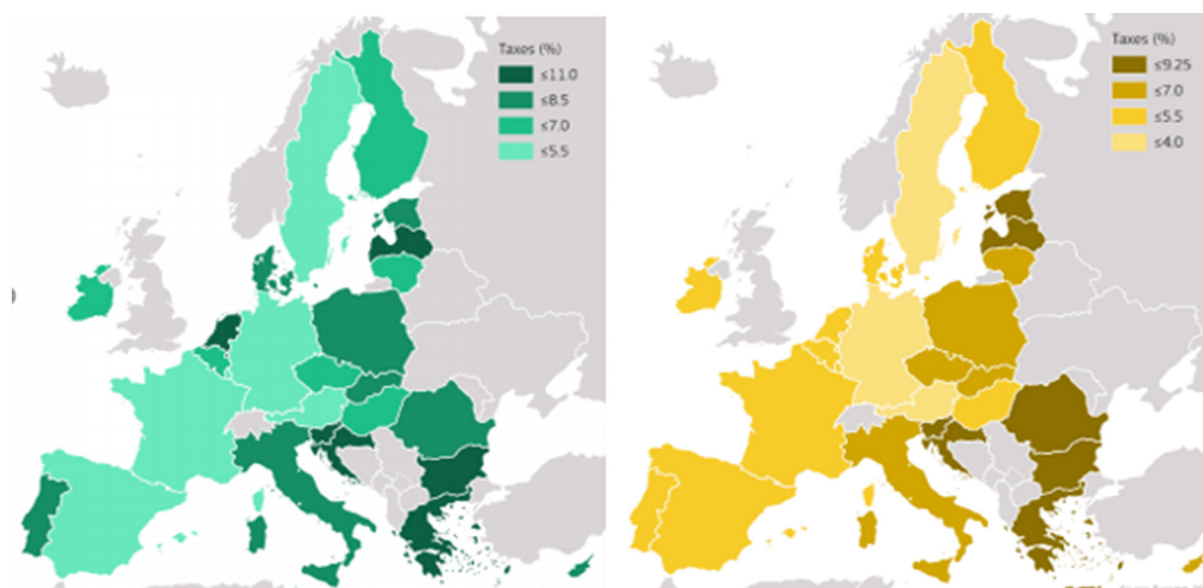


### 3. ENERGY TAXES

The Energy Directive establishes the minimum excise duty rates that the Member States must apply to energy products for motor fuels, heating fuels and electricity. In principle, the EU countries are free to apply excised duty rates above this minimum level of taxation, according to their national needs and environmental decisions. The Directive also set up the conditions for applying tax exemptions and reductions for energy products in harmonized way, but it does not pivot around the potential of energy saving or emission reductions. Indeed, the EU energy taxes do not focus on the reduction of GHG emissions, even if they have an indirect impact, because, obviously, the energy efficiency (less fuel) and the effectiveness can improve if fuel with lower carbon is used.



**Figure 4.** Environmental taxes (left) and Energy taxes (right) revenues in the EU, 2018 (% of GDP)  
**Source:** Eurostat data, 2020.



**Figure 5.** Environmental taxes (left) and energy taxes (right) revenues as a share of total taxes and social contributions in 2018  
**Source:** Eurostat data, 2020.

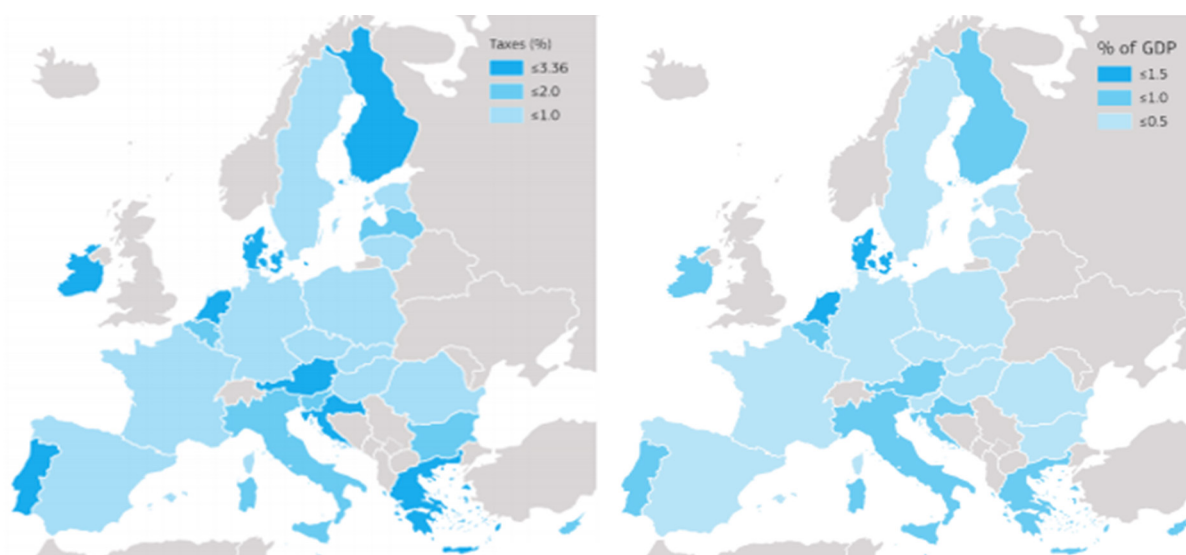


As we already pointed out, the energy tax revenues constitute the main component of environmental tax collection for almost all countries, although there are great differences between them, depending on the country's economic situation in each year. In this framework, the 2018 data differs from the 2019 data (which we saw in the previous section) in each one of the EU-27 countries; we find the lowest share of environmental taxes in Ireland (only 1.56%) and the highest in Greece (3.69%). However, when it comes to energy tax, Ireland has still the lowest share (0.97%), while Slovenia has the highest (2.96%).

In the same year, in some countries, energy taxes accounted for more than 90% of total environmental revenue, such as in the Czech Republic, Romania, Luxembourg and Lithuania. Besides that, the share of environmental taxes varies quite a bit between the different EU-27 Member States and in the “basket of environmental taxes” three countries had the highest share of energy taxes (Latvia, Bulgaria, and Slovenia), while Austria and Sweden had the lowest.

#### 4. VEHICLE TAXES

Taxes on car ownership are used very frequently; however, the tax treatment in each one of the EU-27 countries is different. Despite this, there are two key components on which the typology of such taxes can be based: the frequency of taxation and the tax base applied. According to MURAUSKAITE-BULL and CARAMIZARU (2021) the Member States have three options: (a) Can decide to tax the purchase/registration of the vehicle (registration tax); (b) Can decide to tax the car ownership on a recurrent or yearly basis (circulation tax); or (c) Can decide to apply taxes both at registration time and on a recurring basis.



**Figure 6.** Transport taxes (left) revenues as a share of total taxes and social contributions in 2028, and transport taxes revenues (right) as % of GDP in 2018.

**Source:** Eurostat data, 2020.

In that frame, Ecorys data indicates that in Europe there are only two countries (Poland and Norway) that tax only the registration, and eight countries that solely apply circulation tax (Bulgaria, Latvia, Germany, Sweden, Luxembourg, Romania, Czechia, and Switzerland). Estonia and Lithuania do not apply either of them; however, most countries require both taxes in place (Spain, Portugal, Italy, France, the Netherlands, Croatia, Cyprus, Malta, Denmark, Finland, Greece, Hungary, Ireland, Austria, Belgium, or Iceland).

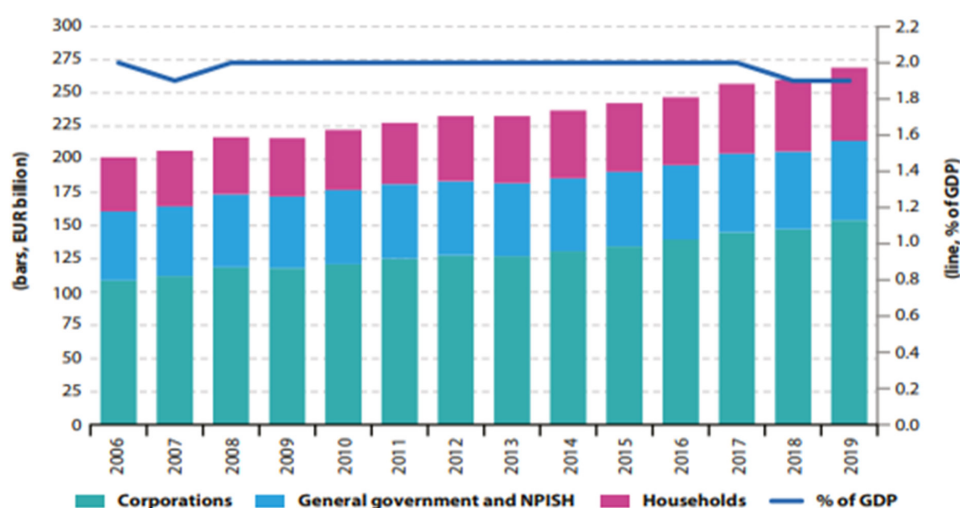
The base of circulation taxes often does not appear to be linked to GHG emissions and only a few countries tax the vehicles concerning those emissions: three in the registration taxes (Spain, United Kingdom and France) and one in the circulation tax (Cyprus). Many of them prefer a mixed tax base that combines CO<sub>2</sub> components with other criteria such as the age of the car, fuel type, or cylinder capacity. The idea to link the tax with fuel consumption is used less frequently, and most countries choose not to establish any relationship with CO<sub>2</sub> reductions.

On the other hand, tax incentives for buying electric vehicles are very common and many countries have tax incentives in place for that including exemptions in the registration or circulation taxes. In that sense, countries like Finland or Ireland apply the lowest tax rate to electric vehicles and others, such as Germany, give a temporary exemption (full during the first ten years and a half reduction after this period).

## 5. ENVIRONMENTAL PROTECTION EXPENDITURE

We must also take into account statistics about environmental protection expenditures. It's not about "*tax expenditures*" in the classic sense (Surrey & McDaniel, 1976) but rather "*direct expenditures*" like subsidies for companies, households, non-profit institutions serving households (NPISH), or the own government. The EPEA (Environmental Protection Expenditure Accounts) key basket is the National expenditure on environmental protection (NEEP), which measures the resources devoted to protecting the natural environment.

Outside the scope of EPEA, all the activities are undertaken for resource management, such as protection of energy from renewable sources, energy efficiency, or forest management. Instead, it includes current spending on *environmental protection services* (like waste and wastewater collection and treatment), as well as on other services, such as protection of biodiversity or supporting activities like education, administration, and consulting. Also, it covers investments undertaken by private corporations and public bodies to construct waste (water) treatment plants or other installations or infrastructure and to purchase the equipment essential to provide the environmental protection services or investments and costs incurred by corporations to make their production process less environmentally harmful (*environmental protection investments*).

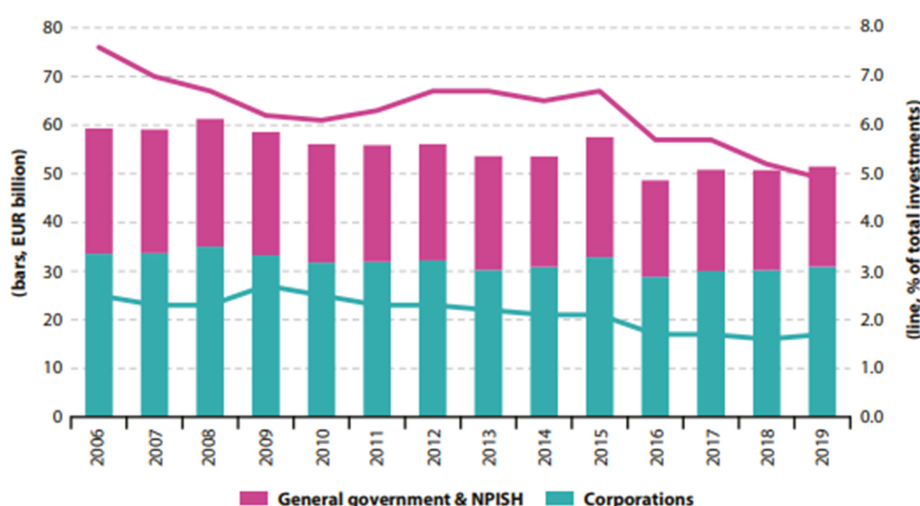


**Figure 7.** National expenditure on environmental protection, EU-27, 2006-2019 (EUR billion and % of GDP).

**Source:** Eurostat, 2020.

In the last fifteen years, the EU-27 expenditure on environmental protection has grown steadily; for example, in 2019, the statistics show that it was 34% higher than in 2006, increasing from 200 EUR billion to 269 EUR billion. Moreover, according to the EUROSTAT (2020), in 2019 the corporations sector accounts for 57% of the EU environmental protection expenditure. Instead, contributions of the government and non-profit sector, and households to NEEP are only 22% and 21% respectively.

The same year, the EU allocated EUR 52 billion to *investments for environmental protection* (such as wastewater treatment plants, vehicles to transport waste, acquisitions of land to create a natural reserve, or cleaner equipment for producing with less polluting emissions) distributed in a 60% for corporations<sup>8</sup> (EUR 31 billion) and the remaining 40% for the government and NPISH (EUR 21 billion).



**Figure 8.** Investments for environmental protection, EU-27, 2006-2019 (EUR billion and % of a sector's).

Source: Eurostat, 2020.

In our opinion, is very important to connect the collection of environmental taxes with spending on environmental protection and investment because they are two sides of the same coin. It is necessary to debate about priorities, amounts, and beneficiaries of all this huge money. We need more control in making decisions.

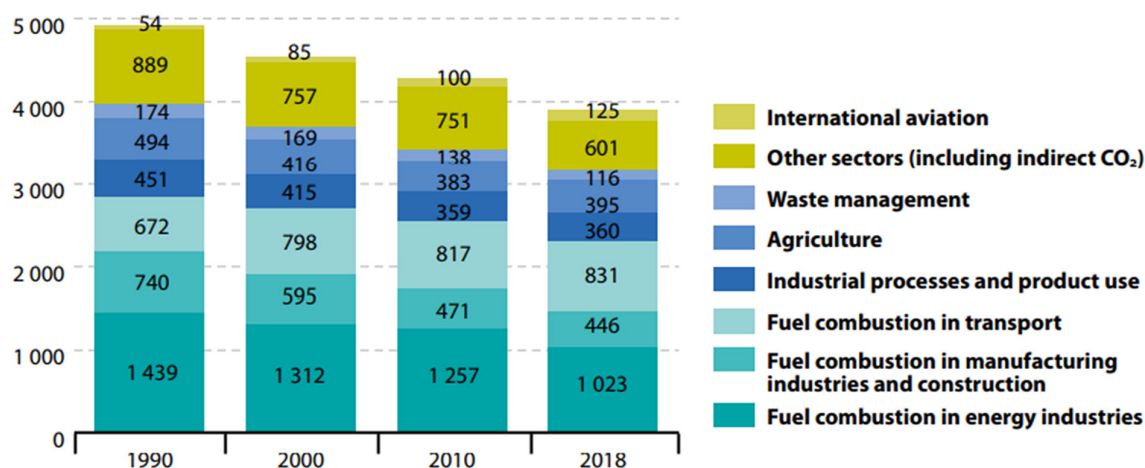
## 6. CONCLUSION

*First.* The EU-27, Iceland, Norway, and United Kingdom have introduced more than 142 taxes for environmental purposes, excluding those taxes that fall into the scope of the Energy Tax Directive. Some of them, rather than an environmental objective have as their main purpose the collection of taxes, as the case of those taxes on vehicle registration and circulation that are only in a few countries linked to the reduction of GHG emissions.

*Second.* According to the latest information, the total revenues from environmental taxes in the EU-27 has represented the 2.4% of the Eurozone GDP (EUR 324.6 billion). Most of it comes

<sup>8</sup> Such as specialist providers of environmental protection services (like private companies dealing with waste collection and processing and with sewerage) and corporations other than specialist producers which purchase technologies and equipment reducing the environmental pressures arising from their production process.

from energy taxes (78%), followed by transport taxes (19%) and a residual part from pollution or resources taxes (3%). On the other hand, around 2/3 of the total energy taxes revenues in the EU-27 are raised through taxes on transport fuel. Despite this, between 1990 and 2018, the reduction in some sectors has not been too big.

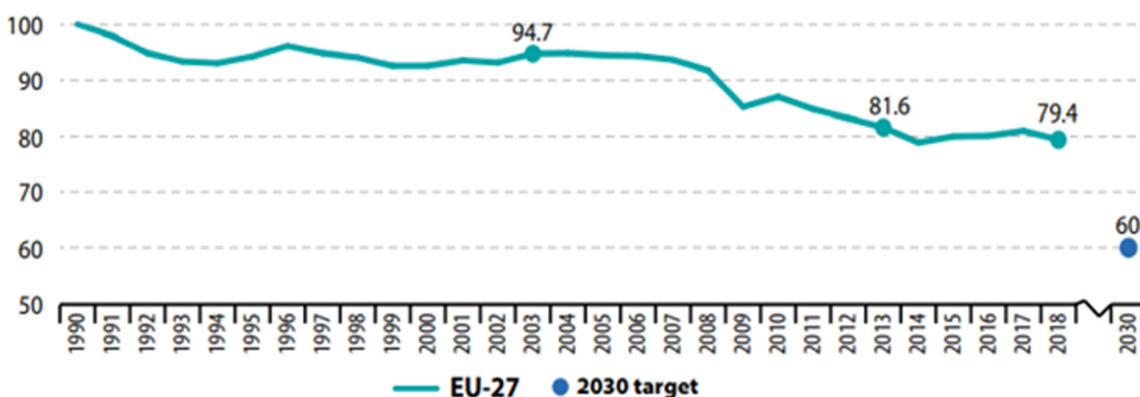


**Figure 9.** Greenhouse gas emissions, by sector, EU-27, 1990/2000/2010/2018.

**Source:** European Environmental Agency and Eurostat, 2020.

*Third.* Regardless of environmental taxes, the EU-27 spends a lot of money in fighting climate change through direct and indirect subsidies (the quantification of which is still unknown). To the subsidies must be added the expenditure on “environmental protection” and “investments in environmental protection”, that is, in the last year analyzed by Eurostat, 269.000 billion euros and 52 billion euros respectively, whose main recipients have been the corporations, whilst the households and the non-profit sector have only received about 22% in environmental protection expenditures and 40% in investments with the same purpose. This means that the private sector manages a large part of the resources destined for the environmental transition.

*Fourth.* In our opinion, it is necessary to jointly manage the revenues and expenditures policy in environmental matters and increase control over its use, implementation, recipients, and effectiveness. It is important to strengthen the debate on priorities, instruments, options, needs, and costs; also, to compare the resources used in environmental policy with those used in other policies that European citizens view as essential and urgent. The environmental policy is very important but it is not everything.



**Figure 10.** Greenhouse gas emissions, UE -27, 1990-2018.

**Source:** European Environmental Agency and Eurostat, 2020.

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# Cloud Computing in Accounting and Digital Financial Reporting in Albania

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## Keywords:

Accounting software;  
Information technology;  
Cloud computing



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**Abstract:** Recent technological changes have had a great impact on the accounting and financial environment all over the world. Albania has also been affected by these changes and developments such as the widespread use of interactive accounting information packages, financial web reporting, and cloud computing. This paper tries to analyze the current situation of accounting and financial reporting in Albania and the impact that web reporting and cloud computing have had on the simplification of accounting procedures. Several tools such as online reporting and Extensive Business Reporting language are presented and their impact on the use of the accounting systems and other financial reporting instruments in Albania is explained. This paper finds that cloud computing has been used extensively by the private companies offering accounting information systems in Albania whereas Extensive Business Reporting language and the IFRS Taxonomy have not attained great recognition in Albania.

## 1. INTRODUCTION

Recent ongoing technological advances have made a statement in every field of economy, sociology, and everyday life. Finance and accounting are not behind as they have been extremely impacted by the evolution of technology, software, and use of the automated solution. With the sudden changes in the work of finance and accounting employees right after the pandemic hit, it was clear that offering technological and remote solutions for processing financial information will be the new normality of the sector. Hence, the importance of cloud services and online solutions for accounting and financial reporting.

Technological solutions have been considered important for accountants and auditors for several years now since AICPA published its first report in 2005 on “top ten technologies” with an impact on auditors and accountants. According to the AICPA<sup>2</sup>, topics such as Artificial intelligence; cognitive computing in audit, tax & consulting; Big Data analytics; Advanced cloud computing; Blockchains; RPA – Virtualization and automation of processes and services; and more, are some of the most emerging technologies that are important to accountants and auditors by 2021.

We see that quite often accounting and financial information tend not to be shared symmetrically between stakeholders, those that prepare the information, and the others that mainly use this information to make decisions about their investments. Having said that, the development of technology should keep in focus the purpose to offer better and more relevant and timely information for the decision makers. Recently developed online financial reporting solutions help to improve the communication of information among stakeholders.

The focus of this paper is to analyze the recent changes in the status of online financial reporting in Albania. We base our study on the theoretical analysis of the existing literature, current legal and regulatory framework in Albania as reflecting the recent changes in the regulation of the European Union, and the situation among Albanian accounting software providers. The rest of

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<sup>2</sup> <https://www.aicpa.org/interestareas/informationtechnology.html>

the paper is organized as follows. In the first section, a brief literature review focusing on the findings from previous studies is presented. In the second section, the status of the financial reporting context is discussed with a focus on the recent legal and regulatory requirements. In its third section, the paper introduces an overview of the digital accounting solutions offered by Albanian companies and a summarized comparison of their features. In the last section, we conclude by summarizing the main findings, as well as the limitations of the study.

## 2. LITERATURE REVIEW

As qualitative, reliable, and timely financial information is of primary importance to increase the investments in firms, Albania, as a young market economy attempting to attract foreign investments, is doing its moves in improving the quality of financial information. Either through endorsing the International Financial Reporting Standards or through establishing its own National Accounting Standards for smaller firms and creating the necessary legal to communicate financial information in accordance with requirements for transparency and the timely reporting on the part of investors (Lamani & Cepani 2011), we see that the reforms are multifold and ongoing. The use of technology in accounting and financial reporting is an important part of these changes. Perri & Madhi report in their 2015 study, which focused on the financial institutions, companies use accounting information systems mainly for enhancing the quality of decision making.

Technological developments affecting the accounting profession are more and more present each day. It is impossible to work within the accounting and financial field without operating with technologies like Electronic Fund Transfer, Point of Sales, Automatic Teller Machine, Electronic Data Interchange, Cloud Computing, and the Internet of Things. These technologies have already overcome the barriers between developed and developing countries and have achieved huge acceptance and use even in countries with a short history in the market economy such as Albania (Shuli, Perri, 2011).

Many accounting software and financial reporting solutions are already being offered as a hosted solution over the Internet, using cloud computing technology and easing the processing of transactions from various users placed geographically even in remote places. Many companies use the web reporting solution as an initiative that helps them to save costs, increase the quality of reporting and enhance data security (Zeneli, 2013). In its simplest form, technology has changed the way the financial and accounting data are retrieved, processed, stored, exchanged among users and how the results and interpretations are reported, often offering an interactive way for the users to engage in retrieving the needed information from them. Working in a cloud environment has simplified the work of the Accounting and Finance Departments worldwide. These companies may see quick results in customer service, staff productivity and enhancement of the decision taking processes.

Financial web reporting is a quite new concept to the world and to Albania, but it is gaining prominence and acceptance. One study of the financial sector conducted in 2011 in Albania (Lamani & Cepani) found that 24 out of 26 financial institutions included in the survey already publish their accounting and financial information on the company website. However, this study was focused on financial information reporting only and did not study whether these companies were already using web solutions to exchange their analytical accounting data as well. It is expected that in general, companies in the financial sector (either banks or insurance companies)

and large companies versus medium sized or small entities tend to disclose and publish more information on the web. Bonson & Escobar included at least a dozen of Eastern European countries in their study of 2006 and report that a statistically significant relationship exists between the extent of information disclosure on the web and various factors such as the company size, the sector where the company is operating its main activities, and if it is being audited by a Big Four Company.

Regarding the format that is commonly used to report accounting and financial information on the web, Lamani & Cepani (2011) find that most of the entities report the financial statements and annual reports in the PDF format, which limits the ability of information users to process and analyze this information. The same study concludes that none of the studied entities used XBRL to report accounting information over the Internet. Another later study performed in Albania (Shkurti&Allko, 2016), regarding the status of XBRL adoption by the economic entities found that even though the respondents consider XBRL to have a lot of potential benefits, they also know it may be too costly for this tool to be implemented soon by the companies where they work. Regarding the latest status of XBRL in Albania, as reported in the study of 2016, we find that none of the companies, organizations or institutions have yet begun to implement or plan to do soon.

As Bonson first reported in his study in 2001, XBRL is considered to boost and enhance the accounting information transmission on the web and would also increase information transparency, especially regarding the capital markets. Yet, the XBRL platform, even though quite familiar among finance and accounting professionals in Albania, is not introduced yet as a viable and usable option among the companies (Shkurti & Allko, 2016) probably since the capital market in Albania is not trading actively, thus not requiring many companies to have high-quality financial information disclosed.

Another study in 2014 (Shkurti & Muca) had already reported that the use of the Internet and web to exchange, keep and report information, had been increasing. But another issue to consider when discussing financial and accounting information and transactions over the web is the privacy and security of the information. Several studies have confirmed what was already expected, that individuals, as well as companies, are very sensitive regarding the security of the data transmitted over the web. Cepani (2012) reports that on average 62% of the individuals involved in Internet data exchange (mainly through e-commerce) in Albania are very concerned about the privacy of information. We may quite imply an equal or even bigger rate among companies. This may very well become a barrier to impede them from performing transactions or even reporting information over the web.

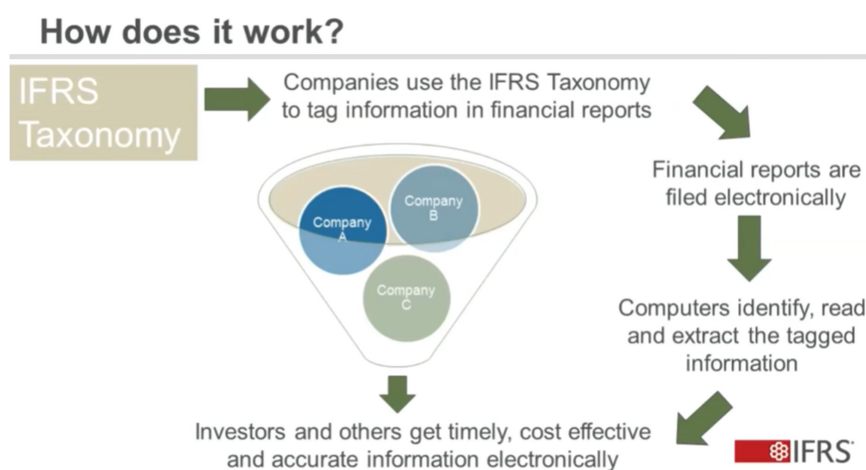
### **3. THE STATUS OF FINANCIAL REPORTING IN ALBANIA**

According to the Law on Accounting and Financial Statements in Albania (2018), the small, medium, and big enterprises in Albania should comply with the 15 National Accounting Standards (NAS) that, reflecting the improvement process are designed in full compliance with the IFRS Conceptual Framework, whereas the public interest companies should comply with the full IFRS standards. Full IFRS standards may be implemented by the companies who chose to do so, instead of complying with the NAS. The same law also describes the reporting requirements for the same entities regarding information beyond financial information. This law brought to the attention the necessity for the medium and big companies to report on non-financial areas

such as the environmental impact or social corporate responsibilities. These changes in the National Financial Reporting Framework of Albania reflect the improvements already included in the EU Directive 2014/95/EU – also called the Non-Financial Reporting Directive (NFRD) which laid down the rules on disclosure of non-financial and diversity information by certain large companies.

The increase in the volume and variety of the information that should be published to comply with the requirements of this new law in Albania implies the use of more sophisticated accounting information systems and a higher cost of record-keeping and information-reporting. Soon after the introduction of the new law changes in fiscal reporting requirements for entities in Albania followed. As of January 2021, the entities should gradually start to apply the “fiscalization” process which is basically a tool to timely report the issue and execution of invoices to avoid fiscal evasion. By September 2021, all the entities in Albania should have complied with the requirements of this process, which requires the use of electronic systems, automated accounting software and more.

*Extensible Business Reporting Language, XBRL* is a communication standard for electronic reporting of business information. XBRL has since been endorsed by the IFRS Foundation and later the Foundation introduced the *IFRS Taxonomy* to deal with enhancing the content delivery in the digital age when reporting in either pdf or text format was not easy to process for many stakeholders. The IFRS Taxonomy is a way for structuring the presentation and delivery of content in financial statements that reflects the presentation and disclosure requirements of IFRS Standards. In addition, it contains elements for disclosures not specifically required by IFRS Standards but commonly reported in practice. The IFRS Taxonomy improves communication between preparers and users of financial statements that comply with IFRS Standards. Preparers can use the IFRS Taxonomy’s elements to tag required disclosures, making them more easily accessible to users of electronic reports. Figure 1 shows in a schematic way how IFRS taxonomy increases the usefulness of financial information.



**Figure 1.** IFRS taxonomy

Source: <https://www.ifrs.org/issued-standards/ifrs-taxonomy/>

Certainly, the application of IFRS taxonomy has not started yet by the big and public companies in Albania. Previous studies have reported on the status of XBRL initiative in Albania. Allko, (2013) found that even though XBRL is not currently implemented it is a concept already known by accountants and other accounting and auditing professionals. 56% of the interviewed

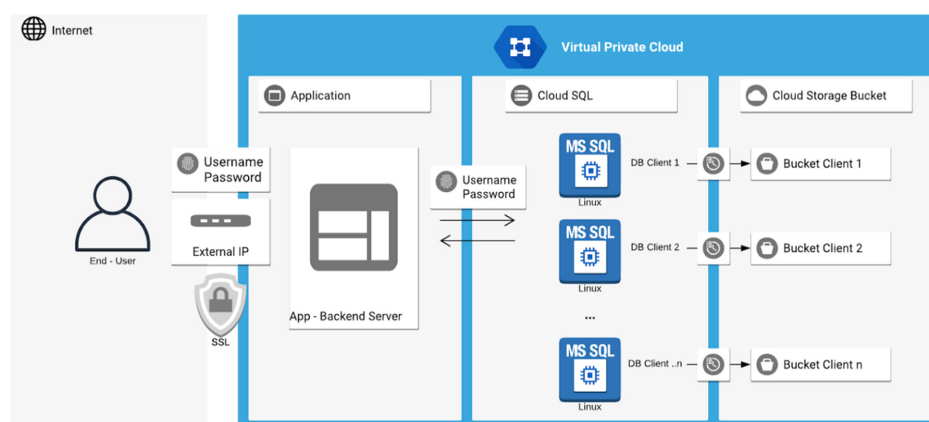
responded that they have knowledge about XBRL, and that this knowledge was due to their academic studies, not practical work, or trainings. 93% of the interviewed professionals stated that according to their opinion, XBRL taxonomy would be useful if implemented in Albania. The same study proposed various institutions which might benefit from implementing XBRL as a platform to report their information.

The factors mentioned above have oriented the entities towards endorsing the use of computerized accounting information systems and full integration between accounting systems, daily operations, and financial and fiscal reporting. The business of providing technological solutions for these demands has expanded and now many vendor companies offer various platforms or software to deal with the requirements of the new law on accounting and of the new law on fiscalization.

#### 4. DIGITAL ACCOUNTING AND CLOUD COMPUTING IN ALBANIA

Several companies operate in Albania and provide platforms to record, process, analyze and report financial and accounting information. The three biggest providers are recognized companies that cover the largest market share: IMB (Albanian Institute of Business Modeling), ISD and Bilanc. Other providers mainly offer fragmented solutions only for POS, or i.e. inventory, and focus their offers on smaller micro entities such as bars and self-employed individuals. Hence, this article researches the products offered by the three largest providers in Albania. The paper does not cover the other accounting software that is currently used in Albania but that is offered from foreign providers such as SAP, ORACLE, NAV, etc.

IMB (Albanian Institute of Business Modeling), was the first Albanian company to introduce (back in 1997) an Albanian Accounting Software named “Alpha Accounting”. After many successful products over the years, today IMB is offering the first so-called easy – ERP, an Albanian software “Alpha Web” application. Alpha Web is hosted in Google Cloud and allows the users to access the database from many devices and various locations. It also offers synchronization of documents across many devices which makes it easier for the users to record and process the data. Alpha Web Software is the typical solution of cloud computing in accounting and financial reporting and has features of an integrated multi-module package that resembles a low scale “easy ERP”. This package is currently the most used in Albania by many entities across all industrial sectors and of different sizes.



**Figure 2.** Alpha Web schematic view

Source: <https://imb.al/alpha-ne-google-cloud>



The second Albanian accounting package provider ranked according to the number of its users, is Financa 5 accounting software offered by ISD. This package is offered for the last 20 years and is not currently offered in cloud solution mode, thereby is not within the scope of this study. Even though this package does not operate in the cloud and does not offer “digital features”, it is still a major product preferred by many accountants mainly due to the legacy of record keeping and inertia to resistance to change.

Another software provider in the field of accounting and financial management is Bilanci sh.p.k., that offers the packages Bilanc Online and Bilanc Web. Bilanc Online, just like its competitor Alpha Web is based on cloud technology and offers all the functionality of a desktop application, plus access to the data via the web interface. Unlike Alpha Web whose functionality is based on desktop version Alpha Start (the most basic desktop version developed by IMB), Bilanc Online seems to enjoy the status of the most advanced desktop version (Bilanc Profesional) produced by Bilanc sh.p.k., plus provides real-time data access via the Internet. Bilanc Web is the latest product offered by the same provider where users can log on to their company’s account via an Internet browser. It does not require any installation; it can operate in many devices simultaneously and it features automatic back up and maintenance of the technical infrastructure.



**Figure 3.** Bilanc Web schematic view

**Source:** <https://bilanc.com/bilancweb/>

Table 1 below represents a summarized comparison of the features of the two most important cloud-based accounting packages in Albania, Alpha Web and Bilanc Web. We notice that while the two packages have a lot in common, there are some differences, though these differences relate not to the cloud computing features of the software, but their flexibility and processing capacity, such as integrated modules and cost/activity centers.

**Table 1.** Comparison between Alpha Web and Bilanc Web packages

Software features	Alpha Web	Bilanc Web
Online access	YES	YES
Various devices access	YES	YES
Fully integrated modules	YES	NO
Automatic backup	YES	YES
Software maintenance	YES	YES
Cost / Activity Centers	YES	NO

Source: Authors



## 5. MAIN FINDINGS AND CONCLUSIONS

The financial and accounting information in their traditional presentation is changing rapidly during the recent digital and technological advances. Reporting requirements, working conditions and future expectations are just some of the factors that have significantly influenced the application of accounting and financial reporting worldwide. This paper focuses on two of such changing factors, the use of extensible business reporting language and cloud computing as they have penetrated the Albanian economy. The methodology relates to the analysis of secondary data as presented through findings reported in previous literature and analysis of primary data related to the sector of accounting package providers operating in Albania.

The use of extensible business reporting language has previously been studied in Albania, but not its successor the IFRS Taxonomy. This concept newly introduced by the International Accounting Standards Board has not yet been presented neither to the Albanian companies and employees. We did not find this topic mentioned or analyzed in the previous literature neither. As future recommendations, we propose its inclusion in the academic curricula and professional trainings offered by the professional accountancy association.

On the other hand, the concept of cloud computing is a vastly used one, as found out through the research of Albanian accounting software package providers. This paper described and compared the two most important cloud computing packages Alpha Web and Bilanc Web and found that, regarding the availability and online features there was almost no difference between them. As most of the Albanian small and medium enterprises use either one or the other of these two packages, the application of cloud computing seems to be considerably known among Albanian companies and employees.

This study contributes to the stream of literature regarding the use of digital accounting solutions in Albania by analyzing the current legal and regulatory framework (National Accounting Standards; Law on Accounting and Financial Statements; Law on Fiscalization) and the market of Albanian software providers. As the study does not use a primary research method such as questionnaires or surveys or databases, we propose as future research directions the inclusion of more consistent and reliable first-hand data.

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# The Primary Objective of any Business is to Build Sustainable Competitiveness in the Market

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## Keywords:

Competitive;  
Advantage;  
Strategic;  
Segmentation;  
Positioning;  
Customer;  
Adaptation;  
Value



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**Abstract:** *Building a competitive advantage in the market is the basic goal of every company and represents an organizational ability to create significantly more value for the customer and differentiate itself from its competitors. It also represents the power of the company to adapt and respond to customer demands and desires and the challenges of competition that arise in times of daily change and dynamic environment of the company, it serves as the ability of the company to consistently, in the long-term, beat its competitors in the market.*

*The competitive advantage of a company consists of owning or creating certain features that customers seek and accept with which the company differs from the competition.*

*Competitive advantage, on which TQM is based upon, refers to the correct segmentation and selection of target market and positioning, defining and using a tactically correct recipe of the marketing mix, selection of effective strategy and its implementation, thus control of each step in order to redefine timely activities.*

## 1. INTRODUCTION

In order to achieve the goals of the company, in the conditions of increasing market instability, the well designed strategies and their effective implementation are paramount for the survival of the company. Building sustainable competitiveness and creating advantages is a long-term process, it makes the company special compared to other, competing companies, and allows it to more easily overcome the economic crisis and the business crisis.

The company owns a competitive advantage over the other companies when makes a profit that exceeds an average in its branch of industry.

The goal of business strategies is to maintain a competitive advantage, and this can be achieved in terms of price competitiveness and differentiation.

Competitive advantage is an organizational ability that allows a company to create significantly more value for the customer compared to its competitors. A set of factors that differentiate a company from its competitors and provides a unique position in the market is a competitive advantage. In simple terms, this is an advantage that you have over your competitors.

The competitive ability of a company represents the force of response to the demands of customers and arising challenges of competition in the environment of an organization, thus it represents the ability of the company to win their rivals in the long term.

However, the ability to satisfy the wishes of customers today does not guarantee that it will be possible tomorrow. There are trends in every industry, and new steps that will sooner or later require the response of the company.

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The companies that successfully adapt to market demands will survive and grow, while those that fail to adapt are doomed to failure and disappearance from the market. Successful adaptation of a company to changes and environmental requirements is becoming one of the main sources of sustainable competitiveness and a source of the longevity of the company. The competitive advantage consists of owning or creating certain features that customers seek and accept and how the company differs from the competition. A company has a competitive advantage if it is better than the competition in creating value for customers. The company should constantly look for new sources of competitive advantage.

## **2. THE DIMENSIONS OF COMPLETE AND INCOMPLETE COMPETITIVE ABILITY OF COMPANY**

If a company can significantly influence the market price of its products, then it is classified as an “imperfect competitor”. Imperfect competition prevails when individual sellers have some control over the price of their products. The participants in the perfect competition are “PRICE TAKERS” (they make decisions only about the size of production) while the participants in the imperfect competition are “PRICE MAKERS” (they make decisions about the amount of production and the price).

Thereby, we differ few types of imperfect competition and these are the forms of imperfect competition where just one company controls the overall offer, then where two companies control the overall offer, then where several companies participate in the overall offer and at the end when a large number of different sizes of companies participate in the sector offer.

Perfect competition occurs when no producer can influence the market price. In such conditions, we have many small companies where each of them produces an identical product, and each of them is too small so that could affect the price.

According to Jović (1900) „*A company that is an integral part of the community in which it operates and with which it interacts in performing its basic economic task should take responsibility and manage the consequences of its actions on society and the environment. This opens the need to consider the competitiveness and social responsibility of the company in modern business conditions, as well as to revise the role of management, strategy process and marketing approach in a socially responsible company. The competitiveness of a company arises from its competitiveness or an advantage. Businesses survive and grow in the long run by creating and maintaining competitiveness.*“

Porter (2008) emphasizes the current relation of the competitive advantage and social responsibility of a company: „*I think we see how the competitive advantage in economic terms and social responsibility of the company, which were once considered as two different things, are the things that can be intertwined. The companies that show sensitivity for the environmental issues, which can develop the processes and ways of works beneficial for their community acquire very often the competitive advantage just because of that social responsibility. This is the new mentality in the companies, not to think only in the narrow economic frameworks, but to tend to embed an important social dimension in its strategy.*“

Globally, the competition is increasing every day. Nowadays, it is not enough only to know the customers, but also the competitors and their target customers. Today, experts teams in the big companies have a task just to follow the competition so the company can be in a position to attack the competition or defend ( efficiently) themselves from that competition.

According to Holweg (2007) „*The competition from market aspect exists when several companies satisfy identical needs or desires of the certain group of consumers. This is the case when a computer component manufacturer sees competition in another computer component manufacturer. But computer buyers expect a computer on which they can write texts and use the Internet. I can satisfy this need with the simplest computer. But manufacturers are improving and making computers into multifunctional devices that can meet different customer needs. In that way, they start to function on the market and plan for the long term. There is a confrontation between products and markets. If a company wants to bring a product to market, it will have to assess the size of that market, the share of competitors in that market, the capabilities of competitors, their strategies and goals, and entry and exit barriers.*“ (page 227)

On the other hand, competitors are constantly assessing the weaknesses of the company, and according to its resources, they develop its strategy. Official statistics on some companies are just part of input data. It is appropriate to rely on surveys, publications, comparisons and other available sources when it is necessary to analyse at least three important sections: general perception, emotional perception and market participation when gathering information.

### **3. EFFECTIVE SELECTION AND APPLICATION OF STRATEGY PREREQUISITE OF SUCCESS IN BUSINESS**

Today's business environment is characterized by global competition, which requires a strategic approach from each participant in making business decisions.

The company shall become competitive inferior if the competitive environment is neglected. Therefore, the great environment brings many business opportunities, and on other hand many risks and large competition. Companies, therefore, form strategic partnerships and internationalize activities with the goal of active risk managing.

Each product or service must have a clearly defined market position. The position in the minds of consumers is a complex set of perceptions, impressions and feelings by which one product differs from another.

The positioning strategy requires special attention and determination of the target group. By combining of mix marketing elements, the company tends to satisfy the desires and needs of the market.

On the other hand, the adaptation strategy according to Jović (1990) “*treats each segment of the international market as a separate, individual market with many specifics that arise precisely from the domain of a nation's culture, and which must not be neglected because of major cost-effectiveness, but must adjust to it.*”

When entering the international market, the company very often harmonizes, or even conditions each other, product decisions and promotion decisions. There is no single marketing strategy that is optimal for competitive positioning in the international market. Each company must determine its purpose in the international market, its marketing and business goals, strengths, weaknesses, opportunities and limitations, and based on all this to formulate adequate and specific marketing strategies.



The position of the dominant company may be based on the leadership in various categories, and it is rarely a position that is historically built in the first place in the minds of consumers. Gillette is a synonym for razors, Pampers for diapers, Nescafe for instant coffee, etc. Companies are gaining their dominant position by the combination of high quality and low prices. Most international markets have recognized market leaders. The market leaders may or may not be admired or respected, but other companies recognize the leader position. Generally, the market leader needs to find ways to increase the number of customers/users and opportunities for purchase/use.

#### **4. THE CURRENT COMPETITIVE ABILITY OF THE ECONOMY IN BIH**

OECD has defined competition as the ability of the country to produce goods and services in the free and equal market terms, which pass the test of an international market, with simultaneous increase of real population income. As apparent, the definition of increase of citizens life standard imposes as the main goal of competition advance. The key assumptions for the development of competition are the stable economic growth, thus balanced trade and current account in order to feel fewer fluctuations in the international market capital. If we observe more carefully the countries of Western Balkans, and Bosnia and Herzegovina itself, we may notice that these countries are significantly behind the EU countries according to the competition.

Namely, the countries from the region passed in the past several phases of accelerated economic growth which mostly has been assisted by external funding which inevitably brought to the increase of external debt. However, when it comes to the decrease of capital inflow from abroad, the economic growth has been stopped, so these countries never made it to catch the connection for the rest of Europe. This may be seen when the GDP- per capita is compared to PPP which is the main instrument for measuring the treasure or life standard. So, the current living standard of the citizens in the countries from the region is far more below the average of EU28 and it is from 60% in Croatia up to 30% in Bosnia and Herzegovina and Albania.

It is important to emphasize that the living standard of the citizens in BiH during ten years slightly increased by 5 p.p concerning the European average which is not a satisfactory result. To improve the living standard of the citizens and join the EU, Bosnia and Herzegovina must achieve sustainable economic growth during the following period per rate of 5%. The low level of competitiveness in the countries of Western Balkans is the negative balance sheet of the current account which is mostly the consequence of unfavorable trade balance in foreign trade with the world. In other words, the countries of the region are not able to meet consumption with their production, nor is their export base sufficiently developed to cover imports.

The truth is that the situation has partially improved over the last few years as a result of increased exports, but also a drop in domestic demand due to the global financial crisis. During the observed period, Bosnia and Herzegovina partially improved its trade balance from over 30% of GDP in the pre-crisis period to 17.9% at the end of 2016.

One of the main reasons for low competitiveness both in the countries of the region and in Bosnia and Herzegovina is the weak production base, ie the low share of the processing industry and exports of goods within GDP. This is specially referred to Albania and Montenegro. On the other hand, Hungary and Slovenia managed to develop their production base to a good extent, which resulted in high productivity, high wages and a higher level of GDP per capita in PPP, and the share of manufacturing and exports in GDP is over 20% and 60% respectively. As for Bosnia and



Herzegovina, it is worth noting that during these ten years it managed to partially improve the production base, which confirms the increase in its share in the structure of GDP by 2 percentage points. However, for countries like Bosnia and Herzegovina, which base their economic development strategy on exports, it is necessary to intensify the process of reindustrialization, ie to raise the share of the processing industry in GDP to the level of Central and Eastern European countries.

Another important reason is the weak foreign trade integration of the Western Balkan countries in international markets. This is best seen if we look at the share of medium and high-tech products such as machines, appliances and car parts in total BiH. export. Only Serbia and Macedonia have managed to make a step forward in this segment in the last few years because they have raised the share of exports of these products to about 30% by the end of 2016. A decade earlier, this share in Macedonia was below 10% of total exports.

## 5. THE COMPETITIVE ABILITY OF COCA-COLA PRODUCTS HBC BIH

One of the most significant milestones in the field of strategy in general and environmental analysis is certainly the theory of competitive forces published in 1979 by the young economist and assistant Michael E. Porter in his article "How Competitive Forces Shape Strategy" in Harvard Business Review. (<https://zir.nsk.hr> date of approach 18 May 2020)

From this text begins a revolution in the formulation of strategies, not only in for-profit institutions, but also in the strategies of states, regions, and nonprofit institutions around the world. At that time, as a young man, with little experience, M. E. Porter certainly had no idea what impact his theory would have on the further development of strategies, but also on the development of the company in general. Price as an element of the marketing mix and an indicator of quality is the amount of money that must be set aside to buy a product or service. It must be strictly aligned with the value of the product. Promotion is a very important element of the marketing mix because it includes a series of activities by which the company communicates with consumers and promotes its product to the target market. It includes advertising, sales promotion, public relations and direct marketing.

It is generally known that the Coca-Cola product has the best advertisements in the world, especially during the holidays, both in our country and globally. The last element is distribution, and it refers to the activities that the company carries out to efficiently deliver products to customers in the market. It is the reason why Coca-Cola HBC has branches in many countries, in order to bring its products closer to the target market.

When the usefulness or quality of consuming a known beverage and its price are put in the relationship, we come to the value of the product. The value of Coca-Cola products is a matter of subjective consumer assessment, ie. his perceptions of her. Value is what the consumer expects and demands, and that is the satisfaction of his needs, desires at the lowest possible price.

We live in an era of increasing globalization of the world market, the accelerated development of high technologies whose application is increasingly growing in business organizations. This is reflected, among other things, in the strong strengthening of competition, which is supported by the ban on monopolies on the market of all goods, including non-alcoholic soft drinks. We are witnessing the offer of various competitors of cheaper copies of the famous drink, such as Pepsi, Sky Cola, Cola Windy, Fis Cola, that are also looking for their market share in our economy.

Therefore, Coca-Cola must respond to the onslaught of competition with even greater quality and safety of consumption to its many consumers.

The only real answer to these and similar international challenges is the concept of quality, which presupposes the involvement of the entire company, all its business processes, employees and management, and this means active participation in creating changes from the existing state of quality to the ultimate goal and it is not short-term, but long-term, more precisely permanent. It comes down to the production and distribution of products following the needs and even the desires of consumers, without flaws. From the point of view of consumers themselves, quality is most often associated with value, usefulness, or price.

It can also be defined as “satisfying or exceeding” the needs of consumers. In this case, the beverage delivery service itself must be suitable for use by consumers. It is this suitability for use that is related to the value that the customer receives and, ultimately, to his satisfaction. In order for the company Coca-cola HBC BiH to have the quality of service under European standards, it is necessary to research the market, ie. identify the needs of the wider market.

According to Kotler & Lee (2009) „*Since there are different ways of satisfying the need for a known beverage by consumers, it is necessary to develop a special flavor content, and it then results in a set of specifications. The quality of the taste is important here, but also the overall usefulness that the product itself offers*”.

## 6. CONCLUSION

In today's times of pronounced international competition, effective management is imperative for the successful, responsible and sustainable business of every company, including Coca-Cola HBC BiH. Many companies are failing, and many are growing at an incredible rate and destroying all the competition in front of them. The dynamic environment in which the company operates is increasingly uncertain and changes from hour to hour. Companies must carefully choose each step to survive as long as possible, they must provide their customers with something else, new and better than their competition, ie. they must be innovative and competitive, which is why the customer will be delighted and keep coming back. To create a somewhat secure future, companies need to devise a strategy that will lead them to the successful and long-term business they want. The strategy must not only be well designed, but it must also be well implemented, flexible and adaptable to the daily changes that occur both in the internal and external environment of the company. It is this constant and dynamic environment that is important for the correct selection and creation of a new and adaptation of an already designed strategy through clearly defined steps whose order of fulfillment and implementation must be respected if the set goals are to be achieved and ultimately to achieve continuous business success.

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# The Importance of the Development of Managerial Competencies in the Conditions of Sustainability

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## Keywords:

Competence;  
Sustainability;  
Sustainable competencies



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**Abstract:** *The paper concerns the importance of the development of managerial competencies for Sustainability. The importance is argued by dynamic changes in the environment of all management areas, for example, Revolution 4.0. The article provides the reader with information about the concept of sustainable development, presents the essence of the development of managerial competencies in the conditions of Sustainability and presents examples of competencies that favor the sustainable management of organizations based on the literature review. The authors indicated several key competencies from the Sustainability point of view, for example, leadership and strategy. The main contribution of the article to science is the need to conduct studies in the field of key competencies for sustainable development and to create a universal model for all managers who follow the principles of sustainable development in their work.*

## 1. INTRODUCTION

Dynamically changing environmental conditions in every field, caused by, for example, broadly understood digitization, automation and robotization, have their effects in the economic, ecological and social spheres (Głomb et al., 2019). Visible effects translate into consequences that are more and more noticeable both in the sphere of social and business life. These consequences can affect ordinary people as well as employees, managers and entire organizations. For example, the widely understood automation of workstations may affect the well-being and efficiency of employees, modern technologies may have a negative impact on the environment and thus on society. The solution to these problems turns out to be the concept of sustainable development. According to Jarosz et al. (2020), Revolution 4.0 is challenging for business practice and determines the need for competitive human capital, especially due to its competencies. Many authors indicate the importance of digital competencies in rapidly changing organizational and globalization conditions (Susskind, 2020; Kosała et al., 2019; Oberländer et al., 2019). The scientific literature focuses heavily on media and IT competencies, but there is still a research gap in sustainable competencies.

In recent years, the concept of sustainable development has become more and more important. The society adopts the goals and principles of sustainable development, as well as enterprises, state administration institutions and non-profit organizations. Adopting the principles of sustainable development is primarily associated with the introduction of new operating strategies. Many enterprises have the achievement of sustainable growth as their main goals.

The main goal of the paper is to present the concept of sustainable development in the light of organization management and to present the importance of acquiring and increasing competencies necessary in terms of Sustainability. The article presents the results of a literature review in the field of sustainable development. The article provides the reader with information about

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the concept of sustainable development, presents the essence of the development of managerial competencies in the conditions of Sustainability and presents examples of competencies that favor the sustainable management of organizations.

## 2. SUSTAINABLE DEVELOPMENT

It is widely recognized that the idea of sustainable development appeared as early as the 1960s as an attempt to answer the questions about the threats related to the dynamic development of the economy of western countries, the depletion of non-renewable natural resources, pollution of the natural environment, and the fast pace of population growth, deepening the separation between the prosperity of highly developed countries and the rest of the human population suffering from hunger and malnutrition, and the general unsteadiness, and in many cases decay of the ecosystem (Płachciak, 2011). Adopting the concept of sustainable development, according to various authors, is caused by “changes in the socio-economic climates of the nations of the world” (Okeniyi, 2020) or “crises in natural resources and energy on a global scale” (Wang et al., 2020).

As a result of literature research, Moore, Mascarenhas, Bain, & Straus (2017) claim that Sustainability is “one of the most significant translational research problems of our time”. There are many definitions of sustainable development in the literature that explain what its concept is. The contemporary approach to the definition of sustainable development means balance in ecosystems (ecological balance) and a balance between economic, ecological and social elements or aspects of economic development - economic, spatial and social order, taking into account the needs of future generations (Trzepacz, 2012). In other words, the concept of sustainable development is presented, among others, by the triad of sustainable development, which assumes maintaining a balance between three areas: economy, ecology and society.

Adamowicz (2006) examines the concept of sustainable development from three perspectives as:

- a socio-philosophical idea (assuming the need for changes in the human value system),
- modern direction of economic development (assuming new ways of organization and economic management),
- a newly emerging scientific discipline.

Over the years and as a result of numerous studies, the concept of sustainable development has been developed and is not only a starting point for environmental protection, but has primarily become a motivating factor for the creation of sustainable business models, the effect of which is profitability and innovation of services (Carboni et al., 2018). As Adamowicz (2006) claims the concept of Sustainability is very important for organization management. According to Jørgensen (2008), sustainable development has a significant effect on the operational level of modern companies. It is related, *inter alia*, with production processes and products and relates to quality, environment and health and safety.

Sustainable enterprises strive to ensure a better quality of life for the social and environmental conditions, including addressing 17 Global Sustainable Development Goals proposed by the United Nations. These goals are focused, among others on: health, poverty eradication, high-quality education, renewable energy, innovation, responsible resource management and climate action (United Nations, 2015). The key elements for the organization, both in the context of sustainable development and corporate social responsibility, are: organizational governance, protection of human rights, relations with employees and consumers, impact on the natural environment, fair market practices, as well as social commitment and continuous development.



### 3. SUSTAINABLE COMPETENCIES

In order to present the essence of sustainable competencies, a literature review has been made in this field. The following part of the paper is an overview of the research articles conducted in the field of sustainable competencies. The articles were selected by setting the period: 2000-2020. The articles were searched in the Google Scholar database based on the following keyword: sustainable competencies. This paper presents the most interesting, in the authors' opinion, sustainable competencies clusters.

The scientific articles review provides knowledge about sustainable managerial competencies. Sustainable competencies turn out to be very important from the point of view of project management in the world of sustainable development. Hassan (2020) propose a model of competencies for project managers to sustainable development projects:

- communication,
- leadership,
- development orientation,
- achievement orientation,
- motivation,
- teamwork,
- innovation,
- decision making.

The proposal of the Hassan model assumes that the set of the above competencies is suitable for maintaining a balance in the social, economic and environmental spheres.

Kar and Lillian (2018) present a wider range of competencies important for Sustainability. The authors provide a set of competencies required from graduates of management:

- system thinking,
- competencies for learning and developing,
- competencies for integrating business, environmental and social problems, perspectives and information,
- competencies to develop alternative business models, methods and trajectories that are more synthetic, dynamic, and pragmatic, to enable radical or systemic innovation,
- networking and social competencies,
- coalition and collaboration building competencies.

Furthermore, Kar and Lillian (2018) refer to Bickell (2013), who defined the core competencies for Sustainability:

1. Mindset:
  - a. Values, motivation and action
  - b. Awareness of core principles and themes
  - c. Communication and collaborative working
  - d. Systems and future thinking
  - e. Leadership
2. Strategy:
  - a. Business case and strategy
  - b. Change management
  - c. Innovation

3. Technical:
  - a. Technical Level 1
  - b. Technical Level 2

Key competencies of Sustainability were also developed by De Haan (2008). The author identifies the following competencies:

- for perspective-taking,
- for anticipation,
- for interdisciplinary knowledge acquisition,
- for dealing with incomplete and overly complicated information,
- for cooperation,
- to deal with individual decision-making dilemmas,
- for participation,
- for motivation,
- for reflecting,
- for moral action,
- for independent action,
- for supporting others.

The lists of generic sustainable competencies are studied by Eizaguirre et al. (2019) in three regions: Europe, Latin America and Central Asia. For Europe, there are competencies as: commitment to the conservation of the environment, ability to show awareness of equal opportunities and gender issues, ability to act with social responsibility and civic awareness, ability to act on the basis of ethical reasoning, commitment to safety, appreciation and respect for diversity and multiculturalism. For Latin America there are competencies as: commitment to their socio-cultural environment, commitment to preserving the environment, social responsibility and citizenship, regard and respect for diversity and multiculturalism and ethical commitment. And for central Asia there are competencies as: ability to follow a healthy lifestyle, tolerance and respect for others, ecological and environmental responsibility, patriotism and preservation of own cultural values and social responsibility.

The review of the texts also showed the trend of sustainable competencies in higher education. Wiek et al. (2011) have proposed a framework of key competencies in Sustainability. The authors indicated the followings clusters of sustainable competencies:

- systems-thinking competence – ability to recognize the complexity of sustainable systems (e.g. the sustainable development triad),
- anticipatory competence – ability to analyze the frameworks of Sustainability,
- normative competence – the ability to define, applying and negotiate Sustainability values and principles,
- strategic competence – the ability to implement the transformation toward sustainable development,
- interpersonal competence – the ability to influence people (e.g. motivate, participate) to study sustainable development and solve problems.

According to Vega-Marcote et al. (2015) literature research, education system should support improvement of specific competencies, which enable the adoption of appropriate behavior in conditions of sustainable development. In this regard, the authors refer to the set of competencies proposed by Wiek et al. (2011). Furthermore, Vega-Marcote et al. (2015) refer to model of

competencies development by the European Union. It presents the competencies and skills to “respond to complex demands and adequately carry out a variety of tasks, combining practical skills, knowledge, motivation, ethical values, attitudes, emotions and other social components and behaviors that come together to achieve efficient action” (EU, 1999; CRUE, 2000).

Like Vega-Marcote et al. (2015) also researched sustainable competencies in the education sector. Anderson (2015) refers to sustainable development in higher education and sustainable competencies. He also relies on key competencies proposed by Wiek et al. (2011) and claims that sustainable competencies are different from traditional ones due to addressing sustainable problems. Sustainable competencies in higher education were also considered by Baartman et al. (2007), Barth et al. (2010), Brundiers et al. (2010), Cebrián and Junyent (2015). The topic of sustainable competencies in higher education is also very important in the case of the modern organization because graduates will be future managers in the sustainable economy.

#### 4. CONCLUSION

This paper presents the background and main assumptions of the concept of sustainable development. The main purpose was to review research articles about managerial competencies in the light of Sustainability. The review generally provides knowledge about the important role of sustainable competencies in the modern economy.

The analysis of the literature, based on the works of many authors from around the world, shows that sustainable competencies are important from the point of view of education or the implementation of sustainable projects. When interpreting sustainable competencies, one should bear in mind the complexity of the concept of sustainability: economy, environment and society.

Scientists call sustainable competencies differently, but according to the authors of this paper, the competencies relevant to the issues of sustainable development, based on the literature review, are as follows: leadership, strategy, cooperation, communication, integration, ability to develop in general.

The abovementioned competencies are very universal and important in every sector of the economy. They are also very important in terms of maintaining economic, environmental and social balance.

Based on the review of scientific articles, the authors can conclude that the issue of sustainable competencies is actual and very important from the perspective of the sciences on organization and management. Unfortunately, apart from a review of various sets of competencies in the field of sustainable development, there is no single model that would indicate a complete set of sustainable competencies and their indicators. It is recommended to conduct scientific research would enable the development of competency standards for managers who are leaders in Sustainability conditions.

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# A Synoptic View of the Albanian Qualifications Framework

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## Keywords:

Qualification;  
Qualification framework;  
Level descriptor;  
Learning outcomes



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**Abstract:** *This research addresses a synoptic analysis of the state of play of the qualifications aligned with the Albanian Qualifications Framework (AQF). One of the main features of human resource development is the development of a national qualification framework within which can be obtained all the necessary professional competences. Albania is gradually shifting from traditional qualifications into outcome based modern ones.*

*Research methodology includes qualitative analysis, covering legal framework, strategic documents, other research papers related to the focus of this article. The study adopted a qualitative approach.*

*After 10 years of AQF developments and implementation, there is a need to restart the discussion on the number of AQF levels and, when needed, respective sub-levels in order to have a current common understanding among stakeholders about qualifications types and their relationship to each other. AQF implementation is linked with its contribution to policy goals such as lifelong learning and increasing the quality of education and training in Albania. For better development and implementation of the AQF, the responsible institutions should work in accordance with common principles, practices and criteria for the main respective functions: development of standards and qualifications, accrediting institutions to supply these qualifications; and, quality assuring assessment and certification.*

## 1. INTRODUCTION

The current business climate encourages a focus on the significant role of human resources development, which is increasingly seen as a tool for achieving business strategy. One of the main features of human resource development is the development of a national qualification framework within which can be obtained all the necessary professional competences.

Given the direct impact of education in the overall development of any society, an initiative such as the AQF becomes of crucial importance. The approved AQF is a national instrument that serves to define, coordinate, govern and place the Albanian qualifications into an 8-level structure. These levels measure the learners' achievement in any education and training area, and are underpinned by identical principles for all forms of education and training in the country. The AQF levels should enable the transparency and comparing of the individuals' qualifications given the same level and in line with respective level descriptors. The possibility for the comparison of the qualifications is very important in order that any gained learning experience can be transferred from one level to another within a certain qualification field, leading to a high degree of permeability in education and training.

The labour demand in Albania is driven by changes in the economic structure. Meanwhile, required skills levels have been increasing within each industry due to the modernisation of production techniques. The quality assured qualifications referenced to the AQF levels in line with labour market needs can be an added value for education and training system in Albania. Government's role in education and training is still too dominant. Investments into human resource development

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are not part of the economic strategy of most enterprises. This panorama is not really helpful for developing and implementing AQF, because the AQF success is directly linked to the success in involving stakeholders by clearly defining their roles. Although, some of the social partners' representatives and teachers are part of the working groups in the National Agency for VET and Qualifications (NAVETQ) for developing qualifications descriptions, frame curricula, etc.; still, there is no clear understanding of the AQF, which, on the other hand, affects their expectations on the tasks and duties that should be performed in order to be an important part of this reform.

Albania became a candidate country for joining the European Union, in June 2014. In the same year, the Government of Albania adopted 'National Employment and Skills Strategy (NESS)' and Action Plan 2014-2020, already revised in 2019 and extended till 2022, which has identified the need for a more holistic approach toward development and implementation of the AQF. Moreover, in 2015, an inter-institutional taskforce was established to prepare the required arrangements for the implementation of the AQF for lifelong learning. The task force, within its 2-year mandate and assisted by different technical groups will improve and complete the necessary legal framework for further AQF development and implementation, and as well support the AQF Referencing process with EQF.

In 2015, the working paper supported by European Training Foundation (ETF), on "Building an Albanian Qualification Framework: Demand-Side Analysis and List of Occupations" introduced a draft list of 182 most demanded occupations in Albania included in around 18 occupational fields.

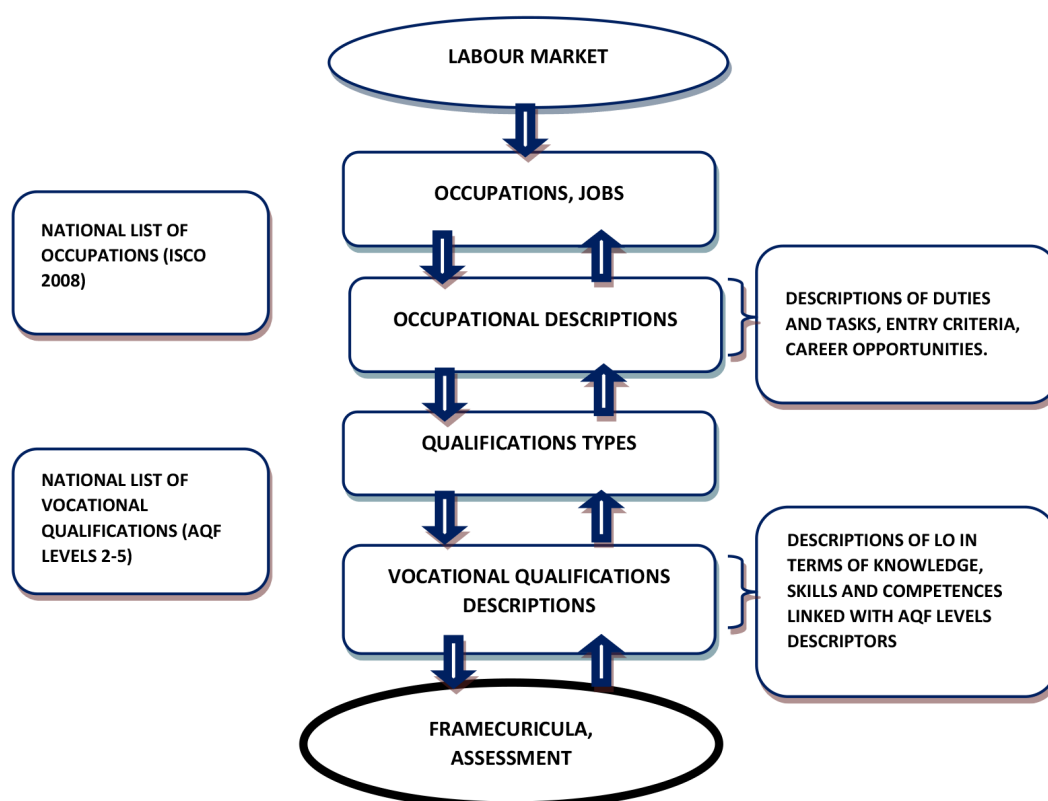
The scope of this study is to analyse the state of play of the AQF. There were used mainly qualitative methods that have been adopted according to the time and resources available.

This research analyses the state of the Albanian Qualifications Framework. In the course of preparing this study a pool of online and offline relevant literature is analysed according to the purpose of the study. Literature review includes empirical studies on the theoretical context of the development of qualifications frameworks and their role in human resource development, as well as reports and study articles focused on qualifications frameworks operational modalities and related institutions, and their roles in developing this approach; comprehensive policy documents and relevant legislation in Albania, as well existing methodological approaches to design qualifications.

## 2. ANALYSIS

The Albanian Qualification Framework is operating in the context of a quite centralised education and training system. The AQF includes qualifications made for achievements in all education and training sectors, including general pre-university education, initial and further vocational education and training and higher education. The structure of the AQF intends to be compatible with the European Qualifications Framework, as it consists of 8 levels based on the levels descriptors defined by typical learning outcomes as follows: knowledge skills and wider competences. Three types of qualification are specified in the AQF as follows:

- General qualifications - AQF levels 1 and 4,
- Higher qualifications - AQF levels 5-8,
- Vocational qualifications offered at vocational education schools, vocational training centres and in the workplace – AQF levels 2-5.



**Figure 1.** Designing vocational qualifications

Source: Gishti et al. (2009)

The AQF is designed aiming to facilitate vertical, horizontal and diagonal progression. In this context, the vocational education (VE) qualifications are provided by harmonizing among others the AQF structure with the educational structure of Vocational education and training (VET), in the following AQF levels: (i) 2<sup>nd</sup> level of AQF, programs for semi-qualified workers, 2 years duration, giving access to employment or second level; (ii) 3<sup>rd</sup> level of AQF, programs for qualified workers, 1 year duration, after the second AQF level, giving access to employment or the forth AQF level; (iii) 4<sup>th</sup> level of AQF, programs for technical-managerial, 1 year, or 2 ears durations after the second AQF level or 4 years in block after the first AQF level, giving access to employment or valid for university education; and (iv) 5<sup>th</sup> AQF level, postsecondary programs, up to two years, giving access to employment or valid for university education. There is no any existing framework to relate vocational training courses and HE qualifications with AQF levels descriptors. The transfer and progression pathways are quite rigid especially between VET and HE qualifications.

In VET sector there is a clear distinction between concepts of occupations and vocational qualifications. While qualifications may prepare individuals for one or more occupations, they play a wider role beyond preparing individuals to work in a specific occupation and beyond providing employers with skilled workers. Meanwhile, the occupations are associated with particular tasks and duties with a division of labour within an economic sector.

In VET, the NAVETQ implements a quality cycle to develop vocational qualifications in line with labour market needs and based on the occupational and qualifications descriptions. Up to date qualification description have been linked to formal system of the VE and preparation of individuals for broad rather than narrow fields of practice for the labour market.

Vocational qualifications in VET refer to the structure of jobs and the way they interlink with each other. In this perspective, linked occupations which share common practices, knowledge, skills and attitudes, allow individuals to move vertically by specialising within a broad field of practice, or horizontally, into related occupations. VE qualifications prepare students for a broader range of occupations rather than focusing on specific workplace tasks and roles or specific jobs. The development of such qualifications provide VET graduates with more transversal skills, enabling them to better adapt to changing labour market conditions. By doing this, both businesses and individuals are benefiting from better connections between qualifications and the labour market changes, because learners are prepared for a wider range of occupations.

In the qualification description, results must have a clear division between knowledge, skills and broader competences rubrics which are filled with relevant learning outcomes (LO). This makes easier to compare the LO expression of qualifications with the respective AQF level descriptor.

The template of the qualification descriptions contains the following information: general information (Title of the vocational qualification-field of vocational qualifications/profile, duration of qualification, level and respective code); Approving institution and the respective year; Entry criteria; Opportunities for employment or further education; and, the structure of the qualification which comprises the description of learning outcomes in terms of Knowledge, Skills, and Broader competences.

Level descriptors have acted directly as a guide in writing learning outcomes for the qualification. The selected qualification defines detailed knowledge of major theories and facts linked with the field, and as well transferable and practical skills which will make the learners able to act with increasing responsibility and autonomy, with reduced need for supervision, within defined instructions. Usually, the qualification descriptions are richer in terms of knowledge, skills and competences compared to respective AQF level descriptors.

The learning outcome statements usually contain the following components: a verb that indicates what the learner is expected to know or be able to do at the end of the period of learning; an object that indicates on what or with what the learner is acting, and in some cases, words can be found that indicate the nature of performance, which are really important to provide links with the assessment criteria. The direct link between qualification descriptions and assessment standards is still missing. Bloom taxonomy has been widely used for the purposes of the identification of the descriptors in terms of the learning outcomes.

Legal, ethical and communication considerations relate to the regulatory and ethical requirements of the function or task in a workplace, and respective application in different organisational contexts. These statements overlap and differ depending on work function, job role and sector, and are contextualised accordingly.

The analysis of non-formal vocational training courses shows that the programs of courses are quite diverse, both in terms of the profiles as well as their teaching/learning loads (durations). Duration of the courses varies from 2-5 months. The focus in the vocational training course is on procedural tasks. Theoretical contents account for about 20-30% of the learning volume and practical contents occupy about 60-70% of it, depending on the degree of difficulty of the course. While, usually 10% of the learning volume is dedicated to trainees' assessment.

In the last 10 years it is evidenced a shift towards Learning Outcome (LO) based approach of vocational training courses. The LO are not derived from the consideration of level descriptors. Formative and summative students' assessment in VET usually refers to official instructions and guidelines. In vocational training courses, there is not a clear model of the trainee assessment, particularly concerning the final exams. In most cases, VTC have developed internal regulations for setting out general rules for the final examination.

In HE, the respective qualifications are developed by the higher education's institutions and afterwards are accredited by the Public Agency for the Accreditation of Higher Education due to a predefined procedure for the accreditations of study programs. The study programs are mostly written in terms of teaching objectives rather than in terms of LO. This makes it difficult to argue its relation and to assess the mismatches of this qualification descriptions with AQF respective level descriptors.

### 3. FUTURE RESEARCH DIRECTIONS

In order to facilitate horizontal and vertical progression and transfer, a unique program model (format) for vocational training courses, with modular structure based on learning outcomes should be developed, regardless of their profile/level. In order to have quality assured qualifications the development process should be guided by the level descriptors.

Also, HE qualifications should shift towards learning outcomes approach, and moreover, develop mechanisms to better build relationships with VET to facilitate educational pathways.

The value of an AQF stands in its potential to support policy goals such as qualitative education and lifelong learning. For the better development and implementation of the AQF, the responsible institutions should work to the common principles, practices and criteria for the main respective functions: development of standards and qualifications, accrediting institutions to supply these qualifications; and quality assuring assessment and certification. Skills development is not the sole preserve of education and labour ministers, teaching professionals and their administrators. Most of the learning occurs on the job as well. A future key challenge is linked with ensuring the active participation of the various stakeholders necessary to make possible a sustained development and implementation of the AQF. Furthermore, supporting the NAVETQ in capacity development in terms of human resources, technical, and financial resources, is crucial considering the added responsibilities foreseen in NESS 2019-2022.

### 4. CONCLUSION

After 10 years of AQF development and implementation, there is a need to have a common understanding among stakeholders about qualifications types and their relationship to each other. Types and titles of qualifications and occupational nominations should be as clear and consistent as possible, in order that qualifications' users (individuals, businesses and others) can link a qualification to other qualifications of the same type, with a clear reference to the AQF level to which the qualification belongs.

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- <https://www.ascal.al/sq/akreditimi/programe-te-akredituara>
- <https://www.qqi.ie/>





# Occupational Profiles Required for the Future – Need or Fiction?

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## Keywords:

Labour market;  
Changes;  
Occupational profiles;  
Covid-19



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**Abstract:** Problems caused by Covid-19 led to the slowdowns of economic growth in many countries, which affected the labour market as well. The global recession, structural changes in economies and rapid development of robotics have also resulted in disappearance of many jobs. Hence, there is an actual need for new labour-market orientation, as well as occupational profiles that will respond to the challenges of modern business flows. Besides the changes provoked by the pandemic crisis on the world labour market, this paper also analyses the main indicators of the labour market in the Republic of Serbia. The paper also explores the need in defining new occupational profiles based on trends such as automation, robotics and sustainability.

## 1. INTRODUCTION

Social progress is unthinkable without the development of technology. We can thank scientific achievements for all the benefits of modern life. The development of modern technology is a matter of social, political and economic power. However, the technological revolution brings along certain dilemmas (moral and ethical) and environmental problems, but also the very uncertain perspective of humanity. There is no doubt that modern technologies have imposed new values and introduced new modes of communication. On the other side, the negative consequences of that technologically “better life” are the alienation of people and the loss of collective consciousness.

The current turmoil in the labour market caused by the Fourth Industrial Revolution (or Industry 4.0) has been additionally accelerated by the recession due to pandemic crisis. Robotics and artificial intelligence involved certain changes and affected the creation of new jobs (Schulte, 2020; Balliester & Elsheikhi, 2018). In general, digital transformation contributed to the reduction of traditional jobs, while the pandemic crisis has dramatically influenced the increase in the number of people working from home. Regarding these reasons, there is a need for a new labour-market orientation, as well as occupational profiles that will respond to the challenges of modern business flows.

The Bureau of Labor Statistics (2020) predicts that employment in the U.S. will increase from 162.8 million to 168.8 million jobs by 2029. This institution also recognises new occupations that will develop over the next 10 years. Some of them are related to public health and health care, as well as new IT occupations. In contrast, there will be a decline in employment for some administrative and sales occupations due to technological changes facilitated by automation and e-commerce (U.S. Bureau of Labor Statistics, 2020).

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In addition to the changes that the pandemic crisis caused in the world labour market, the paper analyses the key indicators of the labour market in the Republic of Serbia. The study also explores the need for defining new occupational profiles based on trends such as automation, robotics and sustainability.

## 2. TRENDS IN LABOUR – MARKET ORIENTATION

The modern way of life and technological development are changing the way we live and work. The advancement of technology affects the economy, by changing the business processes, the structure of jobs and the demand for certain occupational profiles, knowledge and skills. The benefits of technological innovations that mark our era can determine the directions of future development. At the World Economic Forum (2020) a platform for economic recovery was presented, as well as a report regarding the future of jobs in the next five years. According to the results of a survey conducted among employers, the report states that by 2025, investment in the existing workforce will decrease from 15.4% to 9%, while investment in new jobs and new positions will increase from 7.8% to 13, 5% (World Economic Forum, 2020). Trends in demand for new occupations will be mostly oriented towards the fields of artificial intelligence and IT profession (Table 1), but also the areas such as green economy, food production technology and human resources.

**Table 1.** Top 10 job roles in increasing and decreasing demand across industries

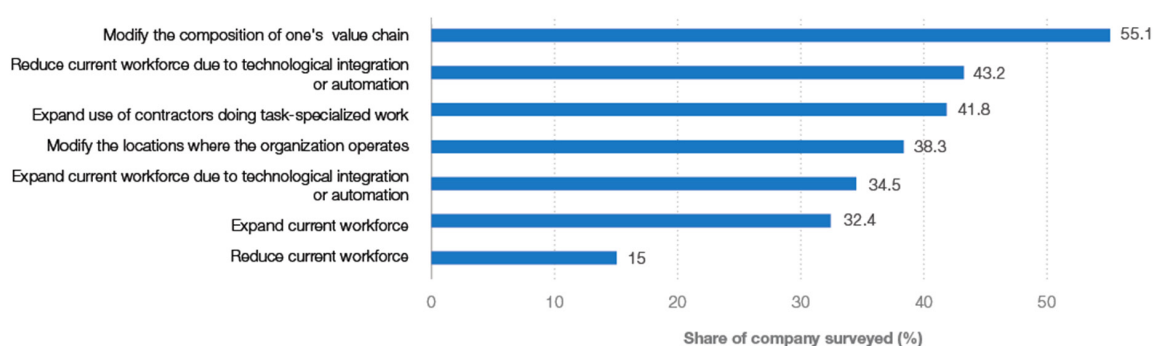
Increasing demand	Decreasing demand
1. Data Analyst and Specialists	1. Data Entry Clerks
2. AI and Machine Learning Specialists	2. Administrative and Executive Secretaries
3. Big Data Specialists	3. Accounting, Bookkeeping and Payroll Clerks
4. Digital Marketing and Strategy Specialists	4. Accountants and Auditors
5. Process Automation Specialists	5. Assembly and Factory Workers
6. Business Development Professionals	6. Business Services and Administration Managers
7. Digital Transformation Specialists	7. Client Information and Customer Service Workers
8. Information Security Analysts	8. General and Operation Managers
9. Software and Applications Developers	9. Mechanics and Machinery Repairers
10. Internet of Things Specialists	10. Material- Recording and Stock- Keeping Clerks

**Source:** Adapted from “Future of Jobs Survey 2020“, World economic forum, 2020

The survey on future jobs, which is presented in the report at the World Economic Forum indicates that companies need to restructure their workforce in response to new challenges. The surveyed companies stated that they want to modify the composition of their value chain (55.1%), introduce further automation, reduce the current workforce (43.2%), expand the use of contractors doing task – specialised work (41.8%) and expand their workforce due to deeper technological integration (34.5%) (Figure 1).

The most important characteristic of the workforce is its qualification, i.e. educational structure. European Union countries carefully analyse and predict the qualification structure of labour supply, as well as changes in qualification needs. Over the next decade, labour market orientation will be geared towards entirely new occupations or existing occupations that are undergoing significant changes in terms of their content, knowledge and skills (Ehlers, 2020).

Planning occupational profiles requires systematic monitoring and analysis. The results of such analyses should be subject of interest for both employers and those involved in creating and implementing relevant policies.



**Figure 1.** Companies expected changes to the workforce by 2025.

**Source:** Future of Jobs Survey 2020, World Economic Forum, 2020.

### 3. THE KEY INDICATORS OF THE LABOUR MARKET IN THE REPUBLIC OF SERBIA

Employment is an important factor of economic growth in any country. Indicators of the national labour market in Serbia have recorded positive results in recent years, which are consistent with the positive trend of macroeconomic indicators. The situation on the labour market, measured by the basic indicators from the survey on labour force, faces a significant recovery compared to the previous period. The number of employees in 2020 decreased slightly, by 0.2% compared to 2019, while the number of unemployed declined by 14.7%. Furthermore, the number of inactive people, which amounted 2,712,800 in 2020, increased by 1.0% compared to 2019 (Republic Statistical Office, 2021). According to the Labour Force Survey for 2020, the largest decline in total employment was recorded in the sector of agriculture, forestry and fisheries, while the highest increase was registered in the sectors of construction, information and communication.

However, in spite of significant improvements in the labour market, the Republic of Serbia still lags behind the average values of basic indicators in EU countries. Therefore, overcoming the difference in key labour market indicators of the working age population (15-64) between the Republic of Serbia and the EU-28 is one of the biggest challenges in the accession process. Some of the problems that were identified in the Employment Strategy for the period 2021-2026 include the mismatch of knowledge, skills and competencies, insufficient cross-sectorial cooperation, employment and education, as well as insufficient employment in digital technologies.

Regarding the harmonization of occupational classifications with international standards, in 2018 the Government of the Republic of Serbia adopted the Decision on the Unified Code of Codes for Entering and Encrypting Data in Records in the Field of Work (Neobilten, 2018), with the following codebooks: levels of qualifications, the Code of States, the Code of Municipalities in the Republic of Serbia and the Code of Settlements in the Republic of Serbia. The Ministry of Labour, Employment, Veteran and Social Policy has prepared the Occupational Classification (SOC) Code, which consists of a new list of occupations and the codes that belong to them. The new list of occupations came as a result of many years of work that included experts in employment issues, who started from the reviews of occupations given in the international standard ISCO-08 (International Standard Classification of Occupations - ISCO-08) and harmonize it with the needs of the labour market in the Republic of Serbia while consulting with employers and relevant institutions. The Ministry has prepared the Code of Qualification Levels, instead of the previous Codebook of Degrees, due to the Law on National Qualification Framework of

the Republic of Serbia, which established a new system for regulating the levels and types of qualifications. (National Employment Service, 2019).

The reasons for adopting the new Unified Code of Codes are primarily the harmonization of domestic regulations with EU law and international standards, the obsolescence of previous codes due to changes in the labour market and education system, development and establishment of the National Qualification Framework in Serbia and the National Standard Classification of Occupations.

The aim of adopting the Decision on the Unified Code of Codes for Entering and Encrypting Data in Records in the Field of Work is to record, monitor and analyse the situation and trends in the labour market, as well as to establish an unambiguous communication among all users, which enables better management of data regarding occupations and qualifications.

#### **4. ANALYSING THE NEED FOR DEFINING NEW OCCUPATIONAL PROFILES**

Deprofessionalization in some occupations, rapid obsolescence of knowledge, technological achievements, as well as the demands on labour market, are the main reasons to define new occupational profiles. The question that arises in this regard is: Whether the creation of future professions is an issue for analysts, politicians, creators of educational policy or futurologists?

Many authors, such as Tucker P, Frey T, Ware J, Gordon A, Ferriss T, Goodin S, Grantham C, Hayes A, Levit A, (Wagner C, 2011), have tried to identify which occupations will be relevant in the future. The study called “70 Jobs for 2030” lists the following occupations: astrogeologist, designer and currency controller, privacy consultant, private brand manager, social worker on social networks, bio information scientist, expert in experimental therapies, expert in life expectancy, digital archaeologist, virtual lawyer, food chemist, future expert, climate change advisor, genetic designer, global working time coordinator, individual learning programmer, nonverbal communication expert, actuary, etc.

There is no doubt that under the influence of robotics and automation there is an increased need for technical knowledge and computer literacy. With the growing number of “touch” devices the possibility of defining a new occupational profile “touch engineer” opens up. In general, in the field of technology and informatization, there is a great demand for occupations. According to futurologist Thomas Frey, one of the occupations of the future is “front-end developer” since companies will pay more attention to communication with customers via the Internet, resulting in demand for developers who will make their web site more effective. In addition to the occupations related to artificial intelligence, the focus of future occupations is also on the field of human resources, medicine, energy and agriculture.

In the area of Nano medicine and genetics, research will be more intensive, so there will be a need for narrow specializations. “Bioengineers” will produce human organs from stem cells, where numerous studies already suggest the expansion of this branch of medicine. In addition, more new technologies will affect the creation of bionic parts of the body. The production of bionic hardware and software announces a new bionic era. Although the union of man and machine is inevitable, the innovations in this field also arise some important ethical questions. A specialist in nanomedicine should have knowledge on biological, chemical and magnetic qualities of nanomaterial that will be used in the human body and that will have the power to kill viruses, bacteria, tumour cells or remove blood clots.

Genetics is already expanding in terms of research and application, and genetic engineering will be present in both medicine and food production. It is believed that GMO organisms will be generally accepted in the future.

In the last few decades, as a consequence of human activity, our global environment has been threatened. With global warming, many animal and plant species will decrease. Water and air pollution, depletion of natural resources are the problems we face today, and they will not change significantly in the future unless adequate measures are taken.

Due to the excessive consumption of natural resources, an increasing number of plants use alternative energy sources. Consequently, as a challenge for science, it will be necessary to educate a larger number of “alternative energy engineers”, due to the importance of energy for overall development. Generally, occupations related to the conservation of natural resources and energy help in protecting ecosystems and biodiversity and contribute to the preservation and restoration of environmental quality. It is considered that occupations within this sector will achieve a high rate of interest not only for solving environmental problems but also for economic sustainability. Growing competition, environmental influences (political and economic), as well as a changing and demanding market, create the need for continuous sustainable development of organizations, regardless of size, ownership or activity. Consequently, “sustainable development manager”, as an occupation, will be more demanded in the market.

The harmonization of legal regulations in the field of energy and ecology with European regulations and standards, as well as the preservation of the natural environment will be an important issue, so the demand for ecologists will not decrease in future.

Bearing in mind that the quality of agricultural products depends on agro-ecological conditions, where the quality of the land is an important factor, the development of the profession “agro geologist” is also a proposal. This profile should have knowledge about the chemical and physical properties of the soil, ecological engineering of agricultural land, the impact of agro-technical measures on the improvement of properties and fertility. In line with these considerations, it is necessary to raise awareness within the population about the sustainable development of agriculture as the most important economic branch. For that purpose, there is a need to develop the profession of “consultant for agriculture” (Janovac, 2014).

The year 2020 was marked by the crisis caused by the Covid-19 virus. However, this crisis has drawn attention to a number of problems that may arise in the work of employees. Working from home introduced changes that were not easy to accept. Furthermore, people had additional stress when it comes to preserving their own health and the health of their loved ones. As a consequence of such situation, there was a need to define a new occupation, called “employee health manager”. This new occupation is focused on caring for the general health of employees, which includes overcoming the fears and psychological problems we face today.

Study programs related to new occupational profiles should be based on the achievements of science and defined according to the needs of labour market, in order to provide the necessary knowledge and skills. In accordance with modern tendencies in education, interdisciplinary, multidisciplinary and trans disciplinary studies in higher education should be defined.



## 5. CONCLUSION

The changed economic and systemic conditions require new solutions and responds to social, environmental and economic challenges. The adoption of new technologies brings higher demand for occupations in the fields of green economy, medicine and engineering.

Indicators from the labour market in the Republic of Serbia demonstrate a growing trend for occupations related to informatics and communications, which corresponds to our proposal when it comes to defining new occupations in this sector. At the same time, further development of the National Standard Classification of Occupations will enable monitoring of changes in the labour market and obtaining information on current occupations. This information is particularly important for managing the harmonisation of formal and non-formal education systems with labour market needs.

In order to overcome the challenges in labour market, policymakers must follow a holistic approach, create active links and coordination between the business and education sectors and ensure effective cooperation with local government and line ministries. Such efforts can be strengthened by multi-stakeholder cooperation, which include companies that want to support their workforce, government agencies willing to fund retraining, institutions that can provide retraining services and new education programs, and organizations that can provide feedback on the implementation of the appropriate measure.

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# Impact of the Application of Collective Agreements on the Financial Situation of Public Healthcare Institutions in the FBiH

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## Keywords:

Collective agreement;  
Public healthcare institutions;  
Financial impact;  
Salaries



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**Abstract:** *The signing of collective agreements in the healthcare sector at the cantonal level in the FBiH has to increase funds for employees' salaries in line with legal provisions as well as provisions of the collective agreements. The increase in salary allocations at the level of healthcare institutions, as a result of the application of collective agreements which was not accompanied by an adequate increase in revenue, could leave healthcare institutions in a difficult financial position. This paper focuses on assessing the financial impact of the application of healthcare collective agreements on the work of public institutions operating within the FBiH healthcare system. The primary aim of this research is to highlight the need for coordination and cooperation among all institutions of the system when entering into collective agreements with citizens. Lack of coordination may result in financial difficulties for public institutions when applying the collective agreements, which will be explained using the case of one public healthcare institution operating as part of the healthcare system in one of the cantons in the FBiH.*

## 1. INTRODUCTION

The application of collective agreements concerning the rights and obligations of healthcare employers and employees is a legal obligation of public healthcare institutions. This includes the calculation and payment of employee salaries in line with the collective agreement and labour regulations. Negotiations over these provisions require the participation of all stakeholders in order to come up with an applicable solution and secure the execution of all obligations pertaining to the provision of healthcare services. If either party is not adequately represented, this can lead to misalignment, i.e. a situation in which healthcare institutions lacks sufficient funds for uninterrupted operation because of the increased allocations for employee salaries, as required by the signed collective agreements. This occurs because their agreements on mutual relations in the provision of healthcare services with the health insurance institutes for the current year were concluded before the collective agreements were signed and entered into force, so any increased expenditures had not been considered in the calculations, nor do the agreements allow for subsequent corrections. This paper describes one such eventuality using a case study from one of the cantons in the Federation of BiH entity.

## 2. HEALTHCARE FINANCING SYSTEMS AROUND THE WORLD AND IN BOSNIA AND HERZEGOVINA

The purpose of public healthcare is to preserve and improve the overall health of the population through the enabling of healthcare services. Therefore, every country strives to adopt policies and prescribe appropriate measures to create the conditions for a healthcare system to function. In this, the key goals are to have good health protection and a rational and stable financing model.

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Every welfare state ought to guarantee an adequate level of social security and social insurance to its population, and the state government needs to enable the provision of a range of services to the population, such as healthcare, unemployment benefits, family welfare, and pension insurance. Funds for these programs are secured by the government through collecting taxes, contributions, and other fees.

The fundamental aim when it comes to financing healthcare is to secure sufficient funds, establish a system of economic incentives in the provision and use of healthcare services, and provide healthcare users with adequate access to individual health protection. The collecting of funds can be public and private. Public financing entails a societal commitment to humane and ethical objectives that have moral and political weight, wherein the state acts as a procurer of healthcare services on behalf of the population, and whereas with private financing, individual payments for healthcare are made by purchasing health insurance or making out-of-pocket payments in exchange for these services.

The current situation, when it comes to healthcare financing around the world, is marked by a general shortage of funds, while the growth of healthcare spending further exacerbates the problem. The increase in healthcare spending is caused by many reasons, with the most important being the widening array of healthcare services as a result of new medical and technological solutions and innovations, coupled with the rising income of the population as well as population ageing. Three key models for healthcare financing have been identified worldwide, and as such are prevalent in most countries. These are Beveridge, Bismarck, and the market-driven model.

The Beveridge model is characterized by the fact that healthcare financing comes from direct taxes paid by companies and individuals, and indirect taxes collected based on market sales of goods and services. This model has been embraced and is in use in the United Kingdom, Ireland, Italy, Spain, Portugal, Greece, etc. The Bismarck model is based on mandatory and universal social insurance. It functions on the principle of solidarity and reciprocity, with healthcare insurance payments being made in the form of contributions based on labour, while the rate is determined either by the government or by authorised non-governmental institutions. This model is applied in Germany, France, Austria, Belgium, and Switzerland. In the public healthcare system, financing is resolved by securing funds from a special tax paid by all employees, the labour force (employed and self-employed persons, and farmers). The market-driven model focuses on private insurance and risk insurance, while the social welfare component is disregarded entirely, and healthcare is financed through premiums, i.e. direct payments that award an individual the right to be insured for the period covered by the specified payment. According to available data, almost three-quarters of US citizens are using this model.

By its characteristics, the healthcare system in Bosnia and Herzegovina is closest to the Bismarck financing model, i.e. the model of mandatory social health insurance based on labour force solidarity in the form of their contributions for protecting the health of the population. In this model of mandatory social health insurance, contributions are calculated using a formula and the rate that varies from one country to another. Contributions are determined based on the gross salary amount, which includes the net employee salary, multiplied by the agreed coefficient, plus salary contributions. The healthcare contribution in the FBiH entity amounts to 12.5%, and 12% each in the RS entity and the Brčko District of BiH.

The rights awarded to the insured persons are usually comprehensive and cover both treatments and medication, which represents a stain on the economy as a large portion of GDP is spent on healthcare. Compared to other European countries, where healthcare expenditures match the economic power in terms of GDP per capita, Bosnia and Herzegovina, i.e. its entities and the Brčko District of BiH, would

have to invest a significant effort to achieve better macro-economic parameters that would enable them to resolve the issue of the healthcare sector's liquidity. Having in mind that the healthcare financing system is based on solidarity, it is justified that one of the ways to increase its financial stability would be to increase the number of workers who would cover the healthcare of the entire population with their health insurance contributions.

It is important to note that healthcare spending per capita has been rising significantly for years, which forces healthcare policymakers to insist on rationalisation measures in the healthcare system and the reduction of public spending on healthcare. This is further exacerbated by the fairly complicated organisation of the healthcare system, which is structured in a way that the financing, management, organisation and provision of healthcare services have been entrusted to entities and the Brčko District of BiH, with the Republika Srpska entity and the Brčko District of BiH having a centralized healthcare system, while in the FBiH entity it is decentralized.

Within this constellation, at the top of the centralized healthcare system in the Republika Srpska entity lies the Ministry of Healthcare and Social Welfare which holds authority over the Health Insurance Fund, the Public Healthcare Institute with regional public healthcare institutes, as well as clinical centres, general hospitals, primary healthcare centres, and outpatient clinics.

In the decentralized healthcare system of the Federation of BiH, we find the Federal Ministry of Healthcare and the cantonal healthcare ministries, with the former being superior in the hierarchy to the Federation Health Insurance Fund, the FBiH Public Healthcare Institute, and the Transfusion Medicine Institute. The cantonal healthcare ministries hold authority over cantonal health insurance funds, cantonal public healthcare institutes, as well as clinical centres, general hospitals, primary healthcare centres, and outpatient clinics.

Article 62 of the FBiH Law on Healthcare states that healthcare institutions shall secure the necessary funds through agreements with health insurance institutes at the level of the FBiH and cantons, followed by agreements with relevant ministries, and agreements with higher education institutions in charge of the training of healthcare professionals, through allocations made by healthcare institutions' founders, and through market-based operations in the form of selling products or services.<sup>3</sup> In the other entity, Republika Srpska, Articles 124 and 125 of the RS Healthcare Law state that healthcare institutions can secure funding from the Fund, from budgets of the RS and local self-government units, insurance organisations, healthcare users, educational activities and scientific research, and other sources, wherein the Fund enters into an agreement on the provision of healthcare services with a healthcare institution based on the overall health of the population, the population figures and age structure, the level of urbanisation and development, road connections between individual areas, equal access to healthcare, the required scope of healthcare services, and economic capabilities.<sup>4</sup>

In the Brčko District of BiH, healthcare institutions can receive funding from their founder in line with the founding charter, from the District budget, the Brčko District of BiH Health Insurance Fund, other health insurance providers, patient participation, interest on bank deposits, market-based selling of services, educational activities and scientific research, donations, bequests, endowments, and other sources if collected in line with the law, the founding charter, and the statute of the healthcare institution.

<sup>3</sup> "FBiH Official Gazette," no. 41/10

<sup>4</sup> "RS Official Gazette," no. 106/2009 and 44/2015

### 3. COLLECTIVE BARGAINING PROCESS AND THE ROLE OF TRADE UNIONS

In line with the topic as outlined in the introduction, this section will provide a general overview of the importance of the collective bargaining process. The simplest definition of collective bargaining establishes it as "... a negotiation process between a trade union as the representative of the workers and one or more employers, to reach an agreement on regulating labour conditions",<sup>5</sup> "thereby contributing to social order, adjustments to economic and social change, fight against corruption, and promotion of equality".<sup>6</sup> Bargaining can be made at the national, branch, group, vocational, or company level.

International legal sources for collective bargaining primarily stem from the International Labour Union Convention 87 and Convention 98. "The bargaining process is very complex, and several stages have been identified in the course of the negotiation - bargaining, mediation, reconciliation, arbitration, strike, lock-out" (Učur, 2006, p. 547). The parties in the negotiation are workers as advocates of labour interests on the one side, usually represented by trade unions, and representatives of capital interests on the other, represented by employers or government bodies. The parties negotiate and conclude a collective agreement, which is a formal document as it has to be made in writing and co-signed by authorised persons representing the parties.

"Collective bargaining aims to achieve a good arrangement and conclude a collective agreement with a rational expenditure of time, energy and resources, and with mutual tolerance and respect among negotiating parties" (Učur, 2006, p. 550). "Legislation in the majority of EU member states defines collective agreements as formal written agreements whose nature is to regulate labour conditions for employees, with employers on the one side and worker representatives or trade unions on the other emerging as parties in the negotiation" (Bruun, 2003, p. 3).

It has already been mentioned that the interests of workers are represented by trade unions, with the trade unions' key objectives being the protection and improvement of labour conditions, the promotion of labour and social solidarity, building a society that respects workers' rights and the right to be paid a salary, caring for workers' dignity, and caring for workers' social security in case of unemployment, illness, or old age.

Collective bargaining and collective agreements are regulated by law in Bosnia and Herzegovina. According to the provisions of the Labour Law of the FBiH entity, "a collective agreement can be general, branch-level, or individual (with a single employer), with the general agreement being concluded for the territory of the FBiH, and branch-level agreements for the territory of BiH or one or more cantons."<sup>7</sup> "The general collective agreement shall be concluded by the Government, the recognized employers' association, and the recognized trade union, while branch agreements shall be concluded by a recognized employers' association and a recognized trade union of one or more vocations founded on the territory of the FBiH or one or more cantons. Branch-level collective agreements for employees in civil service, judiciary, public institutions, and other budget beneficiaries shall be concluded by relevant ministries, i.e. the Government and relevant ministries and cantonal governments on the one side, and recognized trade unions of civil servants and appointees, public institutions, and other budget beneficiaries on the other.

<sup>5</sup> <http://www.kolektivni-ugovori.info/kolektivno-pregovaranje>, accessed 24 May 2020

<sup>6</sup> [https://www.ilo.org/wcmsp5/groups/public/---ed\\_dialogue/-sector/documents/instructionalmaterial/wcms\\_554082](https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/-sector/documents/instructionalmaterial/wcms_554082)

<sup>7</sup> FBiH Labour Law, Article 137 ("Federation of BiH Official Gazette," no. 26/26 and 89/18), and RS Labour Law ("RS Official Gazette," no. 1/2016 and 66/2018), Article 239

Individual collective agreements shall be concluded by a recognized trade union at the employer, wherein, if the owner is the FBiH, a canton, city, or a municipality, their prior consent shall be required.”<sup>8</sup>

#### **4. CASE STUDY – HEALTHCARE COLLECTIVE AGREEMENTS AT THE CANTONAL LEVEL IN THE FEDERATION OF BIH AND THE FINANCIAL IMPLICATIONS FOR HEALTHCARE INSTITUTIONS**

Two healthcare-related collective agreements were signed in one of the cantons in the FBiH: the Collective Agreement on Rights and Obligations of Healthcare Employers and Workers, concluded between the cantonal Independent Autonomous Healthcare Workers Trade Union and the cantonal Ministry of Healthcare with the prior consent of the cantonal government, and the Collective Agreement on Rights and Obligations of Employers and Workers in the Domain of Medical and Dental Medicine Doctors concluded between the cantonal Independent Vocational Trade Union of Medical and Dental Medicine Doctors and the cantonal Ministry of Healthcare with the prior consent of the cantonal government.

According to the Collective Agreement on Rights and Obligations of Healthcare Employers and Workers in ZDC<sup>9</sup>, employers have an obligation to pay salaries to workers with whom they have a labour contract in exchange for their work out of the funds earned by the healthcare institution in line with the relevant law. 13 groups of individual jobs have been defined according to the complexity coefficient, with the lowest coefficient being assigned to jobs in group I, that includes less complex jobs requiring, in terms of education, an 8-year primary school degree, while the highest coefficient is reserved for group XIII that includes jobs categorized as complex and very complex, and their performance requires higher education<sup>10</sup> and specialization. Parties have also determined the final coefficient values, specifying that reaching the determined coefficient value should be achieved in two stages, i.e. in two intervals. The outcome of the negotiation was that the party representing labour interests had secured a change of the complexity coefficient, wherein the complexity coefficient for the lowest group I was successively raised from 1.10 to 1.20, and for the top group XIII from 4.40 to 4.82.

On the other hand, the Collective Agreement on Rights and Obligations of Employers and Workers in the Domain of Medical and Dental Medicine Doctors in ZDC<sup>11</sup> regulates rights and obligations based on and arising from the work of medical doctors and doctors of dental medicine employed in public healthcare institutions founded by municipalities/cities or the canton. This collective agreement separates jobs and vocations of medical doctors and doctors of dental medicine into three groups according to complexity with respective complexity coefficients, and also specifies that reaching the agreed coefficient value would occur in two stages.

<sup>8</sup> FBiH Labour Law (“Federation of BiH Official Gazette,” no. 26/16 and 89/18), Article 138, and RS Labour Law (“RS Official Gazette,” no. 1/2016 and 66/2018), Article 240

<sup>9</sup> Collective Agreement on Rights and Obligations of Healthcare Employers and Workers in ZDC, [https://zdk.ba/sjednicevlade/sjednice2020/90sjednica/90-09\\_28-12-2020.pdf](https://zdk.ba/sjednicevlade/sjednice2020/90sjednica/90-09_28-12-2020.pdf), accessed 25 May 2021

<sup>10</sup> Medical Doctor, Doctor of Dental Medicine, and Master of Pharmacy

<sup>11</sup> Collective Agreement on Rights and Obligations of Employers and Workers in the Domain of Medical and Dental Medicine Doctors, <https://ssdmis-zdk.ba/wp/wp-content/uploads/2019/01/Kolektivni-ugovor-SSSDMiSZDK-2017-1.pdf>, accessed 25 May 2021



**Table 1.** Individual revenue types as a percentage share of the overall revenue of the healthcare institution

Revenue structure	Percentage share of the overall revenue (%)			
	2016	2017	2018	2019
Revenue from the cantonal health insurance institute	88.28	88.65	90.4	91.18
Revenue from invoiced services	6.2	6.41	5.28	4.53
Revenue from rent	2.11	2.13	2.08	1.95
Other revenue	3.41	2.81	2.24	2.34
<b>TOTAL</b>	100	100	100	100

**Source:** Data from the healthcare institution's business records

In order to assess the implications of the application of collective agreements on healthcare institutions, it is necessary to analyse the financial indicators of one healthcare institution in ZDC. Business records usually show four types of business revenue which together form the total annual revenue. These are revenue from the cantonal health insurance institute, revenue from charged and invoiced services, revenue from any rent of premises, and other revenue as shown in Table 1. The bulk of the revenue comes from the health insurance institute.

Every year, cantonal health insurance institutes sign agreements on mutual relations in the provision of healthcare services with healthcare institutions in the canton. The agreements need to observe provisions of the Law on Health Insurance, Law on Health Protection, Ordinance on Healthcare Standards and Norms Pertaining to Mandatory Health Insurance in the FBiH<sup>12</sup>, Decision on the Basis, Criteria, and Indicators for Concluding an Agreement between the Cantonal Health Insurance Institute and Healthcare Institutions, and Ordinance on the Organisation and Financing of Specialist-Consultation Work in the Canton. The criteria and indicators for concluding a healthcare agreement include the number and structure of insured persons registered at the offices of the health insurance institute on the 30<sup>th</sup> of November of the preceding year, or if specifically mentioned in the Ordinance on Standards and Norms - the population figures according to preliminary results of the 2013 census per municipalities and settlements in the FBiH.

The structure of operating expenditures recorded in business records of a healthcare institution usually consists of employee costs, material costs, production service costs, amortization, intangible costs, financial expenditures, and other expenditures and losses.

**Table 2.** Individual expenditure types as a percentage share of the overall expenditures of the healthcare institution

Type of expenditure	Percentage share of the overall expenditures			
	2016	2017	2018	2019
Employee costs	78.06	78.64	77.89	80.98
Material costs	9.86	9.21	10.7	8.75
Production service costs	3.36	3.08	3.47	2.67
Amortization	5.08	4.81	4.44	3.95
Intangible costs	3.5	3.33	3.32	3.46
Financial expenditures	0.01	0.01	0	0
Other expenditures and losses	0.12	0.93	0.18	0.18
<b>TOTAL</b>	100	100	100	100

**Source:** Data from the healthcare institution's business records

<sup>12</sup> FBiH Official Gazette, no. 82/14, 107/14, and 58/18



The analysis of employee costs in the healthcare institution between 2016 and 2019, as shown in Table 2, indicates that they were relatively stable from 2016 until 2018, followed by a significant increase in 2019. In order to make an objective comparative analysis of this increase, one needs to first take into account the information about the number of workers in the same period, and we learn that the number of workers in 2019 rose by 18. Aside from the number of workers, the increase was especially affected by the obligations arising from the collective agreement which states that an employer may not calculate and pay a salary that is lower than the one determined by the collective agreement and labour regulations.

**Table 3.** Labour costs of the healthcare institution in the period 2016-2019

	2016	2017	2018	2019
Average annual cost per employee in KM	24,420	25,606	26,545	27,678
Average monthly cost per employee in KM	2,035	2,133	2,212	2,306

**Source:** Data from the healthcare institution's business records

The average annual cost per employee in 2019, shown in Table 3, when the application of collective agreement provisions entered into force, rose by 1113.61 KM per employee compared to the previous year, or 92.80 KM on a monthly level. The application of altered coefficients also meant an increase in the annual expenditures for employee costs pertaining to their salaries, as evident in Table 3.

**Table 4.** Comparison of annual and monthly costs per employee in the period 2019-2020

	2019	2020
Annual costs per employee	26,934.00	29,798.16
Monthly costs per employee	2,244.50	2,483.18

**Source:** Data from the healthcare institution's business records

**Table 5.** Difference in the increased cost per employee after the application of final coefficients

Description	Amount (in KM)
The difference in monthly costs per employee	238.68
The expected difference in costs per employee after the application of final coefficients	2,864.16

**Source:** Data from the healthcare institution's business records

The most rational approach to assessing the overall increase of salary costs is to compare data from a period in which there was no salary increase (in 2019) with a period in which salary expenditures were set to rise as a result of the application of the final coefficient based on the collective agreement (in 2020), as shown in Table 4. This enables us to establish the difference in costs per employee on a monthly and annual level (Table 5).

By multiplying the expected cost-per-employee difference with the number of employees of the healthcare institution, we can determine the exact employee cost increase on a monthly and yearly basis. Given that the existing agreements on mutual relations in the provision of healthcare services with healthcare institutions in the canton do not allow for any corrections to the agreed annual sums, the increased expenditures will result in the healthcare institutions not being able to cover all expenditures with available revenue, thus jeopardizing their overall operations. In such cases, a healthcare institution must proceed with the rationalization of expenditures, and they usually decide not to fund specialization of medical doctors, which directly leads to lower quality of provided healthcare services.

## 5. CONCLUSION

The application of collective agreements in healthcare, if there is a lack of coordination among institutions, can lead to financial consequences in the form of increased employee costs in healthcare institutions, because the available revenue envisioned by the agreements on mutual relations with cantons and revenue from other sources would not be sufficient for the institution to regularly function and fulfil all of its legal obligations. This means that relevant cantonal institutions which take part in pre-approving the signing of collective agreements must, as part of the financial impact assessment, anticipate and adopt appropriate measures to compensate for the healthcare institutions' increased employee salary costs, thereby enabling the execution of all health protection measures in the area covered by the said healthcare institution.

Furthermore, provisions of the FBiH Law on Health Insurance oblige cantonal health insurance institutes to undertake necessary measures if the available funds are not sufficient to cover the expenses on the basis of compulsory health insurance, to secure additional funds, with the health insurance institutes' steering boards deciding on securing additional funds, as well as means to cover potential losses arising from business operations. This law also states that funds for the financing of rights arising from mandatory health insurance should, among other sources, also be secured through allocations from the budget of the canton or municipality, and that "allocations from the cantonal budget may be approved to cover increased costs of healthcare caused by significant deviations from the planned health insurance budget due to extraordinary or otherwise difficult circumstances during the provision of healthcare, and that such allocations shall be approved by the cantonal or municipal legislative body based on a request authorised by the steering board of the cantonal health insurance institute using as the starting basis the planned budget for the provision of mandatory health insurance."

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# Subject of Sociology of Law in the Legal Order of Modern Globalized Society

Slobodan Petrović<sup>1</sup> 

## Keywords:

Sociology of law;  
Legal order;  
Social behavior;  
Globalized society;  
State



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**Abstract:** *The state is a social community that represents a multitude of individuals and the interactions between them. From this, we conclude that the state is a legal and a social being.*

*Max Weber claimed that the assignment of sociology is “to understand social behavior through interpretation.” Both then and today, the subject of the sociology of law is social behavior.*

*The legal order encompasses, analyzes, and acts on the actions performed by persons as citizens or bodies of the state who interpret their behavior. The state is a social reality within the legal order because all individuals belonging to the same state constitute a unity, i.e., one state’s population. The population is one of the three basic elements of the state. According to these same constituents, the sociology that studies the state is interested in analyzing that behavior.*

*This paper will specifically analyze human behavior oriented towards the legal order, the normative character of the state, the problem of society in a globalized world, and the impact of globalization on the legal system through the movement of individuals in legal systems and societies.*

## 1. INTRODUCTION

Modern globalized society is experiencing a rapid flow of noticeable changes at all levels and in all segments. Thus, the legal order causally suffers and implements all the innovations imposed on the everyday life of the modern age, with this type of change necessarily including the adaptation of the entire current legislation to the causes of global cycles.

To know objective law, man, as a rational and intellectual being, has to know under what circumstances, at what time, and for what needs a particular right was created (established). These are laws, primarily natural laws, and various normative systems; they are social (sociological) laws (Lukić, 1995, p.531).

Social behavior as a subject of sociology of law is a permanent process of turmoil and mutual relations. The product of these mutual influences is a set of phenomena and processes that, as such, affect the legal order of a state. Thus, they assign an identity to society, which is undoubtedly a significant factor in creating the overall reality which determines a state through its legal order.

The legal order is a very complex whole; it is a whole in itself, but it is also a part of the world as a supreme whole. As a part of the world, the legal order differs from the universal, natural or general social order. It also differs from the moral, economic, political, or other particular social order (Mitrović, 2015, p. 312).

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## 2. HUMAN BEHAVIOR AND LEGAL ORDER

Human behavior is an expression of an individual's relationship to the outside world. This relationship must necessarily be defined by legal norms, first, and then by all other forms of behavior. It is this segment that is the basis of the sociology of law.

A person manifests their inner state by specific actions that identify and characterize them as such. If these actions are under the state's legal system, they will be socially acceptable or socially justified. However, any behavior that deviates from the legal system of the space where it manifests is viewed as deviant (which does not have to be, but the legal system through legal norms sets a uniform form of behavior and makes a global unification).

An intelligent being must always regard themselves as legislative in the realm of purposes, and based on will, whether as a member or chief in it. The position of chief cannot maintain only the maximum of their will, but only if they represent a completely independent being without the need and limitation of their power which is adequate to the will (Kant, 2008, p.81).

It is essential to point out that no legal order can be maintained without the political organization of the state and society. In that sense, the individual is a creator within the same state, so it is not free and left to social creation. Hence, human behavior as a form of personal manifestations is not limitless in sociological and legal terms.

From the point of view of sociological observation, a "political" organized group, and especially a "state", cannot be defined based on the content of what it does. There is almost no task that would not be accepted here and thereby a political group. On the other hand, no task could be said to have at all times, even always been exclusively inherent in those organized groups called political, and today states, or which have historically been the forerunners of modern states (Weber, 2014, p.47).

Sociologically, the modern state can be defined exclusively based on "the means of physical violence available to the state." Every time a government or a project communicates without discussion of accepted norms or fully achieves recognized goals, as well as in all cases where it does not need to conform to norms and does not want to pursue specific goals, it will escape criticism and correlative processes of justification (Perelman, 1983, p.46).

What is vital for the sociology of law, and even for the aspect of contemporary analysis in the global world, is precisely the thesis that "Man, even when he is alone, is not alone - because even then, he is part of society." Precisely, such a man, an individual, is the creator of social processes, set as a link between the totality of the human and the totality of the normative.

Progress in the development of the state and law represents a constant increase in the demands placed on individuals. Society is becoming greedier and demanding because every satisfied need carries the germ of a new one. Additionally, every new goal that is added to the previous ones on the list of social goals increases due to the labor force and the money it requires and the contribution required from individuals. Since this contribution must be provided by coercion, it increases the engagement of the social apparatus of coercion for the needs of society (Jering, 1998, p.223).

### 3. NORMATIVE CHARACTER OF THE STATE

Roughly speaking, the normative character of the state is reflected in the systematization of the legal order of society and the strength of the norm as a social rule contained in a commandment.

Social norms regulate various social relations, so there are different types: politeness, etiquette, decency, tact, fashion, hygiene, etc. However, the most important social norms are ordinary, moral, and religious - their set makes up the normative social system because they exist in parallel with the norms of numerous social organizations and the state as a unique social organization (Mitrović, 2015, p.158).

The normative element is the essential part of the legal order, composed of legal norms and legal acts, as a manifesto of internal (psychic) actions that create legal norms or define the circumstances for their application. A state exists when there is a political apparatus that enables governance (institutions such as parliament or congress and state bodies with officials), the territory it governs, the legal system that supports it, and the ability to use military force to conduct its policies (Giddens, 2001, p.220-221).

Anthony Giddens sees the concept of the state established in this way as necessarily national because he believes that all modern states are national. This attitude is in direct contrast to globalization trends and the influence of global institutions on the country's normative character. Then, the unequivocal question arises, "Is there national globalization, at all?"

The rhetorical phrase thus declared and defined annuls national individuality in the global society, which immediately puts aside the story of the normative character of a state because that character can be exclusively national opus; any supranational character would strive to create national globalization. What does that mean? Sociologically speaking, it means that the world is divided into enlarged colonies. They have retained their national character, and legally speaking, they have been unified through a handful of international agreements, multilateral trade, and other agreements.

The sociology of law encounters a serious challenge here, as it observes and analyzes the social component of the law. Therefore, we do not deny that the reality of social life is effected through a subjective longing and aspiration that, in the natural process of its origin — though it is difficult to expose it precisely because of its endless complications — grows out of the given social circumstances. Law, and a particular way of some social life with it, has in reality always appeared as a result of power; and we are given little justification to predict something else for future times (Stamler, 2001, p.379).

The state is the creator of the normative concept as long as it has sovereignty and territorial integrity elements. The moment it loses these competencies, it experiences auto decadence and becomes subordinated to the stronger tasks.

### 4. THE PROBLEM OF THE SOCIAL MOVEMENT IN THE GLOBALIZED WORLD FROM THE ASPECT OF THE SOCIOLOGY OF LAW

One of the most complex sociological problems is the movement of society. In this process, everything is in question: whether there is a movement of society at all or the society is not



moving; what movement means; what causes the movement of society; can some regularities or regularities in the movement of society be precisely determined?

Let us look at some of the most general elements of society, such as people production, material production, culture, and similar. We can say that society does not move and does not change because these elements always exist and are always in the same relations.

If we look only at these elements or the relations between them, we will see how they move since the production is always different. If we go into further detail, observing in longer time sections - the movement is more and more pronounced (Lukić, 1995, p.346). The problem of the movement of society in a globalized world is taking place through political globalization.

Along with the course of economic, informational, and other forms of globalization, in almost all parts of the world, there were various forms of connecting states on a regional political basis. This process went the furthest in Europe, but even on this continent, political globalization was not yet a clear and solid institutional form that would be compatible with the flows of economic integration (Mićović, 2001, p.174).

Modern capital flows have contributed to economic migrations, showing a complete escalation in the second decade of the 21st century. Economic migration implies going for work; it is one character of modern sociological trends. The other character is the mobility of factories as a station of production to places (countries) where labor is cheaper.

Both types of social movement in the globalized world give the sociology of law a new hypothesis of studying the legal framework of states and the rights of individuals. This is logical given that globalization is a speedy process; migrations are massive, frequent, and difficult to control. This type of social movement is more of a social danger than a benefit in the modern world.

Recent history shows the hidden intentions of migration processes. From that aspect, we must not leave it a chance that this type of movement of society is just another one of the controlled phenomena. Such processes cause absolute global inequality of society, which will only be manifested in the future. Companies with a steadily growing middle income are fundamentally different from companies in stagnation because the average income growth creates a “space” for the growth of inequality (Milanović, 2016, p.58).

## **5. THE IMPACT OF GLOBALIZATION ON THE LEGAL SYSTEM**

The state's legal system is inextricably linked to the territory, population, and government of the same state; in fact, one does not exist without the other. As a class organization of government, the state implements the legal order precisely according to the legal system according to which it is organized. This interdependence is reflected on both the micro and macro levels. That is, every legal norm has an impact on the identity of a company and vice versa.

In a globalized society, national legislation is forced to adapt to global legal trends, which does not always imply the involvement of the national interest (it should, but in practice, it is not so). Globalization and greater mobility of capital in the second half of the twentieth century have increased, if not through frequency, then, through the transparency of financial crises in the world.



Let us mention the crises that have affected less industrialized countries around the world; they are most strikingly related to the South American continent, e.g. The Mexican, Brazilian, and especially Argentine crises. We can also mention the Yugoslav crisis from the beginning of the nineties and the East Asian and Russian crises from the end of the nineties of the last century. One of the most striking ones was the crisis of the European monetary system in 1992 (Grbić, 2008, p.9).

Social and economic crises manifest their consequences on the global population, which is the effect of a globalized society, because in this case, “everyone feels everything”. Often, the legal system is powerless in such situations. As we said, it protects the nation-state and gives it full sovereignty in economic, monetary, and all other aspects necessary for the state’s stable work (functioning).

Dissatisfaction with globalization is palpable in developed countries. It was not the only force, but it was such a powerful force that even if there were no technological changes or progress, it allowed the replacement of unskilled employees with machines.

Globalization itself could be and probably is, more difficult for a large number of unskilled workers. Therefore, globalization is more than trade - it is also the movement of capital, people and ideas across borders (Stiglitz, 2018, p.62). As its bad side is becoming more and more pronounced, globalization is being given a negative framework. However, this type of presentation certainly gives a clearer picture of globalization’s positives and negatives. What is more, it is undoubtedly a severe blow for the nation-state that directly reflects on the legal system.

## 6. CONCLUSION

The subject of the sociology of law in modern society is the same as in the traditional one, in which it emerged as a scientific discipline. But, society is not the same.

In this paper, special attention was paid to presenting those features of modern society where a retrospective of society’s movement and development comes into play. We have also built this paper referring to 18th and 19th-century sociology of law thinkers and those who deal with this topic today through the prism of modern social trends. The purpose of this paper is a comparative presentation of the social movement and the example of the legal order in general.

Globalization as a phenomenon is increasingly showing its ugly sides, which is reasonably expected because every world concept has its lifespan, and so do globalist trends. The topic covered can be subsumed under both philosophical and legal, but also under the sociological field. Here, the facts are explicitly presented, proving that the subject of sociology of law, both at its inception and today, is the same way that society suffers justified changes. The most important capital in the world is the human resource - humankind. In all phases of change and influence, humankind is the bearer, the creator, and he only suffers the consequences of human creations.

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# Constitutional Framework of Free Economy in Theory and Practice of the Republic of Serbia

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## Keywords:

Constitution;  
Freedom of economy;  
Entrepreneurship;  
State;  
Mixed economy



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**Abstract:** *One of the key elements of any democratic society in the world is economic freedom. Today, there is almost no democratic state where the economy is entirely state-owned or completely free of state legislation. However, we can conclude that today, the so-called “mixed economies” still prevail, which are characterized on the one hand by private companies, and on the other hand, by state control of the economy. In such economies, in the interaction of producers and consumers on the free market, the freedom of the economy guaranteed by the constitution is achieved. In this case, the state does not determine the price of products.*

*The freedom of the economy guaranteed by the constitution contrasts with the economy based on central state planning.*

## 1. INTRODUCTION

From the aspect of constitutional law, there are two dominant views regarding the notion of a free economy.

The first, social democratic, emphasizes that equality and social welfare are critical factors in a free economy. This approach entails state ownership of the dominant poles of the national economy (telecommunications, all modes of transport, provision of public services, water supply, etc.).

The other one, liberal, believes that the essence of a free economy is precisely an independent market, which is not under state control and is privately owned.

Today, in the 21st century, there is no state in which the economy is organized according to a liberal concept, no matter how ideologically perfect it may sound. Nowadays, the so-called mixed economies take dominance over other types of economies. Such economies operate very successfully on the free market. Today, the price and marketability of the product are determined by the consumer mass or consumers of certain content. Therefore, the free economy is the opposite of an economy based on central state planning (Marković, 2016, p.500).

The liberal doctrine implies that there are two fundamental elements of a free economy.

The first is the right to private property; the second is the freedom of competition. What is known and accepted in the world legal doctrine is that “the property of the so-called sacred right” has been one of the basic human rights since the Declaration of the Rights of Man and the Citizen, wherever it was and whoever owned it.

Free will is the truth; it belongs to the objective, worldly spirit - the path of freedom, it is the path of world history in which the spirit is alienated and by the alienation of self-knowledge (Tadić, 2007, p.44).

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The Declaration of the Rights of Man and Citizens also contains a not so liberal or ethical element regarding the property. It prescribes that property rights are not absolute but that “public interest” stands above them. Hence, the constitutions provide for the possibility of expropriation when it is in the public interest.

## **2. LIMITATION OF FREE COMPETITION AS A CONSTITUTIONAL CATEGORY**

Constitutional law implies that free competition is not unlimited either because it suffers at least two crucial restrictions.

The first is the protection of producers and traders. The second is established in the protection of society in order to avoid the possibility of abuse of free competition. In favor of the above, we have data from the preamble of the Constitution of the French Republic from 1946, which states decisively: “Every good, and every company whose use has or acquires the character of a national public service or de facto monopoly, must become the property of the community.” This protects the state from the abuse of free trade guaranteed by the Constitution and protects the interests of society (the state as a class organization).

The essence of the socio-economic system, embodied in the notions of property, is different, and the forms can be similar or even identical (Jovićić, 2006, p.299).

Today, the Constitution is a single written act of the highest legal force. In some countries (Canada, Germany, Israel), the Constitution consists of several acts of constitutional significance that, together, make up the Constitution. In contrast, in some other countries, the Constitution is passed and changed as an ordinary law (Mitrovic, 2010, p.408).

From all the above, we can conclude that man is born a free being, but this generic freedom is not absolute; the moment a man becomes part of society (organized system of government), he loses his freedom, i.e. it becomes limited.

It is also concluded that there is a restriction of free competition as a constitutional category because the practice still denies the theory on the example of the Constitution of France from 1946. In a purely positive-legal sense, freedom is everything that law does not prohibit (Mitrović, 2010. p.535).

Lawyers dealing with constitutional law classify freedom as a category of protection of goods through constitutionally prescribed laws and sets of norms as rules of conduct. Thus, any restrictions automatically annul the freedom. So, in this part of the paper, freedom as a category can be discussed.

## **3. THE ELEMENTS OF THE FREE ECONOMY IN THE REPUBLIC OF SERBIA**

The complete concept of the economic system has been established in the Constitution of the Republic of Serbia since 2006 (Marković, 2016, p. 501).

According to the Constitution of the Republic of Serbia (Article 82, paragraph 1), “economic regulation in the Republic of Serbia is based on a market economy, open and free market, free-

dom of entrepreneurship, independence of economic entities and equality of private and other forms of ownership” (Constitution of the Republic of Serbia).

Based on everything stated in Article 82, paragraph 1, we conclude that the basic feature of the economy of the Republic of Serbia is a “profit-based economy”. Thus, the elements of a free economy are: 1) equality of private and other forms of property; 2) free market; 3) freedom of entrepreneurship; 4) independence of economic entities.

The Constitution of the Republic of Serbia recognizes three forms of ownership: private property, cooperative property and public property. The Constitution of the Republic of Serbia allows competition of property, leaving it to the market to determine which forms of the property will exist in economic reality (Marković, 2016, p.502). The basis of a free economic order is precisely the free market. According to the Constitution of the Republic of Serbia (Article 82, paragraph 2), the free market means that the Republic of Serbia is a single economic area with a single market of goods, labor, and capital and services (Constitution of the Republic of Serbia). If competition is limited, this fact annuls the existence of a free market, which is not typical of developed democracies.

It is understood that this division of the elements of a free economy, as the subtitle itself indicates, refers to the Republic of Serbia. While the subject of constitutional law regulation in most countries is more or less similar, the content of constitutional law in each country is somewhat different (Živković, 2018, p.8). Thus, by its legal nature, the Constitution has the highest degree of legal force, and anything contrary to the constitutional provisions would be considered a violation of the Constitution.

The libertarian spirit of the Constitution and constitutionalism originated in Europe and was embodied first in the newly formed American states (Vasić, Jovanović, Dajović, 2015, p. 266). Article 90 of the Republic of Serbia Constitution specifically prohibits actions directed against the health, safety, and privacy of consumers. Also, this same article prohibits the so-called “Dis-honest actions in the market.”

An element of economic regulation is also public finances, by which the Constitution implies the acquisition and distribution of funds for financing public needs (Marković, 2016, p. 503).

#### **4. THE PLACE AND SIGNIFICANCE OF BUDGET IN THE CONSTITUTION OF THE REPUBLIC OF SERBIA**

The Constitution obliges the Republic of Serbia and the autonomous provinces (also local self-government units) to be transparent about all revenues and expenditures. Such transactions must be shown in the budget. Of all formal laws, the budget is the most important; the name budget means an estimate of state revenues and expenditures issued in the form of laws for a certain period, usually one year (Jovanović, 2011, p.270).

The control over the execution of all budgets is performed by the State Audit Institution (Marković, 2016, p.503). According to the Constitution of the Republic of Serbia, it is the highest state body for the audit of public funds in the Republic of Serbia (Article 96, paragraph 1). Therefore, from the legal point of view, the state audit institution has the status of a state body, and it is directly responsible for its work to the National Bank of the Republic of Serbia.

From the constitutional aspect, in order to justify the principle of democratic administration, the proposal of the final account is considered by the National Assembly of the Republic of Serbia, based on the obtained opinion of the State Audit Institution. Therefore, the Law on the Budget of the Republic of Serbia is passed for each calendar year. This Law regulates general revenues and receipts, expenditures and expenditures of the budget of the Republic of Serbia, their execution, the volume of borrowing for financing deficits and specific projects and providing guarantees, public debt management, use of donations, project loans, use of revenues from sales of budget goods and services, users and rights and obligations of users of budget funds (Law on the Budget of the Republic of Serbia, Article 1).

The institution of public finances with the status of a state body is also the National Bank of Serbia, which is the central bank in the Republic of Serbia (Marković, 2016, p.503). In its work, the National Bank of the Republic of Serbia is independent, for its work is subject to the supervision of the National Assembly of the Republic of Serbia.

The National Assembly of the Republic of Serbia elects and dismisses the Governor of the National Bank, who manages it. Also, the Constitution of the Republic of Serbia stipulates that the National Assembly elects and dismisses the Board of Governors. It can be seen here that all power is left figuratively to the people who decide through their representatives in the parliament. Figuratively, however, this also calls into question the constitutional definition of the National Bank as an independent institution (Article 95, paragraph 1).

The constitutional category in the field of public finances is also the public debt, i.e. the debt of the state and public bodies (Marković, 2016, p. 503). According to the Constitution of the Republic of Serbia, the state itself can borrow, according to the conditions prescribed by the Constitution and Laws, autonomous provinces and local self-government units.

## 5. CONCLUSION

Per the Republic of Serbia Constitution, the state must take care of balanced and sustainable cohesion development. This is the priority of democratically determined states, including the Republic of Serbia.

With respect for the rights and freedoms proclaimed by the Constitution, every person, a citizen of the Republic of Serbia, has guaranteed freedom in carrying out their entrepreneurial activities while respecting the Law and the Constitution. Also, the Republic of Serbia has a constitutionally guaranteed obligation to treat all citizens in the same way and not discriminate in their treatment.

After the transition from the phase of “transitional property” to establishing private property, which is characteristic of all modern and legally-regulated states, property rights were returned in the Republic of Serbia to those frameworks guaranteed and proclaimed by the Charter of Human Rights.

Today, from the aspect of property law, the Republic of Serbia, both in theory and practice, represents a stable and modern state.



Although the controversial and lengthy process of restitution, which had primarily a political and then a legal character, has not yet been resolved, it still manages to meet the needs of its citizens, which is an imperative of today.

By liberating from the communist and post-communist legal heritage (state property was abolished in the form in which it was created after 1945), the Republic of Serbia manages to, with small but significant steps, practically respond to the needs of the individual, but also the needs of increasingly progressive entrepreneurship. This was further made possible thanks to the 2006 Constitution and a set of laws regulating property relations.

An increasing number of investors in our country speak in favor of stable property regulations, which can have two faces. One is that the Republic of Serbia, with its legislation, is becoming more and more equal with the members of the European Union and that it is implementing European practice in the process of e-government and application of the principle of subsidiarity. The other one is that sociologically speaking, once the number of foreign investors in the nation-state increases, the national population becomes cheap labor.

The constitutional framework of the free economy confirms the practice we are witnessing, of which we are contemporaries. An increasing number of domestic economic entities registered with the Business Registers Agency of the Republic of Serbia also testify as a parameter of the free economy guaranteed by the Constitution.

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# Establishing a Quality Management System in the Function of Quality Assurance in Higher Education

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## Keywords:

Higher education institution (HEI);  
Quality assurance (QA);  
Standards;  
Quality management system (QMS)



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**Abstract:** *In the system of higher education, quality assurance presents a comprehensive term that includes all mechanisms, processes and activities that education institutions use in order to establish, maintain and improve quality in all areas of work. However, regardless of adopted legislation and standards for quality assurance in higher education, quality is still difficult to establish in the daily activities of higher education institutions. The research presented in this paper aims to indicate the importance of implementing quality management systems as an effective tool for providing quality in higher education.*

## 1. INTRODUCTION

Quality is the value based on which higher education institutions (HEI's) perform their activities and develop the concept of sustainability. The quality assurance (QA) system in higher education is defined by legislation and standards and is reflected in a number of activities such as analysis of scientific research, analysis of teachers and their competence, the work of non-teaching staff and management, quality assessment of study programs, spatial and technical capabilities, etc. However, despite the defined legislation and standards, the quality is still difficult to establish in the daily activities of HEI's in the Republic of Serbia. An essential problem for such a situation lays in the low prevalence of applied international QA standards. Furthermore, the lack of information and knowledge regarding the importance of applying international standards are additional aggravating circumstances. The issue of establishing and implementing international standards is also a financial problem, especially when it comes to budgetary institutions (Janovac, 2014).

Designing a quality management system (QMS) in higher education is the basis for continuous improvement of all work processes within the institution. The quality management system also enables the recognition of obligations towards users and all interested parties.

Theoretical analysis in this paper indicated the importance and advantages of establishing QMS as an effective tool for quality assurance in higher education. In addition, the paper has also presented research on the application of international standard ISO 9001: 2015 in the higher education sector in the Republic of Serbia.

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## 2. QUALITY ASSURANCE IN HIGHER EDUCATION

In the higher education system, quality assurance is a comprehensive term that includes all mechanisms, processes and activities by which a higher education institution establishes, maintains and improves quality in all areas of work.

Quality assurance in European higher education has gained importance in the Bologna Process. Another important step was the establishment of the European Network for Quality Assurance (ENQA), which was recommended by the Council of Europe. By introducing uniform ESG standards in the European Higher Education Area (EHEA), which included standards for internal and internal quality assurance, it became possible to check the quality of higher education institutions (HEIs) according to unique criteria. ENQA, EUA (European University Association), EURASHE (European Association of Institutions in Higher Education) and ESIB (National Unions of Students in Europe) participated in the adoption of this document in Bergen, 2005 (DG EAC, 2009: 6-9). European standards and guidelines for quality assurance cover three areas:

1. Internal quality assurance (IQA) is organized and established by HEI, which refers to the development of quality standards, implementing, monitoring and improving the quality of higher education institutions.
2. External quality assurance (EQA), which involves how activities related to external quality assurance should be carried out.
3. The work of commissions for external quality assurance in terms of its establishment, organization, recognition.

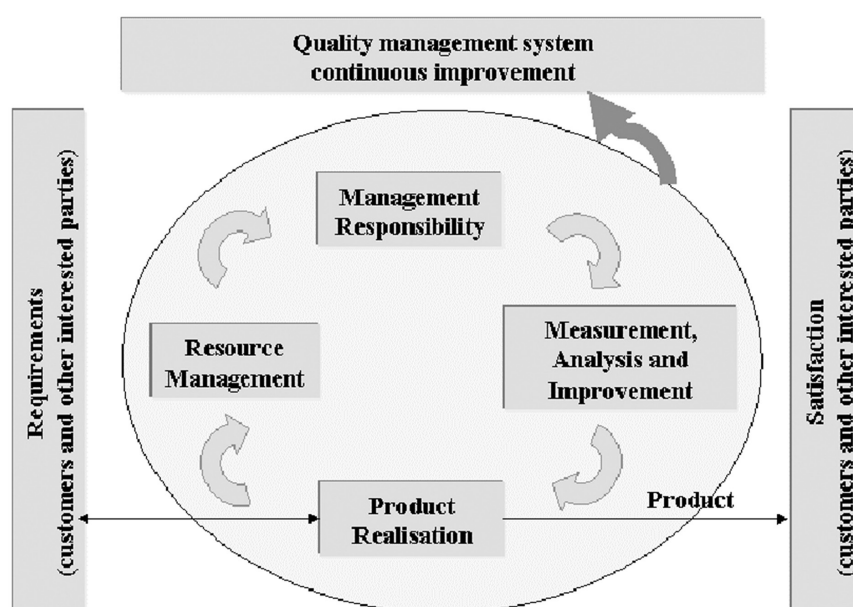
Quality assurance is a generally accepted concept in the academic community and one of the key principles of the Bologna Process. The subjects involved in quality assurance and verification bodies include different organisations from the lowest organizational units of HEIs, commissions, university boards, and all the way to defined authorities at the state level. Established bodies (commissions, committees) contribute to the maintenance and continuous improvement of quality in higher education, as well as compliance with internationally recognized standards. The policy and quality assurance in higher education in Serbia are harmonized with the processes of European integration and internationalization of higher education. In the context of quality assurance, quality control instruments include accreditation, self-evaluation and external quality.

## 3. ESTABLISHING A QUALITY MANAGEMENT SYSTEM AS A TOOL FOR QUALITY ASSURANCE IN HIGHER EDUCATION

Continuous improvements in the process of education are a logical response to the fact that the environment is constantly changing. Therefore, HEI must be able to monitor changes and to adjust to a new environment by continuous performance improvement (Figure 1). Changes in the form of innovation in the higher education sector are a much-needed category in terms of sustainability and institution rating. In addition to new methods and different curriculum, innovation in higher education can also refer to a new form of organization.

The obligation of the management in HEI is to determine and implement the strategy of quality assurance regarding the teaching process, non-teaching support and research work. According to quality management systems — requirements in ISO 9001, special emphasis is given to management, performance monitoring and improvement of all processes that exist in the work of an institution. Kahveci et al. (2012) emphasize the importance of a strategic information system

during the implementation of quality assurance, which could provide an effective analysis of numerous documents and information from different sources in order to generate knowledge. Appropriate usage of documentation and conducted analysis enable efficient planning and implementation of all necessary improvements in the work processes. The advantage of applying this international standard is that it provides changes in organisational culture, enables the satisfaction of service users in the higher education sector (Giatman, 2015; Ismail & Gadar, 2008; Africano, Rodrigues, & Santos, 2019) and better planning of teaching-learning processes as well as business processes in general. According to a UNESCO study (2018), 94% of higher education institutions rated the improvement of academic activities by implementing this standard. The seven principles of the standard can be easily applied in higher education in order to improve the quality of all processes, the satisfaction of users and stakeholders, the engagement of quality staff and leadership (Kamusoko, 2019).



**Figure 1.** The ISO 9001 standard model

Source: Rosa, Sarrico & Amaral, 2012

The established QMS brings a number of other tools that support the realization of goals (El-gobbi, 2014) and the establishment of quality in the daily work of an institution, which also facilitates the process of self-evaluation and accreditation. By implementing the tools from ISO 9001 standard, it is easier to meet the legal requirements, but also to achieve real improvements in the segment of teaching quality and management as a whole. There are numerous links between this international standard and the legislation in the field of quality in education (Table 1).

In addition, the institution builds its image and increases competitiveness through continuous process improvement (Ozbek, 2020) both nationally and internationally (Bernik, Sondari & Indika, 2017).

The quality management system can be implemented in all HEIs regardless of the scientific field, ownership structure or size of the institution. Establishing an effective quality system in a higher education institution is based on a systemic approach and requires the engagement of all employees. The first university that implemented standard ISO 9001 was the University of Wolverhampton in the United Kingdom in 1994 (Ismail & Gadar, 2008). Today, many prestig-

ious universities in Europe and the USA, such as the Universities of Dortmund, Düsseldorf, Bonn, Münster, Cologne, Bochum, Siegen, Bielefeld, Wuppertal, Paderborn Fernuni Hagen, Faculty of Commodity, Cambridge university departments and many others have implemented the QMS model. (Serafinas & Alber, 2007).

**Table 1.** Connections between the main requirements of the ISO 9001 standard and the practical application in higher education

Requirement from ISO 9001 standard	Practical application in higher education
<b>4. Quality management system</b>	
4.1. General requirements	<ul style="list-style-type: none"> <li>• Monitoring the performance indicators of all processes in a higher education institution</li> </ul>
4.2. Document management	<ul style="list-style-type: none"> <li>• Documenting strategic and operational decisions</li> <li>• Defining relationships with users and stakeholders and recording their requests</li> <li>• Functionality and user-friendliness</li> <li>• Availability of documents to internal and external users</li> <li>• Student records management</li> <li>• Public records management in accordance with legal regulations</li> <li>• Permanent and up-to-date external and internal information</li> </ul>
<b>5. Management responsibility</b>	
5.2. Customer orientation	<ul style="list-style-type: none"> <li>• Identifying users of higher education services, their needs, requirements and expectations</li> </ul>
5.3. Quality policy	<ul style="list-style-type: none"> <li>• Defining the vision, mission and goals of the higher education institution</li> </ul>
5.4. Planning	<ul style="list-style-type: none"> <li>• Annual work plan of the institution</li> <li>• Plan and program of general education and vocational education and training (VET)</li> <li>• Financial plan</li> <li>• Staffing plan</li> <li>• Teaching calendar</li> </ul>
5.5. Responsibilities, authorities and communication	<ul style="list-style-type: none"> <li>• Statute of the institution</li> <li>• Regulations of the institution</li> <li>• Meetings of the Academic Council, working meetings</li> <li>• Quality Commission</li> <li>• Websites, e-mail, bulletin boards</li> </ul>
5.6. Management review	<ul style="list-style-type: none"> <li>• Annual work summary report of the institution</li> <li>• Self-evaluation</li> </ul>
<b>6. Resource management</b>	
6.1. General conditions	<ul style="list-style-type: none"> <li>• The standards for accreditation and self-evaluation define the requirements regarding teaching and non-teaching staff, infrastructure and financing</li> </ul>
6.2. Competence	<ul style="list-style-type: none"> <li>• Teacher planning</li> <li>• Elective teachers, competencies</li> <li>• Monitoring and evaluation of teachers</li> <li>• Training</li> <li>• Rewarding and stimulating</li> </ul>
6.3. Infrastructure	<ul style="list-style-type: none"> <li>• The standards for accreditation and self-evaluation define the requirements in terms of spatial and technical possibilities</li> </ul>
6.4. Work environment	<ul style="list-style-type: none"> <li>• Space required for the implementation of teaching and learning process</li> </ul>



**7. Service planning**

- |                                   |   |
|-----------------------------------|---|
| 7.1. Service realization planning | <ul style="list-style-type: none"> <li>• Creating an annual work plan</li> <li>• Planning of conferences, fair events</li> <li>• Marketing activities</li> </ul>  |
| 7.2. User-oriented processes      | <ul style="list-style-type: none"> <li>• Enrolment campaign planning</li> <li>• Planning of professional seminars, training</li> <li>• Planning to participate in projects</li> </ul>   |
| 7.3. Design and development       | <ul style="list-style-type: none"> <li>• Development of study programs, improvement of existing programs and the introduction of new ones</li> <li>• Conquering new markets</li> </ul>  |
| 7.4. Procurement                  | <ul style="list-style-type: none"> <li>• Procurement of equipment used in the teaching and educational process</li> <li>• Increasing the number of library units</li> </ul>   |
| 7.5. Service realization          | <ul style="list-style-type: none"> <li>• Conducting lectures, exercises and workshops,</li> <li>• Realization of professional practice</li> <li>• Realization of training, professional seminars, scientific conferences, round tables and project development</li> </ul> |
| 7.6. Equipment management         | <ul style="list-style-type: none"> <li>• Requirements that apply to higher education institutions that have laboratories</li> </ul>   |

**8. Measurement, Analysis and Improvement**

- |                                      |   |
|--------------------------------------|---|
| 8.1. General conditions              |   |
| 8.2. Monitoring and measurement      | <ul style="list-style-type: none"> <li>• Measuring the satisfaction of students and other stakeholders</li> <li>• Self-assessment</li> <li>• Self-evaluation</li> </ul> |
| 8.3. Inconsistent service management |   |
| 8.4. Data analysis                   | <ul style="list-style-type: none"> <li>• Analysis of the realized work plan</li> <li>• Analysis of the student success</li> </ul>                                       |
| 8.5. Improvement                     |   |

**Source:** Janovac, 2014.

In addition to the literature review on quality assurance in higher education, the paper provides further findings on the application of international standards in the Serbian system of higher education. The first step towards quality assurance in the higher education sector in Serbia was made in 2003 when the country joined the Bologna Process. This was followed by the adoption of the Law on Higher Education, which introduced: The European Credit Transfer System; three-cycle system of study and diploma supplement (<https://eacea.ec.europa.eu>). Another important aspect of quality assurance in Serbian HEIs was the adoption of the standards for accreditation, self-evaluation and external quality control in 2006 and the Strategy for Development of Education in Serbia until 2020 in 2012.

However, the application of international standards in the higher education sector in Serbia is not widely distributed. The survey on the application of SRPS ISO 9001: 2015 standard was conducted in April 2021 on a sample of 234 units in the Republic of Serbia. The research program included 18 universities, 159 faculties and 75 colleges. A review of official websites indicated that only 8.12% or 19 higher education institutions have a certificate, of which 3 institutions are faculties from the state sector. The findings have also demonstrated that the issue of establishing a quality management system in the field of education is marginalized, the international standards are insufficiently applied, implying that higher education institutions in Serbia have not recognized the possibility of achieving more efficient and effective business by using this tool.

#### 4. CONCLUSION

Designing a quality management system in higher education, in addition to defined legislation and standards, is the basis for quality assurance of all processes that exist in the work of an institution. This approach enables the management structure to constantly monitor key business parameters and make quality decisions for continuous process improvement. The application of QMS provides data on quality indicators, which can be continuously collected, systematized and analysed, in order to find adequate corrective measures for eliminating the identified shortcomings and problems. Consequently, it can be expected that the national standards for quality assurance will be met, that the quality of the provided service will be at an enviable level and that it will constantly improve. It follows that the implementation of QMS establishes the quality in the daily work of the institution, raises the level of organization and improves the performance of the institution. Within the QMS, what has particularly emphasized is a commitment to leadership, focus on the user, design and development, which is very important for the improvement and sustainability of the HEI.

The research findings regarding the application of the international standard ISO 9001: 2015 in the higher education sector in Serbia indicated the insufficient application of this tool. The reasons for poor implementation can be various, from the lack of information about the importance of international standards within the management and leadership of the higher education institution to financial reasons, which are especially important for budgetary institutions. Therefore, this paper has practical importance for many higher education actors such as policy makers, HEIs management and other stakeholders, as it provides guidance on decision-making regarding QMS implementation in the quality assurance function.

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# Professional Development of Teachers in the Context of Modern Education

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## Keywords:

Professional development;  
Professional training;  
Teachers;  
Pedagogues;  
Education



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**Abstract:** Professional development of teachers is a current issue today. Professional development and professional training of teachers are defined as changing and upgrading themselves and their work, in accordance with their own needs, the needs of science and profession, all in the direction of achieving a certain goal and achieving the most efficient results in work. The paper discusses the role of pedagogues in the professional development of teachers. The cognitive goal of the research is aimed at examining: teachers' attitudes about the role of pedagogues in their professional development, the most common forms of professional development of teachers in the field of education, professional development, cooperation between pedagogues and teachers, as well as potential obstacles in this important area of professional development. In the theoretical study of this problem, we used the method of theoretical analysis and descriptive method, while for data collection we used the scaling technique with the Likert-type rating scale (SPUSN), whose reliability was examined with stress parameters as metric characteristics. 123 teachers in the territory of the Republic of Serbia participated in the research. The findings were considered in relation to the work experience of teachers and the education cycle,  $p <, > 0.05$ .

## 1. INTRODUCTION

The professional development of teachers is defined as a permanent, continuous process of acquisition and application of contemporary scientific achievements in practice with the purpose of accomplishment of educational tasks and improvement of educational practice (Ivanek, 2016). Teachers' professional training is essential concerning teaching innovations, communication with students, professional assistants, parents and educational institutions, as well as with other support staff related to the teaching profession. This wide range of topics closely connected to professional improvement proves the significance of this segment of social reality, i.e. pedagogical reality, in this case (Conradty & Bogner, 2020; Rosa – Campos et al., 2021).

The organisation of teachers' professional training is not a simple task. This formal professional training is accomplished by means of attending required courses in institutions after whose completion attendees are granted certificates or diplomas. The commonly accepted term for the formal teachers' education and improvement is the PRESENT programme, which refers to the teachers' initial education (Beara & Okanović, 2010). This is related to teachers' university studies, i.e. their bachelor, master and doctoral studies. These studies are usually provided by teachers' training faculties, faculties of pedagogy, or faculties closely related to school subjects that teachers will teach in their future career (e.g. the Faculty of Philology is the right choice for the teachers of the French language). University studies are certainly the most appropriate manner of educational improvement since it is necessary for obtaining an academic title or

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degree that ensures employment. This kind of formal education is widely applied in the whole world and has been part of Serbian higher education for a long time (Ivanek, 2016; Kundačina & Stamatović, 2012). However, informal professional teachers' training appears to be a highly familiar and overwhelmingly popular way of this kind of education. It is mainly organised at the beginning of a teacher's teaching career when they need certain additional training pertaining to novel social issues (Bautista & Oretga-Ruiz, 2015; Beara & Okanović, 2010).

Professional training is regulated by precise and strict norms in Serbia. Firstly, teachers' rights and responsibilities are defined by the Law on the Fundamentals of the Education System, which is being amended every year. This Law is based on the Bylaw on Continuing Professional Development of Teachers and Education Staff, which thoroughly defines all rights and responsibilities of teachers, as well as the possibilities for their advancement. The most important aspect of the Serbian professional training system is that it is realised annually by means of accredited programmes, which are supported by appropriate legislation. This organisation of professional training has been in effect for the last ten years in Serbia and represents a framework for the improvement of teachers' knowledge (Kundačina & Stamatović, 2012; Bylaw on Continuing Professional Development of Teachers and Education Staff, 2018; Stamatović & Rogić, 2008; Teodorović et al., 2016; Postholm, 2018).

The presented research analyses the basic division of the professional training forms into individual and group types of teachers' professional education (Ivanek, 2016; Milović, 2010; Teachers' Manual for planning of professional development, 2009; Suzić, 2005).

The role of a pedagogue in teachers' professional development is defined by legal norms that assign pedagogues great power and influence. Pedagogues are required to be involved in teachers' professional improvement, to monitor the advancement of each individual teacher and to assess all of the activities realised within this framework. Their role is invaluable since they are allowed to organise and devise both the topics and the forms of teachers' professional training independently. This is most visible in the types of professional development organised in schools (the so-called internal teachers' professional improvement), where a pedagogue may be not only an organiser, but also a leader or trainer of teachers (Đerić et al, 2014; Ivanek, 2016; Milović, 2010).

The involvement of a pedagogue in the teachers' professional training demands that they improve their own work and profession constantly. First of all, it assumes the development of certain competencies on the part of pedagogues that are crucial for both their own profession and their engagement in teachers' professional education. These competencies include personal, professional, developmental, social and action competencies. Also, pedagogues may require equal communication with teachers, they are well prepared and trained for team work, they cooperate with staff, support and maintain good interpersonal relationships (Jurić, 2004; Trnavac, 1993).

This part of the paper describes the pedagogue as a main and active participant in teachers' professional education. They are considered to be essential for teachers' professional advancement, so the paper redefines the description of their job and their continuous learning. The paper also defines the characteristics that each pedagogue has to possess in order to maintain their position in the field of teachers' professional development. Moreover, the paper clarifies why pedagogues should have certain competencies necessary for them being counsellors, leaders and trainers in the process of teachers' professional development. Their engagement in teachers' professional training represents an important part of educational activities organised with teachers. It is



concluded that pedagogues' participation in teachers' professional education and development is the essence of their work and contributes to their schools' academic and innovative improvement and the advancement of society as a whole.

## 2. RESEARCH METHODOLOGY

The role that a pedagogue plays in teachers' professional education is an important and contemporary issue. Pedagogues are involved in all stages of teachers' professional education in various ways. The versatile forms of teachers' professional development and a complex influence of pedagogues determined the research problem presented in this paper: *Which forms of teachers' professional development are mostly organised by pedagogues and in which fields of their professional training are teachers mostly instructed by pedagogues?* The established research problem involved the examination of teachers' opinion and attitudes regarding the role played by pedagogues in their professional training, the field which is important both in the pedagogues' job description and in the teachers' job description. Therefore, the subject matter of this study was to explore the following: *Teachers' attitudes towards the role played by pedagogues in their professional training and improvement.* The goal of this research was to learn about the main forms of teachers' professional training that are organised by pedagogues, the fields in which pedagogues offer instruction and the obstacles encountered by pedagogues when organising teachers' professional training. The methods used corresponded to the problem, subject matter and goal of the research. In the theoretical part, the method of theoretical analysis and the technique of the content analysis was used, whereas the analysis and interpretation of data were performed by means of the descriptive method, as well as the scaling technique. The data were collected by the assessment scale. The assessment scale was Likert scale constructed for the purposes of this research and named ASTPD. This assessment scale contained 26 items. The assessment scale used, The Assessment Scale of Teachers' Professional Development (ASTPD), offered a selection of answers from 1 to 5, depending on the respondents' agreement with a particular statement. The respondents could select the following options: 1 – Strongly disagree, 2 – Disagree, 3 – Neither agree nor disagree, 4 – Agree, 5 – Strongly agree. This research was conducted during the 2018/2019 academic year and involved elementary school teachers. The sample was comprised of 123 elementary school teachers from the Republic of Serbia. The research results were presented with reference to teaching work experience and education cycle.

## 3. ANALYSIS AND INTERPRETATION OF RESEARCH RESULTS

The research results were analysed and interpreted in accordance with the research methodology.

**Table 1.** Respondents' attitudes towards the importance of the pedagogue's role in teachers' professional development regarding education cycle

	N	Min	Max	M	SD
The school pedagogue monitors professional development programmes	123	1.00	4.00	3.2033	1.24768
The school pedagogue keeps records of teachers' professional development	123	1.00	5.00	3.2683	1.23523
The school pedagogue devises measures for the improvement of teachers' competencies by means of professional training	123	1.00	5.00	3.2846	1.22488
The school pedagogue evaluates the impact of professional training on teachers' further improvement	123	1.00	5.00	3.5285	1.16172

The school pedagogue analyses the results of self-evaluation conducted in school as regards the benefits of teachers' professional development	123	1.00	5.00	3.4309	1.28089
The school pedagogue devises the teachers' professional training programme	123	1.00	5.00	3.4715	1.43906
The school pedagogue selects and appoints teachers to attend professional development training	123	1.00	6.00	3.5935	1.42482
Valid N (listwise)	123				

**Source:** Own research

The focus of the research was to examine the perceptions about the role of a pedagogue in teachers' professional development. This role is definitely very important, which is proven by the results obtained regarding this statement. Namely, they ranged from "neither agree nor disagree" to "agree",  $M < 4.00$  (the items shown in Table 1). This problem can be further explored to obtain more positive responses from teachers who assess the importance of the pedagogue's role in teachers' professional development.

**Table 2.** Differences in respondents' attitudes towards the importance of the pedagogue's role in teachers' professional development regarding education cycle

	Education cycle	N	M	sd
The importance of the pedagogue's role in teachers' professional development	I-IV	44	23.0682	6.87901
	V-VIII	79	24.1772	6.89065

$t = 0.85$ ;  $df = 121$ ;  $p = 0.34$

**Source:** Own research

The respondents' attitudes towards the pedagogue's role in teachers' professional development were compared based on the items presented in Table 1. This comparison proved that the responses provided by the first-to-fourth grade teachers and by the fifth-to-eighth grade teachers were homogeneous. Therefore, it can be concluded that the perceptions related to the pedagogue's role in teachers' professional development are not dependent on the education cycle which teachers teach.

**Table 3.** Differences in respondents' attitudes towards the importance of the pedagogue's role in teachers' professional development regarding teaching experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45.997	2	22.999	.482	.619

**Source:** Own research

The results presented in Table 3 are similar to the previous ones. They show that there was no statistically significant difference in the respondents' answers about the importance of the pedagogue's role in teachers' professional development regarding teaching experience,  $p > 0.05$ . All of the respondents, either those with 10, 11 to 20, or over 20 years of teaching experience, provided predominantly similar answers.

The majority of the respondents agreed with the statements presented in the previous table regarding the Likert scale,  $M < 4.00$ . This result could be also interpreted as follows: forms of teachers' professional development should be more promoted by the pedagogues so that teachers could evaluate this aspect more highly. On the other hand, the responses stating that peda-

gogues organised various forms of professional development were rather homogeneous in evaluating all of the forms of teachers' professional development (Table 4).

**Table 4.** Forms of teachers' professional development

	N	Min	Max	M	sd
The most common form organised by the pedagogue is the congress or symposium	123	1.00	5.00	3.6829	1.35088
The most common form organised by the pedagogue is the seminar	123	1.00	5.00	3.7886	1.20281
The most common form organised by the pedagogue is the forum	123	1.00	5.00	3.9431	1.09620
The most common form organised by the pedagogue is the meeting	123	2.00	5.00	3.7886	1.05777
The most common form organised by the pedagogue is the conference	123	1.00	5.00	3.8618	1.06606
Valid N (listwise)	123				

**Source:** Own research

The obtained results show that there was no statistically significant difference in the responses regarding education cycle and teaching experience,  $p > 0.05$ . The elementary school teachers who participated in the research expressed homogeneous attitudes towards the presented statements, regardless of the grades they taught and their teaching experience.

Another point of the research was to examine the major fields of professional development in which the teachers who participated in the research wanted to improve their skills and knowledge.

Similarly to the aforementioned results, it is evident that the respondents' attitudes to the statements listed in the previous table ranged from "neither agree nor disagree" to "agree" regarding the Likert scale,  $M < 4.00$ . None of the fields of teachers' professional development from Table 5 was particularly prominent, which led to the conclusion that the school pedagogue organised activities in various fields of teachers' professional development closely related to the improvement of teaching.

**Table 5.** Fields of teachers' professional development

	N	Min	Max	M	sd
The pedagogue favours professional training in the field of peer violence and its prevention	123	1.00	5.00	3.6911	1.11715
The pedagogue favours professional training in the field of inclusion	123	1.00	5.00	3.6911	1.25535
The pedagogue favours professional training in the field of the development of communication skills	123	1.00	5.00	3.4634	1.26292
The pedagogue favours professional training in the field of cooperation with parents	123	1.00	5.00	3.6016	1.25932
The pedagogue favours professional training in the field of cooperation with students	123	1.00	5.00	3.5935	1.20679
The pedagogue favours professional training in the field of action researches and reflexive practice	123	1.00	5.00	3.8780	1.12049

The pedagogue favours professional training in the field of the improvement of professional competences	123	1.00	5.00	3.8049	1.19190
The pedagogue favours professional training in the field of the prevention of discrimination	123	2.00	5.00	3.8699	1.10853
Valid N (listwise)	123				

**Source:** Own research

Based on the items shown in Table 5, the respondents' attitudes were compared regarding education cycle and teaching experience. This comparison proves that the responses provided by all of the participants, either the first-to-fourth grade teachers or the fifth-to-eighth grade teachers or the teachers with more or less teaching experience, were homogeneous. This further proves that the field of teachers' professional training does not depend on the social and demographic variables presented in this research.

These results render a rather good picture of teachers' professional training on one hand, but not an excellent one, on the other. Therefore, the research also examined the obstacles that pedagogues might encounter when organising teachers' professional training.

Table 6 exhibits interesting results. The arithmetic mean of the responses shows strong agreement on the Likert scale,  $M > 4.00$ .

**Table 6.** Obstacles in organising teachers' professional training

	N	Min	Max	M	sd
Teachers are not willing enough to devote more time to their professional training and development	123	2.00	5.00	3.8455	1.14543
School principals are not appreciative enough of teachers' professional training	123	1.00	5.00	3.9024	1.05903
Teachers are often unwilling and unprepared for education in information technology	123	2.00	5.00	4.0407	.93562
Teachers are often unwilling to accept a critical friend	123	2.00	5.00	4.0650	.76544
Pedagogues encounter obstacles related to insufficient financial support	123	2.00	5.00	3.9756	.99559
Teachers are not motivated enough for professional advancement	123	1.00	5.00	4.0081	1.09766
Valid N (listwise)	123				

**Source:** Own research

The respondents stated that the obstacles could be found in their unwillingness to attend training in information technology and in their refusal to accept a critical friend. Also, an important obstacle was recognised in teachers' lack of motivation, which is an interesting fact since the research was conducted about this particular problem. Naturally, other obstacles should be considered, such as insufficient financial support, lack of free time for professional training, etc.

The t-test and the ANOVA F-test determined that there was no statistically significant difference in the teachers' responses about the obstacles in realising professional training regarding education cycle and teaching experience,  $p > 0.05$ .

#### 4. FUTURE RESEARCH DIRECTIONS

Teachers' professional development is a contemporary issue. It is understood as teachers' continuous improvement, development of competencies, advancement of teaching, and thus improvement of students' academic achievement. Teachers' professional development has become one of the crucial factors of teaching in all schools, which is the reason why it is realised in various ways and by various institutions. The most important aspect of professional development is continuous professional development. It is defined as one's own improvement and change in accordance with one's own needs, the requirements of the science and teaching profession and the demands posed by society to accomplish established goals and obtain efficient teaching results. Therefore, professional development starts with the enrolment in bachelor studies and continues throughout teaching career and improvement in extracurricular activities. It is the foundation of the development of every school and every teacher. Teachers' professional development in Serbia might be compared to the forms of teachers' professional development in other countries. The comparative analysis could highlight certain advantages and drawbacks of teachers' professional development in Serbia and possibly emphasise the "points" in the professional development concept that might be improved on both personal and global level.

One of the ideas born in the course of writing this paper was that the concepts examined in the empirical research could be compared to the ways of realising teachers' professional development during the Covid-19 pandemic.

#### 5. CONCLUSION

The first hypothesis postulated in the research, *It is assumed that teachers acknowledge the importance of the pedagogue's role in organising their professional development*, was confirmed. This means that teachers are aware of the importance of the pedagogue in their professional development. The second hypothesis, *It is assumed that teachers believe that the most common form of their professional training organised by the pedagogue is the seminar*, was only partially confirmed. The results of the empirical research yielded other forms of professional development. Contemporary technology and innovative methods of teaching may largely help teachers develop various activities in classes and thus obtain better results from their students by combining individual and group work in professional training. The hypothesis, *It is assumed that teachers think that pedagogues favour professional training in the field of inclusion*, was partially confirmed. Inclusion did not prove to be the major topic of professional training. The research results prove that besides inclusion, which is definitely dominant in our present reality, teachers acquire professional skills and knowledge in other fields, such as school violence, discrimination, cooperation with students and parents. The fourth hypothesis, *It is assumed that teachers think that the greatest obstacle in the pedagogue's organisation of their professional training is their lack of motivation for further improvement*, was partially confirmed. Besides the lack of motivation, there were prominent other obstacles presented in the part of the paper dealing with the analysis and interpretation of the research results. The most demotivating factors proved to be insufficient financial support, distance, working environment and regular overwork. The pedagogue is expected to initiate the development of teachers' inner motivation in order to decrease negative influences and stimulate motivation as a crucial aspect of professional development.

Teachers' education and professional development are of crucial importance in every country, since high-quality teachers represent the key factor that influences students' academic accom-



plishment. The improvement of teachers' education does not merely involve their university education but also their further formal and informal forms of the acquisition of knowledge and skills. Teachers thus become part of the continuous professional development. This contributes to continuity, quality teaching and, naturally, to the development of an appropriate role of the pedagogue in teachers' professional development.

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# Lesson Study: Contemporary Motivating Tool for Active and Reflective Learning Approach

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## Keywords:

Lesson study;  
Assessment for learning;  
Critical thinking



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**Abstract:** Innovation of teaching approaches and motivation of students to become active and reflective learners had been at the core of education reform taking place in North Macedonia over the last 20 years. One key reform tool was the introduction of the Lesson Study. A lesson study is a collaborative approach towards developing and researching pedagogy. In attempting to implement said approach, teachers develop a deeper knowledge of both pedagogy and subject content knowledge. This leads to higher standards of educational achievement of students on all educational levels. The main purpose of this paper is to analyze the utilizing of the Lesson Study approach in thirty primary schools in North Macedonia involved in the Erasmus Plus Project: Assessment for Learning: Setting and Using Success Criteria in Math and Science Lessons in Primary Education (2016-2019). Findings indicate that the Lesson Study approach is a useful way to deal with the reconstruction of the students' role in the process of teaching and learning. Moreover, building students as active and reflective learners increase their preparedness to meet challenges of the complex social reality.

## 1. INTRODUCTION

North Macedonia's primary schools have little autonomy over the curriculum and heavy syllabus load, and the lack of school autonomy limits teachers' ability to plan teaching time to be able to check for students' understanding and progress. This contributes to a large share of students experiencing significant gaps in basic competencies as they move through their path of learning. North Macedonia, among the countries participating in the Programme for International Student Assessment (PISA), has one of the highest proportions of students (52.2%) failing to demonstrate basic proficiency (Level 2) in all three domains of science, mathematics, and reading (OECD, 2016).

Classroom assessment practices are also predominantly summative and limited to a narrow range of lower-order tasks. Students receive little quality feedback to help them understand how to advance in their learning. They also have very few opportunities to demonstrate more applied skills and complex transversal competencies such as problem-solving and critical thinking (OECD, 2019, p.25). The intensive focus on summative marks and the predominant perception of assessment as a judgment of achievement obscures the other important function of assessment – providing information to improve learning. This creates a situation where teachers are not making sufficient use of assessment results to help students understand their current proficiency and determine the next steps in their learning (OECD, 2019, p.27).

In recent years there were attempts at curriculum modernization, particularly in sciences and mathematics. In 2014, the educational system in North Macedonia was set up according to the principles and standards of the Cambridge International Curriculum, particularly in sciences

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and mathematics. The Cambridge curriculum, in general, gives students more time for content mastery and strong encouragement to engage in critical questioning. It is also less based on retaining factual knowledge and more focused on scientific inquiry, problem-solving, applying knowledge and skills to real-world contexts. However, its implementation was rushed, rather than phased in gradually, grade-by-grade, and schools and teachers were not provided with adequate support (OECD, 2019). The Cambridge curriculum was introduced with a new format for lesson planning. This was rather challenging for the teachers. They were obligated to define the ‘success criteria’ and ‘evidence of achievement’ in the daily planning for teaching for the first time in their career. Teachers set objectives for their students in terms of content knowledge to be acquired, rather than of individual learner improvement over time concerning broader competencies, such as scientific inquiry and problem-solving. Moreover, it resulted in students receiving an education that is not cohesive and lacks a clear reference point that identifies what they should be working towards. They were involved in the learning process simply by completing tasks imposed by the teacher or by absorbing information presented by the teacher. Most of the activities designed by the teacher were not appropriate to the child’s developing understanding. Students were struggling with their ‘misconceptions’ and ideas in a variety of science concept areas and were not stimulated to construct new understanding based on their previous experiences, so they were not motivated to actively participate in the learning activities. Students were passive learners in the classroom and were not supported to develop the ability to assess themselves and to take responsibility for their learning.

## 2. LITERATURE REVIEW

Contemporary approaches emphasize the active engagement of learners in their learning, learner responsibility, metacognitive skills, and a dialogical, collaborative model of teaching and learning. The assessment processes in which the teacher holds all the power and makes all the choices limit the potential for learner development in all of these aspects. Teachers who see dialogue and the co-construction of knowledge as a core part of their teaching conceptions need to consider the importance of inviting the learners to share more fundamentally in the assessment processes (Black & William, 1998).

Many scholars hold the view that the most powerful educational tool for improving achievement and preparing children to be successful and lifelong learners is the Assessment for Learning. The research evidence for this is rigorous and comprehensive. Assessment for Learning actively and continuously promotes the kind of learning culture that is essential to raising levels of student attainment; a culture which ‘activates students as owners of their learning’ and which instills in them the belief that all can succeed (Hattie & Timperley, 2007).

For students to become owners of their learning they need both to acknowledge the curricular objectives, and to be active in guiding their learning - in other words, they must become self-regulated learners. It is a widely acknowledged view that students take ownership of their learning when they assess their work, using agreed upon success criteria (Black & William, 2006). Teachers can provide students with a rubric written in student-friendly language, or the class can develop the rubric with the teacher’s guidance. The teachers that are using this method report that students’ self-assessments are generally accurate and students say that assessing their work helped them understand the material in a new way (Black & William, 2006). Such clarity assists teachers’ assessment of pupils’ achievement in science and mathematics and pupils’ self and peer-assessment. This clarity will have a positive effect on the feedback teachers give to

pupils both orally and written, so that they can comment on whether pupils have achieved the objective and how they might improve (Cross & Bowden, 2009).

Students owning their learning cannot occur in the absence of implementing all of the other Formative Assessment strategies. William (2011, p. 152) suggests the following to allow this to occur:

- share learning objectives with students so that they can monitor their advancement;
- promote the belief that ability is incremental rather than fixed; when students think they cannot get smarter, they are likely to devote their energy to avoiding failure;
- make it more difficult for students to compare themselves with others in terms of achievement;
- provide feedback that brings forth a recipe for future action rather than a review of past failures;
- use every opportunity to transfer executive control of the learning from the teacher to the students to support their advancement as autonomous learners.

The use of self-assessment within Assessment for Learning Policies draws on self-regulation of learning theories which identify student capabilities to set targets and evaluate progress against criteria as a basis for meta-cognitively informed improvement of learning outcomes. Self-regulation refers to self-directive and self-generated metacognitive, motivational, and behavioral processes through which individuals transform personal abilities into control of outcomes in a variety of contexts (Zimmerman, 2008).

Thus, consistent with the self-regulation theory, self-assessment contributes to greater meta-cognitive skills associated with greater achievement. Furthermore, self-assessment is associated with improved motivation, engagement, and efficacy (Munns & Woodward, 2006), reducing dependence on the teacher.

The question regarding the link between self-assessment and self-regulated learning is not whether a learner can accurately evaluate their performance (self-assessment); the key point is that learners need to be able to have an insight and assess their learning to improve it. Basically, knowing what to do next. In a study by Fontana & Fernandes (1994), learners who self-assessed and self-regulated doubled their learning rate.

One of the most common definitions of self-regulation is provided by Boekaerts and Corno (2005), who defines the concept as ‘a multilevel, multicomponent process that targets affect, cognitions, and actions, as well as features of the environment for modulation in the service of one’s goals’ (p. 210).

According to Boekaerts, it is assumed that students who are invited to participate in a learning activity use three sources of information to form a mental representation of the task-in-context and to appraise it: (1) current perceptions of the task and the physical, social, and instructional context within which it is embedded; (2) activated domain-specific knowledge and (meta) cognitive strategies related to the task; and (3) motivational beliefs, including domain-specific capacity, interest and effort beliefs (2011, p. 349). At the point when the undertaking evaluation is positive, energy is enacted along the growth pathway where the goal is to increase competence.

Boekaerts describes this sort of self-regulation as top-down because the flow of energy is directed by the student. Attention shifts toward the well-being pathway, where the goal is to prevent threat, harm, or loss when the task appraisal is negative.

This form of self-regulation is termed bottom-up by Boekaerts because it is triggered by cues in the environment, rather than by learning goals. Where such bottom-up regulation is the norm, then the learning is evidently compromised. However, in certain cases, it can be positive, because by temporarily attending to well-being, the student may find a way to shift energy and attention back to the growth pathway. Of course, the relationship between top-down and bottom-up pathways of regulation is dynamic, rather than being a stable feature of an individual learner. One of the major strengths of the dual-processing model is that it bolsters up the integration of a wide range of perspectives on the broad idea of activating students as owners of their learning, including the relationship between motivation and interest, the way that learners attribute their successes and failures in learning, and how they develop ideas about their self-efficacy.

For example, when students are interested in a task, they are likely to engage in activity along the growth pathway (Hidi & Harackiewicz, 2000). When students are not personally interested in a task, interest may be sparked by something in the task situation, thus also triggering activity along the growth pathway. Where interest is not the main driver of attention, considerations of task value versus cost will become important (Wigfield and Eccles, 2002).

In terms of the theories of motivation proposed by Deci and Ryan (1995), activity along the growth pathway is associated with motivation stemming from values within the individual while activity along the well-being pathway is associated with values originating outside the individual.

In terms of the achievement goal theory, students displaying mastery orientation are likely to be activating the growth pathway, while those displaying performance orientation are likely to be activating the well-being pathway.

Self-efficacy beliefs (Bandura, 1977) can drive progress along either pathway. Along the growth pathway, self-efficacy drives adaptive cognitive and metacognitive strategy use, whereas, along the well-being pathway, self-efficacy beliefs are likely to steer the learner away from performance-avoidance goals and toward performance-approach goals.

Similarly, views of ability as incremental (Dweck, 2008) help the learner stay on the growth pathway, whereas entity views of ability direct activity toward the well-being pathway, where details of the task-in-context, appraised in the light of views of personal capability, will influence decisions about whether to engage in the task.

Finally, it is unavoidable to look for explanations and meaningful knowledge in Bloom's Learning and Bloom's Revised Learning Taxonomy. The revised taxonomy offers a plethora of active '-ing' verbs to account for the fact that learning is an active, bilateral and engaging process of internalization of knowledge with stakeholders at both ends working towards the same goal. The original teaching and learning taxonomy (Bloom, 1956) explains the cognitive processes through action verbs, by which the learner would move from cognition to meta-cognition. For the purpose of active learning, the authors refer to Bloom's Revised Taxonomy (figure 1). A teacher who possesses the ability to impart knowledge and spur learning motivation is an educator who has realized the 'link between old-fashioned teaching' and the current motivational considerations in the classroom (Anderson & Krathwohl, 2001).

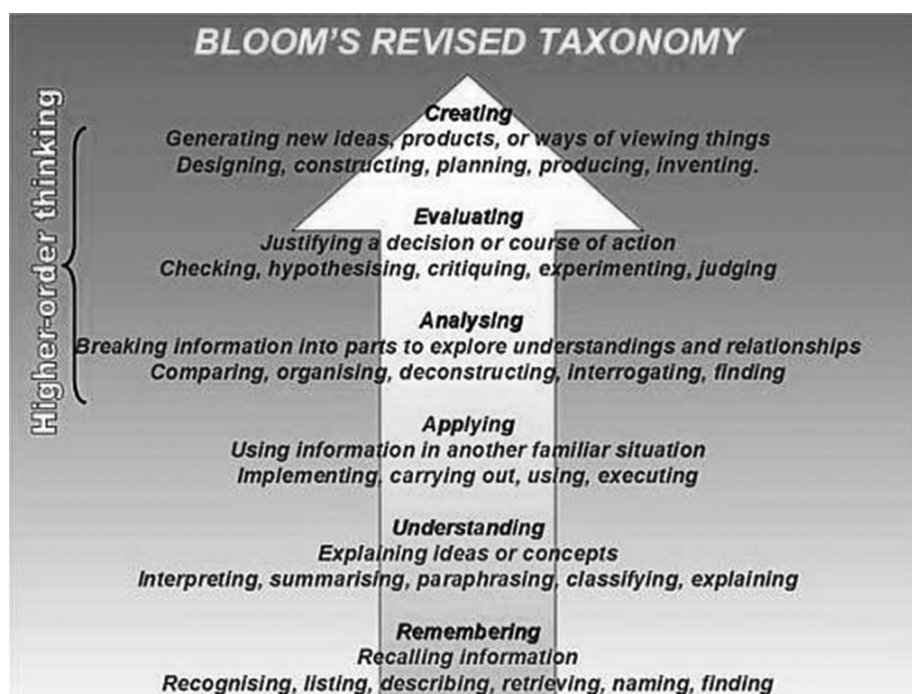


Figure 1: Bloom's Revised Taxonomy

## 2.1. Project Assessment for Learning – Setting and Using Success Criteria in Math and Science Lessons in Primary Education

The project activities implemented in the Project: Assessment for Learning: Setting and Using Success Criteria in Math and Science Lessons in Primary Education supported teachers with assessment for learning (ASL) pedagogies in math and science by providing resources for professional development of teachers. In order to achieve sustainable improvements in math and science teaching, the Project aimed at supporting 'communities', i.e. small teams, communities of practice where teachers and other relevant players cooperate and collaborate with a view to learn autonomously as well as support the learning of others. A particular form of collaborative practice that is frequently described as being effective at improving teaching is the Lesson Study, in which groups of teachers meet regularly over long periods to work on the design, implementation, testing, and improvement of a specific lesson.

## 3. TOOLS AND METHODS

A lesson study involves backward design which starts with the clarification of the goal or end-point of the learning process and then the design of instructional experiences that lead to the goal. During the lesson design phase, teachers talk about how students are likely to respond to each element of the lesson. Teachers try to anticipate how students will interpret the subject matter, what kinds of difficulties they may experience, and what kinds of experiences are likely to support their learning. The pervasive concern with student learning throughout Lesson Study distinguishes it from other types of teaching improvement activities (Dudley, 2012).

A lesson study consists of a cycle of at least three 'research lessons' that are jointly planned, taught/observed, and analyzed by a Lesson Study group (Dudley, 2013).



### 3.1. Tool: Lesson study

A lesson study is a form of professional development in which a team of teachers determines a science focus, collaboratively studies student thinking about the topic, designs a lesson about this content, implements the lesson while collecting detailed evidence of student learning, and reflects on the impact of the lesson on student learning and behavior (Dudley, 2012; Elliott, 2019). A lesson study cultivates teachers' capacity for formative assessment by placing student thinking front and center throughout. According to Black & Wiliam (2008, p.2), assessment refers to "all those activities undertaken by teachers, and by their students in assessing themselves, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. Such assessment becomes 'formative assessment' when the evidence is used to adapt the teaching to meet the needs." The Lesson Study process encourages careful observation and analysis of student thinking, intending to design and implement effective teacher responses to student actions. Additionally, it consists of a cycle of at least three 'research lessons' that are jointly planned, taught/observed, and analyzed by a Lesson Study group (Dudley, 2013) following the phases:

1. **Study:** This stage begins with the teachers identifying a specific science focus. The team then studies textbooks and research on the chosen content, identifying common misconceptions or gaps in student understanding and investigating possible teaching methods. Teachers frequently develop assessments to understand how their students conceive of concepts that underpin the target content. These assessments will become formative when the results are used in the planning phase to guide instructional design.
2. **Plan:** Planning the research lesson is guided by the results of the study phase, thus continuing the focus on student thinking, and transforming the pre-assessment into formative assessments.
3. **Teach/Observe:** In implementing a research lesson, a member of the Lesson Study team (the presenter) teaches the lesson; the remaining members of the team, supported by outside experts, carefully observe and record students' science work, actions, and comments. These observations provide evidence for the post-lesson analysis and reflection. The presenter has a dual assessment role during the lesson, to implement the formative assessment designed in the planning stage, and to respond to unplanned student actions and reactions that reveal unexpected understandings and misunderstandings.

An important component of formative assessment is the ability to gather evidence about student thinking. In a research lesson, the team members who are not teaching the lesson are tasked with observing and carefully recording moments, behaviors, and science work, to assess students' understanding and engagement with the science. By focusing on observation only (rather than teaching) during the research lesson, a teacher-observer has a chance to listen carefully to students' comments, observe students' actions, and discern nuances that might otherwise go unobserved. Observations, students' work, and often a video recording of the lesson provide the grist for the post-lesson analysis.

4. **Reflect/Modify:** The post-lesson analysis requires dedicated time to reflect on how well the lesson plan anticipated students' needs, to what extent and in what ways students benefited from the lesson, how the content might be better taught in the future, and how instructional practice can be enhanced for other content as well. This stage deepens the ability to put assessment to use and make it 'formative.' The reflection process starts with teachers examining evidence collected during the research lesson: student work, notes from observations, and video or audio of the lesson, if available. They ask questions regarding students' understandings, conceptions, learning, and engagement. The safe and relaxed environment of reflection in lesson study also allowed the team to ask what opportunities they might have missed, both in lesson design and in its implementation. Collaborative reflection around these questions and potential modifica-



tions of the lesson support teachers' inclination and ability to ask themselves similar questions in the flow of teaching and to adapt instruction based on their answers.

Great efforts to improve teaching and develop teachers have drawn increasing international attention toward lesson studies over the recent decades (Dudley 2015; Lewis, 2002; Huang, Fang & Chen, 2017). There is a long list of terms for lesson study in literature. Therefore, it could be recognized as a practice-based, research oriented, collaborative model of professional development (Fernandez & Yoshida, 2004; Stigler & Hiebert, 1999) which includes the key elements: active and collaborative study of content, embedded follow-up feedback, and building increasingly coherent knowledge, beliefs, and routines (Desimone, 2009). An extensive list of studies has demonstrated positive effects of Lesson Study in terms of transforming teaching (Lewis & Tsuchida, 1999; Stigler & Hiebert, 1999), promoting teachers' growth (Puchner & Taylor, 2006), sustaining professional learning communities (Banister, 2015), and improving students' learning (Lewis & Perry, 2017). Specifically, Lewis, Perry & Hurd (2009) demonstrated that Lesson Study can improve teachers' knowledge and beliefs, and build productive professional learning communities.

### 3.2. Method: Case study

At the beginning of 2017, the Project: Assessment for Learning: Setting and Using Success Criteria in Math and Science Lessons in Primary Education started with the implementation in 30 piloting primary schools in North Macedonia. A learner-centered approach to teaching and learning was introduced in the Project. The project promoted Lesson Study methodology to support the teachers' peer-to-peer collaboration and directly assist each other in creating assessments.

As part of the project, in three years, 190 teachers from 30 primary schools in North Macedonia participated in intensive training and support meetings and organized 14 full days of learning activities per one year. The teachers formed 30 science Lesson Study teams composed of three teachers, covering multiple grade levels. Each team was guided by a science teacher and adviser from the Bureau for Development of Education, to illustrate the stages of the lesson study, and its power to develop the capacity for formative assessment. In summary, the experience of one team of fifth-grade teachers, science teacher, and adviser was used.

**Case Study:** In this case, the selected science topic was “The Earth’s Movements.” The team began by reviewing the literature to identify common misconceptions and after investigating multiple sources, decided to work on the ‘the Sun moves, not the Earth’ and ‘the Sun goes to bed at night’ misconceptions (Cross & Bowden, 2009). Teachers guided by the science teacher and adviser started their discussion:

*The students may think the Sun is moving because it appears to move across the sky. The Earth does not feel as if it is motion, so the students may think that the Earth is still. Much class discussion is needed.*

*Our language is geared towards the idea of a moving Sun. We use words like sunrise and sunset, which imply motion. Moreover, we talk about the Sun ‘being at its highest point at midday’. We say, ‘The Sun comes up at 6 a.m.’. Next step is to share this problem with the students so that they understand how language constructs ideas. Some younger students believe the Sun goes to bed at night or that it goes wherever it seems to disappear. So, if it appears to drop behind the*

*local library, they will say that is where it is all night. Related to this is the common assumption that the Sun goes around the Earth. The Sun appears to move across the sky, so, therefore, they think it just continues on its journey at night and comes around the other side in the morning. By discussion, demonstrations, and Internet simulations these ideas can be challenged.*

At the end of this phase, the team decided to design a lesson targeting the underlying reasoning for the misconceptions.

Planning for effective formative assessment during the lesson plays an important role in the research lesson plan. Teachers consider questions such as these:

1. *What are the key points to check for understanding during the lesson?*
2. *What evidence might indicate that students are confused or are ready to move on?*
3. *How might a teacher respond to student understandings (to deepen them) and misunderstandings (to correct them)?*

The first question guides teachers in assessing the development of student understanding during the lesson; the second and the third question transforms that assessment into formative assessment by planning adaptations of the instruction in response to student actions.

The lesson plan presented in Table 1 provides an example of how the team used their conclusions from the pre-assessment to plan initial instruction as well as a formative assessment for their lesson.

#### **4. RESULTS AND DISCUSSION**

Within the project, four cycles of Lesson Study-based learning activities in science were organized. Each cycle contained planning of the learning activity, application of the plan in the classroom, and discussion of the results of classroom learning activities. Learning activities that used problem-based learning and scientific enquiry models were started by providing an open problem to students.

Based on the results of reflection put forward by the observers, in the first and second cycles, the implemented learning activities indicated that the students' ability to express the given problem was still not visible and the ability to contribute or provide scientific arguments was also still exceptionally low. In the first cycle, students could still not synthesize and provide the correct solution to the problem given. It was concluded that students have a sufficient level of developing critical thinking skills, yet they still feel discouraged to publicly state their thoughts. The results of the first cycle reflections were basic for improving learning activities by the Lesson study team. In the next cycle, a discussion plan recommended a learning activity by using 3 spheres - Earth, Sun, and the Moon. They were asked to model how the Earth and Moon move around the Sun. They worked collaboratively in groups of 3; the first students worked individually and then were asked to discuss the results of their thoughts in the group. Each student was allowed to express her/his opinions. This allowed those who were passive to be encouraged to share their opinions about the problem topic. Students who still did not understand would get knowledge through explanations given by other group members. If all members of the group had no understanding of the topic, the teacher provided an opportunity and chance to ask other groups. The results of the group discussions were brought into class discussions. The teacher chose one group to present the results of his work in front of the class. The results of observations from learning

**Table 1. Lesson plan**

Week beginning: Week 12, lesson 1			UNIT: The earth's movements			CLASS: Grade 5
Timing	Learning objectives	Success criteria	Activities		Resources	Evidence of achievement
			Description	W/G/I		
10 5 20 5	Explore through modeling that the Sun does not move; its <i>apparent</i> movement is caused by the Earth spinning on its axis. Make relevant observations.	I can use a model to demonstrate that the Sun does not move. I can use a model to show how the Earth rotates and this causes day and night. I can use a model to show how the Earth orbits the Sun and explain that this takes 1 year. I can use a model to show how the Moon orbits the Earth and explain that this takes 28 days.	Ask the students what they already know about the Earth, the Sun, and the Moon by drawing a diagram and annotating it with facts they know (what type of celestial body they are) or how they move in relation to each other. <i>Key questions:</i> “What direction does the Sunrise in?” “Which direction does it set in?” Explain that these questions are “trick” questions and that although it looks as if the Sun is moving across the sky, actually it stays still. “If the Sun isn’t moving, what must be?” In pairs, ask students to talk to each other about what must be happening. Share ideas from students. Explain to students that they are going to use 3 spheres to make a model of how the earth and moon move around the Sun. In front of the whole class, ask for 3 volunteers to show this. Encourage the use of key vocabulary, orbit, rotate, and the 1 day, 28-day and 1 year cycles. Ask students, in 3s, to repeat this model for themselves. Encourage them to talk about what is happening throughout the activity e.g. <i>I am the Sun and I am not moving. I am the Moon and I am orbiting the Earth. It takes me 28 days to get all the way round.</i> Ask students to return to their diagram from earlier and with a different color pen, add any new information they have learned. Students self-assess their knowledge and skills based on the success criteria.	Individual Pairs/Whole class Whole class Group Individual	Paper, pencils, football, marble, pea, drawing equipment	Modelling Questions and Answers Observation Modelling
<b>Organization:</b> Details of differentiation/groups / adult role (linked to activities)			<b>Notes / extension opportunities / homework</b>			<b>Key vocabulary</b>
Adults to support groups as they model the movement of the Earth and Moon. Encourage students to talk about what is happening.			Extension for higher achievers – use other media (textbooks, Internet) to research the sizes and distances apart of the Sun, Moon and Earth.			Sun, Earth, Moon, orbit, rotate, star, planet, moon, observe

activities for cycles 3 and 4 indicate that some students have shown an increase in their ability to express the opinions regarding the problem's given. In groups, students were able to find relevant facts in providing explanations related to the solution that they have chosen. According to observers, students who were allowed to be involved in the discussion could provide answers to the problem's given, even though, some of them were still not perfect. This showed that there has

been an increase in students' critical thinking skills in learning activities. The ability to think critically can be strengthened when students learn, and the ability of thinking can be implemented correctly so that students become active and reflective learners.

The process of Lesson Study-based learning activities that were carried out provided many benefits to teachers, students, and the education process, itself. Lesson study is a tool that can be utilized to improve the quality of the learning process (Wood, 2017; Bjuland & Mosvold, 2015). It was also a learning tool for all members involved in the process, ranging from planning activities to reflecting learning outcomes. All team members in their respective classes can apply the results of observations. Through Lesson Study-based learning, several important things could be considered by the team, namely (1) considering the given objectives of learning and teaching materials, (2) learning and developing the best approach of learning, (3) considering the long-term goals of learning related to the ability that should be mastered by students, (4) re-exploring knowledge related to the material to be taught, (5) doing collaborative planning activities, (6) observing the learning process through students' activities, (7) observing the results of learning through both students and the results observations (Risnanosanti & Syofiana, 2019).

Through the results of the Lesson Study-based learning process, students' critical thinking skills differed, before and after the learning activities. At the beginning of learning, most of the students or 55.05% were unable to organize the information given properly, had misunderstood the concept, and did not comply with the instruction; 33.72% were unable to organize information, misunderstanding of the concept, and did not do the tasks in accordance with the instruction, and still found many mistakes; 9.16% were managing simple information and giving simple answers in solving problems and 2.07% were presenting better ability to analyze information obtained from several sources so that it became more complete. After learning activities throughout the 4 cycles, the percentage of students unable to organize information and struggling with the misunderstanding lowered from 88.77% (in total) to 41.79%, but the percentage of students able to analyze obtained from several sources raised from 11.23% (in total) to 58.21%. Based on the data, it can be concluded that the application of the Lesson Study-based learning activities can increase students' responsibility for their learning process. Each next stage of the Lesson Study activity stimulated students' learning ability. Also, by providing a problem that requires completion, students' motivation and confidence increased in each next cycle. The Lesson Study-based learning activities gave students the opportunity to analyze and find solutions related to scientific problems and present them. This all may help students to improve their reflective skills.

## 5. CONCLUSION

Based on the results of the application of the lesson-study, it can be concluded that the learning process that employs the Lesson Study technique can improve students' critical thinking skills and their motivation to learn. In the Lesson Study-based learning process, the teacher has the opportunity to examine the best resources that can be used in learning activities through a collaborative learning process with other teachers. In such a way, the teacher can design appropriate assignments to improve students' critical thinking skills. Giving well-planned assignments stimulates the active involvement of the students, in such a way, improving students' thinking skills, especially critical thinking skills. The open problem tasks allow students to discover the concepts by themselves and form a critical understanding of the problem itself and the interrelated link to other phenomena in the complex reality. This is expected to improve the quality of learning. As a challenge, organizing such a learning process requires significant and consistent

support for teachers including resources related to formative assessment, opportunities for professional development, and incentives that encourage its real-time application.

During the COVID-19 pandemic, governments relied on teachers to be the guarantors of children's learning, calling on them to respond innovatively in the face of great change. As new, more flexible approaches to the delivery of education look likely to outlive the pandemic, and education systems work to shift practices towards greater responsiveness and resilience; governments must prioritize professional learning and support for teachers (OECD, 2020). With this in mind, Lesson Study approach can support policy makers to design and implement effective professional learning activities that simultaneously enhance teachers' skills and knowledge while strengthening resilience and enabling them to thrive in changing contexts.

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# Integrating the 21<sup>st</sup> Century Skills into the Business English Classroom

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## Keywords:

Business English;  
Employability skills;  
Higher education

**Abstract:** *In a globalized world, characterized by the interdependence of the world's economies, cultures and populations and therefore requiring a shared means of communication, English has obtained the status of the lingua franca in both academic and business contexts and it has been extensively used in scientific, economic and political fields. Consequently, English has become essential for the entire workforce whose career prospects on the labor market are largely dependent on their English language proficiency, the ability to communicate effectively and overcome language and cultural barriers.*

*Being spoken by over one billion people, English is used in a wide range of settings such as international business, diplomacy, science, technology, education, travel and entertainment. The status of English as an international language and its impact on the improvement of career prospects have resulted in enormous development of English for Specific Purposes (ESP), an approach primarily focusing on developing learners' communicative competence in specific professional fields such as business and economics, science, medicine, technology, tourism, social studies, etc. Business English (BE), as a branch of ESP, implies teaching specialized vocabulary and different skills enabling learners to effectively communicate in a business environment.*

*However, major technological and scientific advances in the last few decades and the age of the knowledge-based economy in which we now live have caused society and the business environment to be changing rapidly. As a result, employers are looking for skills that go beyond academic qualifications and work experience, and match the requirements of the current age. These skills, variously labeled and frequently referred to as the 21st-century skills, comprise communication, critical thinking and problem solving, teamwork, creativity and innovation, decision making, digital literacy, leadership, etc.*

*The aim of this paper is to explore how the 21st-century skills can be integrated and developed in the Business English classroom at tertiary education level since the traditionally taught skills such as giving opinions, negotiating, participating in meetings, reporting, making arrangements, telephoning and socializing in business contexts, no longer seem to meet the requirements of the current age and the contemporary labor market. Business English courses at the university level can significantly contribute to developing these skills and thus prepare students for their future careers.*



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## 1. INTRODUCTION

The world has changed fundamentally in the last few decades. Globalization, digitalization and other social and economic changes have caused society in general and business environment to be changing rapidly. Consequently, the world of work is constantly changing. Information and communication technologies are thoroughly reshaping ways of doing business as well as other aspects of society. One of the prominent driving forces in today's global operating environment is the trend towards increasing mobility (Varis, 2007, p. 18). As a result, experts can be recruited from anywhere in the world, which imposes the need for knowledge workers of the 21<sup>st</sup> century to be competitive in the global market in terms of their knowledge, skills and competencies. Today's knowledge work is done collaboratively in teams whose members

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frequently work across national borders, using a huge variety of digital devices and advanced technologies (Trilling & Fadel, 2009, p. 24) in order to create and innovate new products and services and meet the needs of customers and market demands of the 21<sup>st</sup> century.

Traditional education, primarily focused on acquiring content knowledge, falls short of the 21<sup>st</sup> century market and workplace requirements, as has been indicated by a number of studies. According to an in-depth study surveying over 400 employers across the United States (Casper-Lotto & Barrington, 2006), college and university graduates in the US are lacking in skills such as oral and written communication, critical thinking and problem solving, teamwork, information technology application, leadership and creativity (pp. 34-35). Similar results were obtained by a number of surveys in the UK, where employers “continue to highlight difficulty in recruiting young adults with the necessary skills” (Fettes, 2018, p. 12). In a survey by the British Chambers of Commerce (2014), 54% of firms surveyed felt that university graduates were unprepared for work, mostly due to a lack of work experience (76%) and soft skills such as communication and team working (57%). Out of five hundred SMEs participating in a survey by the Ernst & Young Foundation in 2017, about 50% of firms believed young people did not have core, non-technical skills upon completing their education (Fettes, 2018, p. 12). Although young adults are collectively more qualified than ever in terms of the educational cycles behind them, they are facing struggles to succeed in the labor market due to its complexity, increased competition and the changing requirements of employers (Mann et al., 2017, p. 4). These findings clearly suggest that educational institutions are failing to adequately prepare young people for work as they are not providing and teaching them the skills needed in the workplace, and that the dynamic 21<sup>st</sup> century labor market require a new set of skills to be acquired and developed.

## 2. 21<sup>ST</sup> CENTURY SKILLS

Findings from the literature review suggest that employers are looking for skills that go beyond content knowledge, academic qualifications and work experience, and that there has been a long history of identifying skills required to perform well in the workplace. However, regardless of numerous attempts to produce one agreed upon list of such skills, the definitive list is still missing. Moreover, these skills are variously labeled and referred to as common, core, essential, intercultural, personal, social, soft, 21<sup>st</sup> century, employability, transferrable skills, etc. Many educational institutions, different initiatives, policymakers and academic experts have attempted to develop frameworks for defining 21<sup>st</sup> century skills and propose strategies for integrating them into the educational system.

One of such attempts is the OECD’s *The Future of Education and Skills 2030* project. Besides recognizing the need for both broad and specialized knowledge, the framework also defines a broad range of skills, including cognitive and meta-cognitive skills (such as critical and creative thinking, and learning to learn), social and emotional skills (such as collaboration and empathy), and physical and practical skills (such as using new information and communication technology devices). This broad range of knowledge and skills is to be mediated by attitudes and values such as motivation, trust and respect for diversity, and accompanied by “transformative competencies”, such as creativity, curiosity, adaptability, open-mindedness, ability to reconcile tensions and dilemmas, and responsibility and self-regulation (OECD, 2018, pp. 3-6).

The Partnership for 21<sup>st</sup> Century Learning (P21) has developed a unified vision for learning known as the Framework for 21<sup>st</sup> Century Learning (The Partnership for 21<sup>st</sup> Century Learning,

2016, p. 1). The framework describes the skills, knowledge and expertise students need to master in order to thrive in today's global economy in a world of constant change. It proposes learning through traditional key subjects and interdisciplinary 21<sup>st</sup> century themes integrated into key subjects (such as global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy). Recognizing the first two components of the learning framework as insufficient for success, the Partnership emphasizes the importance of the third component – 21<sup>st</sup> century skills, arguing that in order to provide students with essential skills for success in today's world, educational institutions must also teach “21<sup>st</sup> century skills discretely in the context of key subjects and 21<sup>st</sup> century interdisciplinary themes” (The Partnership for 21<sup>st</sup> Century Learning, 2015, p. 8). These skills are grouped into three sets – learning and innovation skills, information, media and technology skills, and life and career skills. Learning and innovations skills include creativity and innovation, critical thinking and problem solving, and communication and collaboration skills. Information, media and technology skills comprise the ability to access, evaluate and use information, to create and analyze media products, and to effectively apply technology, while life and career skills include flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility. The framework also highlights the importance of underpinning teaching of 21<sup>st</sup> century skills by four essential support systems – suitability of assessment approaches, curriculum and instruction, teacher professional development, and learning environments – with a view to achieving the best possible learning outcomes (*ibid.*, p. 7).

The Commercial Education Trust (CET) explored the gap between the skills young people develop in education and employer demands. In 2016-2017 they conducted a study to identify the types of skills commonly recognized as important in the workplace, and how educational programs can develop these skills and the know-how necessary for young adults to succeed at work and facilitate “education-to-work transitions” (Fettes, 2018, p. 9). The study results indicate that “soft skills” such as active listening, communication and presentation skills, teamwork and problem solving skills are deemed essential in the recruitment process. They are followed by qualities such as confidence, ambition and resilience, and attributes including decision making skills, negotiation skills, creativity, curiosity, reliability and professional attitude (*ibid.*, pp. 24-27).

In a similar vein, the World Economic Forum (2016) reports that “ability to work with data and make data-based decisions will become increasingly vital across many job families”, while “overall, social skills will be in higher demand across industries than narrow technical skills”, and “many formerly purely technical occupations are expected to show a new demand for creative and personal skills.” (pp. 21-24). The report's analysis of skills focuses on a set of 35 widely used work-relevant skills and abilities most frequently cited across all occupations in the O\*NET database, where skills such as communication, creativity, ICT literacy, critical thinking and problem solving, negotiation and persuasion are highly ranked (World Economic Forum, 2016, pp. 51-52).

Another conceptual model providing a framework to define the skills required to thrive in today's digital age has been created by the North Central Regional Educational Library (NCREL) and the Metiri Group (Lemke, 2003). Recognizing that “yesterday's education is not sufficient for today's learner” and that “information and communication technologies are raising the bar on the competencies needed to succeed in the 21<sup>st</sup> century” (*ibid.*, pp. 4-5), the framework identifies four groups of skills: digital-age literacy, inventive thinking, effective communication and high productivity. The first group of skills includes technological literacy and language proficiency using a variety of conventional and technology-based media to access, manage,

create, and critically evaluate information, as well as the ability to recognize and appreciate the diversity of cultures. Inventive thinking refers to the ability to adapt to be better suited to current and future environments, to creatively solve problems, to maintain curiosity and take risks, and to apply critical thinking to a range of problem-solving contexts. Effective communication includes the ability to cooperate and effectively communicate using a wide range of media and technology in order to solve problems and create new products, and to accept responsibility for group work towards set goals. Finally, high productivity comprises the abilities to prioritize, plan and manage to achieve goals, while showing positive leadership traits and effectively using contemporary technology tools (Lemke, 2002, pp. 11-24).

Based on all presented frameworks for defining the skills required to successfully perform jobs in the 21<sup>st</sup> century, it can be concluded that the concept of skills is used in many different ways and a widely agreed and shared list of these essential skills does not exist. However, the frameworks presented are largely consistent with each other in that they emphasize the complex role and task of education today and the necessity to integrate 21<sup>st</sup> century skills into the education model, which is crucial in preparing today's students for tomorrow's jobs. To achieve this, education providers have to shift from preparing students for specific careers to developing skills that are transferable across occupations and industries.

### 3. ENGLISH FOR SPECIFIC PURPOSES AND BUSINESS ENGLISH

Tremendous changes and progress in science and technology, the development of the world's economy as well as internalization of higher education in the period after the Second World War imposed the need for an international language and this role was assigned to English, the world's *lingua franca* of science, technology and business (Hutchinson & Waters, 1987, p. 6). As a result of increased mobility of workforce, English became an indispensable business tool. This created demand for teaching English tailored to the needs of learners instead of traditionally focusing on teaching language forms, and English for Specific Purposes (ESP) emerged as a response to this demand.

According to Dudley-Evans and St John (1998), the main purpose of ESP is to meet specific needs of learners and enable them to meet their professional or vocational demands by focusing on the language, skills and genres appropriate to the specific activities the learners need to conduct in English. They also point out that ESP is usually aimed at intermediate or advanced learners, either professionals or tertiary-level students (pp. 4-5). Originally, the primary purpose of teaching ESP was to enable students to communicate internationally in areas such as commerce and technology (Paltridge & Starfield, 2013, p. 2). However, with the increased spread of cross-cultural communication, the ESP field has expanded to include other areas such as English for academic purposes (EAP), English for occupational purposes (EOP), English for business purposes (EBP), English for legal purposes (ELP), and English for medical purposes (EMP), to name a few.

Business English or English for Business Purposes differs from other varieties of ESP in that it is a mix of general content, in terms of language forms and general ability to communicate effectively, and specific or professional content related to a particular job area or industry (Ellis & Johnson, 1994, p. 3; Brieger, 1997, p. 6-7). A major impact on Business English teaching has been made by the recognition of the need for business people to be proficient not only in specialist vocabulary but also in business communication skills (Ellis & Johnson, 1994, p. 5).



Business English is thus aimed at learners who need to use English effectively in a variety of real-life communicative situations within working environment. Numerous studies have investigated the scope of these communicative situations in order to define the needs of companies and business professionals. Their findings have highlighted the importance of the following communicative situations or needs: making phone calls, writing emails and reports, giving presentations, participating in meetings, communication with foreign headquarters and subsidiaries, reading technical manuals, business travelling, using English in online conferences and meetings, and negotiating with suppliers (Strapasson, 2015, pp. 39-41).

#### **4. 21<sup>ST</sup> CENTURY SKILLS IN THE BUSINESS ENGLISH CLASSROOM**

Based on presented internationally recognized frameworks for defining the skills required to improve employability and ensure success in the 21<sup>st</sup> century workplace, and their emphasis on communication, collaboration, problem solving and critical thinking, intercultural competence, and information technology skills as essential, the ELT classroom in general and Business English classroom in particular seem to be particularly suited to the development of 21<sup>st</sup> century skills. This is largely due to Communicative Language Teaching (CLT), which has been the prevalent approach to teaching languages in the last few decades. According to Richards (2006, p. 3), the goal of CLT is communicative competence, which refers to the ability to engage in purposeful communication and adapt the use of language to the setting and participants, as well as the ability to produce and understand different types of texts such as reports, interviews, narratives, etc. These abilities, which are nowadays the focus of the English language classroom, are very important aspects of communication in working environment. Moreover, communication taught in the English language classroom draws on and enables development of other important 21<sup>st</sup> century skills such as teamwork, perspective-switching, empathy and intercultural competence (Mercer et al., 2019, p. 8).

The Business English classroom is even more compatible with the development of 21<sup>st</sup> century skills than the General English classroom as Business English courses are aimed at two groups of learners (Ellis & Johnson, 1994; Brieger, 1997; Dudley-Evans & St John, 1998), pre-experience learners, usually tertiary-level students preparing for careers in different areas of business, and job-experienced learners who already have some business knowledge and skills. To prepare students not only to communicate effectively in the workplace but also to develop other skills recognized as essential, and teamwork skills in particular, it is vital that students are not asked to work individually on assignments focusing on memorization of content in terms of grammatical forms and vocabulary (Chang & Tung, 2009). Instead, the emphasis should be put on pair and group communicative activities. The Business English classroom should therefore provide a lot of opportunities for purposeful communication. This means that language, both spoken and written, is used to achieve a goal – for example, to make a reservation or an appointment, to order goods and reply to an order, to complain about faulty products and respond to a complaint, to negotiate a price and terms of payment, to welcome foreign visitors and engage in small talk with them. All these activities and tasks reflect authentic communicative situations which occur within real working environment. As a lot of business transactions nowadays are conducted across national borders, the Business English classroom should also focus on language and communication style adequate to business exchanges with co-workers and partners from different cultures. It should therefore replicate the real business environment through simulations in which students will play their future real-life roles and thus prepare them to meet the workplace requirements in terms of communication and teamwork skills, as well as intercultural competence.

The skills in the Business English classroom cannot be practiced and developed in isolation, independently of one another. An approach that creates opportunities for integrating and developing a wide range of 21<sup>st</sup> century skills is Task-Based Language Teaching (TBLT). A task can be defined as an activity in which learners use given information and the target language for a communicative purpose in order to achieve an outcome (Prabhu, as cited in Yildiz, 2020, p. 72; Willis, 1996, p. 23). To be valid for the purpose of this approach, tasks must be realistic, reflecting real-world business situations, and have a clear outcome. They contain at least two elements: input data, which may be provided by course materials, teachers or students, and initiating question or a problem which instructs students on what they are to do with the data (Wright, as cited in Nunan, 1989, p. 47). With certain tasks, a variety of outcomes might be possible. Input data may take the form of newspaper or magazine articles, press releases, web pages, curriculum vitae, job advertisements, letters, invoices, reports, economic graphs, videos, survey results, and so on. One of instructive methods within this approach is a role play. Role plays provide students with “an opportunity to practice communication in different social contexts and different social roles” (Larsen-Freeman, 2000, p. 134). For example, the teacher provides background information and the setting – who the students are, what the situation is, and what they are talking about – but the students decide what they will say, what language forms they will use in order to communicate effectively in the given situation, how they will handle the situation if problems arise and how these problems can be solved, and what the final outcome of the communicative activity is. Role plays mirror real-world business situations such as telephoning, business meetings and negotiations, socializing with business contacts, and offer opportunities not only to acquire language forms commonly used in these situations and communication skills, but also to develop teamwork, problem solving and decision making, negotiation and persuasion skills, as well as perspective-switching and empathy.

Another approach that can enhance students’ 21<sup>st</sup> century skills is Project-Based Learning (PBL). Projects are complex tasks, based on challenging questions or problems that involve students in problem solving and decision making activities, give them the opportunity to work relatively autonomously over extended periods of time, and result in realistic products or presentations (Thomas, 2000, p. 1). PBL requires students to work collaboratively to plan, organize, negotiate, and reach a consensus on issues such as what tasks to perform, who will be responsible for each task and how information will be researched and presented (Muslim et al., 2017, p. 42).

For example, students might be presented a reading passage (a newspaper or magazine article) or a video recording on shopping habits and problems faced by traditional shop owners due to increased online shopping, and asked to investigate attitudes to online shopping and make recommendations to shop owners on how to solve the problem and increase sales. After this initial stage, students in teams could be asked to investigate consumer preferences in terms of in-store and online shopping and reasons for these preferences by using a survey. Each team would have to create the survey autonomously, process the obtained data, and present their findings and recommendations to shop owners using presentation software. The overall activity would extend over a longer period of time and might involve a certain amount of work outside the classroom. In order to work effectively, each team might decide to appoint a team leader who would plan activities, chair discussions, and allocate duties and set deadlines. This would enable the development of leadership skills, “the ability to use interpersonal and problem-solving skills to influence and guide others toward a goal, and inspire others to reach their best” (Trilling & Fadel, 2009, p. 85). At the same time, students would build their responsibility skills by acting responsibly in order to solve the problem and achieve an outcome, as well as planning and organization skills, the ability to estimate time and organize efficiently to achieve goals (Lemke, 2002, p. 23)



In order to create the survey, students would have to apply a variety of skills. First of all, they might recognize the survey as a problem that needs to be solved. During the group discussion, they would need to apply problem-solving and critical thinking skills to identify the most suitable form of survey, and choose between a paper-based and an online survey by comparing their advantages and disadvantages. If an online survey is chosen, students would practice their information and communication technology (ICT) skills, for example by using Google Surveys, a web-based application, to create the survey. This would have a positive effect on students' motivation as today's students are "digital natives" who want and expect information and communication technologies to be integrated into their learning (Trilling & Fadel, p. 30). Next, they would need to discuss and decide on the survey sample size and structure to ensure the survey reliability and diversity of the sample (for example, the number of respondents, age groups, gender and levels of education). To do so, they could apply the knowledge acquired in other college or university courses such as Statistics or Quantitative Methods, or use Internet sources. At this stage or earlier, they would probably recognize the need to solve the problem of the survey language. Their ICT skills would need to be applied and perhaps improved in order to enable respondents who do not speak English to participate in the survey by providing the option to change the survey language from English into their mother tongue.

Further, they would have to consider adequate survey questions, either by applying their marketing knowledge or by using Internet sources (for example, various texts or videos on good survey questions), or both. The rapidly evolving digital environment has made a huge amount of unfiltered information available at the touch of a button. Quantity, however, does not equal quality. Whenever they rely on Internet sources, students will have to use their critical thinking skills, the ability to access, analyze, evaluate and synthesize information in order to form opinions with relevant and valid information (*ibid.*, p. 51). After that, during the group discussion, students would create the survey by formulating the questions. This stage of the activity would involve teamwork and communication skills – sharing information and ideas, helping each other, listening attentively, expressing agreement and disagreement, negotiating or compromising trying to reach consensus if their ideas conflict, and applying writing skills.

After administering the online survey, in the group discussion, students would again use their communication and critical thinking, as well as problem solving skills, to analyze the obtained survey data, come up with ideas, propose solutions to the problem shop owners are facing, and reach consensus on recommendations they can make with regard to adapting to consumer needs and increasing sales. Another important skill that would be applied at this stage is students' creativity, the ability to think flexibly to generate new ideas and solutions to problems, which is very high on the list of 21<sup>st</sup> century skills as there is a constant demand to offer new services, better processes and improved products (*ibid.*, p. 56). Creativity, combined with language and ICT skills, would be further developed in the process of designing the final presentation using presentation software such as Microsoft PowerPoint. Finally, students' knowledge of appropriate language forms, and communication and presentation skills would be practiced and improved by rehearsing and delivering the presentation. Since the whole activity and the task completion would extend over a longer period, for example a few weeks, and considerable amount of work would be done outside the classroom due to the constraints imposed by curriculum and lesson plans, part of group discussions could be held virtually, by using video conferencing platforms or services such as Zoom or Google Meet, which would further enhance students' ICT skills.

Having analyzed two approaches that can be applied to Business English instruction, it can be concluded that, by placing an emphasis on students' needs and authentic materials and real-world business situations and tasks, the Business English classroom can significantly contribute to the development of a wide range of 21<sup>st</sup> century skills, particularly communication, teamwork, problem solving and critical thinking, information and communication technology, creativity, responsibility and leadership skills, all of which are highly ranked and recognized as essential to improved employability and success in the digital age.

## 5. CONCLUSION

In today's globalized world characterized by digitalization, knowledge work, global markets and increasing mobility of goods, workforce, money and cultures across national borders, as well as increasing interaction and cooperation, and rapidly changing requirements of the labor market, the role of education has become of vital importance. Acquisition of content knowledge does not guarantee employability and success in the 21<sup>st</sup> century labor market and workplace. A new set of skills analyzed and defined by various educational institutions, higher education policymakers and academic experts is required for graduates to be marketable and employable in the digital age. Strong recommendations have been made to education providers to engage with employers in order to optimize graduates' chances of success in the recruitment process, as well as to encourage and support teacher professional development, so they can adequately respond to the new requirements on educational institutions and teaching process. The Business English classroom is particularly suitable for the development of the skills recognized as essential employability skills. By placing emphasis on students' needs, authentic materials and utilization of information and communication technologies, and enabling them to collaborate and engage in authentic communication mirroring the real-world business situations, it provides an ideal setting for the development of the skills vital for employment, promotion prospects and successful performance in the 21<sup>st</sup> century workplace.

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# Intergenerational Cooperation of Students and Grandparents and the Use of Pedometer in Sports Activity

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## Keywords:

Intergenerational cooperation;  
Aging;  
Sports training;  
Pedometer



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**Abstract:** *The National Symbiosis (Movement) project is being implemented in primary schools throughout Slovenia. In primary school, intergenerational sports activities were carried out by the coordinator of the mentioned project together with primary school students and their grandparents. The use of information and communication technology is one of the starting points of the physical education curriculum, and one of the general goals is the formation of positive behavioral patterns such as encouraging cooperation. The starting point and the goal were the main guides for the preparation and implementation of intergenerational cooperation. The article describes an example of sports training prepared and carried out by students together with their grandparents, as part of a sports day and exercise hours. They prepared intergenerational hikes and training hours, during which both students and grandparents performed strength and coordination exercises. During the hike, the students introduced their grandparents to the use of a pedometer. This had a very motivating effect on students and grandparents.*

## 1. INTRODUCTION

Human beings are created for movement. Through the evolution of the development of mankind, many adaptations of the body have evolved and movement patterns that form the basis of human movement have emerged. Today, walking, running, swimming and many other sports activities are advertised by well-known brands and individuals, as a kind of call for individuals to be aware of the importance of physical activity and its positive effects on health and well-being (Stari-2010-SLO-TISK.pmd (dlib.si)).

Average life expectancy is rising for both men and women. Most elderly people desire to spend old age in as a quality way as possible. Therefore, sports activity is one of the ways in which we can achieve such a state as it has a positive effect on many parameters of life - health, appearance, well-being and quality aging. The most common problems that occur with age and are a common cause of decreased physical activity are disorders of the musculoskeletal system, cholesterol, high blood pressure, fear of exercise, osteoporosis, loneliness, etc. Therefore, the elderly should attentively choose the appropriate exercise that will suit them and where they will feel satisfied. For a start, movement in the fresh air, which reduces the feeling of fatigue and improves mood and physical resistance, would be enough. (<https://www.nasa-lekarna.si/clanki/clang/redno-gibanje-upocasni-staranje/>).

## 2. AGING

Every human being is subject to aging, which is a natural and inevitable physiological process. The main reasons for aging are the damage and death of the cells in the human body. A person's health is partly inherited, but partly it depends on external factors. Aging is a complex and not yet fully understood set of phenomena that affect the organism in adulthood and eventually lead to death ([https://www.who.int/ageing/publications/global\\_health.pdf](https://www.who.int/ageing/publications/global_health.pdf)).

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Every elderly person probably wants to achieve the highest possible life expectancy. Over different historical periods, the average life expectancy has changed. Thus, the Neanderthals lived on average only about 20 years, the average life expectancy was 19 years in the Bronze Age, 28 years in ancient Greece, 33 years in medieval England. According to global demographics, the number of elderly people is growing. The intensity of aging in the world today is shown in the average life expectancy of around 68 years. In Slovenia, the number of elderly people in the total population has been increasing since mid-2003. In 2014, the share of the elderly population aged 65 and over reached 17.5%, while the share of the population under 15 was 14.6%. Awareness of the positive effects of exercise on the body is a factor, which contributes to a higher number of elderly people ([http://www.share-slovenija.si/files/documents/prvi\\_rezultati\\_slovenija/Publikacija\\_IER\\_14.pdf](http://www.share-slovenija.si/files/documents/prvi_rezultati_slovenija/Publikacija_IER_14.pdf)).

### **3. HOW CAN WE INFLUENCE THE SLOWING DOWN OF AGING?**

It is a fact that with age, degenerative changes begin to appear and motor skills begin to decline. With a healthy lifestyle, we can slow down aging and ensure a high quality of life even in old age. While aging is inevitable, this does not apply to physical or mental deterioration. We can do a lot on our own to make old age an enjoyable period in our lives.

Many studies have shown that we can successfully moderate the effects of aging by exercising regularly and keeping our weight within the recommended limits. Regular physical activity reduces many of the functional problems associated with aging. The most important benefits of exercise include a beneficial effect on the cardiovascular and respiratory system, a positive effect on blood pressure, cholesterol and sugar levels, improving bone condition, which can help reduce the risk of osteoporosis, improving mobility and range of motion, reducing nervous and mental tension, maintaining cognitive functions, affecting quality sleep and well-being. (<https://zdravje.online/staranje/>).

### **4. APPROPRIATE SPORTS ACTIVITY FOR THE ELDERLY**

To stay in shape and achieve a beneficial effect on the body, the elderly should exercise regularly. This means that they should engage in sports activity at least three times a week for 30 to 60 minutes. However, what kind of exercise or sports activity is suitable for the elderly? Clubs and societies very often advertise different types of exercises for the elderly. Aerobic exercise, for example, is an exercise that is performed at lower heart rate levels, lasts longer and is suitable for the elderly as well. A characteristic of aerobic or cardio exercise is a longer activity in which energy, in the presence of oxygen, is restored in the body. Aerobic exercise strengthens the cardiovascular and respiratory systems. It includes various physical activities such as running, walking, cycling, swimming, aerobics, rollerblading. When choosing a suitable sports activity for the elderly, it is recommended to choose the types of movement that correspond to the physical capacity, age and health condition and wishes of the individual. (<https://tvojtrener.si/vpliv-gibanja-na-zdravje/>)

Many studies (21 studies) included investigated the effects of aerobic exercise also to type 2 diabetes for the elderly. The frequency of prescribed exercise ranged from a minimum of one to a maximum of seven sessions per week, with 13 of the studies prescribing exercise 3 times a week (<https://care.diabetesjournals.org/content/34/5/1228>).



## 5. PROMOTING INTERGENERATIONAL COOPERATION AND EXERCISING

Domestic and foreign literature write about the importance of intergenerational relations. Reciprocity between generations is important and the school as an institution can play an important role in this with projects such as Symbiosis (movement). In primary and secondary schools as well as educational centers in Slovenia the National Project Symbiosis (movement) is currently being implemented. It is based on intergenerational cooperation and the support of a healthy lifestyle, which includes movement. The mission and goals of the project are to promote a healthy lifestyle of all generations at all stages of life, create intergenerational cooperation and coexistence, recognize the advantages of volunteer work in sports, learn about new physical, recreational and sports activities and free participation in various exercises. The school participated in the project and with the help of the students, sports activities of intergenerational cooperation were prepared by the coordinator. The article describes an example of physical activity performed by primary school students together with grandparents as a part of a sports day and exercise hours. An example of the use of a pedometer<sup>2</sup> is also described. (<https://sl.puntomarinero.com/how-many-steps-in-1/>, <https://www.zrss.si/pdf/pos-pouka-os-sport.pdf>), (<https://sportmedbc.com/article/using-pedometer>).

## 6. EXAMPLE OF INTERGENERATIONAL COOPERATION OF STUDENTS AND GRANDPARENTS AND USE OF PEDOMETER

First, an appropriate program of sports activities had to be prepared by the coordinator of the Symbiosis (movement) project - a primary school professor of physical education. This posed a kind of challenge to a professor as she had to organize the intergenerational training for adolescents and the elderly. At the joint meeting, professor and students discussed the possibilities of carrying out sports activities for grandparents who intended to participate in the project. Each participating student was given an assignment on how to perform the exercises together with the grandparents. This way, students also learned about characteristics of the positive effects of exercise on health. Two sports activities also included the use of a pedometer, which was borrowed from the Health Center. (Simbioza GIBA - Simbioza)

**INTERGENERATIONAL HIKE:** As part of the Symbiosis (movement) project, students and professor prepared hike on a slight ascent to a nearby hill. The first hike was carried out as part of a school sports day. The starting point of the walk and the assembly of students and grandparents was in front of the school, where the hike also ended. Pupils first explained to their grandparents the benefits of walking on human health and well-being. Then the grandparents were introduced to the route of the hike and warned of possible dangers (narrow path, rocks). A pedometer was included as a form of ICT<sup>3</sup> in the hike. The students used the pedometer during physical education classes, so they knew how it works (<https://www.zrss.si/pdf/pos-pouka-os-sport.pdf>).

Grandparents were introduced and shown how to handle a pedometer and helped with the setup and use. The purpose and the goal of using the pedometer during the hike was:

- to walk as many steps as possible and compare them between the two hikes,
- to check the number of steps taken and compare them between grandparents and students.

<sup>2</sup> The pedometer is a device based on the built-in motion sensor, which measures the number of steps. It has been a popular tool for recreation, schoolchildren and the elderly for some time now. The advantage of the pedometer is its affordable price, motivational effect and easy use. Some pedometers are upgraded and can give us some other data on energy consumption and distance travelled.

<sup>3</sup> Information and communication technology

On average, they walked 5,300 steps (4 kilometers) on the hike. The difference in the number of steps taken between grandparents and students was negligible. The use of a pedometer had a very positive effect on students' and grandparents' motivation for the hike. Intergenerational socializing had a great effect on relaxation and the formation of positive relationships, especially because the students took on the role of guides of the hike.

**INTERGENERATIONAL TRAINING HOUR:** When creating training hours for grandparents, the students and professor took into account the principle of appropriate exercises according to intensity and duration. The students again took on the role of trainers. The assembly of students and grandparents took place in the school gym in the afternoon. At the beginning of the lesson, the students informed the grandparents of the importance of warming up and the characteristics of the exercise. They demonstrated warm-up in the form of a 5-minute brisk walk. Then they performed gymnastic exercises from head to toe. When performing gymnastic exercises, grandparents were warned to perform correctly and in case of any problems or improper execution they were advised to correct their movements. The warm-up lasted 15 minutes, so a total of 20 minutes. Then the main part followed. In the first practice lesson, exercises with softballs was prepared. Grandparents led the ball, caught it, passed it on, carried it, rolled it, chased it. Each exercise was first described and demonstrated by the students, and only then was it performed together with the grandparents. The students helped the grandparents to perform the exercises and point out the wrong execution. A total of ten exercises were performed and each exercise was performed for 3 minutes. At the end of the exercise lesson, grandparents were shown exercises for the development of mobility.

Both students and grandparents were relaxed and in good spirits during the exercise. The purpose of the training was to develop coordination and mobility. After the workout, the grandparents felt good and expressed satisfaction.

For the second training, strength exercises were prepared. The initial warm-up, which was performed in the form of movement accompanied by music, was followed by the performance of gymnastic exercises. Here, too, the students demonstrated the exercises and helped the grandparents with their proper implementation. The 20-minute warm-up was followed by work in stages. Grandparents and students were divided into 4 groups, as follows:

Stage 1: back strengthening exercises, Stage 2: strengthening exercises for the abdomen, Stage 3: strengthening exercises using weights, Stage 4: strengthening exercises using tapes,

Grandparents performed strengthening exercises with students at each stage for 5 minutes. Students first demonstrated the exercise and helped the grandparents with the correct implementation. Exercises were also performed by students. Each exercise was performed for 40 seconds with a 20-second rest in between. This was repeated at five intervals. They had 3 minutes to change the stage and directions. In the final part of the training hour, stretching exercises were performed and after that, the training hour was completed. The second training also lasted 60 minutes. At the beginning of the practice class, the students reminded the grandparents to perform the exercises according to their abilities.

## **7. CONCLUSION**

Elderly people often say that sometimes it is more important for them to socialize with friends who attend the exercise. Therefore, they usually prefer group exercises in the home environment. The elderly need to live a full, quality and satisfying life even in this period of life. Health

is a value that is a fundamental condition for quality of life, especially in old age. (<https://dk.um.si/Dokument.php?id=22831>)

The article presents an example of intergenerational cooperation of students and grandparents in the implementation of sports activities (exercise class and hike) as one of the options, which the elderly can choose and participate in for free. During the hike, the elderly also had the opportunity to learn about the use of a pedometer. This had a positive effect on their motivation, self-esteem. During the exercise classes in the gym, the students presented their grandparents with various props and equipment that made the exercise more interesting. Both students and grandparents loved participating in the intergenerational movement project. Genuine interpersonal relationships were formed among all participants. Pupils were satisfied and proud of their role as trainers and grandparents loved guided physical activity. They praised the project and expressed the wish that it would be organized in the future as well. Grandparents liked that the physical activity took place in a home environment and relaxed atmosphere.

Intergenerational cooperation contributes to a better experience of old age and plays an important role in a better quality of life. There are many ways of intergenerational cooperation and one of them is participation in sports activities. Intergenerational socializing is becoming increasingly important nowadays. Therefore, programs to develop intergenerational relationships and collaboration are increasingly welcome and desirable. This also includes the Symbiosis (movement) program.

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# Evaluating Environmentally Sustainable Production Practices in Rural Areas

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## Keywords:

Production;  
Forests;  
Rural area;  
Sustainable management;  
Ecology

**Abstract:** Forests and forestry are the ecological and economic infrastructure of every state. The EU strategy for the forest-based sector is particularly related to rural development, since, in such areas, forests are mostly spread, thus representing an opportunity for more balanced development, or in other words - survival of rural areas. Croatia is no exemption. The goal of forest management in the Republic of Croatia is the sustainable and harmonious use of all forest functions and the permanent improvement of their condition, by promoting environmentally sustainable production practices in such a way that the local or rural environment has financial benefits. Looking at forests as perfect factories, ranging from the production of wood pulp as raw materials, oxygen and food, water purifiers, carbon tanks and all the way to the intangible and generally useful functions of forests, it is necessary to observe their all-encompassing importance. We are facing global climate change, which significantly influences the restoration and erection of new forest stands, that is one of the most important procedures for sustainable forest management in Croatia. Current techniques and knowledge that are being applied contribute to discouraging results, therefore it is crucial to introduce and promote new environmentally friendly practices, aiming to increase the productive function of forest land and forest as an ecosystem. In accordance with the sustainable development of forest land, research was conducted in the lowland part of Sisak-Moslavina County in Croatia. The aim of the research is to study the cost-effectiveness and compare the adaptation of new methods and practices of reforestation, with the end result of the forested area as a production unit, and that was conducted working on two land sections. On the surface of the first section, which was previously chemically prepared, a classic renovation was performed by sowing acorns employing a spreader. The acorn was collected by the local population. Processing of the second section included planting seedlings, while the section was previously mechanically prepared by grinding biomass and an integral method of soil preparation in rows with a spacing of 3 m. The internal planting distance between the plants was 0.80 - 1.0 m, and work was carried out with the help of external contractors, the local population. The use of new environmentally sustainable technologies has resulted in 29% higher financial costs of forestation. However, using new practices compared to the classical ones, the financial viability in terms of economic profit of the rural area was determined. The application of new silvicultural practices is initially more expensive, but results in a shorter period of time to achieve targeted results, while the increase in costs refers to the involvement of the local community that participated in the works.



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## 1. INTRODUCTION

Rural territories in Croatia are those areas in which bioeconomic (forestry and agriculture) activities economically predominate, with a key role in the management of rural resources. About 90% of the total Croatian territory is a rural territory where approximately 40% of

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the total Croatian population lives. Forestry and agriculture are the main users of rural areas, which in Croatia lag significantly behind in development in relation to industrially urbanized centers and regions. There are many sources of development disparities between urban and rural regions. Croatian rural area has been facing processes of de-agrarization and depopulation for decades. At the global level, economic theories of polarized development are common, which explain the emergence and maintenance of regional and national differences in development. Although inequalities in development are also known in the pre-industrial period, it is the industrialization and tertiarization of the economy that led to great differences between the village and the city. Theories of polarized development developed in the 1950s (Mataga, 2003) show that the industry, due to its many advantages, develops more strongly those cities and regions in which it is located, while other areas, especially rural areas, lag behind. The initial advantage is increasing over time as the industrial sector attracts labor and results in increase in urban population, infrastructure development, capital attraction and tertiary sector development. Accordingly, a multiplication effect and an increase in the initial advantages are obvious, thus boosting differences in space.

According to the Statistical Office, the Croatian sector based on the bioeconomy employs more than 115,000 people, while the forestry and wood processing industry alone employs about 53,000 people, with revenues of almost EUR 2 billion per year (Posavec, 2020). In the context of rural development, forestry, in addition to the general welfare of the environment, carries the role of employment, as well as the use of non-timber forest products (NTFP) and wood raw material by the local population - although their use is multiple, they are incomparably less used for commercial purposes (Vuletić et al. 2011).

The total area of forests and forest lands in Croatia is 2,759,039 ha, which is 49.3% of the country's land area. According to available data, 24% of forests are owned by private forest owners while 76% are owned by the Republic of Croatia. The majority of 97% of state forests are managed by the public forest owner Croatian Forests LLC, while the remaining 3% is used by state administration bodies or legal entities founded by the Republic of Croatia. A wood stock of 418,618,277 m<sup>3</sup> has been determined in the forest management area, and in state forests managed by Croatian Forests LLC it amounts to 319,013,300 m<sup>3</sup>. The most common species is the common beech (*Fagus sylvatica* L.) with 38%, while our most valued and most valuable tree species - pedunculate oak (*Quercus robur* L.) is represented by a 14% share in the total wood stock (Janeš, 2021). Croatia is recognizable by its pedunculate oak forests, which are a rarity on a European scale. Pedunculate oak forests grow on 215 thousand hectares, in the valleys of the Sava, Drava and Danube rivers. The management of these forests is characterized by a long patrol of 140 years, intensive care from the earliest stages of development and restoration by seed cutting. The restoration of forest stands, especially pedunculate oak, is a significant issue. Climate change on a global scale is nothing new. One of the two most endangered territories by recent climate changes which are marked by an overall increase in temperature and a significant change in the precipitation regime is the area of Southeast Europe. According to the results and forecasts of the Nature CC study (Griscom B.W. et al., 2017), we will face catastrophic deforestation, and by 2030 deforestation will increase due to hailstorms, fires and droughts in the amount of + 0.91 x 10<sup>m<sup>3</sup></sup>. According to research by Hanewinkel et al., from 2013 to 2100, we will lose 14-50% (28%) of the value of forests, which amounts to several trillion euros (Hanewinkel, et al. 2013). Specifically, due to the longer water retention during spring and summer, the seeds decay and especially the sinkholes and young shoots in the stands in the regeneration process, and even in areas where the initial phase of regeneration is completed. Extreme rainfall leaves



behind long-term consequences because it physiologically weakens the forest and destroys the forest infrastructure, which makes rehabilitation difficult. The physiologically weakened forest is the target of forest pests whose attacks are regularly followed by infections. In floodplain lowland ecosystems, the main natural disaster is drought, which is the main trigger for the penetration of harmful insects and fungal diseases. But in addition to drought, excessive flood water retention, especially in the summer months, can significantly impair the vitality of species, especially the oak. Climate change has affected the emergence and increase in the number of many invasive insect species in our forests. Of all the invasive organisms, 2/3 are insects such as the oak bed bug, due to which the oak canopies are already intensely brown in the middle of summer. Increased air temperature, changes in the amount and distribution of precipitation, frequent and intense storms, prolonged, intense and frequent droughts, changes in flood length, vegetation period and lack of soil freezing are just some of the direct climate changes. Climate has a complex interaction of natural processes with forests, while forest management is becoming more complex due to new social circumstances. Forests are also exposed to additional pressures due to increased human activity. The non-profit functions of forests are becoming increasingly important to man, while society's demands for products and services from our forests are continuously growing.

A legitimate concern stems from the fact that habitat is changing and threats are growing far faster than the ability of our species to adapt to emerging conditions. In addition, new threats to forests are constantly emerging, about which we do not yet have sufficient knowledge. All of the above is the cause of significant biological and financial losses, large expenditures on rehabilitation and reconstruction, and the need to find new and quick solutions. According to Andreas Bolte, PhD, one of the greatest experts in the field of silviculture, our activities are becoming more complex and expensive, and direct losses are higher (Bolte, 2019.) It is crucial to carry out adaptive silvicultural activities. Unfortunately, today's silvicultural activities have the character of interventions in which it is necessary to find a quick and effective solution to increasingly complex problems in the field. Modern forestry should be based on identifying already present and future threats, making predictions of future habitat conditions, the reaction of species to them, the degree to which individual species can adapt and the shift in their distribution. This is the basis for both components of forest adaptation, which ultimately aim to establish more resilient and plastic forests. The first component is focused towards the restoration of surfaces that are under increasing negative influences at the most sensitive stage of development. The second component emphasizes risk assessment, selection of species and provenances that will be more resistant to anticipated threats (substitution of existing species), patch length adjustments, thinning adjustments, habitat preparation methods, fire prevention, breeding interventions, etc. (Đodan, 2019).

Fully aware of the described situation, we are obliged to ensure the general stability of forests, as well as the durability of revenues and public utility functions. Since its initiation, forestry has relied on the naturalness of conditions and the adaptation of species and provenances to specific habitat conditions. However, how to sustainably manage forests when habitat conditions are in rapid change, far faster than patrolling our economically important tree species? The aim of this paper is to evaluate the success of introducing new methods on forest land production areas in order to ultimately get better, more stable and more valuable forest systems - production of wood and non-wood forest products, while the local rural community has economic benefits. This can be achieved by reducing impending losses and maintaining the sustainability of our forests. The application of methods and practices such as integrated soil preparation and the

new planting principle is one of the possible responses to the challenges of climate change, the emergence of new pests and faster achievement of the ultimate goal faced by both private forest owners and state-owned forest managers. Studies investigating the effectiveness of different restoration strategies are scarce, especially long-term analysis (García et al., 2020). This research aims to fill the gap regarding different forest restoration approaches that can be considered environmentally sustainable production practices.

## 2. MATERIAL AND METHODS

The research was conducted in the lowland part of Sisak-Moslavina County, in commercial forests, economic units of “Popovačka lowland forest”, sections 14a and 54c. Commercial forest section 14a is an integral part of the economic unit “Popovačka lowland forest” which is managed by Šumarija Popovača and covers an area of 16.41 ha. According to the forest management program, pedunculate oak is growing from seed, meaning that the realization of raising a new forest stand in practice was done by the method of natural regeneration under a curtain (sowing seeds). Natural rejuvenation of one-time forest stands is based on several cuts of the main income by which the old stand is replaced by a young one, and it is a preparatory, fertile, if a subsequent and final cut is needed. The first cut starts in the year of good harvest, and the final when there is a satisfactory number of plants, which have strengthened enough for independent growth and development. This provides a place for the young stand to continue its path to economic maturity and then the process is repeated. This procedure is called patrol, and for pedunculate oak it takes approximately 140 years. With gradual cuttings, we receive the acorn reception area, while there are parent trees that should give offspring, and all undesirable species (weed vegetation) that reduce the possibility of receiving the desired seed are removed. In addition to the expected yield of parent trees, additional collected seeds from other areas are also spread. Natural restoration began in 2016, by fencing the surface with a 1.22 km fence of reinforcing mesh to prevent the wildlife entry that could destroy the seed. The fertile cutting opened the inflow of light to the ground and allowed the parent trees a larger assimilation area in order to better produce seeds - acorns. Moreover, in October of 2016, additional acorns were purchased from the local population (16,410 kg) and sown with a machine spreader. In 2017, the area was additionally opened by subsequent cutting. Chemical care of not yet germinated seeds from 2016. was conducted in the first week of April 2017. The procedure is justified, because weed vegetation that leaves before the oak was removed, which is of course more cost-effective than mechanical preparation (Table 1). In mid-May 2017, control was carried out against plant diseases, in this case against powdery mildew in order to preserve the newly germinated plants, formed partly from the mother trees of the old stand, and partly from scattered acorns. The walkway counted 21 young oaks, on a sample area of 10x10m (100m<sup>2</sup>). Further counting showed that the number dropped drastically due to the extremely dry period during July and August, and only one young oak was counted at the end of September. In the autumn, the area of 13.60 hectares was treated with a total herbicide. The treatment area was reduced due to the lowland filled with water as a result of autumn rains. However, due to poor yields and subsequently poor purchase, only 620 kg of acorns of the planned 16,410 kg were scattered by the spreader. The yield of the parent trees was completely absent. Forest monitoring of the exemplary plot during 2018 found only 2 oaks as a result of acorns scattered in 2017. The planned chemical preparation with total herbicide was carried out again on the entire surface of section 14a in the fall of 2018 in order to destroy the new weed vegetation and prepare the surface for acorns. The acorn yield was satisfying, so we scattered 16,410 kg with a spreader by the end of October 2018. Monitoring the area in April 2019, the count again ended in poor results, with only 5 plants on the sample plot.



**Picture 1.** Section 14a – receipt of germinated plants in 2020

This was followed by a repeated chemical preparation with a total herbicide on the entire surface of the department during October 2019. in order to destroy weed vegetation and prepare the area for receiving acorns, and soon a new 12,616 kg of acorns were sown with a spreader, due to a lower yield than expected. By visiting during 2020, on three occasions (May, July, September) and by counting, a satisfactory number of 26 young oaks was established on the sample plot (Picture 1).

Commercial forest 54c section is an integral part of the economic unit “Popovačka lowland forest” with an area of 15.83 ha, and according to the forest management program it predominately consists of domestic poplar mixed with pedunculate oak and individual maple, elm and acacia trees. The realization of raising a new forest stand in practice was done by the method of direct conversions planting. (Benko, 2020.) Conversion (lat. *Coversio* - conversion) is a breeding procedure by which the conversion, or in other words translation of one breeding form into another, is performed by applying appropriate breeding measures. Direct conversion is performed by sowing or planting the same or other economically valuable species of forest trees, when the biological potential of the forest does not ensure the success of certain cultivation or economic measures in creating the preconditions for natural regeneration (Dubravac, et al. 2001). The aforementioned 54c section was fenced by a braid in the length of 0.87 km. Knitting was chosen because the renewal is done by planting seedlings, and there is no fear of destroying planting material from the game – that is the advantage of using seedlings, which allows for significant savings. During January and February 2020, mechanical soil preparation was performed, that shredded all biomass left after the main harvest was cut, and the soil was immediately loosened with a milling machine. Integral soil preparation has many benefits since, in addition to shredding compacted soil, it mixes biomaterial from the surface into the area of root growth, and also retains the required moisture during the dry period. By the beginning of April, 110,810 pedunculate oak seedlings were planted in rows spaced 3 meters apart (Picture 2).

The distance between the seedlings was set at 0.80-1.0 m within the row. The seedlings were 2 years old and brought from the Lukavec nursery, grown and nurtured with visible better height gain than those plants that we expect in the second year of development, and obtained by sowing



acorns. In May 2020, the control of plant diseases was carried out - against powdery mildew. By counting the received seedlings during September, the receipt of 87% was established (31 seedlings). At the end of April 2021, the monitoring was performed again on the same plot, and an identical number of survivals of planted seedlings was established.

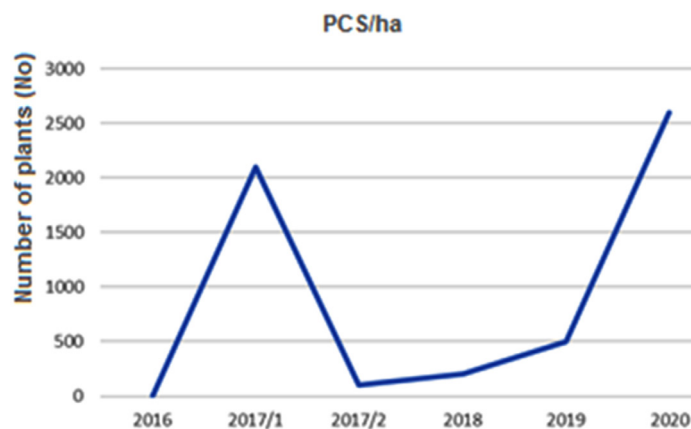


**Picture 2.** Section 54c - receipt of pedunculate oak seedlings

For most of our analysis, we used data available from two sources. The first is HsPPU, a specialized tool for monitoring, analyzing, and costing forestry methods. Furthermore, the chronology of works was taken from the management program for the economic unit “Popovačka lowland forest” and the internal documentation of Croatian Forest LLC. Data processing was performed using MS Excel.

### 3. RESULTS AND DISCUSSION

The success of reforestation by classical sowing in the years when acorn yields were not lacking was barely noticeable; the number of plants decreased every year due to abiotic and biotic factors (Figure 1), despite regular care and monitoring measures, creating financial losses.



**Figure 1.** Fluctuation of abundance and survival of young plants derived from seeds

A satisfactory abundance resulted only when the positive factors coincided. The described data indicate that investment was required in the period 2016-2020 year to achieve the end result (Table 1), for these plants to be stable enough to continue their growth and development, subject to the implementation of future care procedures, and depending on their course of development. The costs of repeated habitat preparation and sowing amounted to for the monitored period 2016-2020 a total of HRK 480,270, or HRK 29,266.91 per hectare. The income of the local population collecting acorns depended on the harvest, which was absent or reduced in some years. Acorn collection is not standardized and is often reduced to several large buyers in the territory of the Republic of Croatia, with no necessity to establish an employment relationship.

**Table 1.** 14a section - HsPPU data analysis

Year of execution	Name of work	Section	UMW (JMR)	Amount	STANDARDS AND COSTS (materials, work, services)								general cost correction
					Cost elements	Type of performer	Vli	UCM (JMT)	UCM/UMW	Qty-UCM	Price	Total HRK	
2016.	Sowing oak acorns	14a	ha	16,41	Pedunculate oak - seeds	I		kg	1000,000	1641	5,00	82050	
					Tools and equipment	I		HRK	1,0000	16,41	3,75	61	
					Seed transport	pt 41-60+unit	V	COB -sd	0,1000	1,64	1304,00	2138	
					Work -Spreader	pt 41-60+spreader uni	V	COB -sd	0,3380	5,55	1542,00	6558	
					Work -worker	Work-other jobs	V	COB -nd	1,0000	16,41	559,98	9189	
												101997,00	76497,75
2016.	Raising the reinforcement fence	14a	km	1,22	Iron nails type "U"	I		kg	20,0000	24,4	19,00	463	
					Wire 3mm	I		kg	50,0000	61	6,00	366	
					Reinforced mesh 4x2	I		PCS	260,0000	317,2	93,00	29499	
					Wooden pillars 80x80x3000mm	I		PCS	260,0000	317,2	30,00	9516	
					Transport of material	pt 41-60+unit	V	COB -sd	1,0000	1,22	1304,00	1590	
					Material supply	dump truck	U	COB -sd	1,0000	1,22	2498,00	3047	
					Work -worker	Work-entrepreneur	R	COB -nd	27,0000	32,94	308,88	10174	
												54658,00	40993,50
2017.	Preparation chemically sprayer	14a	ha	16,41	Herbicide tot.glif	I		L	5,0000	82,05	50,00	4102	
					Water transport	pt 41-60+unit	V	COB -sd	0,0555	0,91	1276,00	1161	
					Work- sprayer	pt 41-60+sprayer uni	V	COB -sd	0,1666	2,73	1079,00	2945	2461,5
					Work -worker	work - chemical agei	V	COB -nd	0,1666	2,73	599,83	1637	
												9846,00	7384,50
2017.	Preparation chemically sprayer	14a	ha	13,60	Herbicide tot.glif	I		L	10,0000	136	50,00	6800	
					Water transport	pt 41-60+unit	V	COB -sd	0,0555	0,75	1276,00	957	
					Work- sprayer	pt 41-60+sprayer uni	V	COB -sd	0,1666	2,27	1079,00	2449	
					Work -worker	work - chemical agei	V	COB -nd	0,1666	2,27	599,83	1361	
												11567,00	8675,25
2017.	Chemical protection sprayer	14a	ha	16,41	Fungicide	I		L	5,0000	5,76	320,00	1843	
					Tools and equipment	I		HRK	0,1666	1,92	3,75	7	
					Water transport	pt 41-60+unit	V	COB -sd	0,0555	0,64	1276,00	816	
					Work- sprayer	pt 41-60+sprayer uni	V	COB -sd	0,1666	1,92	1079,00	2071	
					Work -worker	work - chemical agei	V	COB -nd	0,1666	1,92	599,83	1151	
												5890,00	4417,50
2017.	Sowing oak acorns	14a	ha	0,62	Pedunculate oak - seeds	I		kg	1000,000	1641	8,00	4960	
					Tools and equipment	I		HRK	1,0000	16,41	3,75	2	
					Seed transport	pt 41-60+unit	V	COB -sd	0,1000	1,64	1276,00	76	
					Work -Spreader	pt 41-60+spreader uni	V	COB -sd	0,3380	5,55	1514,00	317	
					Work -worker	Work-other jobs	V	COB -nd	1,0000	16,41	549,22	340	
												5697,00	4272,75
2018.	Preparation chemically sprayer	14a	ha	16,41	Herbicide tot.glif	I		L	8,0000	131,28	50,00	6564	
					Tools and equipment	I		HRK	0,1666	2,73	3,75	10	
					Water transport	pt 41-60+unit	V	COB -sd	0,0555	0,91	1238,00	1126	
					Work- sprayer	pt 41-60+sprayer uni	V	COB -sd	0,1666	2,73	1049,00	2863	
					Work -worker	work - chemical agei	V	COB -nd	0,1666	2,73	569,64	1555	
												12119,00	9089,25
2018.	Sowing oak acorns	14a	ha	16,41	Pedunculate oak - seeds	I		kg	820,000	13456,20	9,00	121105	
					Seed transport	pt 41-60+unit	V	COB -sd	0,0820	1,35	1238,00	1671	
					Work -Spreader	pt 41-60+spreader uni	V	COB -sd	0,2772	4,55	1484,00	6752	
												129529,00	97146,75
2019.	Preparation chemically sprayer	14a	ha	15,77	Herbicide tot.glif	I		L	8,0000	126,16	50,00	6308	
					Tools and equipment	I		HRK	0,1666	2,63	3,75	9	
					Water transport	pt 41-60+unit	V	COB -sd	0,0555	0,88	1311,00	1153	
					Work- sprayer	pt 41-60+sprayer uni	V	COB -sd	0,1666	2,63	1122,00	2950	
					Work -worker	work - chemical agei	V	COB -nd	0,1666	2,63	610,79	1606	
												12028,00	9021,00
2019.	Sowing oak acorns	14a	ha	15,77	Pedunculate oak - seeds	I		kg	800,0000	12616,00	9,00	113544	
					Tools and equipment	I		HRK	0,8000	12,62	3,75	47	
					Seed transport	pt 41-60+unit	V	COB -sd	0,0800	1,26	1311,00	1651	
					Work -Spreader	pt 41-60+spreader uni	V	COB -sd	0,2704	4,26	1557,00	6632	
					Work -worker	Work-other jobs	V	COB -nd	0,8000	12,62	561,90	7091	
												128967,00	96725,25
2020.	Chemical protection sprayer	14a	ha	15,77	Fungicide	I		L	0,7000	11,04	316,50	3494	
					Water transport	pt 41-60+unit	P	COB -sd	0,0555	0,88	1332,00	1172	
					Work- sprayer	pt 41-60+sprayer uni	P	COB -sd	0,1666	2,63	1143,00	3006	
					Work -worker	Work-entrepreneur	R	COB -nd	0,0500	0,79	380,00	300	
												7972,00	5979,00
												480270,00	360202,50
												Total	

By applying new adaptive cultivation methods and practices, a better result is observed in the area where the integrated method of soil preparation is by loosening or milling, planting seedlings in rows, and the work of the local population in rural areas. The prescribed daily output is 161 planted plants, which means that 688 workers/day were needed to plant 54c sections. As planting is done during the dormancy of vegetation, without snow cover and daily temperatures below zero, a large number of people are needed to plant the said area. The results of the costs of raising forests by planting seedlings using new methods amount to 42,610.17 Kn / ha (Table 2), and in comparison, they are 28.79% higher per hectare of forest than previous classic forest restoration.

**Table 2.** 54c section - HsPPU data analysis

Year of execution	Name of work	Section	UMW (JMR)	Amount	STANDARDS AND COSTS (materials, work, services)								general cost correction	
					Cost elements	Type of performer	Vli	UCM (JMT)	UCM/UMW	Qty-UCM	Price	Total HRK		
2020.	Removal of ground vegetation	54c	ha	15,83	Work -soil rotator	pt 41-60+rotator	P	COB -sd	0,5920	9,37	1332,00	12480,00		
					Work -chopper mach	pt 90+sit./2,25	P	COB -sd	1,2500	19,79	2441,00	48307,00		
					Work -chainsaw	Work-entrepreneur	R	COB -nd	2,0000	31,66	380,00	12030,00		
												<b>72819,00</b>	<b>54614,25</b>	
2020.	Soil milling (conv.)	54c	ha	3,96	Work -milling mach	pt 41-60+unit	U	COB -sd	1,3334	5,28	1332,00	7032,00		
												<b>7032,00</b>	<b>5274,00</b>	
2020.	Planting deciduous seedlings	54c	ha	15,83	Pedunculate oak -2+0 30-120		U	PCS	7000,0000	110810,00	4,00	340294,00		
					Tools and equipment		I	HRK	43,4000	104,16	3,75	390,00		
					Transport of seedling	pt 41-60+priklijućak	U	COB -sd	0,8750	1,26	1332,00	18460,00		
					Work -worker	Work- using hand to	V	COB -nd	43,4000	104,16	583,35	60761,00		
					Work -worker	Work-entrepreneur	R	COB -sd	26,7750	4,26	430,00	136381,00		
												<b>556286,00</b>	<b>417214,50</b>	
2020.	Chemical protection sprayer	54c	ha	15,83	Fungicide		I	L	0,7000	11,08	370,00	4099,00		
					Water transport	pt 41-60+unit	P	COB -sd	0,0555	0,88	1332,00	1172,00		
					Work- sprayer	pt 41-60+sprayer uni	P	COB -sd	0,1666	2,64	1143,00	3017,00		
					Work -worker	Work-entrepreneur	R	COB -nd	0,0500	0,79	380,00	300,00		
												<b>8589,00</b>	<b>6441,75</b>	
2020.	Raising a wire fence	54c	km	0,87	Iron nails type "U"		I	kg	36,0000	31,32	19,00	595,00		
					Iron nails - larger		I	kg	26,0000	22,62	10,00	226,00		
					Wire type "celeia"		I	m2	1000,0000	870,00	4,72	4106,00		
					Wire type 5mm		I	kg	850,0000	739,5	10,00	7395,00		
					Tying wire 1mm		I	kg	70,0000	60,90	6,00	365,00		
					Wooden pillars		I	m3	25,0000	21,75	200,00	4350,00		
					Transport of material	pt 41-60+unit	V	COB -sd	5,0000	4,35	1332,00	5794,00		
					Drilling works	pt 61-90+drill unit sn	P	COB -sd	0,8800	0,77	1683,00	1295,00		
					Work -worker	Work-entrepreneur	R	COB -nd	17,1400	14,91	380,00	5665,00		
												<b>29793,00</b>	<b>22344,75</b>	
												<b>Total</b>	<b>674519,00</b>	<b>505889,25</b>

The main advantage of the new method is the independence from the current year's acorn yield. This is supported by the fact that in 2020 the number of acorns managed to be purchased was slightly higher than the need for nursery production, which grows it in controlled conditions without major deviations. Due to their age, associated with height gain, seedlings are out of reach of greater damage by wildlife. Older plants are more resistant to abiotic and biotic negative factors. Planting material is from reliable sources. Unlike seeds, seedlings are easier to store in case of bad weather or delayed work. The end result was achieved in one year, which means that the time and resources obtained can be redirected to other works and areas.

The long and complex process of natural regeneration can be accelerated by intensive silvicultural procedures. New methods of habitat preparation for forest raising, planting, selection and distribution of forest species accelerate the emergence of young plants from the zone of weed vegetation. The introduction of new technologies and approaches to the forestry profession also ensures greater resistance to negative biotic and abiotic factors. Company investments in the form of Grants (measure M08, Investments in forest development and improvement of forest sustainability, Sub-measure 8.5 Support for investments in improving the resilience and environmental value of forest ecosystems, Type of operation 8.5.1. Conversion of degraded forest stands and forest culture), returns as a kind of decentralization and survival of rural areas. The limitations of the research can be seen in the fact that the research was conducted exclusively on the example of pedunculate oak, although the new methods can be replicated in all major economic tree species, limited only by nature's features due to the use of mechanization.



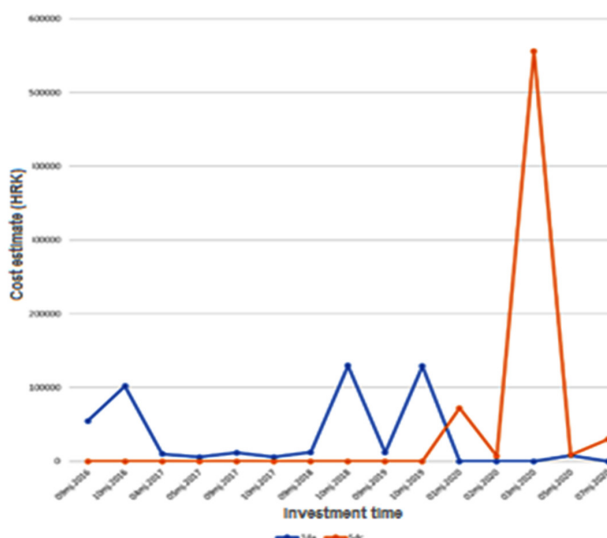


Figure 2. Investment trend to overgrown area

#### 4. CONCLUSION

Today, the forests and forestry of Croatia are facing new challenges. The importance of sustainable forest management takes on new dimensions of preserving the forest ecosystem in its original form and ensures the sustainability of income. The results of the research indicate that the use of new methods of forest regeneration creates 29% higher costs, but the time to the final goal of achieving a satisfactorily rejuvenated forest area is even four times shorter. At the same time, a much larger local population is employed alongside forest workers - observing only planting works that require 43 workers/day per hectare; an economically positive effect on rural areas is obvious. Therefore, supporting the new EU strategy for forests and the forest-based sector, especially in relation to rural development, is an opportunity for a more balanced development of the Republic of Croatia, i.e. the survival of rural areas. Forest should be managed in a multidisciplinary and sustainable way, using all the potentials of space and new technologies. Considering the areas of unforested forest lands and degraded forests that are available, the possibilities of afforestation and revitalization are open. This would contribute to employment and the return of life to rural areas, the improvement of living conditions, the general beneficial and economic effects of forests. Therefore, investments in forests and forestry should be viewed in the context of state development, especially rural areas where forest lands dominate.

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# On Significance of Strengthening Strategic Framework of Rural Women's Entrepreneurship in Serbia

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## Keywords:

Gender transformative policies;  
Gender analysis;  
Gender sensitive policies;  
Rural development



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**Abstract:** *Despite progress in supporting the economic empowerment of women, the environment in Serbia is still not friendly for female entrepreneurs. This is particularly cased in rural areas, where women face more prominent obstacles such as pronounced gender roles, stereotypes and gender-based property inequalities. This paper aims to indicate the significance of having efficient policies in this area. They are beneficial not only for rural women but also for economic growth, decreasing poverty, holding up the depopulation trend and revival of underdeveloped municipalities. Gender analysis of the relevant strategies (agriculture and rural development, employment, development of digital skills and smart specialization) shows that they are not sufficiently or not at all gender sensitive, and do not address the specific position and vulnerability of rural women. This may be eliminated by using gender analysis and gender impact assessment in the process of designing strategies. Creating a business-friendly environment also needs implementing complementary policies in other sectors, such as fiscal policy, health care, infrastructure and transportation.*

## 1. INTRODUCTION

Strengthening domestic entrepreneurship and innovation are crucial forces for the development and economic recovery of the Republic of Serbia. The geoeconomic reality imposes a need for building and supporting domestic companies and entrepreneurs, as well as for renewal and protection of agriculture, besides manufacturing (Babić, 2019, p. 196). The micro, small and medium-sized enterprises (MSMEs) sector is an important segment of the Serbian economy, accounting for 99.5% of the total active enterprises, employing 57% of employees and participating with 50% in the Gross Value Added (GVA) of Serbia.<sup>2</sup> Development of entrepreneurship demands, amongst others, better usage of the economic potentials of women. This issue was recognised by the 2015-2020 Strategy for Supporting the Development of Small and Medium-Sized Enterprises, Entrepreneurship and Competitiveness ("Official Gazette of the Republic of Serbia" no. 35/15). It included stimulative measures aimed at enhancing women's entrepreneurship.<sup>3</sup> As a consequence, the percentage of registered female business owners increased from 7.9% in 2007 (Babović, 2012, p. 47), to 31% in 2019 (SORS, 2020, p. 88). However, the progress in this field is still very slow, and the environment in Serbia is still not supportive of women's entrepreneurship.

The Ministry of Economy and the Serbian Development Fund continue to provide measures for women entrepreneurs, such as financial support (Development Fund of Serbia, 2021), mentoring, training, and counselling (Ministry of Economy of the Republic of Serbia, 2021). Affirmative measures have been also provided by the Ministry of Agriculture, Forestry and Water Management. For example, it included women among priority beneficiaries of the financial

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<sup>2</sup> Smart Specialization Strategy Serbia (4S) for the period 2020-2027 ("Official Gazette of the Republic of Serbia", no. 30/18), p. 118.

<sup>3</sup> For example, within the 2016 Year of Entrepreneurship, the Ministry of Economy implemented measures aimed at fostering entrepreneurship of women such as financial support, support of start-ups, training programmes, and public promotion of successful women's entrepreneurs (Dokmanović, 2016, p. 64).

support to small-scale farming households in its announcement of the project with the World Bank in April 2021 (Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia, 2021). The gender equality principle has been taken into consideration in preparing the Instrument for Pre-Accession Rural Development (IPARD) Programme for 2014-2020 and supportive measures were implemented for entrepreneurial women (Dokmanović, 2016, p. 55). In June 2017, the Coordination Body for Gender Equality launched the “Employment for 1000 Women in Rural Areas” Initiative implemented in cooperation with the Ethno Network and the National Alliance for Local Economic Development (NALED) (SIPRU, 2017). The Government of the Autonomous Province Vojvodina and the Provisional Institute for Gender Equality have been particularly active in implementing various supportive programmes aimed at encouraging rural women to enter businesses and promoting their products, services, and successes (Institute for Gender Equality).

Despite evident progress, women who live and work in rural and remote areas still experience a disadvantaged status. Their position is framed not only by the prevalent patriarchal context they live in but also by the economic and social underdevelopment of rural areas. They are widely exposed to the risk of intersectional discrimination, and their vulnerability increases when the geographical setting intersects with other grounds of discrimination, such as age, ethnicity, disability, and health condition. Therefore, they are among the most disadvantaged groups in society that need the special attention of policy makers to improve their fragile position. Moreover, this is the obligation of the State, as the United Nations Committee on the Elimination of Discrimination against Women has recommended Serbia to adopt measures to ensure that rural women have access to formal employment, ownership, education, healthcare, and other human rights on an equal basis with men and that their specific needs are met. Recommended measures include creating more opportunities for accessing employment and entrepreneurship and implementing gender-responsible policies.<sup>4</sup>

This issue was particularly addressed by the National Gender Equality Strategy for the period 2016-2020 (“Official Gazette of the Republic of Serbia”, no. 4/16). It recognized that improving the position of rural women would strongly contribute to rural development and enhance the economy of the country. Several strategic goals are specifically aimed at enhancing female entrepreneurship in rural areas. Strategic Objective 2.3 related to improving the economic and labour market status of women foresaw measures related to creating a favourable environment for the development of rural women’s entrepreneurship. Specific Objective 2.5 called for achieving equal contribution of women and men in rural areas to development and their equal access to development results. The defined measures included establishing counselling centres, designing training for start-ups and in the green economy; creating models of production that particularly benefit women, such as organic and small-scale farming; enhancing capacities for farming women-led households by providing incentives and introducing criteria for priority in the purchase of their agricultural products; stimulating micro businesses such as the social economy and rural tourism which are particularly attractive for rural women; and introducing incentives for local governments to invest in the development of infrastructure in rural areas, including public transport, to increase the availability of services and programmes and mobility of rural women. The Strategy’s accompanying Action Plan included specific measures related to enhancing female social entrepreneurship and cooperatives in rural areas.

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<sup>4</sup> United Nations Committee on the Elimination of Discrimination against Women, Concluding observations on the fourth periodic report of Serbia. CEDAW/C/SRB/CO/4 of 8 March 2019.

The implications and efficiency of these measures are still to be evaluated, as the Strategy expired recently, at the end of 2020, and an independent evaluation of its effects has not been finalised yet. The new Gender Equality Strategy for the coming period 2021-2026 has not been adopted yet.

The Gender Equality Strategy 2016-2020 has recognised that gender equality is a cross-cutting issue, so it has obliged the Government, ministries, local self-government and other policy makers to mainstream gender in all policies at all levels (Strategic Objective 3.2). This implies that the issue of female entrepreneurship, including in rural areas, should be addressed in all relevant sectoral strategies, including on employment, agriculture, and rural development. This paper provides the assessment of the policy framework related to the entrepreneurship of rural women from a gender perspective. The aim of the paper is to indicate the significance of efficient policies in this area not only for the sake of the advancement of rural women but also for the sake of the economic and rural development of Serbia.

## **2. METHODOLOGY**

With respect to the method, gender analysis was used. It enables to identify differences between and among women and men concerning their relative position in society and the distribution of resources, constraints, opportunities, and power in the given context. Using this tool allows for the development of interventions that address gender inequalities and meet the different and specific needs of men and women. Gender analyses include consideration of women's, and specifically rural women's, particular experiences, gender-specific needs, priorities, roles and responsibilities, and their access to resources and decision-making.

This paper analysed through gender lenses the relevant sectoral strategies (on agriculture and rural development, employment, development digital skills and smart specialization) that are in place and directly target enhancing entrepreneurship in Serbia. The first step was collecting available data and statistics, and the next one identifying gender differences and the underlying causes of gender inequalities in the research area. The main research questions were: Who is both direct and indirect target of the proposed policies, women and/or men? Who will benefit and who may lose? Who has access to and control of resources? Is there a gender gap in the allocation of resources? Does the policy document take into consideration the specific position, priorities and needs of rural women? Does the policy address the identified gender gaps and inequalities? Gender analysis also involves acknowledging the historical, economic and social inequalities of rural women in Serbia. This includes taking into account their specific experiences, needs and roles, and their access to resources and decision making. Gender analysis provides information on the different gender roles women and men have in the particular sector, as well as gender disparities and inequalities, and enable understanding of the causes and consequences of these issues.

## **3. OVERVIEW OF ECONOMIC AND SOCIAL POSITION OF RURAL WOMEN ENTREPRENEURS IN SERBIA**

Rural areas, particularly in Southern and Eastern Serbia, are underdeveloped and characterised by poorer access to basic infrastructure amenities, limited access to education, professional training, health care, social and other services. The social status of employed in agriculture has not been solved, so working in this sector is not attractive and competitive in comparison to oth-



er jobs in the labour market. The poor education and age structure, the low level of digital and other additional professional skills hinder labour market opportunities of the rural population, particularly of women and youth. Thus, they tend to migrate to urban communities where is easier to find a job and the quality of life is better. In the period 2002-2013, the rural population declined by 10.9%. The central part of Serbia loses 7.000 inhabitants annually due to the negative internal migration balance; on the other side, the only region that has a constant increase in population is Belgrade (SORS, 2020). Due to depopulation currently, there are 200,000 abandoned houses in those areas.

Existing literature and studies on the economic and social position of rural women indicate their unfavourable status, and vulnerability to discrimination, social exclusion, domestic violence and poverty, particularly of girls, Roma women, women with disabilities and elder and widowed women.<sup>5</sup> Women comprise 55% of the unemployed rural population and 74% of unpaid helping members of agricultural households (SIPRU, 2016). More than a half of them who are able to work are formally unemployed, three out of four women work without being paid, 60% of them are not eligible for a pension, and only 12% own property and 14% own land (SIPRU, 2017). The socio-economic position of rural women is particularly hindered due to a lack of equal access to social services and benefits. Two-thirds of rural women working in agriculture and family households do not have a pension and disability insurance, and 10% do not have paid health care insurance (SIPRU, 2017).

The vulnerability of the female rural population has been particularly visible during the current pandemic (SeCons, 2020). Women employed out of agriculture have been significantly hit by the pandemic and emergency measures concerning job loss. The majority of them have been employed in the private sector, and 20% had to commute to/from work, so they lost a job due to closure of firms or had to leave it due to increased burden of care economy and restrictions of public transportation (SeCons, 2020a, p. 33).

Women present the majority of the potential labour resource, but they experience more constraints than men to self-employ or to start their own business. Out of the total number of self-employed in 2019, 61,000 women (31.1%) and 203,000 men (43.7%) were in the agricultural sector (SORS, 2020, p. 76). Despite the past State's efforts to stimulate women's entrepreneurship, less than 15% of female entrepreneurs live and work in rural areas. In comparison to women in urban areas, they face more prominent obstacles related to starting or leading their businesses, such as pronounced gender roles, stereotypes and prejudices, and gender-based property inequalities. For them, lack of access to assets, markets, transport, support programmes, and training on entrepreneurial and digital skills plays a critical role in their participation in economic activities.<sup>6</sup>

In rural areas, how women participate in the labour market strongly correlates with the prevalence of gender roles. In more traditional regions, like Sandžak, women entrepreneurs often are limited to businesses that align with gender roles, such as establishing private kindergartens or supporting family businesses through enterprises that support a husband, father, or another male family member (Oliver-Burgess et al., 2020, p. 43).

Women's associations and networks are leading in supporting the entrepreneurship of rural women. For example, the Association of Business Women in Serbia provided activities aimed

<sup>5</sup> See Additional Reading section.

<sup>6</sup> The study of the Center for Research of Public Policies (Anđelković, Jakobi & Kovač, 2019) showed importance of digital literacy for economic empowerment of women.



at strengthening capacities of female entrepreneurs for digitalisation of business processes and provision of advisory and technical support for the market launch of rebranded traditional food products from Southwestern Serbia; building capacities of women in Raška region to promote handicrafts using digital tools; promoting the involvement of women's small and micro enterprises in the value chain of big corporations; and provided technical support for female organic and traditional food producers in the Western and Southern Serbia (Association of Business Women in Serbia, 2020). Associations of rural women have been also active in supporting entrepreneurial initiatives (Blagojević, 2010).

#### 4. GENDER ANALYSIS OF THE RELEVANT SECTORAL STRATEGIES

The Strategy of Agriculture and Rural Development for the period 2014-2024 ("Official Gazette of the Republic of Serbia", no. 85/14) has confirmed the high level of gender inequalities with respect to economic participation and opportunities of rural women. The related regional disparities are very prominent. The position of women in Southern and Eastern Serbia is far more unfavourable than in other parts of Serbia and the Autonomous Province of Vojvodina. Gender differences are pronounced in all segments of the labour market. Recognising the significance of the elimination of gender inequalities for agricultural and rural development, this sectoral Strategy included achieving the well-being of the rural population with full respect for the vulnerable position of women in the rural labour market among its key principles. Affirmation of women's entrepreneurship is therefore listed among the operational objectives that should contribute to the improvement of the social structure and the strengthening of social capital. The Strategy has recognised that the development of the critical mass of local food producers and other people that work in rural areas contributes to strengthening the social structure and the internal potential of rural communities. However, the Strategy missed to pay more attention to the entrepreneurship potential of rural women and define specific measures.

Development of entrepreneurship is listed among priorities and objectives of employment policy in the 2021-2026 National Employment Strategy ("Official Gazette of the Republic of Serbia", no. 18/21 and 36/21 - cor.). The Strategy recognises the unfavourable position of women and their lack of access to measures aimed at economic empowerment and independence. It admits that the gender employment gap and gender pay gap still exist despite certain improvements in women's position in the labour market in recent years. Recognising the increasing interest of women to start their own businesses, the Strategy in its Measure 2.4 underlines the need to intensify activities aimed at the promotion of women's entrepreneurship, increasing the number of educational programmes, supporting subsidies, and ensuring continuous mentoring during a start-up period. Support to entrepreneurship includes an expert and financial assistance in the form of a one-off subsidy to an unemployed person to start-up one's own business. The accompanying 2021-2023 Action Plan ("Official Gazette of the Republic of Serbia", no. 30/21) envisages an increase of participation of women who have started their own businesses by a subsidy for self-employment in the total number of awarded subsidies from 49.8% in 2019 to 53% in 2023. The activities include special measures for encouraging non-active women in less developed and devastated areas, such as information campaigns and caravans of employment. The Action Plan also includes stimulating entrepreneurship of Roma women and men by additional support and mentoring.

The Strategy recognises the necessity to pay special attention to improving the position of vulnerable groups of women, such as young women, Roma women and girls, women 50+, and women

with a low level of education. However, rural women are not specifically listed among vulnerable groups who would need support in self-employment and/or in entering small businesses.

Nowadays digital skills have become essentials for the needs of the labour market. Therefore, improving basic and advanced digital skills for rural women expands their opportunities at the labour market and in start-up and managing micro and small businesses. This need has been recognised by the Ministry of Trade, Tourism and Telecommunication which supported relevant activities in this field. For example, in 2018, more than 350 women passed the programmes of development of digital skills, which include improving their skills in the digital promotion of their traditional domestic products.

The 2020-2024 Strategy of Development of Digital Skills (“Official Gazette of the Republic of Serbia”, no. 21/20) recognises the importance of digital work and platforms for persons in rural areas in which the employment opportunities are limited or in which workers face obstacles in accessing the labour market due to their age, health conditions or gender-based discrimination. The Strategy underlines that particular attention should be paid to vulnerable groups, such as the young, elderly, and rural population, and the significance of realisation of gender equality.

The priority strategic areas of education, labour market, citizens, and ICT professionals, are set following New Skills Agenda for Europe. The overall objective of this Strategy is to improve the digital knowledge and skills of all citizens, including members of vulnerable groups, to meet the needs of the economy and the labour market. This policy document recognises that the digital gap is particularly present for persons with disabilities, Roma, and the rural population. The relation regarding the usage of computers in urban and rural areas is 73.3% in comparison to 54%. The Strategy considers that training in this field contributes to decreasing socio-economic differences and developing an inclusive society. Training programmes should be accessible and affordable to avoid potential discriminatory effects to women, young, poor, rural, unemployed, elder and persons with disabilities. It underlines the need to focus activities on women and girls, particularly in rural areas, and to adapt programmes to their position, needs and interests.

Therefore, the measures to improve basic and advanced digital skills include developing training models for easing access to citizens who belong to vulnerable groups, such as the rural population, considering the need to decrease gender differences and inequalities in developing digital skills. Besides training, the Strategy calls for implementing gender awareness-raising campaigns to contribute elimination of gender-based stereotypes that advanced digital skills are intended only for men and to encourage girls and young women to persevere in their interests in science and technology.

The Strategy gives space to enhance the digital skills of the rural population, particularly those who intend to start their own business, small entrepreneurs, and owners of craft shops. The document recognises that besides training programmes and trainers, the key prerequisite is related to building the communication infrastructure that is currently particularly poor or does not exist at all.

Another policy document that is related to the subject of this paper is the 2020-2027 Smart Specialisation Strategy Serbia (4S) (“Official Gazette of the Republic of Serbia”, no. 30/18). It is relevant for several reasons: further growth of the entrepreneurial sector is one of its important goals, and food production is among its priority areas defined as “Food for Future”. The general

vision in this area is to achieve sustainable high-technology production of high value-added food for the future. The 4S stresses that the “Food for Future” priorities are in the synergy of the Agricultural and Rural Development Strategy with smart specialisation and through the involvement of farmers with advisory work and the establishment of a system of records in agriculture. However, the 4S misses integrating gender perspective, as well as its accompanying Action Plan for the period 2020-2021 (“Official Gazette of the Republic of Serbia”, no. 42/21). Presented data and statistics are not desegregated by sex. The specific position of women as entrepreneurs, food producers, and service providers is not addressed.

## 5. CONCLUSION

All the above leads to the conclusion that certain progress has been made in engendering a strategic framework related to rural women's entrepreneurship, but special policies and support measures are further required. It is encouraging that the National Employment Strategy insists to include the gender dimension in all systematic interventions related to enhancing the entrepreneurship of young people, as it recognises the huge gap between young women and men regarding their position in the labour market. It is also affirmative that the Strategy of Agriculture and Rural Development included achieving the well-being of the rural population with full respect for the vulnerable position of women in the rural labour market among its key principles.

However, in general, the sectoral strategies are not friendly to micro family businesses. Moreover, some important strategies, such as the one related to smart specialisation, are gender blind. The 4S neglects the gender perspective, the specificities of the position of rural women and the importance to make training on digital skills accessible. Young rural women would particularly benefit, as that would raise their opportunities to get or increase their source of income and enable livelihood for their families. This policy document missed to recognise fully the economic and innovative potential of rural women and to formulate measures aimed at increasing their employability and self-employability, digital and other skills necessary to bring more of them into formal-sector value chains and markets.

The gender analysis of the relevant strategic framework also shows that the designed measures are fragmented and poorly gender transformative. They do not consider gender equality as a cross-cutting issue and do not provide measures for the elimination of gender stereotypes. There is a shortage of gender-sensitive measures that would stimulate start-ups and work of micro firms that are favourable to women, such as rural tourism, organic food production, green economy, family businesses, and social cooperatives. The opportunities of developing female micro firms in the care sector, such as childcare, care of elderly or persons with disabilities, are also neglected. A lack of gender desegregated data and gender indicators are also observed. This shortage will aggravate efficient monitoring and evaluation of the implemented policies.

The policy makers have missed to recognise the fact, proved by the research (Blagojević, 2010), that rural women and their associations contribute not only to women's empowerment but to improving the quality of life in local communities. They are problem-solving oriented and are acting on their initiative in an area that has become run-down due to the transition, poverty, erosion of institutions and social negligence. Economic empowerment of women, particularly young women, would contribute to decreasing poverty and holding up the depopulation trend in the rural underdeveloped municipalities. Apparently, developing rural women's entrepreneurship has multiple positive effects not only concerning contributing to the national economy

but to increasing the overall quality of life in local communities. The identified gaps could be prevented if the ministries would do gender analysis of the sector and *ex-ante* gender impact assessment in the phase of designing a strategy and before its adoption. It would be also helpful to include associations of rural female entrepreneurs in a consultation process.

Slow advancement in this sector is also caused due to neglecting to observe and address the wider context in which rural women and men live and work. Namely, it is not possible to create favourable business opportunities in the rural areas by fragmented policies targeting only employment, entrepreneurship, and agricultural production, but also developing and implementing effective and complementary policies and measures in other sectors such as fiscal policy, health care, social policy, education, professional training, culture, and transportation. For example, building roads and other infrastructures are of essential importance for accessing markets, and for making rural areas attractive for living. Developing the relevant effective strategic framework requires narrow intersectoral and interministerial cooperation and a holistic approach to the economic and rural development of the country that would be beneficial for both citizens and society.

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# Developing a Typology of Green Tourists. Empirical Study From Romania

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## Keywords:

Green tourism;  
Eco-types;  
Consumer behaviour;  
Participatory behaviour



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**Abstract:** *This study seeks to develop a typology of tourists according to their attitude and behaviour in relation to the natural environment. A survey was conducted on a sample of tourists in one of the representative natural tourist areas of Romania based on a face-to-face questionnaire. The typology of green tourists has been created based on 28 items measuring consumer or participatory behaviour. The study provides a segmentation of tourists into three eco-types: eco-destructive, eco-impartial, and eco-involved. These segments were analysed by gender, age and level of studies in order to observe specific similarities or differences set for each criterion. The main findings on the impact of tourist activity on the environment underline the importance for tourists to be more careful and concerned about solving the environment and enhancing green behaviour.*

## 1. INTRODUCTION

Starting with the second half of the twentieth century, people have become more interested in their holiday destinations (Seddighi & Theocharous, 2002), turning tourism into one of the most important business activities worldwide (Suhel & Bashir, 2018; Lew, 2011). At that time also started the expansion of green and ecotourism practices (He, He & Xu, 2018; Cheung & Jim, 2013). Nowadays, there is a significant global tourism flow to natural areas, as well as to less-known or unusual destinations that are perceived as exotic (Rainero & Modarelli, 2020).

In this context, green tourism has mainly been an appeal for the inhabitants of big urban agglomerations (He, He, & Xu, 2018). People practising this type of tourism appreciate more ecotourism products, and could be seen in parks and natural reservations in different parts of the globe (Ștefăniță & Vlavian-Gurmeza, 2010). Also, they try to integrate themselves into a natural environment without bringing any harm to it through their tourist activities.

This study aims to develop a typology of tourists considering their attitude towards environment as it is reflected in their behaviour in relation to nature. Specifically, it aims to outline an index-based typology of tourists (ECO-AT-BEHAV – ECOlogical-ATtitudes-BEHAViour), built using the responses of the interviewed subjects and to define the profile of segments/categories/types of tourists by age, gender and level of studies.

To reach the aims of this study, after the introductory section, the literature review overviews studies on green attitudes and behaviour of tourism consumers, and presents several typologies found in the literature. Then, the authors describe the data and the research methodology. Finally, the empirical study results are presented and discussed. The paper ends with the most impor-

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tant conclusions which are used to provide guidelines for increasing the awareness of tourists for enhancing green behaviour. Additionally, the study discusses the research limitations and future lines of research.

## 2. LITERATURE REVIEW

Green behaviour is a set of attitudes, actions, habits, manners and customs that characterise the daily conduct of an individual (Kaiser & Gutscher, 2003). This definition views green behaviour as a character trait. Green behaviour interferes with green attitudes (Gaspar, 2013). According to Arnold et al. (2018), behaviour is a cognitive, affective and voluntary manifestation that is rooted in opinions, moods and manners. It is an outcome of learning that takes place in formal (school), informal (family) and non-formal (organisations, mass-media) environments.

According to Ștefănică & Butnaru (2013), a significant role in the education of tourists is played by the development of behaviour codes and guides showing tourists what they should do or not for not harming the environment when they practise tourism (Li & Wu, 2020).

The literature on the field presents several typologies of tourists, which focused on the relationships of tourists with the environment, being built over time using such segmentation criteria as perceptions of environment (Holden, 2000), motivation for going on a holiday (Theobald, 1998), behaviour and requests (Tapper and Cochrane, 2005).

Holden (2000) develops a typology of tourists by their perception of the environment:

**The environment viewed as a stage for practising tourist activities** – tourists consciously or subconsciously disregard the environment and show lack of interest for learning and understanding more about it;

**The environment viewed as a social system** – tourists perceiving the environment as a place where they can interact with family and friends;

**The environment seen as an emotional territory** – tourists perceive the environment as an important part of tourist experience making they have strong feelings;

**The environment blended with the tourist** – the tourists are deeply concerned about the environment and any harm caused to it is perceived as their own.

Theobald (1998) describes four behavioural types of tourists segmented by their motivation to go on a holiday, which are specific to destinations with intense natural attractions:

**Hardcore (kind)** – tourists interested in protecting nature, feeding animals, planting trees (for ex., researchers);

**Dedicated** – tourists visiting protected areas and wishing to understand the local cultural and natural history;

**Mainstream (unusual)** – tourists visiting unusual, strange destinations (the Amazon, Rwanda national Park, etc.);

**Casual (occasional)** – tourists taking part in such travels occasionally as part of their holidays.

Tapper and Cochrane (2005) develop a typology of tourists by motivation, behaviour and requests. They developed the following classification of tourists:

**Explorer** – the tourist researching nature, an individualist, a loner, an adventurer, not asking for special conditions;

**Backpacker** – the tourist whose holiday could be interpreted as a travel experience, a long-time traveller;

- Backpacker plus** – the tourist wishing to get as much knowledge as possible about nature and interested in getting professional information, open to spending more, who belongs to the category of highly-paid professionals;
- High Volume** – the tourist enjoying nature if it is easy to reach, lacking travelling experience, who prefers to travel in a big group with over the average income;
- General Interest** – the tourist for whom nature and wildlife, and the culture are a passion, who travels alone, using well-set itineraries arranged by specialised travel agencies, and prefers security and the company of a big group of tourists;
- Special Interest** – the tourist for whom nature is a hobby or is a subject of research, adventurous, travels alone or in a group, needs special facilities and services (specialised guides), accepts lower comfort.

### 3. DATA AND METHODS

To conduct this study, we opted for a survey carried out using a questionnaire applied to Romanian tourists. The sample is divided by gender – 47,8% male respondents and 52,2% female respondents, most aged between 55 and 65, and by level of study, most respondents having secondary or undergraduate education.

A green typology of tourists was built using the following algorithm:

- Step 1:** For each item on the attitude and behaviour of tourists in their relationship with the environment (consumption and participatory behaviour), the responses have been grouped into the following three categories: (a) – high and very high; (b)- moderate; (c) – not at all or little;
- Step 2:** For each of the 26 items, we calculated the frequencies of responses for the three response categories;
- Step 3:** The responses were aggregated for the entire set of items and therefore the ECO-AT-BEHAV index was created.
- Step 4:** We calculated the frequency of the responses for the three response categories of the following items: *The environment should be protected even if it brings high economic costs and the development of economy should be a priority even if the environment could be harmed*
- Step 5:** Based on the frequencies of the ECO-AT-BEHAV index and of the two items considered in Step 4, the respondents have been classified into three groups of tourists: ***eco-destructive (uninterested), eco-impartial (neutral), and eco-involved (supporters)*** (see Table 1).

**Table 1.** ECO – AT – BEHAV index

Items	Eco-destructive %	Eco-impartial %	Eco-involved %
Your tourist activities lead to the destruction of biodiversity	10,4(a)	21,3(b)	64,8(c)
Your tourist activities lead to water pollution	20,3(a)	17,3(b)	61,9(c)
Your tourist activities lead to air pollution	21,7(a)	22,2(b)	55,6(c)
Your tourist activities lead to noise pollution	11,4(a)	28,2(b)	59,4(c)
Your tourist activities lead to more waste	31,7(a)	16,3(b)	52(c)
Your tourist activities lead to depletion of natural resources	14,4(a)	21,8(b)	62,4(c)
You generally travel by car or by bus	65,4(a)	22,3(b)	12,4(c)
You generally travel by plane	8,7(a)	11,2(b)	80,2(c)
Would you go to your destination by bike or public transportation to reduce the carbon footprint	31,8(c)	20,9(b)	46,8(a)

Are you careful not to destroy plants?	1,5(c)	22,9(b)	75,6(a)
Are you careful not to disturb animals?	5,5(c)	22,4(b)	72,1(a)
You are not making noise	11,4(c)	34,3(b)	54,2(a)
You do not leave waste behind	2(c)	6,9(b)	91,1(a)
You put waste in specifically designated places	1,5(c)	4,9(b)	93,6(a)
You do not make fire, you do not smoke	17,4(c)	28,9(b)	53,7(a)
You do not go in nature by car	38,8(c)	33,3(b)	17,8(a)
You protect the areas protected under law	3,5(c)	15,5(b)	80,5(a)
Have you taken part in actions protecting the environment?	24,4(c)	38,3(b)	37,3(a)
Would you pay at destination an eco-fee to reduce the carbon footprint?	31(c)	33(b)	35(a)
Would you transfer 1% of your income tax to protect the environment?	35,8(c)	20,4(b)	43,3(a)
Have you participated in tree planting?	27,8(c)	37,6(b)	34,1(a)
Do you collect waste selectively?	22,3(c)	32,2(b)	45,5(a)
Do you reduce, reuse and recycle when it is possible?	25,6(c)	31(b)	42,9(a)
Do you save energy?	19,3(c)	39,1(b)	41,6(a)
You save energy/do not waste energy	21,3(c)	34,2(b)	44,5(a)
Would you pay more for the services of an eco-hotel?	27,2(c)	39,6(b)	20,8(a)
ECO – AT – BEHAV index	20,47	25,23	53,04
<i>The environment should be protected even if it brings high economic costs</i>	1,5(c)	23,6(b)	74,4(a)
<i>The development of economy should be a priority even if the environment could be harmed</i>	16(a)	40,8(b)	43,3(c)
Eco-types	12,66	29,88	56,91

**Note:** (a) – percentage of tourists who responded high/very high to the asked questions; (b) – percentage of tourists who responded moderate to the asked questions; (c) – percentage of tourists who responded not at all or little to the asked questions.

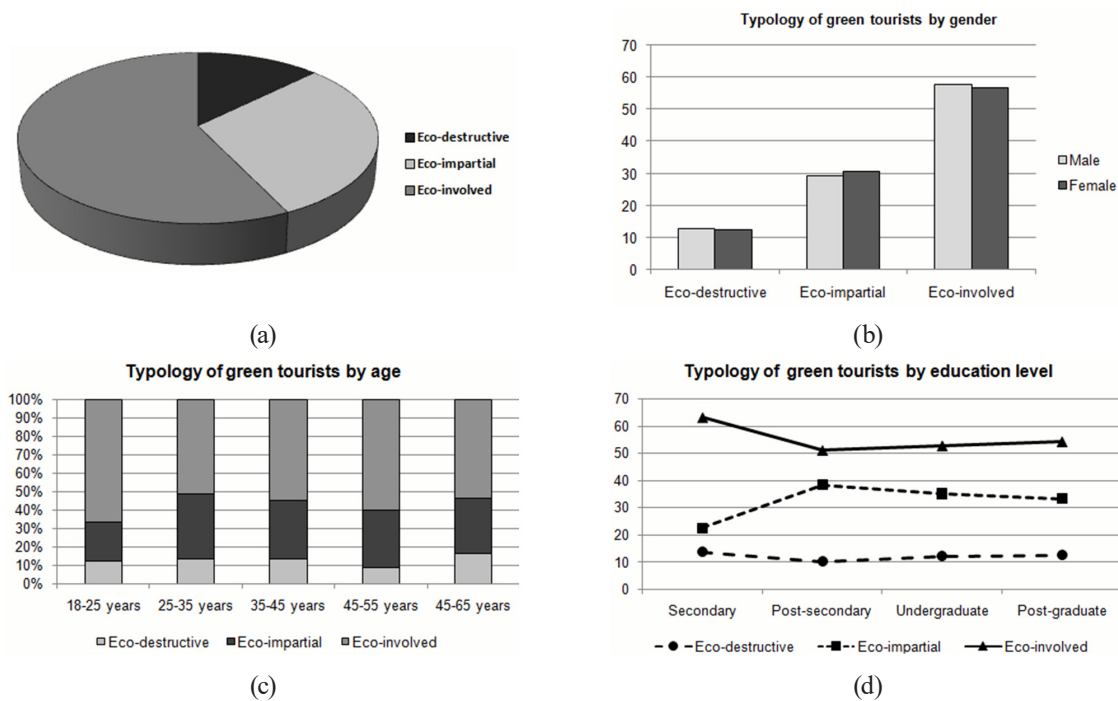
**Source:** Authors' calculation

#### 4. RESULTS AND DISCUSSION

By the attitude and behaviour of tourists towards the environment that is reflected by the responses to the questionnaire questions, we segmented the studied population into three eco-types:

1. **Eco-destructive (uninterested)** – the tourists who believe that economic development should be done no matter how much the environment is affected, and whose attitude and behaviour lead to the worsening of the environmental problems;
2. **Eco-impartial (neutral)** – the tourists with a neutral attitude towards environmental issues and who have a moderate behaviour in their relation with nature;
3. **Eco-involved (supporters)** – the tourists saying that the environment should be protected even if it means high economic costs and an-environmentally friendly behaviour.

The structure of the sample according to the three ecotypes are shown in Figure 1 (a). At first sight, the environment seems to be a concern for more than a half of the studied tourists who are willing to get involved in actions that could have an impact on environmental protection. Still, we believe that the results should be interpreted with caution as Romanian tourists believe that the positive effect on the environment is more a collateral benefit than their main motivation for engaging in such activities.



**Figure 1.** Typology of green tourists (a) – overall sample;  
(b) – by gender; (c) – by age; (d) – by education level

**Source:** Authors' calculation with SPSS and Excel

As for the gender of respondents, it could be noted that the differences in attitudes and behaviour are insignificant (Figure 1 (b)). In other words, the distribution between eco-types remains the same for women and men.

The three eco-types slightly differ by age of tourists (Figure 1 (c)). Nevertheless, more involved are the subjects aged between 18 and 25, and more impartial are the ones aged between 25-35, and less destructive are the subjects aged between 45-55.

As for the typology of green tourists by level of studies (see Figure 1 (d)), we observe that the share of the eco-involved individuals is higher among the subjects with secondary education, while the subjects with post-secondary, undergraduate and post-graduate education are more eco-partial. Such results could be explained in two ways: all types have been equally influenced by the same message delivered by the media and have developed awareness of the environmental protection, although no category has committed to what it calls for.

## 5. FUTURE LINES OF RESEARCH

A future line of research could repeat the study in a couple of years as to discover the changes that might appear in the attitudes and behaviour of tourists towards the environment. Also, the study could be extended as to include other tourist areas that are rich in natural resources, which may enable us to make a cross-national comparison of tourists and identify similarities and differences in their attitudes towards the environment. Also, another line of research could focus on developing a green typology of accommodation facilities, which could show the degree to which these get involved in solving the environmental problems. It would be interesting to discover the attitude of local public authorities or local communities towards the environmental protection in specific tourist areas.



## 6. CONCLUSION

From a theoretical perspective, the conducted study is a contribution to the literature in the field as it suggested a classification of tourists considering their attitude towards the environment, and the behaviour they adopt when spending holidays in areas rich in natural resources.

In conclusion, we believe that this phenomenon could be explained in two ways: all types of tourists have been equally influenced by the same message delivered by the media and have developed awareness of environmental protection, although no category has committed to what it calls for. Also, considering the above factors, it is apparent that only by increasing environmental responsibility and engaging all stakeholders: tourists, authorities, mass-media, etc., the relation with the environment could become sustainable and solutions could be found for the environmental problems.

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# Sustainable Spatial Development of the Tara National Park

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## Keywords:

Sustainable spatial development;  
Tara National Park;  
Republic of Serbia;  
Spatial and urban planning



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**Abstract:** The paper points out the importance of sustainable spatial development of the Tara National Park, one of the five national parks in the Republic of Serbia. The research of sustainable spatial development was carried out at four planning levels of the area of the Tara National Park, at the international, national, regional and local levels. The paper emphasizes the importance of adopting planning documents at all four planning levels, as these are important instruments for achieving integral and sustainable development of the protected area. The importance of the planning documents is confirmed, in terms of providing a spatial framework for the protection and management of the natural and built environment of this territory. In accordance with the above, this paper aims to point out the importance of sustainable spatial development for the protection and sustainable use of the Tara National Park and to give suggestions for its improvement.

## 1. INTRODUCTION

The Tara National Park with a total area of 24.991,82 ha is located in the Western part of the Republic of Serbia, on the border with Bosnia and Herzegovina. It acquired the status of a national park 40 years ago, and today it is one of the five national parks in the Republic of Serbia. It was named after the Illyrian, highland tribe of the Autarchy, who lived in this area during the Bronze Age. It is a rare mountain in this part of the Balkan Peninsula with very well preserved original forest ecosystems. Some types of pure or mixed forests of deciduous and coniferous trees are old several hundred years (Javno preduzeće “Nacionalni park Tara”, 2020). The beginnings of nature protection in this area date back to the 19th century. The largest part of the Tara Mountain in a total area of 19.175,00 ha was declared a national park in 1981, by the Law on the Tara National Park (“Službeni glasnik Republike Srbije”, no 41/1981). From then until today, a number of amendments and changes were made to the law (1983, 1988 and 1993), so that according to the latest Law on National Parks (“Službeni glasnik Republike Srbije”, br. 84/2015 i 95/2018 - dr. zakon), the Tara National Park was protected on a larger area of a total of 24.991,82 ha.

Appropriate planning documents adopted at different levels of management can contribute to the sustainable spatial development of the protected areas, including the Tara National Park. Thus, at the international level, one of the most important documents for the sustainable spatial development of an area, the International Guidelines on Urban and Territorial Planning (UN-Habitat, 2015; UN-Habitat, 2015a), defined the principles and recommendations for urban and territorial planning at all levels of management. The spatial framework and other guidelines for sustainable spatial development of this area provide planning documents that have an impact on this area with their planning decisions. These are primarily spatial plans adopted for the territory of the Republic of Serbia, regions, special purpose areas and municipalities, as well as urban plans. These documents must be mutually harmonized, reflect the political will and harmonization of the interests of different actors in space. In addition to the above, integrated and

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sustainable planning implies that the natural and cultural capital of a territory is integrated into sectoral policies, especially those that have territorial implications for a given area (Dobričić & Josimović, 2018).

The Spatial Plan for the Special Purpose Area of the Tara National Park was adopted by the Government of the Republic of Serbia in 2020 (“Službeni glasnik RS”, broj 44/2020), and it represents an important document for long-term protection and sustainable management of this area. It is at the same time a strategic and regulatory plan, and the third spatial plan for the special purpose for this area, after the previously made ones in 1989 and 2010. In general, spatial plans for special purpose areas are adopted for areas that require a special regime of organization, arrangement, use and protection of space, which includes national parks. In accordance with the above, the aim of this paper is to point out the importance of sustainable spatial development for the protection and sustainable use of the Tara National Park and make suggestions for its improvement.

## **2. METODOLOGICAL APPROACH**

The paper researches the sustainable spatial development of the Tara National Park at the international, national, regional and local levels. The research uses documents adopted at various levels, such as the International Guidelines on Urban and Territorial Planning (UN-Habitat, 2015; UN-Habitat, 2015a) at the international level; the Spatial Plan of the Republic of Serbia from 2010 to 2020. (“Službeni glasnik RS”, broj 88/2010) at the national level; the Regional Spatial Plan for Zlatibor and Moravica Administrative Districts („Službeni glasnik RS”, broj 1/2013) and the Spatial Plan for the Special Purpose Area of the Tara National Park (“Službeni glasnik RS”, broj 44/2020) at the regional level; and the Spatial Plan for the Municipality of Bajina Bašta („Službeni list opštine Bajina Bašta”, broj 10/2012) and urban plans, at the local level. In addition to the mentioned documents, the Management Plan for the Tara National Park 2020-2029, which was prepared by the manager of the national park (Javno preduzeće “Nacionalni park Tara”, 2020), was also consulted. The research in this paper is focused on the analysis of the mentioned documents and the guidelines they provide in relation to the sustainable spatial development of this area, and gives suggestions for its improvement.

## **3. ABOUT TARA NATIONAL PARK**

The Tara National Park, established in 1981, is one of the five national parks in the Republic of Serbia. It is located in Western Serbia, and it is a part of Dinaric Alps. Its length is 50 km, it is 22 km wide, with an average height of 1200 m above sea level. Its highest point is Kozji rid, 1591 m. It is located on the border with Bosnia and Herzegovina, covers an area limited along the Drina River, between Višegrad and Bajina Bašta, and consists of the mountain massifs of Zvezda, Crni vrh and Ravna Tara. On the east side, the area is separated by the Solotuška River and the Ponikve plateau, and on the south by the Kreman and Mokrogorska valleys. It covers part of the territory of Bajina Bašta, within 10 cadastral municipalities (Jagoštica, Rastište, Zaovine, Konjska reka, Perućac, Beserovina, Zaugline, Rača, Mala reka and Solotuša), with a total area of 24.991,82 ha, of which 13.588, 51 ha is in state ownership, and 11.403,36 ha in private and other forms of ownership. The first degree covers 13,35%, the second degree 34,07% and the third degree 52,58% of the total area (Zakon o nacionalnim parkovima, 2015-2018). The National Park is managed by the Public Company “Tara National Park” from Bajina Bašta (more about Tara National Park at: <https://www.nptara.rs/en/>; [http://www.tara-planina.com/tara\\_eng](http://www.tara-planina.com/tara_eng)).

html). In addition to the above, the Tara National Park is part of the national ecological network, potentially the EMERALD area, as well as the NATURA network of protected areas (Dobričić et al, 2017).

## 4. RESULTS AND DISCUSSIONS

### 4.1. International and national level

At the international level, an important document for sustainable spatial development is the International Guidelines on Urban and Territorial Planning (UN-Habitat, 2015; UN-Habitat, 2015a), according to which urban and spatial planning can contribute to the sustainable development of an area, as well as the Tara National Park. According to this document, achieving sustainable spatial development requires political commitment and involvement of all actors who should participate in the processes of urban and spatial planning, such as authorities at all levels (national, regional and local), professional planners and their associations, as and civil society organizations-NGOs) (Popović et al, 2021). In accordance with the above, one of the principles defined according to this document is that urban and spatial planning is a powerful decision-making mechanism that ensures that sustainable economic growth, social development and sustainable environment harmoniously lead to promoting better connectivity at all spatial levels - principle 9.b (UN-Habitat, 2015; UN-Habitat, 2015a). On the other hand, this document emphasizes that urban and spatial planning should provide a spatial framework for the protection and management of natural and built environments, including their biodiversity, land and natural resources, as well as for ensuring integrated and sustainable development - principle 12. a (UN-Habitat, 2015; UN-Habitat, 2015a).

At the national level, the most important document for sustainable spatial development is the Spatial Plan of the Republic of Serbia from 2010 to 2020 (2010), with which all lower rank planning documents must be in accordance. According to this plan, the area of the Tara National Park abounds in natural potentials, which provide it with a specific role in the form of an important element of regional progress and development (Dobričić, 2007). The Tara area, declared as a national park, is an area of special purpose and conditions, but also an area of regional importance and potential international importance, which gives it one of the leading roles in the development of the Republic of Serbia (Prostorni plan Republike Srbije od 2010. do 2020. godine, 2010). In the area of use and protection of natural resources, the obligation to undertake activities on the development of pasture livestock, as well as the cultivation of rare medicinal plants and specialized crops and species, has been determined. The richness of rivers, hydro-accumulation, as well as two lakes and the Bajina Bašta Hydroelectric Power Plant, has included the area of Tara in the ranks of the strict regime of quality protection and prescribed use of water potential. In the field of sustainable development of transport and communications, an important goal is integration into a single transport system. In that direction, although outside the subject area, the main road M-5 Užice-Kremna-Kotroman stands out, which represents a segment of road E-761. The existing airport "Ponikve", which is located near the planning area, provides the opportunity to be used for civilian purposes, especially for tourist services. An important connection in the region is the Belgrade-Bar railway.

The passage of an important highway near the planning area and the fact that a potential goods and transport center is planned to be set up in Užice, which will enable the rationalization of macro and micro-distribution, improve the possibilities of product placement and economic development

of the Tara area. The protection and sustainable use of natural and cultural heritage and natural resources will form the basis of the identity of the Republic of Serbia and its regional units, but also the basis of future economic / tourist development. Tara is one of the priority areas in the Republic of Serbia for inclusion in the List of Biosphere Reserves of UNESCO-MaB. There are numerous cultural monuments in this area, such as the 13th-century monastery of Rača, built by the Serbian king Dragutin, the archeological site of Skit St. Djordja in the gorge of the river Rača, archeological sites (necropolises in Perućac and Rastište) called Stećci Medieval Tombstone Graveyards and inscribed on the UNESCO World Heritage List, 2016 (<http://whc.unesco.org/en/list/1504>), etc. The area of Tara also belongs to the tourist cluster of western Serbia and represents a special tourist area with destinations, touring routes, tourist places and places for rest. At the same time, the Drina-Tara-Zlatibor area is a destination with a significant share of the year-round tourist offer.

#### 4.2. Regional and local level

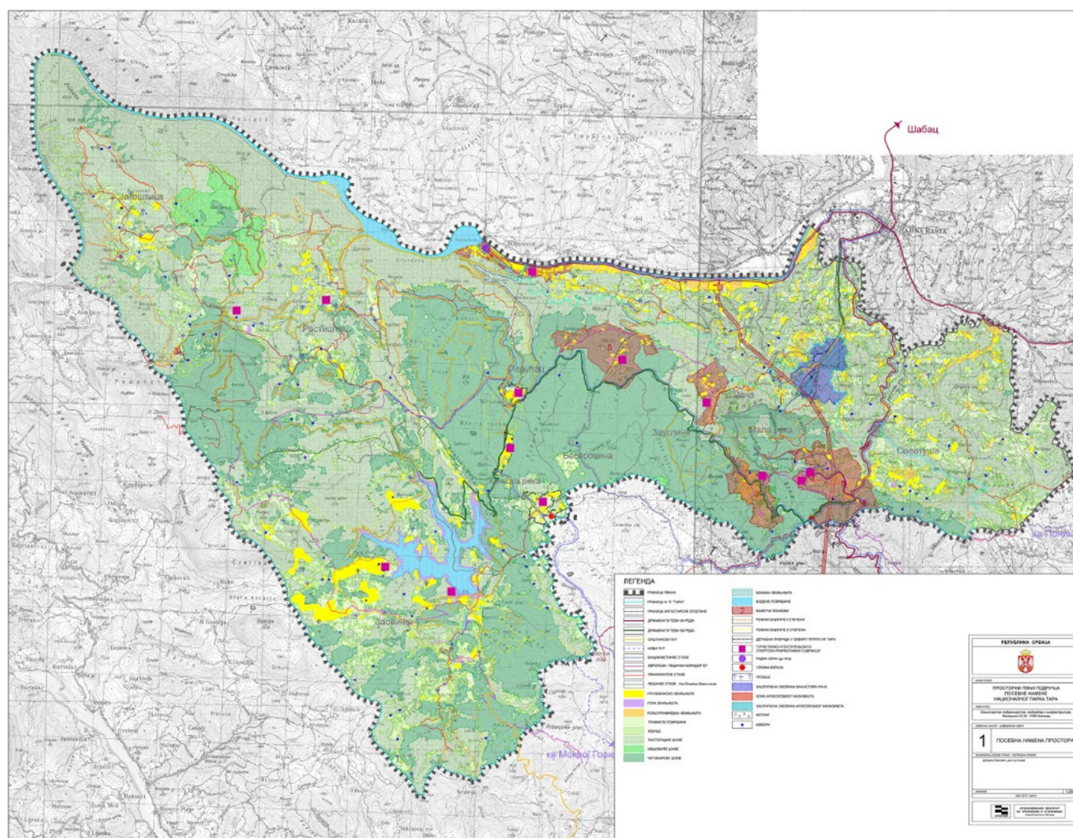
In relation to the regional level of planning, the area of the National Park Tara and Bajina Bašta belongs to the region of predominantly field and vegetable production and mixed livestock and the area of fruit and vegetable production and pasture livestock (Regionalni prostorni plan Zlatiborskog i Moravičkog upravnog okruga, 2013). Arrangement and use of forests and forest land will be carried out by permanent use of forests on the principles of sustainable development. From the aspect of tourism development, the area of the Tara National Park belongs to the Tara-Valjevo-Podrinje Mountains - Rudnik. This region represents the northern part of the tourist area “Western Serbia-south”. The main tourist offer of this region will be organized in three complexes, one of which is the complex Tara-Podrinje-Bajina Bašta. Tara (as part of the destination Drina-Tara-Zlatibor) is one of the primary tourist destinations with a significant share of the year-round offer. The main goal is the protection, arrangement and presentation of cultural heritage as a development resource, in a way that will contribute to the affirmation of regional and local identity.

For the regional planning level, the Spatial Plan for the Special Purpose Area of the Tara National Park (2020) is of special importance, in accordance with which the basic concept of use, organization and protection of space respects the aspiration for integral development. By choosing activities that do not jeopardize its primary function, the values of the national park are preserved. Elements of the concept of use, organization and protection of space are elaborated in terms of use and arrangement of space for zones and belts with special regimes for protection of water, natural and immovable cultural assets, belts of infrastructure corridors and sources of pollution; as well as the rules of construction and arrangement of space for basic categories of land (agricultural, water, forest and construction land) and different types of facilities.

Regarding the protection and sustainable use of the Tara National Park, the following basic regimes and protection measures have been established: (1) the first, highest degree implies strict protection of the most important natural and cultural-historical values, as well as elements of the natural environment for strict protection, with activities of scientific research, education and limited presentation to the public; (2) the second degree means immediate, transitional protection around areas in the first degree, protection of especially valuable units of the natural environment, with activities of scientific research, education, presentation of protected areas to the public; (3) the third degree, implies selective, limited use of natural resources and controlled interventions and activities in space if they are harmonized with the functions of the protected natural resource or are related to traditional forms of economic activities (agriculture and forestry) and housing, including tourism construction of recreation and sports, water manage-



ment, clean energy, renewable energy and transport; the third degree includes regulated forestry and animal husbandry, the full functions of tourism, recreation and sports, water management, clean energy, renewable energy and transport.



**Figure 1.** The map of special purpose area of the Tara National Park area

**Source:** Prostorni plan područja posebne namene Nacionalnog parka Tara (2020)

In addition to the above, this planning document also contains urban elaboration at a detailed level (up to the level of the cadastral parcel) for units such as: Rača Monastery and three settlements Mitrovac, Krnja Jela and Sekulić.

At the local level, the Spatial Plan for the Municipality of Bajina Bašta (2012) is especially important for sustainable spatial development, as well as urban plans, i.e. general regulation plans for certain zones on Tara (Kaluderske Bare, Račanska Šljivovica, Osluša and Sokolina), the General Regulation Plan of Perućac in the municipality of Bajina Bašta, detailed regulation plans for Omarska vrela, Krnja Jela, Eco-art-sport center Zaovine and other project documentation at the local level. According to the Spatial Plan for the Municipality of Bajina Bašta, the vision of spatial development of the planning area was presented in accordance with the basic goal of organized activation of all spatial potentials in accordance with economic possibilities and with the application of strict principles of environmental protection.

## 5. CONCLUSION

The preparation of planning documentation for the area of the Tara National Park within the limits determined by the Law on National Parks from 2015, relied on previous generations of planning documents for this area as well as planning solutions of current higher level planning

documentation. Special attention is paid to the functional connections with the surrounding areas, especially with the area of the Šargan–Mokra Gora Nature Park and the Zlatibor Nature Park, protected areas in the western part of the Republic of Serbia. Considering that this whole zone of western Serbia represents especially valuable natural areas, destined primarily for nature protection, forestry, mountain agriculture and tourism, it is planned to develop these economic branches in order to enable conditions for keeping the population in these areas, especially in the Tara National Park, which is one of the few national parks in the Republic of Serbia inhabited on almost its entire surface. Given the border character of the area, population retention and population development is particularly important. Therefore, the planning documentation proposes incentive measures to engage in various environmentally friendly activities, in accordance with the prescribed protection regimes, but also emphasizes the need to determine compensatory measures for the population, which, due to various restrictions caused by nature protection or other protection regimes, have limited opportunities for life and work in individual zones.

It is especially important that the Spatial Plan for the Special Purpose Area of the Tara National Park from 2020, contains several urban elaborations with the possibility of direct implementation, due to special national interests, in terms of protection of immovable cultural property, but also in relation to the interests of the local community for the planning of areas attacked by unplanned construction. In addition to the above, the planning framework and planning solutions of the prepared planning documentation are harmonized with the real potentials and limitations of the national park area in terms of sustainable development planning, appropriate contents and functions in the given area. Sustainable spatial development of the national park indicates the further application of recent achievements in this area, the inclusion of ecosystem services in defining the planning framework of this area, etc. (Dobričić & Sekulić, 2020; Stojkov & Dobričić, 2012). The national park manager has already taken certain steps through participation in the Interreg project Eko karst (identification of ecosystem types, ecosystem services and mapping and stakeholder analysis; more on: <http://www.interreg-danube.eu/approved-projects/eco-karst>). In addition, the sustainable spatial development of the Tara National Park can be improved by applying the recommendations and principles of the International Guidelines on Urban and Territorial Planning (UN-Habitat, 2015; UN-Habitat, 2015a). One of the recommendations refers to national authorities, according to which it is necessary to regulate and control the urban sprawl and limit the footprint, in order to effectively respond to the challenges caused by climate change, etc. On the other hand, at the local level of government, one of the recommendations is to formulate urban and spatial plans as a framework for mitigation and adaptation to climate change and greater resilience of settlements, especially those located in sensitive areas.

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# State Aid as an Instrument of Climate Change: Case Study of Slovak Republic and The Republic of China

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## Keywords:

Green economy;  
Green subsidy;  
Industrial production;  
Policy regulation



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**Abstract:** *The Europe Green Agreement is a new growth strategy for the EU economy – the sustainable and healthier one for people and the planet leading to the green economy. State aid rules are being modernized and aligned with current trends of international dimensions. The scientific study objective is to examine the progress of the Green state aid process in Slovakia, to analyse the approach of Slovakia in connection with the commitments made complying with the green strategy, and to assess specific activities in the state aid implementation process stressing environmental protection through waste management encouragement. The case study methodology is applied in the case of bentonite use, mined in Slovakia, which is analysed in the scientific paper as part of an eco-industrial application. Moreover, the aim is also to address the People's Republic of China's environmental policy perspective.*

## 1. INTRODUCTION

The Great Reset offers humanity the chance to build a forward economy, society and infrastructure on a sound bio-sphere foundation. Climate changes have been evoking a threatening concern. The Europe 2020 strategy has been focused on creating the conditions for smart, sustainable and inclusive growth via the European Green Agreement implementation. The structure of the industry in the Member States of the European Union (further EU) has been also changing owing to implementing measures at the level of the EU, which are aiming at developing a green economy. One of the strategic objectives is also to combat climate change and limit the consequences of the resources used for the environment. State aid is also a tool for achieving these goals. Universal rules for the provision of state aid are regulated in the primary legislation of the EU and in many secondary acts, which are binding on all Member States of the EU. Article 107 (1) of the Treaty on the Functioning of the European Union (TFEU) lays down the principle that State aid is prohibited (Paskrtova et al., 2018), (Novackova and Saxunova, 2019); in certain cases, however, state aid may be compatible with the internal market under Articles 107 (2) and (3) TFEU. State aid for environmental protection objectives will be considered compatible with the internal market within the meaning of Article 107 (3) (c) TFEU. The general objective of environmental aid is to increase the level of environmental protection compared to the level that would be achieved in the absence of aid. The scientific study analyses the system of providing state aid in Slovakia in the field of environment protection and points out the importance of the provided state aid in achieving a higher level of environmental protection.

## 2. RESEARCH OBJECTIVE AND METHODOLOGY

The research object of this scientific paper is state aid which is considered as an appropriate instrument for meeting the European Union's climate change objectives. The scientific study objective is to examine the progress of the Green state aid process in Slovakia, to analyse the

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approach of Slovakia in connection with the commitments made complying with the green strategy and to assess specific activities in the state aid implementation process stressing environmental protection through waste management encouragement. Moreover, the aim is also to address the People's Republic of China's environmental policy perspective. The methodology of the case study is applied in the case of the use of bentonite, mined in Slovakia, which is analysed in the scientific paper as part of an eco-industrial application. Using a comparative method, we make a comparison of the amounts of state aid provided for environmental protection and we explore the specific purposes of the aid. Analysing legal norms linked to state aid we have deduced and clarified the legal framework for the provision of state aid concerning the obligations implied from the membership of the Slovak Republic in the European Union. At the same time, we evaluated a set of criteria that were crucial in the provision of state aid. We analysed the implementation of economic activities of companies specialising in the extraction and processing of bentonite as an ecological raw material having a wide range of uses in industrial production and saving the environment.

By secondary analysis of the providing the data, we compare and evaluate the approaches of the China and Slovak Republic in the field of green economy and point out the responsibility of the states to fulfil the obligations arising from membership in the European Union for Slovakia and China, as well as China, supported Paris Agreement on Climate Action. Results of e.g. reduction of nitrogen oxide emissions, reduction of emissions and PM10 concentrations on reducing emissions related to energy and heat production using solid fuels will be assessed and analysed.

The future investment must also deal with planning to retire the assets once certain production will cease and a requirement to have the plant site renewed and placed back into conditions before the plant had been built; this commitment must also appear in the company's accounting and potential users of accounting information have to be able to find this information in the company's reporting.

### **3. UNIVERSAL SUBJECT OF ENVIRONMENTAL PROTECTION**

New economic theories, knowledge of practice and people's thinking immediately raise the question of the natural development of the green economy. The process of greening industrial production is unstoppable and will move faster and faster in the light of innovations. The priority of the European Union, but also all Member States, is to increase the demands on environmental protection and introduce measures for a low-carbon economy. Environmental protection is linked to all sectors of the economy. Regarding this context, we must not forget that the environment is all around us, it is natural symbiosis, we are connected to it in a mutual relationship. The basic human environment is nature - the natural environment. It consists of air (biosphere), water (oceans), soil (the earth's crust with mineral wealth), flora and fauna. These components act simultaneously and in relation to each other. There are currently several definitions of environmental protection.

Several authors perceive environmental protection in a broader context. Environmental protection means any action designed to remedy or prevent damage to physical surroundings or natural resources by a beneficiary's own activities to reduce the risk of such damage or to lead to more efficient use of natural resources, including energy-saving measures and the use of renewable sources of energy. In the interests of the correct processing of statistical data, the United Nations has introduced a uniform definition of environmental protection.



According to the UN “environmental protection refers to any activity to maintain or restore the quality of environmental media through preventing the emission of pollutants or reducing the presence of polluting substances in environmental media”. It may consist of:

- (a) changes in characteristics of goods and services.
- (b) changes in consumption patterns.
- (c) changes in production techniques.
- (d) treatment or disposal of residuals in separate environmental protection facilities.
- (e) recycling, and
- (f) prevention of degradation of the landscape and ecosystems.“

Franjic (2018) believes that: “Environmental protection is one of the basic prerequisites for the overall development of any country in the world. If economic growth and development are to be established, and no country in the world does not want to do so, biodiversity must be contributed.” The “natural environment” is defined in the light of corporate social responsibility (CSR) as the natural physical surroundings in which human life takes place. Some would call it nature, our living planet, life on Earth or the geophysical world, but here it is important to distinguish between the two words of the term “natural” and “environment.”

Slovak law Act No. 17/1992 S.B. on environmental S.B., as amended in §9, clarifies the term “Environmental protection“ as activities performed to prevent pollution or damage to the environment, or that reduce or eliminate pollution and environmental damage. It includes the protection of individual components of the environment, organisms or specific ecosystems and their interrelationships, as well as the protection of the environment as a whole. The content of this regulation is pollution prevention and protection from environmental damage, while the environment is perceived as everything that provides natural conditions for the existence of organisms, including human beings, and it is the threshold and prerequisite of their further development. Its major components are air, water, rocks, soil, organisms, ecosystems and energy (§ 2 Act No. 17/1992). Chinese researchers also believe that the green economy shall be the point of the state strategy and state programme of the current development; Cheng (2010) reported on the China Process Systems Engineering Annual Conference (PSE2010), and addressed that China should mainly focus its environmental policy on „lowering pollution emission and energy consumption“. The connotation of the green economy is very broad, including low-carbon economy, circular economy, ecological economy and many other aspects. Sun (2010) proves that green economy is a broad concept, which includes circular economy, low-carbon economy and ecological economy. Gonzales (2020) points also out on blue economy and stresses preservation and protection of the oceans is crucial in climate changes. Among them, the circular economy mainly solves environmental pollution problems. Low-carbon economy is mainly aimed at energy structure and greenhouse gas emission reduction. Ecological economy mainly refers to the restoration, utilization and development of ecosystems (such as grasslands, forests, oceans, wetlands, etc., and such as the development of ecological agriculture, etc.).

Reducing the discharge of specific pollutants is often the direct goal of environmental policy. In recent years, scholars have mostly adopted econometric methods to evaluate the emission reduction effects of some representative environmental policies. The emission reduction effect of the “pollutant discharge fee” policy has always been the focus of the research. Wang and Wheeler’s research (2005) found that the pollution fee policy significantly reduced the concentration of sulphur dioxide in the air, the chemical oxygen demand (COD) and the total suspended solids (TSS) content in the water, and pointed out that the policy mainly reduced the pollutant emissions in the production process.

Considering that China's environmental policy is embedded in China's political and economic system, some scholars are concerned about the emission reduction effects brought about by the promotion of officials and the reform of the environmental protection system. Research by He, et al. (2018) found that enterprises located upstream of water quality monitoring stations discharge less COD and wastewater, and further pointed out that water quality monitoring stations have a stronger supervisory effect on upstream companies during the governance period of leaders with potential for promotion.

These definitions and views have common systemic features of compliance and are maintaining the quality of the environment, protecting human health and ensuring the prudent use of natural resources in order to promote sustainable development.

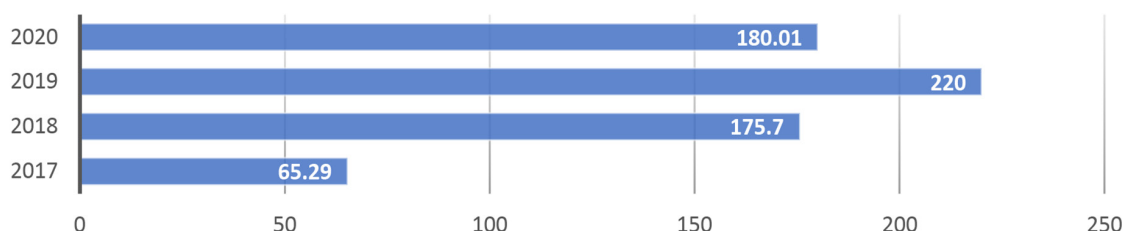
#### 4. CONDITIONS FOR GRANTING STATE AID

The EU plays a key role in international environmental negotiations. Significant progress has recently been made in the field of environmental policy, such as energy policy or the transition to a competitive low-carbon economy in 2050. Priorities for environmental protection to preserve the quality of the environment and the efficient use of natural resources include a mechanism for the provision of State aid for environmental protection with a transnational dimension. In Slovakia, state aid is provided under Act No 358/2015 Coll. regulating certain relations on the field on State aid and the minimis aid, and amending certain laws following the primary and secondary legislation of the European Union. The following objectives are taken into account when providing state aid in the field of environmental protection: a) stimulating effect, b) common EU objectives, c) obligations of the Slovak Republic towards the European Union, d) protection, conservation and enhancement of the EU's natural capital, e) a turn of the EU into a resource-efficient, green, and competitive low-carbon economy, and f) safeguarding of the EU citizens from environment-related pressures and risks to health and wellbeing.

**Table 1.** Overview of granted state aid for environmental protection 2017-2020

	2017	2018	2019	2020
The total amount of aid [in Eur]	65.29mil	175.70 mil	220.00 mil	180.01 mil
Increase/decrease in percentage		169%	237%	175.7%
Resources of the SR	82.24%	67.62%	71.24%	79.83%
Resources of the EÚ	17.76%	32.38%	28.76%	20.17%
Number of recipients	267	289	2307	2531

**Resources:** Processed by authors based on (Antimonopoly Office SR's reports (2018-2021))



**Graph 1.** State aid provided by SR and EU to the Slovak companies in 2017-2020 (in mil. EUR)

**Source:** Elaborated by authors based on (Antimonopoly Office SR's reports 2017-2021)

A variety of the program schemes are also a tool for providing state aid. Assistance in this area is provided mainly by the Ministry of the Environment of the Slovak Republic. State aid that

prefers environmental objectives generally works against the ‘polluter pays’ principle because recipients of such aid can depend on it as a means to avoid internalizing the costs of pollution caused by them (Facenna, 2004). The Antimonopoly Office of the Slovak Republic regularly publishes a regular Report on granted state aid.

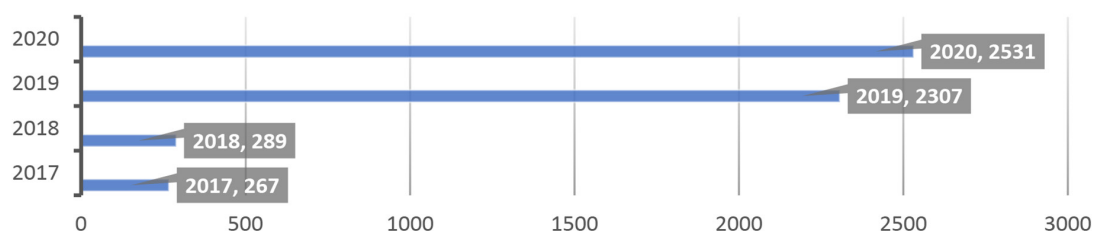
Using secondary data, we found that financial subsidies for environmental protection are increasing. In the following table 2, the purposes of the provided state and the amount of provided state aid in Eur is shown.

**Table 2.** *The purpose granted of State aid in years 2017 -2020 / number of recipients*

The purpose Number of recipients	2017	2018	2019	2020
Tax relief - biofuels [in Eur]	9.22 mil. 6 recipients	81.62 mil 21 recipients	87.72 mil 26 recipients	84.54 mil 23 recipients
Tax relief – electricity, gas	43.73 mil 253 recipients	44.61 mil 241 recipients	41.03 mil 221 recipients	32.18 mil 151 recipients
Tax relief on environmental taxes	-	-	-	25.72 mil 2225 recipients
Community waste handling	1.47 mil 11 recipients	1.20 mil 7 recipients	8.01 mil 2 recipients	4.03 mil 4 recipients
Reduction of air pollution	2.32 mil 3 recipients	27.19 mil 4 recipients	33.94 mil 1 recipient	16.24 mil 3 recipients
Risk of the Carbon leakage	-	10.7 mil 7 recipients	6.00 mil 8 recipients	4.00 mil 10 recipients
Construction, reconstruction, modernisation of the warmth distribution, for transport	-	11.18 mil 9 recipients	20.27 mil 18 recipients	12.27 mil 12 recipients
Support of the utilisation of renewable energy -resources, energy efficiency and effectiveness in the companies		-	-	0.19 mil 2 recipients
For the forestry- environmental and climate -services for forest preservation, first forestation		-	-	0.84 mil 101 recipients

**Resources:** Processed by authors based on (Antimonopoly Office SR’s reports (2018-2021)

As we can see, the largest amounts of state aid are provided for the tax advantage on biofuels. Enviro-taxes is also a new institute in the field of environmental policy. In 2019, 2019 entities were provided with assistance in the form of enviro-taxes in the amount of Eur 23.03 million. The competitive advantage of a recipient of State aid is, for example, cost compensation to avoid the significant risk of carbon leakage associated with passing on the costs of greenhouse gas emission allowances to electricity prices borne by the recipient if its third-country competitors do not have to include similar CO2 costs in their electricity prices, and the aid recipient cannot pass on these costs to product prices without losing significant market share.



**Graph 2.** Recipients of the State aid provided by SR and EU

**Resources:** Processed by authors based on (Antimonopoly Office SR’s reports (2018-2021)

Table 3 shows the volumes of state aid provided by regions of Slovakia for environmental protection in the years 2017-2020.

Data prove that the largest volumes of state aid went to Prešov and Košice regions. These regions are quite often referred to as regions where there is a high unemployment rate and the economy is experiencing low GDP growth. Therefore, these areas are also identified as suitable recipients of state aid.

**Table 3.** Granted State aid for environmental protection 2017 -2020 in mil. Eur

County [in EUR]	2017	2018	2019	2020
<b>Bratislava county</b>	0	1,48 mil	1,06 mil	0
<b>Banska Bystrica</b>	0,25 mil	4,29 mil	3,49 mil	2,98 mil
<b>Košice</b>	2,34 mil	31,35 mil	47,32 mil	16,58 mil
<b>Nitra</b>	0,03 mil	3,43 mil	2,13 mil	0,15 mil
<b>Prešov</b>	0,01 mil	4,73 mil	10,02 mil	6,15 mil
<b>Trenčín</b>	0,20 mil	1,90 mil	1,94 mil	1,45 mil
<b>Trnava</b>	0,26 mil	6,00 mil	3,70 mil	2,93 mil
<b>Žilina</b>	0,72 mil	3,31 mil	9,65 mil	16,58 mil

**Resources:** Processed by authors based on (Antimonopoly Office SR's reports (2018-2021)

In the 2011 China Sustainable Development Strategy Report issued by the Chinese Academy of Sciences, it is suggested that China should achieve a green economy transformation from three levels: one is to solve the problems of resource conservation, pollution control, ecological protection and other green fields; the other is to develop new energy, energy-saving and environmental protection technology, energy-saving and environmental protection transformation and other green industries and green economy; the third is to deepen the concept of green development in the whole process of industrialization and urbanization. The report recommends that the country clarify the relationship between environment and development from a legislative perspective, and form a long-term mechanism to promote the transformation of the green economy (China Sustainable Development Strategy Report, 2011).

However, compared to the State aid, under the EU supervision framework, China does not have currently applied a similar series of that kind. Generally, the concept of European State aid is very broad, not only it includes subsidies, but also tax concessions, capital injections, and debt relief that other forms of public institutions selectively provide. All these forms of assistance, except for exemptions or limited scope of assistance, are regarded as incompatible with the EU's internal market (Philipsen, 2018).

For China, subsidies provided at the provincial or local level may also cause damage to competition between enterprises in different regions, or other problems. As in other countries, these subsidies may be tax reductions or exemptions, policy incentives (such as providing permits), or other forms of incentives. Local officials may provide favourable conditions for local enterprises to promote employment or increase GDP, especially when doing so is beneficial to their political career; even listed companies will rely on government subsidies to survive. The conflict between efficiency and market integration objectives in competition law is a characteristic of EU competition law and does not exist in China in the same form. However, the EU's experience in state aid can bring valuable enlightenment to Chinese legislators and anti-monopoly law enforcement agencies, especially the anti-monopoly law.

Economic indicators show that state aid is provided in large quantities in Slovakia. State aid will have some roles to play in assuring a continued transition towards real sustainability, so that the goals set out in the European Green Deal can be met. An example is the provision of state aid to Volkswagen in the total nominal value of EUR 5,035,000 in the form of an income tax credit. The aim of investment aid in the conditions of the Slovak Republic is to support economic development, competitiveness and job creation (Bajzikova et al., 2017), (Dudic et.al. 2018). The beneficiary's investment plan aims to expand the capacity of the existing plant for the production of differentials to support the production of new models of electric vehicles (Antimonopoly Office, 2018-2021). The recipients of state aid are enterprises engaged in economic activity and also participating in the creation of GDP, while they are also among the major employers in the regions. Specific environmental impacts are a measurable indicator of the effectiveness of state aid. The following table compares specific environmental impacts.

**Table 4.** Effectiveness and efficiency of provided state aid in the years 2017 -2018

	2017	2018	2019
Reducing emission productions	143 tons of PM10 less per year, 59 tons of PM2,5 per year less 33 tons less of NO per year	0.863 tons of PM 2,5 less per year 1,407,745 kg of PM 10/ less per year Reduction by 238 kg of SO <sub>2</sub> less per year Decrease by 0.032 tons of NO <sub>x</sub> per year	1, 407,745 kg of PM10 less per year 10,351,915kg of PM10 less per year 351,915 kg of PM2.5 less per year 238 kg of SO2 less per year 32,890 kg of NOx less per year
Waste Management	Community waste Sorting – 713.5 tons /year, Waste Utilising more than 3 ,772 tons/year	Community waste Sorting – 14,515 tons /year Increase of Waste Utilising and enhancement – about 38,066 tons/year more	Community waste Sorting – 11,608 tons /year, Increase of Waste Utilising and enhancement – about 14,395 tons/year more
Construction, reconstruction and modernization of heat distribution		CO <sub>2</sub> Emission reduction in the amount of CO <sub>2</sub> emission – about 16,194 tons more	

**Resources:** Antimonopoly Office SR, 2018-2021.

In order to make it clear, in Table 4 we presented the state of the effectiveness of the provided state aid, which is reflected in the fulfilment of the recommendations of the European Commission and in terms of The European Green Deal (COM (2019) 640 final, 11.12.2019).

The assessment of the benefit of the State aid granted can be seen in the reduction of nitrogen oxide (NOx) emissions, in the reduction of emissions and concentrations of PM10 and in the reduction of emissions related to the production of energy and heat using solid fuels. Reducing emissions of air pollutants to achieve full compliance with air quality limit values and reduce the adverse effects of air pollution on health, the environment and the economy is also linked to the objectives set out in the Europe 2020 Strategy (Priority No. 3). Although there are positive effects, State aid in the field of environmental protection, evaluations at European Union level is not favourable.

According to the Report on Slovakia for 2019, which is regularly prepared by the European Commission, the achieved results are not at the required level. The recycling rate of municipal waste (including composting) remains low at 23%, which is about half of the EU average (45%) and well below Slovakia's 50% target by 2020 (European Commission, 2018b). The new legis-



lative framework, introduced in 2016, has not yet brought about a clear increase in recycling. Given that the combustion of solid fuels in residential areas (PM 10) is also one of the reasons for air pollution, a suitable solution is to improve cost-effectiveness and extend producer responsibility. The biggest air pollutants are steel-producing operators, although they are among the largest employers in the regions. Polluters in industrial production are also recipients of state aid, but the public resources provided are probably insufficient, and therefore appear to be the most appropriate solutions for investing in research and introducing new innovations to reduce and improve air pollution.

Another solution is to increase taxes on landfills in order to phase out the landfilling of recyclable or recoverable waste and to introduce the principle of “pay for what you throw away”. This means that climate transformation requires green investment and, in particular, the orientation of industrial production towards eco-production. In this context, we consider it essential that harmful subsidies from the public and taxpayers’ resources will be prohibited.

Since the 1960s, global environmental problems such as environmental pollution, nuclear radiation, resource depletion, and climate change have erupted in various modern countries, causing people’s panic, social conflicts and environmental movements one after another. How to improve the national environmental policy capacity, so as to rationally coordinate the relationship between economic development and environmental protection, and effectively implement the green development path, has gradually become an important dimension of contemporary national governance capacity modernization and capacity building.

Since the Paris Agreement was reached at the Paris Conference on Global Climate Change in December 2015, the European Union, the United States and other countries have actively promoted environmental policy innovation, urging their countries to vigorously develop green economy, green technology, and green new policies, and become representative countries and regions of ecological modernization and green development. The standards of green development countries put forward higher requirements for the decision-making ability and innovation ability of national environmental policies: It is necessary to be able to make timely, accurate and reasonable nature judgments, policy tool choices, and policy innovation results in response to the country’s complex and diverse environmental and ecological problems. Pre-judgment must also have a firm and powerful determination to solve environmental problems, grasp the direction of environmental innovation, and overcome resistance to environmental innovation. Green developing countries have taken many measures to promote environmental policy innovation in consideration of their national conditions, policy foundations, and social resources. Some promising projects will go public to obtain the capital via IPO (Hwang, Kim, 2018) and in present times the companies must be planning all scenarios that will guarantee them being prepared from financial hardship times to booming economy, to gain from investing in any project; but, environmental aspects should not be neglected, and, in addition, also the people in the society should be protected before the negative impact of the pollution on their health, as emphasized by researchers, Lausan (2013), Novackova and Saxunova (2014) and Wefersova et.al. (2020).

Based on the results of the second national pollution source survey, the Ministry of Ecology and Environment of China organize to update the preliminary statistics of pollution sources from 2016 to 2019, based on the “Statistical Report System of Ecological Environment”. The main relevant national ecological environment statistics are shown in Table 5.



**Table 5.** The main indicators of national environmental statistics and pollution control investment in China from 2016 to 2019

Indicator /Unit		2016	2017	2018	2019
<b>Wastewater pollutant discharge</b>					
Chemical oxygen demand [Ten thousand tons]		658.1	608.9	584.2	567.1
Ammonia [Ten thousand tons]		56.8	50.9	49.4	46.3
Total nitrogen [Ten thousand tons]		123.6	120.3	120.2	117.6
Total phosphorus [Ten thousand tons]		9.0	7.0	6.4	5.9
Wastewater heavy metals [Tons]		167.8	182.6	128.8	120.7
<i>Industrial wastewater treatment project in Eur</i> <i>[One hundred million Euro]</i>		13.8	9.75	8.17	8.92
<b>Exhaust pollutant emissions</b>					
Sulphur dioxide [Ten thousand tons]		854.9	610.8	516.1	457.3
Nitrogen oxides [Ten thousand tons]		1503.3	1348.4	1288.4	1233.9
Particulates [Ten thousand tons]		1608.0	1284.9	1132.3	1088.5
<i>Industrial Waste Gas Treatment Project</i> <i>[One hundred million Euro]</i>		71.64	56.94	50.15	46.91
<b>Industrial solid waste generation and utilization</b>					
General industrial solid waste generation [One hundred million tons]		37.1	38.7	40.8	44.1
Comprehensive utilization of general industrial solid waste [One hundred million tons]		21.1	20.6	21.7	23.2
General industrial solid waste disposal volume [One hundred million tons]		8.5	9.4	10.3	11.0
Amount of industrial hazardous waste generated [Ten thousand tons]		5219.5	6581.3	7470.0	8126.0
Comprehensive utilization and disposal of industrial hazardous waste [Ten thousand tons]		4317.2	5972.7	6788.5	7539.3
<i>Industrial solid waste treatment project</i> <i>[One hundred million Euro]</i>		4.96	1.62	2.35	2.18

**Source:** Ecological Environment Statistics Annual Report, 2016-2019.

From Table 5, we can easily conclude that the discharge of main indicators of wastewater pollutant and exhaust pollutant emissions are decreasing in general from the period of 2016 to 2019. Instead, industrial solid waste generation and utilization have been increasing, as the amount of general industrial solid waste is increasing year by year, from 3.71 billion tons in 2016, up to 4.41 billion tons in 2019, which is an increase of 18.7%. On the other hand, investment in industrial pollution control in China remained high. Key environmental statistics survey unit Reported data shows that since 2013 and 2015, the “Air Pollution Prevention” and the “Water Pollution Prevention and Control Action Plan” industrial pollution control increased investment, entering the peak period of governance investment. Environmental high-quality initiatives may contribute to the competitive advantage of the businesses (Beno & Saxunova, 2017), together with digital innovation introduced almost everywhere; the process of high-quality solutions for environmental tasks will be supported and promoted by the many crowdfunding projects, resources may be obtained by the help of blockchain fintech corporation etc. Digitalisation is an open system inviting for new research focusing on the planet, and people protection (Beno et al., 2018) as it is essential to lower the energy consumption of cryptocurrency mining in order to protect the natural resources of the Planet (Petratos et al, 2020). It is a trend nowadays to issue green bonds, green innovative impact bonds financing, where recently a China is a leader to support climate, environmental, social programmes via green financing innovative instruments. (Antosova et al, 2019), (Saxunova, 2015).

70% of the planet is the ocean and 90% of international trade is represented by maritime transport, according to data provided by the United Nations; the effects of climate change and human action are seriously destroying the biodiversity of the oceans, which absorb around 30% of the carbon dioxide produced by people.

## 5. FUTURE RESEARCH DIRECTIONS

Ecological problems are beginning to be a real threat for mankind and it is necessary to explore good eco-policies of the countries and learn from them and follow and augment them. Cooperation is desirable. The most important is to follow and try to accomplish the tasks set in the Green Deal of the EU. This is room for future research activities in the area of emerging trends in these environmentalist policies and their effectiveness, in addition, the focus on the legal environmental framework of both countries from the investors' perspective will be crucial.

## 6. CONCLUSION

The Slovak Republic, as one of the EU Member States, is bound by the obligations arising from the primary and secondary legislation of the EU. The content of these commitments is to achieve a higher level of quality environmental protection. Environmental pollution can also have a significant negative economic impact, including expenditures on citizens' health care, incapacity for work, reduced agricultural yields, damage to forests and ecosystems, higher maintenance costs for structures and buildings. The reference scenario for implementing the necessary measures has a transnational dimension. This era of the Covid-19 virus may have an impact on environmental decisions; fear of entrepreneurs how the business will develop will mark willingness to invest into environmental projects when other important economic tasks are priorities (Ghosh et. al, 2017; Le Roux, Saxunova & Oster, 2019).

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# Make Flying Safe Again: An Undelayable Challenge for Aviation

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## Keywords:

Aviation management;  
Covid-19 strategies;  
Aviation;  
Resilience



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**Abstract:** *Flag carriers are a particular part of the aviation industry, now dominated by either privately owned carriers or budget airlines. Their market share is being reduced, they are losing ground, giving it to their counter rivals, low-cost carriers. Based on the assumption that flag carrier airlines are different in their business model from low-cost airlines, both of them have to react in a Covid-19 situation, in case a similar event would occur again. Because it is not a matter of “if”, but a matter of “when”.*

*This is modelling and as one it has to be put in the right context.*

*In this research, we will discuss, also through the use of a study model of an Italian private company, how aviation must have short- and long-term strategies, striving for resilience during the early phases of the Covid-19 pandemic, after the outbreak from Wuhan, China.*

*Thousands of flights were being cancelled and within weeks the passenger's aviation was still, only cargo planes flew. When the cargo demand rose (45% of the cargo is carried by passenger flights in the belly of the planes), the dedicated global air cargo fleet could not satisfy the demand, airlines arranged passenger planes for emergency cargo flights.*

*They came to this solution; this is part of an aggressive market strategy that comes in times of crisis as it is during the actual global pandemic.*

*After analysing examples of strategies to be adopted quickly for survival, the focus of the study will be on those communication strategies towards potential travellers who - now more than ever - while waiting for recovery, need to perceive the flight as much as possible safe for their health.*

*Thus, it is necessary to reflect on the individual perception of risk but also on what to do to bring the subjective dimension as close as possible to the objective one. Cargo flights were a mere means to curb the tragic effects of the pandemic, however, airlines (both low-cost carriers and flag carriers) need a solution that can lead to a better response.*

## 1. INTRODUCTION

Air travel now poses a risk to ordinary travellers. The perception of risk, therefore, takes on the characteristics of a cognitive process involved in various activities that orient behaviours and opinions in the face of decisions involving potential risks, involving different dimensions such as, for example, both immediate and future consequences and their implications both on a rational and objective level and on a more emotional and subjective level. In this situation, it then becomes primary to offer solutions to communicate safety to passengers.

What airlines have done, as in the mentioned case study, to transform themselves into temporary cargo carriers cannot be a solution in the long term, but it is necessary to find a way to reassure users and make them travel again. All these aspects are being recently evaluated by the airline's communication departments.

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There is, in fact, a problem of risk perception, which is a subjective process that deviates from the objective assessment of risk, based on mathematical and statistical calculations and not on perceptive abilities.

In a nutshell, it happens that people - as happening in this case - sometimes fear activities that are not dangerous and do not fear, instead, activities that could have very dramatic consequences.

## **2. THE RISK PERCEPTION OF POTENTIAL TRAVELLERS**

Consequently, it is necessary not only to act in the way of finding short-term solutions to survive but also to find a way to intervene on the perception of risk by individuals, reassuring them to fly again, through the dissemination of increasingly real and concrete information, bringing the perception of subjective risk closer to the reality of objective risk, in order to mitigate, in the next future, the consequences on aviation and tourism.

Any person can gather information and receive some, this happens through a cognitive process by which each individual elaborates and evaluate the representation of reality. Briefly summarising, people may fear activities that are not completely dangerous, therefore they are not afraid of the activity itself but of the idea of the possible consequences related to that risk. Research has shown that in many cases there is a discrepancy between the subjective perception of risk and the objective assessment. In other words, it happens that sometimes people fear activities that are not dangerous and do not fear, instead, activities that could have very dramatic consequences (Slovic, 2001).

Studies have focused on the difference between real risk - objective - and perceived risk - subjective.

Therefore, we can say that the perception of risk, or subjective risk, differs from the objective, quantifiable risk, which is calculated using mathematical and statistical calculations and not by perceptive abilities.

This scientific calculation is given by the magnitude of the damage and the possibility of occurrence. Therefore, in this case, the objective risk becomes quantifiable, calculating the objective possibility of happening, and the entity, that is the impact of the consequences.

On the contrary, the risk becomes subjective when there are events that are not only classified by objective probability but are instead linked to subjective probability, in the form of individual degree of belief.

Thus, in this case, the risk expresses a perception, since individuals do not have access to complete information and they should develop hypotheses and associate each of them with a probability of occurrence, using probability theory (Howarth, 1988).

Subjective risk coincides with the perception of a possible danger, which does not correspond to something mathematically calculable, but it is based on other parameters, linked to the characteristics, experiences and environment of individuals. Subjective risk is therefore different, in fact, one individual can perceive the same risk as negligible, or as acceptable, tolerable, or completely unacceptable.

Working therefore on perception on Covid-19 and flying safety becomes the undelayable challenge for the revitalization of the aviation market.



### 3. NEW WAYS TO CONSIDER AIR TRANSPORT

National flag carriers have helped nations to partially recover from the tremendous year that 2020 has been. Thanks to national carriers it has been possible to keep the streamline of medical equipment. These airlines did everything possible in a survival optic, consequently solutions concerning the adaptation to safer standards, and higher number of controls to make passengers' flights safer. Both, national flag carriers and privately owned airlines are fundamental in this period.

On the one hand, national flag carriers have national interests as the main purpose in their operations, trying to be a strategic asset for nations, on the other hand, privately-owned carriers have been requested to operate emergency flights, as it was the case, in Italy, of Neos Air.

The latter has been contracted to operate flights from Italy to China and vice versa. China was, and still is nowadays, the major Personal Protection Equipment (PPE) producer, therefore, it was crucial to establish a supply bridge between the two countries.

Neos was back then the first Italian airline to operate these flights, switching from passenger to cargo airline for emergency purposes.

Neos was selected due to its already extended network which, in addition, its overfly rights and slots at the arrival and departure airports, have eased and accelerated the supplying process, since no more permission was needed.

Moreover, the Coronavirus is extremely infectious and for this reason, keeping both a constant supply chain alive and safe flights for passengers is vital.



**Picture 1.** A Neos B787 used as cargo

Source: [www.turismoitalianews.it](http://www.turismoitalianews.it)

The personal protective equipment (PPE), used to fight Covid-19, are mostly manufactured in clustered production areas, far away from the demanding market. The world's air cargo capacity was insufficient to meet the demand, for this reason, airlines started flying passenger aircraft filled with emergency goods (Skare et. al., 2020).

In the next future, passenger travelling habits might change in multiple ways.

On the one hand, the market will lead to a recession, the number of passengers, especially business travellers, is estimated to plummet. During the pandemic, the world has discovered, or to better say the world understood, that it is not always necessary to travel for business, in particular when it is possible to have a meeting on virtual meeting platforms.

On the other hand, this lack of freedom in travelling will cause the number of passengers to skyrocket. Supposedly after this pandemic, charter flights will return to their standards as it was in the 80s and 90s. For this reason, passengers should be pampered through a series of arrangements that would allow them to feel safer, therefore, even more, willing to travel.



**Picture 2.** Neos B787 cargo loading  
Source: <https://www.aviation-report.com/>

## **4. APPLIED STRATEGIES**

### **4.1. Marketing in the Aviation Industry in Covid Times**

It is possible to notice that the constant pursuit of resilience and robustness by the airlines, is being proved by marketing operations.

This is the first time a pandemic hit so badly the aviation industry; indeed, it is the first time after more than a century from the first flight and 70 years from the beginning of commercial aviation, that airlines face such a situation.

What airlines try to face is out of their control, there can be marketing campaigns. Indeed, airlines need to fly to survive.

From a managerial perspective, the core business of an airline is not just flying. The amenities related to flying are the core business of air carriers. Besides airlines with a cargo section in their organisation (e.g., Lufthansa, Korean Air, Qatar, Emirates) other airlines tend to sell the cargo capacity in their holds, it is a common approach in order to maximise the profit. Especially in these disruptive times, relying on amenities or ancillary services can save from bankruptcy. Many airlines, as mentioned above, have relied on cargo in two ways, offering a service to the community but also, most importantly, compensating for the steep reduction of income from normal passenger activities. For this reason, the above-mentioned charter flights are expected to go to attractive destinations (Skare et.al., 2020).

The sudden plummet in the passengers' flow by 80% has pushed airlines to find a safe yet innovative way to maintain the traffic flow high enough to cover costs and incentivise people to fly. Various creative solutions have been analysed but we decided to focus on the marketing campaign that now, not only airlines, have been used.

## 4.2. Marketing campaign

At the actual situation, the situation when we started analysing and studying the events (November 2020) we can see that the constant pursuit of resilience and robustness by the airlines, has to be seen by marketing the air travel (people scared to travel, how to make planes flying again).

The Covid-19 pandemic is challenging air transportation, as it faced the difficult and still unpredictable effects of an unprecedented crisis. Many instruments have been put in place to curb the risk of contagion, such as the flow control of passengers boarding and disembarking, swab test, organisational measures to reduce the risk of crowding, mandatory replacement of masks, thermal scanners, introduction of procedures of continuous sanitation. Despite this, travelling by plane is feared by tourists, even when there are no travel bans. The risk, or rather the perception of it, plays a key role. In fact, when the anxiety of limitations does arise, airlines are faced with the problem of individuals' ticket cancellations, and therefore travel reduction volumes.

## 5. NEW CONCEPT OF SAFETY

During this aviation bleak times unpredictable consequences and effects will be seen in the next future. Measures have been taken to limit the contagion risk, and airlines want to keep flying safe so that passengers are encouraged to fly.

This can be done by controlling the passengers during the boarding procedures, swab tests before departure, organisational measures to reduce the risk of crowding, mandatory replacement of masks, thermal scanners, introduction of procedures of continuous sanitation. All of this is done with one main purpose, make flying safe again, or better, saying that *flying must be perceived as safe again*.

This fear is enhanced by the limitations and travel bans put in place by countries. The perception of the risk plays a key role.

In fact, when limitations do not arise (in case nations will ban airlines from landing and bringing passengers from other countries), airlines face the problem of individuals' ticket cancellations and therefore travel reduction volumes.

## 6. CASE STUDY

### 6.1. Innovative solutions: An Italian case

On November 26th, 2020, Neos made the very first international Covid-free flight, creating a passenger bridge between Italy and China. Also, the national Italian flag carrier started its first Covid-free flight connecting national destinations. This trend with new health standards widespread around the world, helping airlines to recover and keeping people flying safely.

### 6.2. The procedure

When flying with Neos two tests are required by international agreements to be a passenger of the flight, however, a third test is added by Neos to the molecular swab test and the serological test, required by Chinese regulations and it has to be carried out within 48 hours before departure. This is the perfect representation of new tools that airlines can use in order to restore the air transport market and foster a renewed willingness to travel. Therefore, when international agreements are put in place, passengers could avoid the quarantine at their arrival destination, thanks to the double swab test and the guarantee that no one on that flight is tested positive. Operating in this way would be fundamental for airlines since perceived safety is an added value to the aviation industry which recently has suffered many disruptions. Finding innovative ways to mitigate resilience can be the linchpin to achieve success and incentive passengers to travel.



**Picture 3.** Boarding gate a Delta Covid-free flight

Source: <https://www.travelagentcentral.com/>

## 7. FUTURE RESEARCH DIRECTIONS

Airlines have demonstrated resilience, but many have filed for bankruptcy and how many will? What can be done to prevent such a disruptive event to undermine airlines operations?



Here we posit a further suggestion for future research concerning marketing campaigns to incentive travelling under the point of view of safety:

- Increase the percentage of Covid-free flights,
- Repatriation flights in any case, whether a positive or negative result, for citizens returning to their homes. Hence, the passenger would not fear being locked abroad, with the necessity to look for accommodation and a place to stay for quarantine.

## 8. CONCLUSION

What an airline generally does is to fly planes and move passengers, and this is not an easy task, different core businesses are varying from an airline to another. Different brands and models of planes are available to the consumer.

However, in these disruptive times, it is difficult for airlines to “reinvent” an entire market.

For this reason, passengers need to be pampered and give them the impression that with flying, in addition to the usual standards (of safety and security), there is an added factor that is crucial in Covid times. Moreover, tickets should be sold with the swab test included in the price. Airlines must either offer this as an added value keeping their tariffs low or as a service that has to be paid separately. In both cases, the plane ticket should not become more expensive.

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# Structure of Port Goods and Transport Flows

Ana Radulović<sup>1</sup>

## Keywords:

Port;  
Combined cargo;  
Cargo-transport port centers



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**Abstract:** Maritime transport plays a very important role in connecting European ports and their hinterlands. According to recent data (ISL, 2017), approximately 400 million tons of combined short-haul freight transport (containers and ro-ro) are transhipped between ports within the EU or between ports in the EU and neighboring countries.

The network of European short sea shipping services is large and diverse. Most ferry services bridge short distances, e.g. Via the English channel, the Fehmarn belt, or the strait of Gibraltar.

At longer sea distances, trailers and containers are often shipped by combining transport with inland or rail transport inland. Most of these connections, which were developed only a few decades ago, operate successfully under the management of mostly private liner or container operators. For offshore traffic, competition is mainly between line operators and ports, but not between (except tunnels/bridges) economically viable alternatives. Improving the efficiency and expanding the capacity of such links makes transport cheaper and helps promote the single market.

## 1. TRAFFIC BRANCHES AND NETWORKS IN TRANSPORT CHAINS

On coastal routes, where modal diversions from road or rail to sea are possible, there is direct competition with land modes of transport.

The commercial operation of coastal short sea routes depends much more on the competitiveness of maritime transport compared to other modes of transport. Generally speaking, the greater the distance, the more attractive the short sea transport is, because the price per kilometer and unit of cargo is extremely low. Supporting the efficiency of short sea shipping can, therefore, promote the transition to maritime modal traffic (European Commission, 2018, p. 11)

In addition to increasing efficiency, improving the environmental performance of shipping is certainly a comprehensive goal for all types of maritime, and especially short-distance maritime transport. The Fast and Short Sea Distance program can support shipowners to go beyond stricter regulations and piloting services, alternative fuels, propulsion types and other solutions that help the shipping sector improve its reputation on more environmentally friendly transport models.

In order to fulfill their role as intermediaries within European transport, ports must provide the necessary infrastructure to guarantee unhindered traffic between maritime and land transport. The analysis of the adequacy of ports in terms of their role in combined transport operations therefore cannot be limited to the analysis of coastal and port facilities, but should also take into account the link with other modes of transport, i.e. by rail and inland waterways.

When it comes to promoting “green shipping”, the focus is naturally on maritime transport trade in European seas. However, many potential measures regarding ships also have an impact on ports, e.g. LNG-powered ships (Liquefied natural gas) that must have an economically viable supply of LNG in ports or closed railway stations with adequate reception and dispatch equipment.

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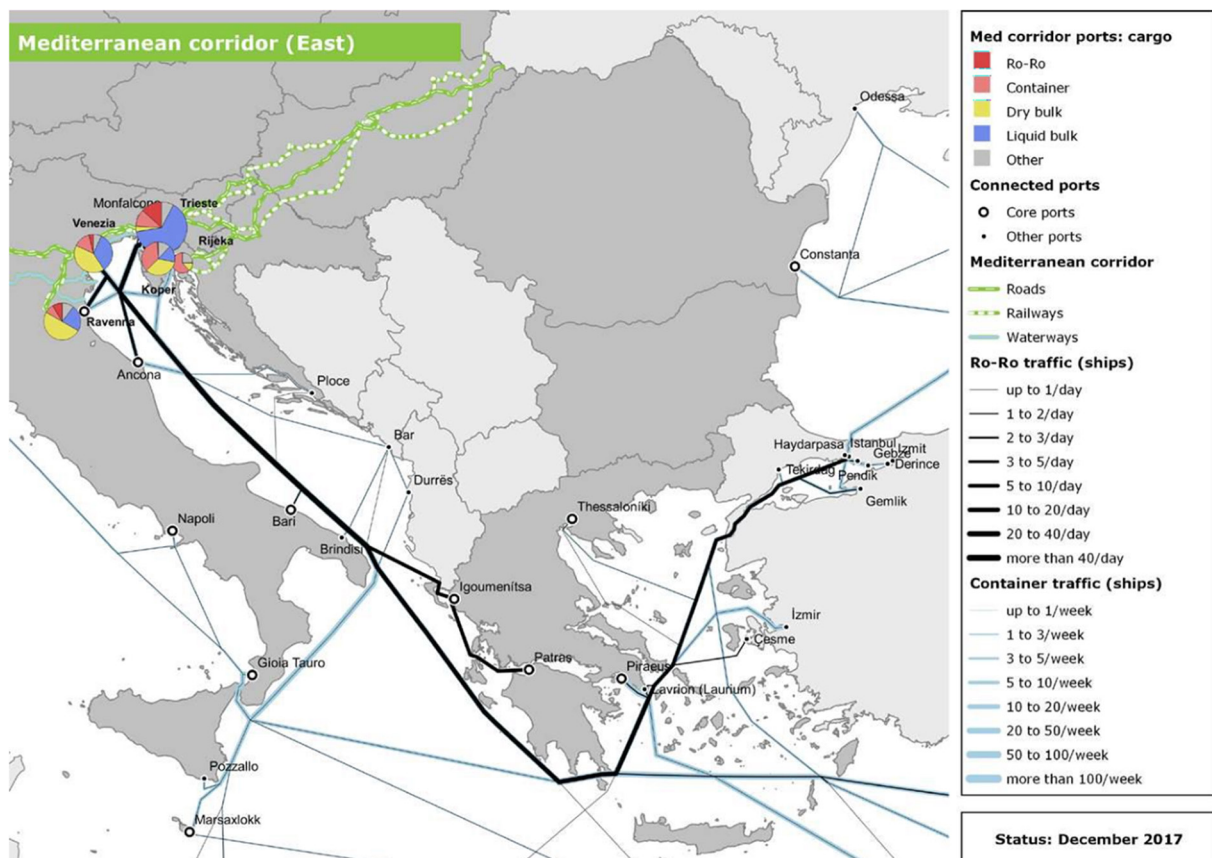
The requirements set by 331 European ports differ essentially from one another in different types of cargo and the size of ships at the observed distances. Setting meaningful common European standards in terms of ship size is still impossible.

Despite the importance of a modal shift from truck to rail, many ports do not need a rail link, as intermodal services are not sustainable, especially not for ports located in smaller to medium-sized islands. Accordingly, compliance with European standards is not a useful concept when analyzing overseas road requirements. Instead, the analysis of the needs of each port, and the integration of the hinterland of that port into maritime and transport chains is a prerequisite for more efficient development of both the network of maritime roads and ports. (European Commission, 2017, p. 13)

## 2. CONCEPTUAL SOLUTIONS FOR THE ORGANIZATION OF CARGO AND TRANSPORT PORT CENTERS

Access to the interior/hinterland of the port as well as the connection between the port and the main transport network is a problem for many European ports, especially those located in densely populated areas.

In many cases, the connecting infrastructure is used for different types of cargo, and in some cases for passenger traffic. Wherever bottlenecks hinder the smooth connection of seaports with land transport infrastructure, solutions should be developed and included in the program of communication by sea, going as deep as possible into the hinterland of the countries.



**Figure 1. Mediterranean Eastern Port Corridor**  
**Source: European Commission (2018)**

Research regarding relevant bottlenecks in the Adriatic Sea (eastern countries - Figure 1) e.g. between port and hinterland research plans should include:

- railway infrastructure towards the port area (railway connection with the main network, construction or expansion of railway terminals and marshalling yards); This measure is applicable to the “Port of Bar”, which is connected to Belgrade by rail, regardless of the fact that it is a relatively old and poorly maintained railway infrastructure dating back to 1974.
- modern road infrastructure in the port area and access to the port area (construction of new roads, bridges and tunnels), at the beginning of the construction of the road Bar - Boljare;
- road traffic management (including driver information systems, parking in front of the entrance, etc.);
- railway operations and related processes (e.g. maneuvering) in the port area (mainly in relation to large target network corridors).

Where short sea shipping competes with direct land transport, congestion on the roads to the port area makes it difficult to cross from road to sea, as time is wasted and the costs of the short sea transport chain increase. Solutions to congestion issues need to be developed in ports and should include infrastructure modernization, but also changes to incentive modal infrastructure and measures for inland port traffic or intelligent road traffic management. (European Commission, 2017, pp. 43-44)

### **3. SPATIAL-TEMPORAL CHARACTERISTICS OF MICRO-LOCATIONS AND GRAVITATIONAL ZONES OF GOODS TRANSPORT CENTERS**

The new role of “Port of Bar” and its integration into the supply chain has attracted special attention in the last two decades. Today, the “Port of Bar” is no longer seen only in the traditional regional gates, but as a place where it is possible to create more important added value and logistics activities.

Ports today are not only logistics centers that affect spatial, but also temporal processes and forms of supply chains, thus becoming part of more complex forms of supply chains.

Spatial-temporal integration of the “Port of Bar” with the hinterland is relevant because the productivity and performance of the port are related to the efficiency of the entire supply chain.

As the European Union expands to the east, there is a possibility that the Adriatic ports, as well as the “Port of Bar” will occupy an increasingly important market position and become more competitive compared to other European ports.

This can be achieved by applying the practice of integrating “Port of Bar” into supply chains.

Although “Port of Bar” is still not highly integrated into the supply chain with its hinterland, according to the latest research, ports of developing countries and smaller ports are improving their facilities, the connection between the port and the hinterland, and especially the application of ICT systems can achieve significant results of spatial and temporal integration of the port into the supply chain.

Significant changes are taking place every day in terms of relevant infrastructures, development of maritime logistics, transport and development of ports throughout Europe, including the area of the “Port of Bar”. Although smaller ports, such as the Port of Bar, are introducing new

connection projects, much remains to be done to integrate the Port of Bar into existing supply chains and to connect more effectively with the hinterland.

Neither the Port of Bar, nor other ports on the Adriatic can integrate themselves, if the conditions are not met that most actors are involved in port activities, transport activities as a common system, integrating as important factors in creating transport policies: port operators, shipping line, freight forwarders and other stakeholders.

#### **4. THE MOST IMPORTANT ELEMENTS OF THE PORT'S INFLUENCE ON THE DEVELOPMENT OF MICRO-LOCATIONS AND GRAVITY ZONES OF COMMODITY TRANSPORT CENTERS**

Port operations around the world are currently hit by competition more than ever before. In the past, such competition was usually recorded between individual ports that were approximately the same size. More recently, however, competition has evolved according to different geographical and functional ranges.

Competition is further enhanced by the operation of land transport facilities by making it an alternative to maritime transport. Furthermore, competition almost always covers all logistics chains, where ports and maritime transport are only integral elements, which can be the difference between accepting and rejecting the choice of a particular transport chain. Different actors are present in these transport chains. For ports, there are not only port authorities, but also cargo handling companies, shipping companies and many other service providers. Each of these services testifies to the course of events in the organization of transport, either in terms of multiplying the number of service providers, the concentration of cargo and/or entities, and on the other hand, confirms the vertical integration of the transport chain.

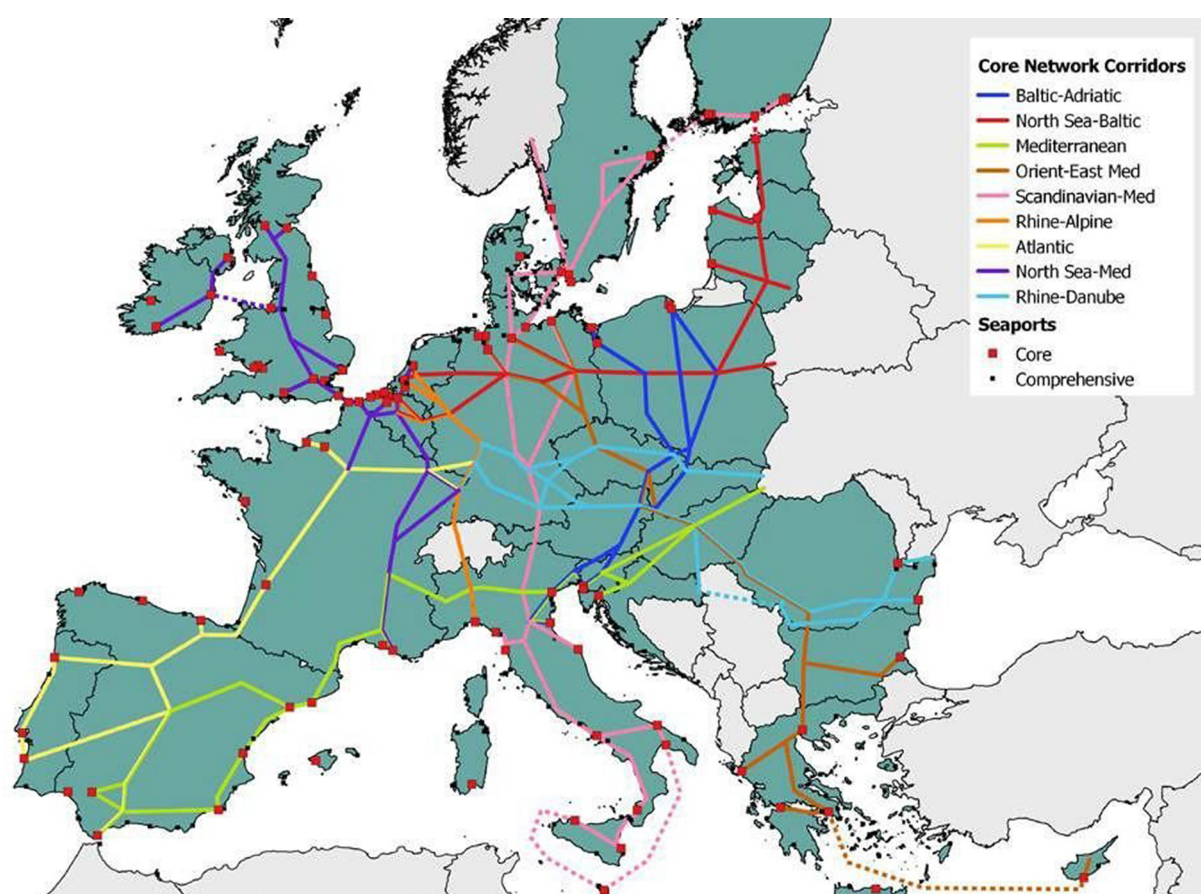
All these movements abruptly reversed the traditional view of competition between ports. Ports are faced with a multitude of actors, who together with the port must constantly adapt. In this context, decision-making takes place in a different rhythm and framework than in the past. By considering this evolution of adaptation, other elements that are not comparable to those that were important in the past become crucial. For example, for infrastructure investments, the port administration could generally expect the burden to be borne by the government of the country to which the port belonged. Today that is no longer possible.

Generally speaking, public budgets are shrinking, and there is strong competition with other consumer budget items in the governments of certain countries, where the public is resisting the allocation of funds to port infrastructure, especially because port operations may jeopardize the spatial environment or lead to environmental pollution. In this context, new types of tasks are set before ports. In order to grow and improve its market position, the port management is required to obtain financial resources, most often in partnership with the private sector.

The basic elements of the development of micro-locations and gravity zones of freight transport centers (located mainly in the hinterland of the port) outline the priorities for the future development of maritime transport, with the main pillars of development:

- preservation and maintenance of the environment;
- integration of maritime transport into logistics chains with the hinterland;
- safety, traffic management and human element.





**Figure 2.** Overview of the network of ports of European corridors and their connections with the hinterland

**Source:** ISL based on Eurostat

Surveys of the existing navy and regular ro-ro services, as well as container services in Europe, connect nine basic network corridors (Figure 2).

The importance of all network corridors is evident in the comprehensive network of European maritime routes, including connections with neighboring countries. The obvious perceived limitations of the analyzed characteristics of the European fleet and relevant ports can identify shortcomings in terms of certain objectives, such as the insufficient number of network points for refueling LNG-powered ships throughout the EU or the need to simplify administrative procedures for maritime transport.

Also, by analyzing the shortcomings in terms of fleet, number of ships, and/or ports using available services to the hinterland of Europe, it is possible to identify the overall investment needs in ports and the organization of sea lanes to the hinterland.

The analysis showed that the total investment needs related to sea routes in Europe by 2050 are estimated at around 5 billion euros. Compared to the needs of investments in ports, according to the European Sea Ports Organization (ESPO), this need for investments is much more modest, because many of the expensive infrastructure projects are aimed at large ships used on certain sea lanes.

For maritime routes, environmental investments account for by far the largest share. Approximately 3.7 billion euros are related to investment needs that belong to the environmental protection sector of maritime roads and ports.

Costs related to the integration of maritime transport into logistics chains and connections with the hinterlands of the countries amount to around 1 billion euros, while measures related to safety, traffic management and the human element contribute another 300 million euros. (European Commission, 2017, p. 44)

Understanding the impact of transport links (ports) on the hinterland of a particular country is important from several perspectives. First, a better assessment can be made of the consequences of major changes in the country's hinterland, due to changes in maritime transport, and in particular the introduction of mega-ships or changes in the frequencies of access to these ports.

Second, the impact of intermodal links on hinterland expansion for different types of shipping companies can be assessed. This could be useful for those who plan and make decisions in order to assess the impact of infrastructure improvements to the hinterland on certain industries or for certain regions. From the perspective of regions that rely on remote suppliers or customers, providing access to one or more ports, at a reasonable cost, is a key issue for their economic development.

In the specific context of Montenegro, this is especially important for the supply of retail and manufacturing that depend heavily on remote inputs. Access to ports can also be a big problem for manufacturing companies that plan to market their products abroad (and geographically gravitate to "Port of Bar", as a point through which they have the most economical long-distance transportation options).

Containerization has called into question the hypothesis that everything is spatially concentrated around the port. New types of liner shipping services, such as those organized as a network of hubs, include an increased concentration of freight flows. In fact, the overall efficiency of the shipping network increasingly relies on the individual efficiency of a small number of nodes, mostly a few in each region of the world.

For the Port of Bar, as well as other ports on the Adriatic, efficiency simply relies on transshipment activities at sea, but for the vast majority of ports a connection to the hinterland of the country needs to be achieved.

The idea of connecting ports with the hinterland is well summarized by the concept of regionalization of ports, which implies strong integration of ports with land and sea segments. Ports are viewed as nodes of intermodal networks, and competition takes place between transport chains, not between ports.

Land terminals are used to alleviate congestion and lack of space in ports, by developing high-capacity intermodal connections organized by rail and/or by barge.

Attracted by lower land costs and high levels of accessibility, logistics zones appear around these inland (land) terminals located mainly in the hinterland, offering services such as completing customs formalities, empty container depots, cargo consolidation, inventory management or pre-assembly components, etc. Although the process of regionalization is essentially driven by market forces, public actors also play an active role in the internal expansion (towards the hinterland) of port systems.



Directions of regionalization are not systematically initiated by ports, but can be implemented through intermodal operators, public organizations and the like. (Monios, 2012, pp. 1551-1561) while sometimes both directions can be implemented simultaneously.

Despite stronger integration in the context of port regionalization, important barriers still exist for port expansion and impact on the hinterland. The latest research works emphasize the importance of borders and distances, i.e. configurations of almost the entire European hinterland, showing their unequal effects depending on the geographical position of the countries: coastal or land. The former is more limited by internal distance than the latter. While coastal countries are connected to their national logistics networks, those that are on land have historically expanded their logistics networks further to have better access to the sea.

Influence of boundaries on flows in the interior, i.e. the hinterland would also be more or less strong depending on the position of a particular port.

This asymmetry would result not only from different levels of service in ports but also from unequal skill levels of actors involved in inland connectivity on both sides of the border. (Acciario et al., 2017)

These latter differences are not limited to language skills, but also to commercial skills and the ability to cope with different cultures.

## 5. CONCLUSION

The network of regular shipping services to and from EU ports is large and very diverse. The issue of port competitiveness, especially in the context of container cargo, is more important than ever. In addition to researching port capacity, cargo volume, number of shipping lines and ships accessing a particular port, the quality of port hinterland connectivity is the second most important criterion of port competitiveness, after the criterion related to cost factors. However, most European seaports, both large and small, are often affected by congestion of these connections in the hinterland and/or the absence of connections with the hinterland at all.

At the beginning of 2017, 408 container transport services and 450 ro-ro services were identified in Europe. Container services included 150 services and 15 operations for each Member State. The remaining 243 operations connected at least two Member States or one Member State with a neighboring country. In terms of volume, about half of the port's container traffic includes a transport network on short sea routes, while the other half relates to longer routes (European Commission, 2017, p. 8),

Longer overseas container traffic is concentrated in numerous European ports. Only 36 of the 331 European ports transshipped more than a million tons of container cargo that arrived directly or went to ports outside Europe. The first and largest 10 European ports handled about 80% of this cargo. Short sea shipping is much more widespread: so that 63 ports serve more than a million tons, and the first 10 largest ports make up just over half of the total volume of container transport over short sea distances. In total, almost half of the 331 ports perform container transport. In 161 ports in which container transport was performed, and in 70 ports the transport of one million tons per year was exceeded (European Commission, 2017, p. 8).

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# Sunflower in Romania in the Climate Change Context

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## Keywords:

Agriculture;  
Climate changes;  
Study area;  
Sunflower



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**Abstract:** Agriculture is the second leading branch of the world economy. Agriculture plays a key role in the development of the economy, agricultural production being the main source of food, the basis of human existence and the basis of raw materials for many industries. The need for development and modernization stems from its vital role in meeting the food needs of the world's population. This human activity has the greatest contribution to human well-being. Currently, 60% of the Earth's population makes a living directly from farming. Agriculture has a decisive role in solving the food problem, agriculture is a branch that provides the raw material for the food industry - 90%, light industry - 70%, chemical industry - 20%.

At the national level, agriculture is one of the important branches of the Romanian economy. The contribution of agriculture, forestry, fish farming in the formation of the Gross Domestic Product is around 6%, and in the EU member states, it is around 1.7%

## 1. INTRODUCTION

Sunflower is a resistant crop to weather changes, able to produce viable yields even in hot and dry seasons. Climate change continues to affect weather patterns and influence sunflower production.

It is estimated that climate change will affect agricultural regions in Europe, the drought will occur more often. Drought periods will start earlier and last longer.

In Southern Europe, high temperatures and poor rainfall will reduce yields crop, while in Northern Europe growing conditions could improve the ability to grow a greater crops variety. Despite the fact that more extreme weather events are likely to increase crop yield volatility.

This could be replicated around the globe, as farmers want to adapt farming methods to combat drought conditions by choosing drought- and heat-tolerant crops, such as sunflowers increasing the yield of this millennial culture.

However, the problem of drought is not only Romania's problem. Europe has been affected by climate change in recent years, with droughts becoming more frequent in the region from the centre to the south of the continent. Scientific analysis shows that the globe is warming strongly, and extreme weather events will be more and more present. Thus, drought is a factor that will influence agriculture in the years to come.

Due to climate change, the agro-climatic requirements of crops are affected by the positive/negative deviations of the natural conditions, the sustainable administration of crops and the

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rational use of land become major issues for insurance sustainability of production in each agricultural year, ([https://www.icpa.ro/documente/CodBPA\\_SchClimatice\\_ADER111.pdf](https://www.icpa.ro/documente/CodBPA_SchClimatice_ADER111.pdf)).

Global warming has caused and will cause a growing number of extreme weather (floods, droughts, extreme rainfall, heat waves), fires forests, water scarcity, disappearance of glaciers and rising sea levels, change distribution or even extinction of part of the fauna and flora, plant diseases and pests, food and freshwater shortages, as well as the migration of the population trying to be get rid of these dangers. There is scientific evidence that shows the risks of change irreversible and catastrophic would increase significantly if global warming would exceed 2 ° C - or even 1.5 ° C – above pre-industrial levels.

On 11 December 2019, the Commission presented the European Green Pact, a package of ambitious measures for the European Union to achieve carbon neutrality until 2050. The measures, which are accompanied by a roadmap of the main actions, include ambitious emission reductions, investment in research and innovation avant-garde and conservation of Europe's natural environment. Supported by investments in environmentally friendly technologies, sustainable solutions and new businesses, the Green Pact intends to be and a new growth strategy for the EU, transforming the EU into an economically sustainable and competitive ([https://www.europarl.europa.eu/ftu/pdf/ro/FTU\\_2.5.2.pdf](https://www.europarl.europa.eu/ftu/pdf/ro/FTU_2.5.2.pdf)).

## 2. SHORT HISTORY

Sunflower is a plant native to North America where it was first cultivated and harvested by indigenous tribes over 4,500 years ago. It was observed that sunflower was cultivated in many tribes in North America, reaching the border with Mexico. Archaeological research has shown that the stem was used to colour fabrics, leaves for medical purposes and pollen for religious ceremonies.

Sunflower continued to be a staple crop in North America until it was discovered by European explorers in 1510. Spanish navigators were the first to collect large quantities of sunflower seeds and transport them to Europe. Once the sunflower has been brought to Europe, it will begin to spread to Egypt, Afghanistan, China and Russia.

Estimates suggest that the value of globally sunflower cultivation is \$ 20 billion a year. The top ten of the sunflower cultivators in the world (mil. tone)<sup>3</sup>:

1. Ukraine - 12.24,
2. Russian Federation -10.48,
3. Argentina - 3.55,
4. Romania - 2.91,
5. China - 2.58,
6. Bulgaria - 2.06,
7. Turkey - 1.96,
8. Hungary - 1.89,
9. France - 1.62,
10. US 1.00

<sup>3</sup> Source: ([https://www.researchgate.net/publication/269874280\\_Sunflower\\_-\\_cultivation\\_and\\_seed\\_production](https://www.researchgate.net/publication/269874280_Sunflower_-_cultivation_and_seed_production)).



From a historical point of view, Russia was the largest producer with over 3 million ha at the beginning of the 20th century. At first, it was used only as an ornamental plant in botanical and private gardens. Then, around the middle of the 18th century, sunflower seeds came to be considered a delight. At the same time, people made tea from the leaves and flowers of the sunflower plant to fight fever ([https://www.researchgate.net/publication/269874280\\_Sunflower\\_-\\_cultivation\\_and\\_seed\\_production](https://www.researchgate.net/publication/269874280_Sunflower_-_cultivation_and_seed_production)).

In the last 25 years, the sunflower market has continued to grow and is currently ranked fourth among the most important oil crops in the world, after palm, soybean and rapeseed. The market changes have led to the return of the main area of crop production in Eastern Europe. Global production is dominated by Russia and Ukraine. In 2017, these two countries production accounted for over 22 million tons of global sunflower seed production which is 47.9 million tons.

Romania is the largest producer of sunflowers in the EU with the largest cultivated area in 2020/21. The area of sunflower is expected to decrease by 13% this year due to profit margins and lower yields rotation, after an expansion of 26% last season. In 2021, Romania was no longer exempt from the EU moratorium on neonicotinoid PPPs, another factor for many farmers in there to plant sunflower. Sowing taking place in drought conditions and the rains in May alleviated fears for a poor start to the growing season. Drought conditions remain in the South-Eastern regions. Based on the projected yield of 2,300 t/ha, the total production will reach 2.6 million tons, approximately 16 per cent less year on year. As a result, exports are expected to fall by 20%.

The largest share of sunflower exports is destined for EU markets and about 15% for non-EU markets. The high oleic acid content of sunflower causes an increase in the area estimated at 150,000 Ha, by about 20 percent compared to the previous season.

**Table 1.** Production of sunflowers

Romania	2016/17	2017/18	2018/19	2019/20	2020/21
Marketing year begin	October 2016	October 2017	October 2018	October 2019	October 2020
MY Imports MT	261	337	293	315	270
MY Exports MT	1.248	1.827	1.841	2.070	1.650

**Source:** 2016 - 2019 - Romanian Statistical Yearbook

### 3. MATERIAL AND METHODE

#### Characterization of sunflower cultivation areas:

- Zone I, which includes the Romanian Plain and Dobrogea on the chernozem soils and the Western Plain. In this area, the sunflower requirements for the temperature factor are optimally ensured (the sum of temperatures  $>7^{\circ}\text{C}$  between April-August is 1600-1950), but the humidity requirements in the Romanian Plain and Dobrogea are covered only by irrigation. In the Western Plain, the precipitation regime is more favourable and in large areas, the plants benefit from groundwater contribution.
- Zone II, includes the Danube Meadow, in which the sunflower vegetation conditions are favourable due to the fertility of alluvial soils, the groundwater contribution and the specific microclimate. However, the droughts of some years bring significant production decreases.
- Zone III, includes the Romanian Plain and Dobrogea, on non-irrigated surfaces with reddish preluvosols and chernozems, and in Dobrogea also white soils. Droughts are common in this area. The temperatures of more than  $7^{\circ}\text{C}$  sum during the April-August period is over 1700 $^{\circ}\text{C}$ .

- Zone IV, which includes Gavanu-Burdea Plain (with vertisol associations), Leu-Rotunda Plain and Plenita Plain (with leached chernozems and reddish preluvosols). This area is very favourable from a thermal point of view (the sum of temperatures  $>7^{\circ}\text{C}$  during April-August is over  $1700^{\circ}\text{C}$ ), and the annual rainfall is over 550 mm.
- Zone V, which includes the Jijia Plain, the Barlad Plateau and the Transylvanian Plain. In this area, it accumulates around  $1500^{\circ}\text{C}$  (sum of temperatures  $>7^{\circ}\text{C}$ ), with 450-550 mm multiannual average amount of precipitation in Moldova and 550-600 mm in Transylvania. The rating note is between 41 and 50 points, the area being at the lower limit of favourability for sunflower. Favourability is reduced primarily by the degree of soil erosion (from moderate to excessive), especially in Moldova, to which is added the water deficit in the vegetation period, and in the Transylvanian Plain by the temporary excess of water and lower temperatures.
- Zone VI, which includes the Moldavian Plateau, Western Piedmont and the southern Getic Piedmont. This area has low temperatures. Negative phenomena related to the soil are high acidity, excess water, compaction, reduced supply of humus and nutrients.

In 1990, 394,741 ha of sunflower were cultivated in Romania. In 2019 the cultivated area is 1,282,693 ha. For the first time, the surface of 1 million ha is exceeded in 2012. The evolution of the surface in the following years fluctuated, having a decrease of under 1 million ha in 2017 (998,415 ha). In 2019 it is the largest area of sunflower cultivated in Romania.

By development regions, the largest cultivated areas were in the South-East (335,524 ha), followed by South-Muntenia (267,923 ha), South-West Oltenia (208,307 ha), North-East (200,460 ha) and West (169,061 ha).

The counties with the largest cultivated area with sunflower also have the highest production: Dolj - 332,272 tons, Arad - 299,706 tons, Timiș - 276,105 tons, Teleorman - 233,509 tons, Constanța - 230,976 ha, Olt - 230,908 ha, Brăila - 226,564 tons and Botosani - 158,361 tons.

We notice in the case of the regions, but also of the analysed counties a slight change in the ranking, which means that the average production per unit of cultivated area has decisively influenced. In 2019, the highest sunflower harvest per hectare was recorded in the West region - 3,459 kg / ha, followed by South-West Oltenia - 3,024 kg / ha, North-West - 2,944 kg / ha and Center - 2,705 kg / ha.

**Table 1.** Area (in Ha) cultivated with sunflower, by macroregions, development regions and counties

Macroregions, development regions and counties	Year									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CENTER region	4578	4432	5455	8227	8243	8026	8704	11367	13711	17895
NORD-EST region	91959	104215	133656	109393	111220	121624	132491	130298	128933	200460
VEST region	58353	52658	73988	89984	82054	89281	97839	119554	128303	169061
CENTRU region	4566	4406	5449	8227	8134	8026	8698	11271	13688	17868
NORD-EST region	91532	103978	133192	108957	110616	121120	131914	129613	128217	199925
VEST region	58028	52473	68740	89306	81275	88689	97054	118518	127673	168590
CENTRU region	2417	2111	1875	2073	2622	2708	3234	5681	5931	11540
NORD-EST region	60713	68941	80004	54931	59441	60016	79626	74230	78413	147689
VEST region	21763	17445	25272	25923	26367	25848	32067	27233	27153	47663

**Source:** Romania's Statistical Yearbook, 2010 - 2019

Out of the total number of counties, the highest sunflower yields obtained per hectare were registered in rainy areas and in those with a high soil fertility: Maramureş - 3,787 kg / ha, Timiş - 3,529 kg / ha, Arad - 3,495 kg / ha, Mehedinţi - 3,399 kg / ha, Vâlcea - 3,299 kg / ha, Bistriţa Năsăud - 3,114 kg / ha, Gorj - 3,070 kg / ha, Olt - 3,064, Cluj - 3,050 kg / ha, Iaşi - 3,022 kg / ha. From the series of counties that had the largest cultivated area, only three of them have an average per hectare of more than 3,000 kg (Timiş, Arad and Olt). All the others had productions around the national average: Dolj - 2,946 kg / ha, Teleorman - 2,650 kg / ha, Constanţa - 2,660 kg / ha, Brăila - 2,821 kg / ha. The exception is Botoşani, which achieved a below-average harvest of 2,071 kg / ha. It should be mentioned that 19 counties exceeded the average production at national level (2,783 kg / ha),

#### 4. CONCLUSION

- Today the sunflower (*Heliantus annuus*) is cultivated in over 72 countries in geographic areas with temperate climates. From the family of oilseeds (soybeans, rapeseed, cotton seeds and peanuts), sunflower is in the 5th place in terms of annual production worldwide by 32-44 million tons.
- Data from the National Institute of Statistics show that in the top of the countries with the largest sunflower production in the EU is the neighbouring country, Hungary, with a total of 1.749 million tons and a cultivated area of 617,000 hectares, followed by Bulgaria - 1.66 million tons (810,000 hectares) and France - 1,655 million tons (775,000 hectares).
- Romania has consistently occupied first place in the European Union since 2015 for sunflower production, but also cultivated area, and the seed export potential is significant, taking into account that the domestic consumption needs a total of only 750,000 tons, according to Agerpres (<https://www.wall-street.ro/articol/Agricultura/270267/romania-ramane-si-in-2020-cel-mai-mare-producator-de-floarea-soarelui-din-ue.html#gref>).
- In the marketing year 2020/2021 Romania will lose the leading position among European producers of sunflower seeds, after last year it won the competition with a production of 3.48 million tons. According to estimates, (2020/2021) the sunflower seeds production will decrease by 16% (2.6 million tons), and exports will decrease by 20%.

Romania will likely lose the leading position among EU producers, in the context in which for Bulgaria, number two last year, the estimates are much more favourable.

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[https://www.researchgate.net/publication/269874280\\_Sunflower\\_-\\_cultivation\\_and\\_seed\\_production](https://www.researchgate.net/publication/269874280_Sunflower_-_cultivation_and_seed_production)  
*Romania's Statistical Yearbook, 2010 - 2019*  
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[https://www.europarl.europa.eu/ftu/pdf/ro/FTU\\_2.5.2.pdf](https://www.europarl.europa.eu/ftu/pdf/ro/FTU_2.5.2.pdf)

#### ADDITIONAL READING

- Food and Agriculture Organization of the United Nations, FAO 2017, <https://www.fao.org/news/archive/news-by-date/2017/en/>  
<https://eos.org/features/climate-change-uproots-global-agriculture>





# Rapeseed Cultivation in Romania – General Aspects

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## Keywords:

Geographical Information Systems (GIS);  
Agriculture;  
Climate changes;  
Rapeseed;  
Maps;  
Study area



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**Abstract:** *Geographic Information Systems are used in traditional agriculture and precision agriculture worldwide, being high-precision tools with which real-time information can be obtained.*

*Rapeseed cultivation technology can be improved with the help of geographic information systems. These tools given by G.I.S. allow the collection, analysis and monitoring of spatial data to improve the management decisions of agricultural land cultivated with rapeseed. Rapeseed is a newly cultivated plant in Europe since the beginning of the last century for its qualities. The agriculture areas are correlated with: climate, relief, geological substrate of the land, soil, culture technology.*

*The purpose of the article is to present statistical data of rapeseed cultivation and to correlate them with the analyzed spatial tools used today in increasing the agricultural area and the production obtained.*

## 1. INTRODUCTION

Rapeseed is along with sunflower one of the most cultivated plants in the category of oilseeds. Rapeseed cultivation is considered to be strategic, the oil obtained from rapeseed reduces cholesterol, prevents strokes, it is also used in industry as a biofuel. Beekeepers use rapeseed crops as honey plants and bees produce 60-90 kg of honey per hectare

## 2. SHORT HISTORY

In the pre-Christian period, rapeseed was discovered in India (2000-1500 BC), Japan and China. It was introduced in the Korean peninsula 2000 years ago. Indian and European species have been separated since the beginning of their development and in this context, their evolution has been different. The cultivation of rapeseed in large areas began in Europe in the thirteenth century. It can be said that rapeseed cultivation took place much earlier in India and China.

By the beginning of the 19th century, the rapeseed had spread to the East and the Scandinavian countries as well as to Russia and Poland. from a botanical point of view. Rapeseed is an oily plant with yellow flowers with four petals, having an average height and a fibrous root system with deep roots.

Rapeseed is grown mainly for seeds that produce 40% of oil. Since 1991, the European Union has started cultivating varieties that have a low content of euryicic acid. The nature of the crop ensures a good soil cover, reducing soil erosion, especially in winter.

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The huge amount of biomass produced by the crop allows the suppression of weeds on the soil where it is planted. World's largest rapeseed producers are Canada, China, India, France and Australia. Canada produces 2 million tons of rapeseed.

The environmental conditions necessary for a good rapeseed production: rapeseed behaves well on well-drained soils, with an alkaline pH between 5-9. The total area has increased steadily in the last period. fertilizer requirements depend on soil potential, soil type and amount of precipitation.

Worldwide in 2019, the total area cultivated with rapeseed was 35 million ha. Five large producers were covering an area of 29.8 million ha with rapeseed, representing 85% of all areas sown globally:

1. Canada: 8.4 million ha,
2. India: 7.3 million ha,
3. China: 6.6 million ha,
4. EU: 5.6 million ha,
5. Australia: 1.9 million ha followed by Chile (4.1 t/ha), Turkey (3.5 t / ha) and from the European Union Switzerland (3.1 t / ha) ranked first, followed by the rest of the EU countries with an average yield of 3.0 t / ha (<https://latifundist.com/en/rating/top-10-proizvoditelej-rapsa-v-2019-godu>).

It was found that in recent years rapeseed production has increased by 7.3 million tons (12%) to 68.2 million tons. Canada has held the lead in production for the past two years, growing by 28% of world production. The EU produces just under (25%), followed by China (19%). Ukraine occupies the 5th position with 3.3 million tons. Russia (+ 215%) and the USA (+ 133%) register a considerable increase in production over ten years.

Main producing countries in 2019 (mln t):

1. Canada: 19.0,
2. China: 13.1,
3. India: 7.7,
4. France: 3.6,
5. Ukraine: 3.3.

The amount of rapeseed oil in the last ten years has increased by 23% to 27.4 million tons, which represents 40% of total crop production. The European Union and China in 2019/20 dominated the production of rapeseed oil with 9.5 million tons and 6.1 million tons of production, respectively (<http://www.fao.org/faostat/en/#data/QC>).

### **3. MATERIALS AND METHODS**

#### **Rapeseeds in Romania**

In Romania, rapeseed was cultivated in larger areas before the First World War and between the two world wars. Thus, in 1913, it occupied 8038.000 ha, and in 1930 approx. 7732000 ha.

After 1948, the surfaces varied from one year to another, passing a little over 20 thousand ha only in the years 1953, 1955, 1956. In 1935 the statistical yearbook of Romania mentions 5.9 thousand ha (<https://ibis.geog.ubc.ca/courses/klink/class02/apirzade/solar.htm>).

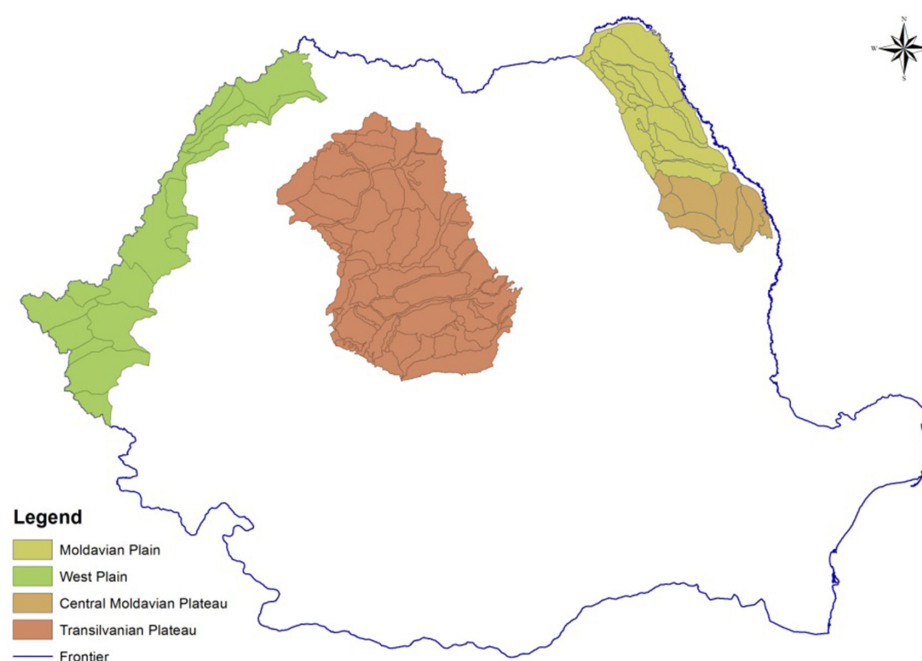


Favourable areas for rapeseed cultivation. In figure 1 is presented the map with the most favourable areas for rapeseed cultivation. This map is created with the help of the program ArcMap 10.5. Vector data were downloaded as well as the relief units from [www://geo-spatial.org](http://www.geo-spatial.org), <https://land.copernicus.eu/pan-european/corine-land-cover/clc-2000>, <http://www.opengis.org>, <https://ibis.geog.ubc.ca/courses/klink/class02/apirzade/solar.htm>.

Rapeseed is cultivated and meets best conditions for development in the following relief units: the Moldavian Plain, the Transylvanian Plateau, the Western Hills, the Plains of Banat and Crisana, the forest-steppe regions in the south of the country, the south of Dobrogea, the southern half of the Siret meadow. In these areas, the best results are obtained on alluvial soils, reavenous and where the snow is not scattered.

Rapeseed grows well in areas where annual rainfall between 450-650 mm falls with a maximum in July-August, with an average annual temperature of 7-10 °C, with winters without high frosts and with a sufficiently thick layer of snow.

As for the soils, they must be deep, medium, rich in humus and limestone, with a pH of 6-7 and high-water retention capacity. The best yields are obtained on alluvial and reavenous soils, then in the chernozem soils and reddish-brown soils.



**Figure 1** Favorability of rapeseeds

In the autumn of 2019, 400,000 ha were cultivated with rapeseeds with extremely dry planting conditions due to the drought of 2018. Of the total cultivated area, about 340,000 ha will remain with rapeseed, the other 60,000 ha will have spring crops. Thus the 340,000 ha of rapeseed in the agricultural year 2020/21 marked an increase of 50,000 ha compared to the agricultural year 2019/20. However, both years do not exceed the area cultivated in 2018/19.

Drought conditions in winter and spring and harmful frosts in mid-March will reduce by 7% the area and production compared to last year. Despite the smaller cultivated area, the total rapeseed production is forecast at 750,000 tons, with an increase of 9.3% compared to last year's harvest.

In the agricultural year 2019/20 the harvested area with rapeseed was 61 percent smaller due to droughts, similar to 2018/19. The obtained production was 686,000 tons. Exports fell by 70 percent over the first seven months of 2019/20 due to low stocks (National Institute of Statistics - INS).

**Table 1. Romania rapeseeds exports**

Romania	2016/17	2017/18	2018/19	2019/20	2020/21
Marketing year begin	July 2016	July 2017	July 2018	July 2019	July 2020
MY Imports MT	29	77	65	81	60
MY Exports MT	1.426	1.565	1.282	402	405

**Source:** 2016 - 2019 - Romanian Statistical Yearbook

**Tabel 2. Area (in Ha) cultivated with the rapeseed, by macroregions, development regions and counties**

Macroregions, development regions and counties	Year									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CENTER region	3597	4441	1888	5299	8323	7210	9813	9564	11162	9198
NORD-EST region	26390	36146	11017	24224	39824	20616	30118	44142	50950	35526
VEST region	18504	25613	3187	16786	25473	25487	37911	54395	61355	43554
CENTRU region	3581	4367	1885	5212	8273	7159	9682	9441	11134	9198
NORD-EST region	25981	35581	10889	24101	39464	20497	29604	43838	50434	35190
VEST region	18504	25283	3186	16778	24267	25193	36890	53831	61127	43504
CENTRU region	475	1150	173	1604	2198	2094	3030	3268	3413	3435
NORD-EST region	7094	5949	2264	4311	6643	6771	8033	13440	15222	15129
VEST region	1923	2331	721	6257	7105	6983	11965	11960	11860	12232

**Source:** Romania's Statistical Yearbook, 2010 - 2019

Rapeseed is an annual herbaceous plant, cultivated especially for its oil-rich seeds. Today, worldwide, rapeseed ranks 5th in the oil production ranking and rapeseed oil is used in industry and food.

Recent years have shown a special interest in the use of this plant in the manufacture of biodiesel. A fuel used for cars instead of diesel with a cheaper price and less polluting.

#### 4. RAPESEED IN THE LAST FIVE YEARS IN ROMANIA

In the last five years, Romania has had an average rapeseed production of 2.64 t / ha (below the European level). A decrease of about 2.3% is now estimated, according to a study by INGBank. Also, the forecasts for this year are up to 2.57 t / ha.

In 2019, total rapeseed production was 1.61 million tons, down almost 60% from the previous season (<https://latifundist.com/en/rating/top-10-proizvoditelej-rapsa-v-2019-godu>).

More significant rapeseed productions were obtained by the counties: Călărași (11.9%), Arad (8.8%), Teleorman (7.2%), Giurgiu (7.2%), Constanța (6.6%) (<https://www.revista-ferma.ro/articole/agronomie/rapita-2020-la-primul-bilant-cat-va-fi-maximul-la-hectar>).

Average production by main crops. Counties that have obtained higher average productions than the average production per country for main crops: Hunedoara (+ 42.5%), Cluj (+ 33.0%), Brașov (+ 27.1%), Arad (+ 26.9%), Mureș (+ 21.3%);

## 5. CONCLUSION

- The area cultivated with rapeseed ranked Romania, in 2019, on the sixth place among the European Union, and its share in the total area cultivated with rapeseed of the European Union decreased by 2.7 percentage points, compared to the previous year
- Rapeseed production ranked Romania in the top seven states of the European Union. In 2019, the largest rapeseed producer in the European Union was France. Together with Germany, the second-largest producer, they accounted for 37.3% of the total Community production (<https://www.wall-street.ro/articol/Agricultura/270267/romania-ramane-si-in-2020-cel-mai-mare-producator-de-floarea-soarelui-din-ue.html#gref>).
- The biodiesel industry is constantly evolving and has experienced a boom with the need to develop eco-friendly energy sources that do not affect the environment. That is why it has come to process almost half of the total amount of rapeseed oil produced in Europe. Biodiesel from rapeseed is a cheaper fuel than diesel. Being biodegradable, it helps to limit air pollution.
- Rapeseed oil is also used in other industries, such as textiles, leather, plastics, paints, varnishes, inks, detergents, in the printing industry, it is used in lighting, as a lubricant, as oil for painting, for candles, as hydraulic fluid, as an adjuvant for pesticides, as well as in the manufacture of anti-dust agents.
- Rapeseed straw can be used to make chipboard. Rapeseed contains 42-48% oil, which is used in human nutrition, in the preparation of certain types of margarine, as well as in industry.
- An excellent source of animal protein is even the remnants of rapeseed that result from pressing the seeds. But the plant can also be used as green fodder. From 100 kilograms of rapeseed, up to 30-35 kilograms of oil, and 50-55 kilograms of grits can be obtained.

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# Noise Pollution Measurement in High-Traffic Streets of Durres Municipality

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Osman Metalla<sup>2</sup> 

## Keywords:

Urban noise;  
Dogana street;  
Equivalent noise level



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**Abstract:** *The inspection of noise pollution in urban areas can affect positively the health and welfare of residents. This paper analyzes the noise pollution in high-traffic streets of different areas in Durres Municipality. Measurements carried out by using TESTO 816-1 supply were investigated and compared to see the highest equivalent noise level during morning and night time. The results were evidenced and conclusions were reported. It was found a difference between the average equivalent noise levels of areas/streets monitored. During morning the highest value was observed in the industrial area (Dogana street) with  $\langle Leq \rangle = 61.02$  dB followed by the commercial area (Adria street) with  $\langle Leq \rangle = 59.04$  dB and the residential area (Stefan Kaculini - Glaukia street) with  $\langle Leq \rangle = 57.6$  dB. The highest equivalent noise level during the night was observed in the commercial area (Egnatia street) with  $\langle Leq \rangle = 52.04$  dB. The findings achieved by this study showed also that noise pollution levels noticed were higher than permissible levels and most of this pollution was caused by vehicle traffic.*

## 1. INTRODUCTION

In the last three decades, environmental pollution has gained worldwide attention and noise pollution in cities has been a worldwide problem. According to WHO guidelines 40% of the population that lives in European countries are exposed to equivalent sound pressure levels of more than 55 dB (A) during the daytime, and also about 20% of this population is exposed to levels above 65 dB (A) (Ehrampoush et.al, 2012).

Noise pollution is the set of undesirable sounds produced by industry, machinery, equipment and propagating through the environment. Exposure to excessive noise can seriously damage animal and human hearing and is an important factor in reducing the health and life quality of residents of large cities (Afsharnia et.al, 2016).

Excessive sound is an outcome of many variable factors, yet is connected to quick economic development, growing industry and application of different means of transport (Jablonska, 2020).

Road transport is one of the main sources of environmental pollution. With the increase in the number of vehicles and the speed of their movement through the streets of industrial cities, the world community identified noise as one of the main factors that aggravate the living standards of people in cities. Emotional and physical stress associated with constant noise discomfort leads to noise stress (Lezhneva, 2019).

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The impact of transport noise on a person can be considered in various aspects, in particular, in relation to Berg et.al (2004):

- drivers;
- employees of administrative and office buildings, hospitals, schools and other facilities with special requirements regarding noise levels located near roads;
- residents of buildings located near highways with significant traffic intensity.

Traffic is a significant part of the urban environment contributing to about 55 % of total urban noise (Pandya et.al, 2002).

Noise pollution has many health effects and additional costs on society (Lercher, 1996; Martin et.al, 2006; Omidvari et.al, 2009; Singh and Kaur, 2013). The need for studies regarding urban noise pollution and its consequences on the environment has motivated various researchers on the traffic noise problem in several countries (Pathak et.al, 2008; Zannin et.al, 2003; Banerjee, 2009; Al-Mutairi et.al, 2011; Kalaiselvi and Ramachandraiah, 2010; Reddy and Ramachandraiah, 1995; Vidya Sagar and Nageswara Rao, 2006; Singh et.al, 2013).

## 2. MATERIALS AND METHODS

Based on the measurements of the noise level in Durres Municipality and type of areas (residential, commercial, industrial), 8 high traffic streets were analyzed.

In the commercial area:

- Taulantia street,
- Egnatia street,
- Adria street,
- Deshmoret street,
- Dyrrah boulevard,

In the industrial area:

- Dogana street (along Durres port).

In the residential area:

- Aleksander Goga street,
- Stefan Kaculini - Glaukia street.

The sound level meter (TESTO 816-1) was used to measure the minimal noise level  $L_{\min}$  and maximum noise level  $L_{\max}$  in the areas mentioned above during morning time (6:00 am to 10:00 am) and night time (10:00 pm to 06:00 am) from February 2019 to December 2020. The time of each measurement was 15 min. The parameter  $L_{\text{eq}}$  (equivalent continuous noise level) was calculated and used to analyze the situation in the high traffic streets mentioned above.

## 3. RESULTS AND DISCUSSION

The purpose of this study was to identify the highest average equivalent noise level in the high traffic streets of Durres Municipality and to make a comparison between results and standard levels.



Table 1 shows the average equivalent noise level  $\langle L_{eq} \rangle$  calculated for different streets of Durres Municipality during morning and night.

**Table 1.** Average equivalent noise level  $\langle L_{eq} \rangle$  in different streets of Durres Municipality during morning and night time and different months

Area	Street	$\langle L_{eq} \rangle$ (dB) morning time (6:00 to 10:00)	$\langle L_{eq} \rangle$ (dB) night time (22:00 to 6:00)	Month measurement
Commercial	Taulantia	55.1	47.65	September
	Egnatia	57.1	<b>52.04</b>	February, May
	Adria	59.04	48.2	July, August, September
	Deshmoret	55.2	50.62	March, August
	Dyrrah Boulevard	54.25	43.55	February, May
Industrial	Dogana	61.02	46.85	July, September
Residential	Aleksander Goga	57.35	47.8	August, November
	Stefan Kaculini- Glaukia	57.6	48.15	July, August, October

**Source:** Own research.

Referring to the results in table 1 it was observed that during the morning the highest  $\langle L_{eq} \rangle$  was in the industrial area (Dogana street) followed by the commercial area (Adria street) and residential area (Stefan Kaculini- Glaukia street).

Dogana street had the highest average equivalent noise level (notable during summer). This street begins from the port of Durres entrance and ends at Dajlani bridge.

High noise levels in this street were due to:

- the landing of more migrant ships;
- passage of high tonnage vehicles;
- passing cars on the adjacent road that takes to the beach.

Adria street (in the commercial area) had the highest average equivalent noise level (during summer time). This street begins at 26 Nentori square and ends at Dajlani bridge.

High values of the noise level in this segment were because:

- this is a road with a large load of cars entering and leaving Durres;
- adjacent to this road is the rail transport;
- there are a series of bars, shopping centers, gas station where people use cars to go there;
- there is a big interurban bus station where buses enter and leave it;
- near this road is the rustic market where people go shopping using their cars, transport goods etc.

Glaukia street (in the residential area) had the highest average equivalent noise level (during summer-autumn). This segment extends along with the large industrial market of Durres Municipality.

This street had high values levels because of:

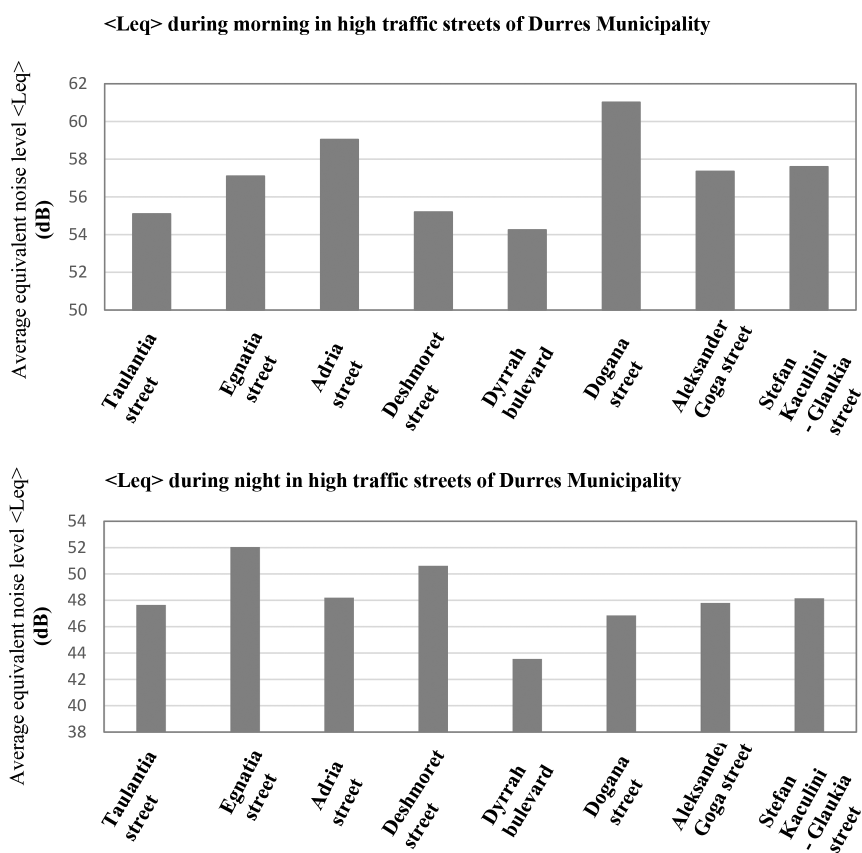
- the fact that is a road which allows the passage of cars that enter or leave Durres;
- passing cars that transport goods in the large industrial market and numerous business activities along the way;

During the night, Egnatia street (in the commercial area) had the highest level of  $\langle L_{eq} \rangle$  compared to other streets. This is because it is the main road and there are a lot of cars that pass there.

Finally, we can see in table 1 that almost all the streets taken into consideration, during the morning had  $\langle L_{eq} \rangle$  value greater than 55 dB. Referring to Charan (2017) “If a study area has a  $L_{eq}$  greater than 45 and 55 dB it can cause sleep disturbance (if windows are open) and serious annoyance for residents living near this area”.

During the night almost all the streets had  $\langle L_{eq} \rangle$  greater than 45 and 50 dB. This means that residents living along these roads have sleep disturbance (if windows are open) and moderate annoyance.

$\langle L_{eq} \rangle$  values presented in table 1 for different streets were used to plot the following graphs.



**Graph 1.** Average equivalent noise level display during morning and night for high traffic streets of Durres Municipality

**Source:** Own research.

#### 4. CONCLUSION

This study gives Durres Municipality residents and certain structures interested an important view of the most noise polluted streets.

It was shown that during the morning the highest polluted streets in Durres Municipality were Dogana street (in the industrial area), followed by Adria street (in the commercial area) and Stefan Kaculini- Glaukia street (in the residential area).

It was evidenced that the average equivalent noise level calculated for these regions can cause sleep disturbance and serious annoyance to residents.

In conclusion, we must say that road transport is one of the leading reasons for environmental pollution. With the elevation in the number of vehicles and their circulation with high speed through the streets of Durres Municipality, noise is identified as one of the main factors that make worse the living standards of people in this city. Emotional and physical stress related to periodic noise discomfort leads to noise stress.

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# An Analysis of Carbon Sequestration from Green Surfaces in Durres City

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## Keywords:

CO<sub>2</sub> sequestration;  
Energy conservation;  
Water carrying capacity



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**Abstract:** In recent years the urban population in Durres city has grown exponentially, leading to an increase of CO<sub>2</sub> and consequently contributing on a large scale to climate change. Urban trees are basic to sequester CO<sub>2</sub> emissions as they incorporate carbon in their biomass. The amount of CO<sub>2</sub> sequestration from green surfaces in Durres city was  $50.13 \cdot 10^6$  kg/year instead of  $116.35 \cdot 10^6$  kg/year that it should be. Increasing the amount of green vegetation, the energy that can be stored will be  $3.7 \cdot 10^5$  MWh compared with the actual value of 162,48 MWh. Consequently, water carrying capacity will be 2321 times more than the amount of water needed to maintain the present public green spaces. These data can be used to help assess the actual and potential role of green trees in reducing atmospheric CO<sub>2</sub>, a dominant greenhouse gas. This study was conducted under the project "Green lungs for our cities - Alternative and comprehensive platform for monitoring air quality, noise pollution and urban greenery to affect policies at the local level". Measurements were performed with the cooperation of Eper Center, professors and students of "Aleksander Moisiu" University.

## 1. INTRODUCTION

Global warming is a phenomenon of rising earth temperatures due to the production of Greenhouse Gases (GHG) and one of them is CO<sub>2</sub> (Azaria et al., 2018). Poor air quality occurs when pollutants reach high enough concentrations to affect the environment and/or human health. Urban outdoor air pollution is a more specific term referring to the ambient air pollution experienced by populations living in urban areas, typically in or around cities (Guerrero, 2014). Industry (steel and chemical industries, power plants), agriculture, waste incineration, combustion of fossil fuels and road traffic are the important local sources (Celik et al., 2005).

Carbon dioxide is one of three greenhouse gases that are receiving increasing attention. CO<sub>2</sub>, methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) are believed to trap heat in the atmosphere the same way glass does in a greenhouse. The accumulation of these gases in the atmosphere is likely to cause climate changes (USDA, 2000).

According to Heede (2014), 80% of global carbon emissions are caused by urban human activities. Human activities such as fuel combustion during vehicular transportation, power generation emit large quantities of carbon dioxide to the environment. Moreover, construction operations and other industrial operations have also been recognized as major carbon emission

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sources. Thus, global researchers have been significantly focused on investigating methods to reduce carbon emissions (Mesthrige & Samarasinghalage, 2019).

Carbon sequestration is the process through which atmospheric carbon is captured and stored for the long term. The process slows the atmospheric accumulation of greenhouse gases released by such activities as burning fossil fuels. Plants can play an important role in this process (<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/carbon-sequestration>).

When a tree dies and the wood is allowed to decompose or is burned, most of the stored carbon goes back to the atmosphere, though some of the carbon can be retained in the park soils. Through their growth process, trees can sequester significant amounts of carbon in their biomass (Nowak & Heisler, 2010).

The absorption of atmospheric carbon dioxide by tree leaves is accomplished through photosynthesis, the primary biosynthetic pathway in which CO<sub>2</sub> and water (H<sub>2</sub>O) are used to produce carbohydrates and return oxygen (O<sub>2</sub>) to the atmosphere. Through the process of respiration, these carbohydrates are metabolized to provide the plant with the energy needed for its growth and functioning (Fares et al., 2017).

## 2. MATERIALS AND METHODS

The method followed by monitoring green trees was based on these steps.

1. Before going out on the field to gather relevant information, the most important stage in the process of creating tables with relevant fields for which there is interest in getting information.
2. Field monitoring: Outlining in ArcMap or Google Maps the monitoring area and printing maps as material that should have each working group at the time of field trip, along with other materials: clothing with project logo, folders, pens, excel spreadsheets, measuring devices, cameras (photography of vegetation and various problematic situations), maps, etc.
3. The process of obtaining field information, completing excel spreadsheets and related notes during monitoring. Completing the table by specifying: The name of the area where it is being performed monitoring, an ordinal number for each plant, tree type, diameter measurement, age up to the infiltrating surface attribute. Other fields are filled in by calculations in excel or ArcMap.
4. This phase closes the field monitoring process and the start of work on its disposal data in digital formats, in excel spreadsheets, or ArcMap.
5. The penultimate stage after completing the attributes for each monitoring is related to the product final: MAPS. Cartographic layout is one of the main products of the whole process because it is the best presentation of the state of the terrain with appropriate information. The maps are of different themes depending on the parameters that are monitored and relevant calculations.
6. The final stage in the GIS data submission process is data conversion in a readable format for submitting all monitoring on the online platform.

## 3. RESULTS AND DISCUSSION

The results obtained in this paper are part of the project *“Green lungs for our cities - Alternative and comprehensive platform for monitoring air quality, noise pollution and urban greenery to affect policies at the local level”*. This project was realized in collaboration with *“Environmen-*



tal Center for Protection, Education and Rehabilitation” together with “Aleksander Moisiu” University students and professors for a period of approximately two years.

From data in Table 1, we may see conclude that the total number of trees evidenced is 6.400. From calculations, these trees release  $64.42 \cdot 10^3$  kg/year  $O_2$  and sequester  $50.13 \cdot 10^3$  kg/year  $CO_2$ . Secondly, based on sciencefocus.com (<https://www.sciencefocus.com/planet-earth/how-many-trees-does-it-take-to-produce-oxygen-for-one-person>) a human breathes about 740 kg/year of  $O_2$ . If we apply this to Durres city population (202.000 inhabitants) (<https://sq.wikipedia.org/wiki/Dur-r%C3%ABsi>) the amount of  $O_2$  that is needed referring to standards is  $1.49 \cdot 10^8$  kg/ year. In this case,  $CO_2$  sequestration should be  $1.16 \cdot 10^8$  kg/year  $CO_2$ . Thirdly, the cost to sequester  $50.13 \cdot 10^3$  kg/year  $CO_2$  is  $4.216 \cdot 10^5$  ALL whereas for  $1.16 \cdot 10^8$  kg/year  $CO_2$  the cost needed is  $9.78 \cdot 10^8$  ALL.

**Table 1.** Number of trees,  $O_2$  release,  $CO_2$  sequestration and costs  
(in different areas of Durres city)

Area	No. trees	$O_2$ release (kg/year)	$CO_2$ sequestration (kg/year)	$CO_2$ sequestration cost (ALL)
Commercial (urban)	2292	13 400	31 000	44 612
Industrial	2333	25 220	9 450	185 001
Residential (suburban)	1775	25 800	9 680	191 987
<b>Total</b>	<b>6400</b>	<b>64 420</b>	<b>50 130</b>	<b>421 600</b>

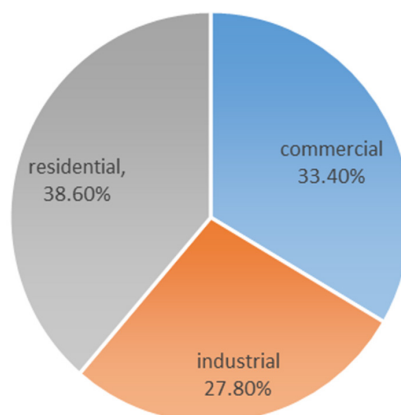
Source: Authors calculations

The total amount of energy conserved for 50 130 kg/year  $CO_2$  sequestration is 162.48 MWh (Table 1 and Table 2). The cost for this energy is  $1.55 \cdot 10^6$  ALL. The energy conservation based on the number of inhabitants and standards should be  $3.7 \cdot 10^5$  MWh and the cost to be invested for this amount is  $3.5 \cdot 10^9$  ALL. Energy conservation (in %) by carbon dioxide sequestration is given in Graph 1.

**Table 2.** The quantity of energy conservation (by carbon dioxide sequestration)  
in different areas of Durres city and the costs

Area	Energy conservation (MWh)	Cost (ALL)
Commercial (urban)	54.40	$5.25 \cdot 10^5$
Industrial	45.27	$4.30 \cdot 10^5$
Residential (suburban)	62.81	$5.96 \cdot 10^5$
<b>Total</b>	<b>162,48</b>	<b><math>1.55 \cdot 10^6</math></b>

Source: Authors calculations



**Graph 1.** Energy conservation (in %) by carbon dioxide sequestration

Source: Authors calculations

From data in Table 3, we may add that the water carrying capacity for 6400 trees ( $50.13 \cdot 10^3$  kg/year  $\text{CO}_2$ ) is  $35462.3 \text{ m}^3/\text{year}$ . The cost for this amount is  $172 \cdot 10^5$  ALL. For  $1.16 \cdot 10^8$  kg/year  $\text{CO}_2$  sequestration, the water carrying capacity should be  $82.3 \cdot 10^6 \text{ m}^3/\text{year}$ . The cost for this investment is  $3.9 \cdot 10^{10}$  ALL.

**Table 3.** The amount of water carrying capacity  
(by green vegetation) in different areas of Durres city and the costs

Area	Water carrying capacity ( $\text{m}^3/\text{year}$ )	Cost (ALL)
Commercial (urban)	2687	$1.07 \cdot 10^5$
Industrial	16442.3	$3.17 \cdot 10^4$
Residential (suburban)	16333	$3.30 \cdot 10^4$
<b>Total</b>	<b>35462.3</b>	<b><math>1.72 \cdot 10^5</math></b>

Source: Authors calculations

#### 4. CONCLUSION

Based on the above results it is concluded that:

- Based on the standards ( $9\text{m}^2$  of green space for each person) and the number of inhabitants in Durres city it should be sequestered  $1.16 \cdot 10^8$  kg  $\text{CO}_2/\text{year}$ . The actual sequestration is 2321 times less of this value. The cost to be spent for this investment goes somewhere to  $9.78 \cdot 10^8$  ALL. The needs for water carrying capacity and its cost should be respectively  $82.3 \cdot 10^6 \text{ m}^3/\text{year}$  and  $3.9 \cdot 10^{10}$  ALL.
- The energy conservation from  $\text{CO}_2$  sequestration should be  $3.7 \cdot 10^5$  MWh and the cost to be invested for this amount is  $3.5 \cdot 10^9$  ALL ;
- Planting trees remains one of the cheapest, most effective means of drawing excess  $\text{CO}_2$  from the atmosphere;
- Trees lower air temperatures by transpiring water and shading surfaces. They can reduce building energy use and cooling costs.

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