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# *PREFACE*

The Book of Proceedings of the Eleventh International Conference *Employment, Education and Entrepreneurship* in the organization of the Faculty of Business Economics and Entrepreneurship from Belgrade is the result of the scientific thinking of 50 researchers, authors, and coauthors of scientific papers from the Republic of Serbia and the entire world.

The papers in this Book are the result of a continuous affirmation of the scientific thinking that started in 2012 at the first conference, whose focus at that time was a multidisciplinary overview of relevant phenomena and paradigms in the sphere of employment, education and entrepreneurship.

When looking at the opinions of various authors, we can notice and distinguish between three thematic units that investigate similar problematics.

The first thematic unit refers to modern education and consists of papers dedicated to the analysis of education in today's conditions with a special emphasis on the quality and new models of education. The goal of modern education is to strengthen scientific knowledge and acquire key competencies that would enable people to face new professional challenges and get involved in modern social trends.

As part of the second thematic unit, there are 5 papers dedicated to employment and human resources in modern business conditions. Employment is a powerful means in the attempt to solve basic social problems. However, the labor market has become unpredictable. Technological progress sets great challenges before the entire world. One of the biggest challenges modern managers are faced with is overcoming employee resistance while at the same time maintaining internal stability in the organization in the process of today's changes.

The third thematic unit consists of papers dedicated to how business is carried out nowadays. In 15 papers, the authors have tried to point to various problems today's market participants are facing. The analysis of modern business indicates that it is necessary to efficiently solve issues concerning the shift to a more unpredictable global trade regime and work on strengthening innovative capacities by using the available data. The period of pandemics has brought us new challenges and, in today's turbulent environment, business participants and other actors are forced to adapt to newly occurred conditions in order to survive.

The papers in this Book are a step toward scientific fields that are open for further investigation and research and that deal with issues to which we hope to find answers at our next conference in 2023.

In Belgrade, October 2022

*Editors*

# PART I - EDUCATION IN THE CONTEMPORARY TIMES

# FINTECH AND EDUCATION, IN THE CONTEMPORARY TIMES OF A RAPIDLY CHANGING ENVIRONMENT – A BIBLIOMETRIC STUDY

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## ABSTRACT

*Both the economy and society have been characterized by continuous evolution and undeniable progress over time. Under the strong influence of the digital progress, adaptability has become a key factor in increasing competitiveness at almost all levels of human existence. Currently, the adoption of new technologies undoubtedly represents a necessity in the implementation of sustainable and efficient processes, serving the consumer needs and contributing to increasing the products and services suppliers' performance.*

*As part of the ubiquitous digitalization, the financial area has undergone a rapid change, ensuring the transition from traditional financial services to financial technology or the well-known FinTech. In the last decade, FinTech has certainly evolved, the range of related applications being extremely diverse these days. Going beyond the limitation to banking services, with a growing interest from companies, FinTech is, among others, characteristic for digital financial services, without the intervention of intermediaries.*

*Facilitator of actions both for the supplying economic entities and for consumers, FinTech has become a target for implementation. However, it is well known that the adoption of technology represents a shift influenced or closely connected with various factors, including education. Whether a causal relationship between the two concepts, FinTech and education, or a simple association is considered, the scientific literature often refers to the subject in question.*

*The main purpose of the current research was to identify some notable aspects regarding the relationship between FinTech and education from the perspective of scientific publications indexed in the Web of Science database during the last decade. Thus, a bibliometric study was performed, the results obtained revealing the novelty of the addressed subject, but also the progressive interest of scientific research on the topic. Moreover, the approach of the direct or indirect causality or influence relationship between education and financial technology was observed, based on the analyzed publications.*

**Keywords:** *fintech, financial technology, education, technology*
**JEL Classification:** *A10, F65, I25, M21, O30, P34*

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# *INTRODUCTION*

In the context of sustained digital evolution, given the indisputable advantages of the process itself, the financial services industry, among many other key action areas specific to the contemporary society, gains new perspectives. Under the imminent influence of technology, the financial industry unquestionably evolved, thus ensuring the emergence and development of what is called nowadays *financial technology* or simply *FinTech*.

Although the above-mentioned terms are not new, FinTech can be considered a rapidly changing industry, which determines the interest in the subject in question, both from the perspective of the scientific research and of actors directly involved in practice. The relatively recent perspective presented by Puschmann (Puschmann, 2017) characterizes the digitalization process of the financial field as the fundamental reorganization of the value chain of financial services through new business models and the entry of new actors into the market. Maintaining the idea of fundamental reorganization, Goldstein et al. (Goldstein, Jiang, & Karolyi, 2019) referred to the way technology is revolutionizing the financial industry, describing the phenomenon as the fusion between technology and finance.

Per se, the FinTech concept does not only refer to the digital shift of banking services, although this was one of the first influential directions of modern technologies. Currently, we distinguish between FinTech banking and FinTech companies. Therefore, the term FinTech could be considered representative for all the economic entities that use digital services and products with the aim of improving their financial processes, thus including the banking environment and companies. Taking into account the current reality related to the FinTech phenomenon, we cannot strictly consider the digitized or automated banking services, but a much wider range of services, such as investment applications, cryptocurrency applications, e-commerce transactions, aid in government assistance efforts and other.

Presently, the FinTech industry is huge and constantly expanding, as the digital transformation of financial services opens up opportunities for new and various types of projects, which definitely leads to the attraction of investors. In fact, in the modern world, the adoption of FinTech is described as a necessity, also part of the digital progress, representing a competitive advantage regardless of whether we refer to a state, a community or an individual. However, the influencing factors are numerous, and the total benefit from the digital progress in the financial industry remains a topic often brought up in discussion.

The awareness that education represents one of the basic pillars for the good development of the individual and, consequently, of the society and the economy, determines the involuntary association between it and the ability to adopt modern technologies, including FinTech. According to Foster and Rosenzweig (Foster & Rosenzweig, 2010), the specialized literature issued three hypotheses concerning the relationship between education and technology adoption, referring to: (1) the income effect perceived by more educated agents (who are considered wealthier as a result of the increased level of education), determined by the education - technology adoption relationship, (2) better access to information by more educated agents and (3) the increased ability of more educated agents to learn and decode new information with increased speed and efficiency.

On the other hand, analyzing the role of educational interventions in improving economic rationality, the results obtained by Kim et al. (Kim, Choi, Kim, & Pop-Eleches, 2018) suggest that the quality of economic decision-making represents a process enhanced by education. Therefore, the transition to the use of FinTech, representing an economic decision, can be influenced by the level of education.

In addition to the previously mentioned research, the study recently carried out by Horobet et al. (Horobet, Mnohoghitnei, Zlatea, & Belascu, 2022), aiming to analyze the interaction between three

key variables in the current European context, namely *digitalization*, *education,* and *financial development*, reveals similar findings, of real importance. Summarizing, the results of the mentioned research emphasized, among others, the existence of a general positive association between education, digitalization, and financial development. In addition, it was shown that education represents a leading variable, while digitalization and financial development are laggards.

Within the existing scientific literature, reference is also often made to financial education and the need for its constant improvement, under the influence of numerous factors, among which the digital evolution can be mentioned. As per Bratu (Bratu, 2020), financial education contributes to increasing the capacity of individuals to use complex financial services and products. The same study notes the fact that, in order to use modern, intensively developed financial products, financial education must be constantly developed, with an emphasis on self-education using technology.

In view of the previously mentioned aspects and many other similar scientific perspectives, the existence of a causal relationship or, at least a direct connection between the adoption of technology and the individual level of education was often questioned. As a direction of interest within the scientific research, even direct reference to the link between the financial development, including its digital progress, and education, can be observed. Therefore, the purpose of the present research is to highlight the results of a bibliometric study, providing an overall perspective on the last decade's scientific literature, regarding the relationship between Fintech and education.

## *RESEARCH METHOD*

In general terms, being characterized as a quantitative study, the bibliometric analysis involves the evaluation of the scientific publications on a certain subject, with the aim of computer-assisted revision of them. The bibliometric study can be focused on several directions, such as analyzing the relationship between authors, caring out an analysis based on citation rates, undertake an analysis based on the keywords occurrences and so on, according to the purpose of the research.

Thus, by carrying out the bibliometric analysis of academic publications, these becoming the actual data source, information can be provided on how the research in the targeted subject area was performed, organized, and interconnected. However, it can be stated that a comprehensive understanding of the research field, through the lens of existing publications, involves a direct evaluation of the scientific papers used as a data source, through their direct exploration.

In order to achieve the predefined goal of the current research, focused on the relationship between FinTech and education from the perspective of the scientific research, the following research questions were established:

**RQ1**. *How has the scientific literature on the subject evolved in the last decade?*

**RQ2**. *Which is the distribution of publications by research area?*

**RQ3**. *Which are the main topics/directions of research targeted by the authors?*

**RQ4**. *How could the main perspectives highlighted in the scientific literature on the addressed topic be described?*

Answering the defined research questions involved performing a bibliometric analysis based on the keywords' occurrences frequency, this being considered a preliminary step to the disclosure of more in-depth information about the approached subject. The database used to identify and extract the scientific publications to serve the purpose of the research was Web of Science, and the computer-assisted analysis was carried out through the VOSviewer software tool.

Intending to query the database, the following Boolean elements were included in the initial phase: *TS=("FinTech" OR "financial technology") AND TS=("education" OR "training" OR "learning" OR "teaching" OR "instruction")*. Hence, the use of the synonymous terms *FinTech* or

*financial technology* could be observed, as well as the addition of the term *education* or its main alternative words. Running the query in question considering the last decade resulted in obtaining 268 existing scientific publications in the Web of Science database, the first being published in 2015, while the period 2015 - 2017 summing up only ten scientific papers on the subject concerned.

Nevertheless, running the previously mentioned query led to the decision to refine it, a large part of the resulting scientific publications being focused on specific terms, often derived from synonyms chosen for the word *education*, for example *machine learning* or *deep learning*. Under these circumstances, the resulting research would have deviated from the purpose of the present study, not referring to the concept of *education* in general.

Therefore, the final query was narrowed as follows: *TS=("FinTech" OR "financial technology") AND TS=("education")*. The chosen field tag, i.e. TS, allowed searching the terms in the titles, abstract and author keywords. For the present study the advanced search Web of Science feature was used, while the considered timespan included the last ten years.

To provide a better understanding of the subject addressed in this paper, after carrying out the bibliometric analysis in light of the previously mentioned considerations, it was necessary to review the specialized literature. The process of direct review of manuscripts was focused on the first ten scientific papers resulting in the number of citations, these being considered the most appreciated among researchers.

## *RESULTS AND DISCUSSIONS*

In order to establish a better understanding of the bibliometric study obtained results, their dissemination in two distinct parts was considered favorable. Therefore, the first part of the current section is focused on the general quantitative results regarding the analyzed scientific publications, intended to answer the first two formulated research questions (RQ1 and RQ2). Subsequently, reference will be made to the graphical representation of the relationship between the main keywords, providing an answer to the third research question (RQ3).

## *GENERAL INSIGHTS OF THE BIBLIOMETRIC STUDY*

As a result of the database querying, 64 relevant scientific publications were returned, the search terms being found in titles, abstracts, or author keywords. In response to the first research question (RQ1), a growing interest in the association between FinTech and education was observed in the last five years of the analyzed period (Figure 1). Considering the date on which the present study was performed, to obtain relevant results for the last ten years, only the last four months of 2011, respectively the first eight months of 2022 were taken into account. However, among the publications identified, the first result based on the addressed query was published in 2017.
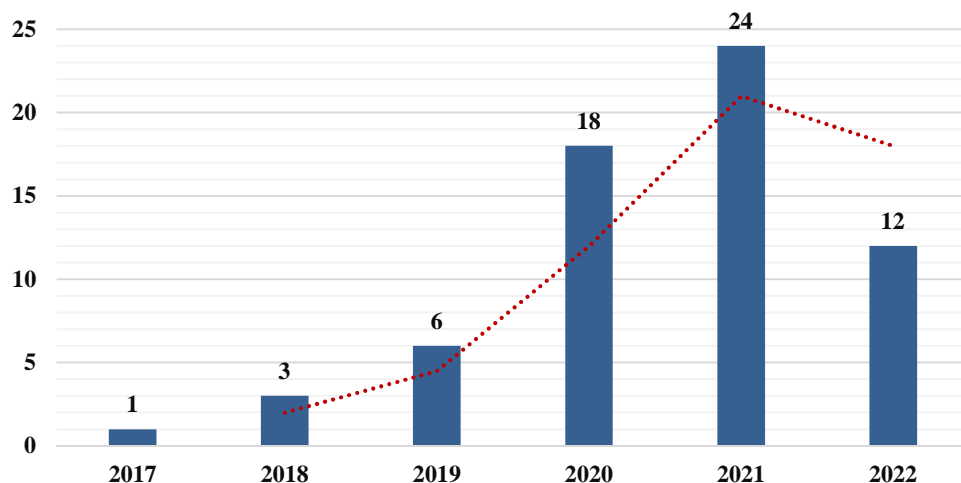
*Figure 1. The evolution of the scientific publications' number during the analyzed period*
*Source: Results obtained from data processing after querying the Web of Science database*

Inherently, the association between FinTech and education has been scientifically analyzed predominantly within the research areas in the field of business economics. The top ten Web of Science research areas in which the identified papers were included can be easily observed in Figure 2, which also depicts the number of manuscripts, offering a clear answer to the second question of the research (RQ2).
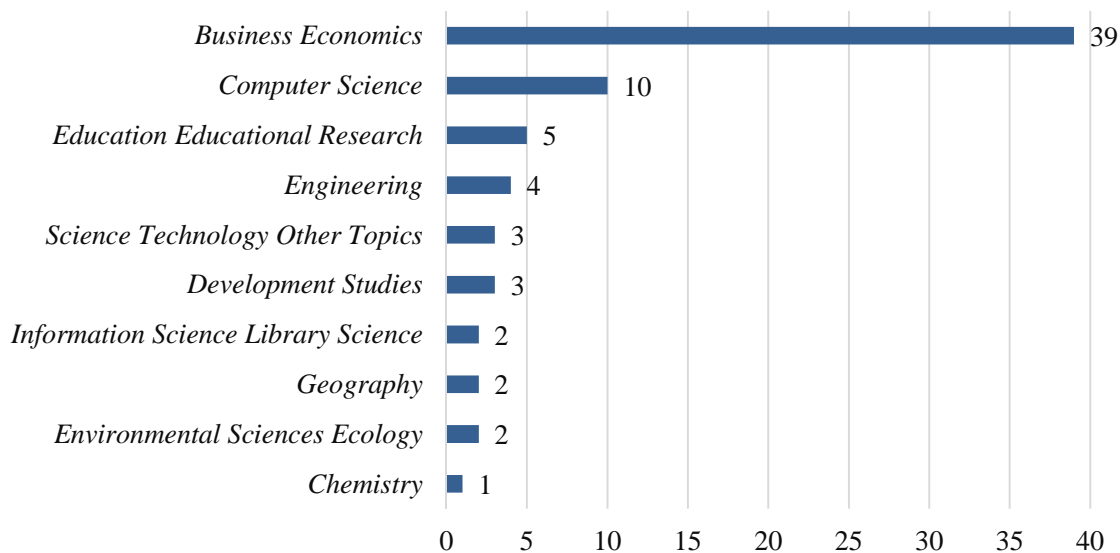


*Figure 2. The top ten Web of Science research areas including the identified scientific publications*
*Source: Results obtained from data processing after querying the Web of Science database*

Besides, the interest in the research topic was found by authors from all over the world, the main scientific contributions coming from the China (12) and USA (11). In the figure below (Figure 3) the countries contributing to scientific research can be noticed, the geographical locations with the highest number of publications being highlighted in dark blue, respectively lighter as the number of publications is lower, or zero where grey is observed.
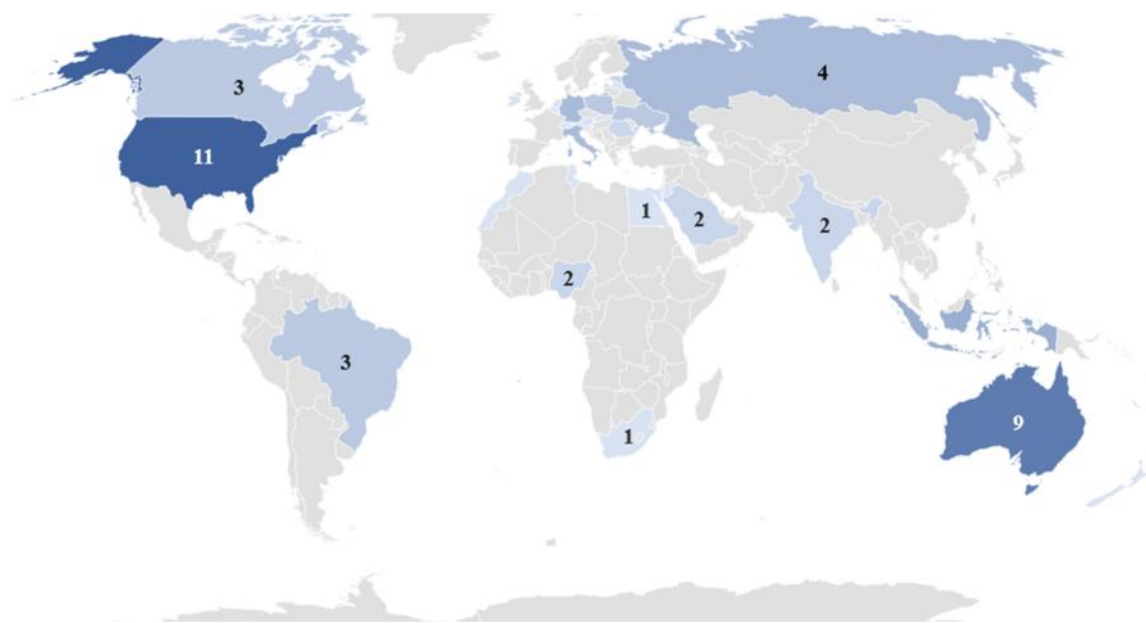
*Figure 3. Contributing countries by geographical location*
*Source: Results obtained from data processing after querying the Web of Science database*

The raw results obtained and briefly presented above indicate some notable aspects, which suggest the idea of a global interest in the research topic. In fact, reference can be made to the relationship between the two considered concepts, namely *FinTech* and *education*, as a research topic of growing interest in various research areas.

## *KEYWORDS NETWORKS ANALYSIS*

Data processing via VoSviewer software led to the extraction of 2076 terms, of which only 42 meet the threshold of 10 as the minimum number of occurrences. Based on the analyzed terms, the relationship between the concepts FinTech and education is, in the framework of scientific research, closely related to terms such as *development*, *finance*, *financial inclusion*, *financial literacy* and *bank*. These keywords are, in fact, the top 5 terms associated with research publications resulting from the query of the Web of Science database. The table below lists the top 10 terms used, also showing the total number of occurrences of each, but the terms registering the same occurrences number have been additionally included.

*Table 1. The most used terms associated with the analyzed research publications*

| No. | Term | Occurrences |
|-----|------|-------------|
| 1. | development | 44 |
| 2. | Finance | 31 |
| 3. | financial inclusion | 28 |
| 4. | financial literacy | 28 |
| 5. | Bank | 27 |
| 6. | Country | 25 |
| 7. | Economy | 20 |
| 8. | Fintechs | 18 |

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| 9.  | Process            | 17 |
|-----|--------------------|----|
| 10. | financial education | 16 |
| 11. | Industry           | 16 |
| 12. | blockchain         | 15 |
| 13. | Customer           | 15 |

*Source: Results obtained from data processing via VoSviewer*

According to the analysis performed, it can be stated that the most frequently appearing terms vary in meaning. We notice in the foreground the use of the key term *development*, which induces the idea of innovation and evolution, when referring to the relationship between FinTech and education. However, for most of the resulting terms, the almost natural usage cannot be disputed. They are either specific to the economic field, or to the financial field in particular. However, the association of financial technology with education can be easily observed, through the frequently used terms *financial literacy* and *financial education*.

The observations previously made represent, to some extent, only assumptions, not based on the individual and direct review of the quantitatively analyzed publications. Additional information of interest was determined based on the keywords' association, following the processing performed through VOSviewer. Thus, five clusters of key terms were obtained, of which cluster 1 being considered the most comprehensive.

The figure below (Figure 4) depicts the five clusters, which can be distinguished based on the associated colors of the terms' nodes, as follows: cluster 1 - red, cluster 2 - green, cluster 3 - blue, cluster 4 - yellow, cluster 5 – purple.
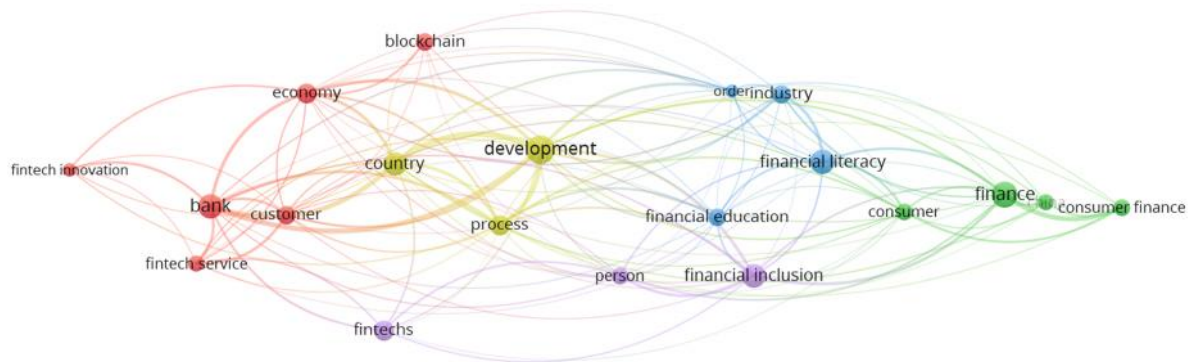


Figure 4. The Keywords Co-Occurrence Map
*Source: VoSviewer export after data processing*

Dividing the elements by clusters allowed the cluster density to be pictured (Figure 5), which ensures that they can be easily distinguished. According to the VoSviewer manual (van Eck & Waltman, 2018), in the graphic visualization of the cluster density, the weight given to the color of a certain cluster is determined based on the number of elements that belong to the cluster in the neighborhood of the point.
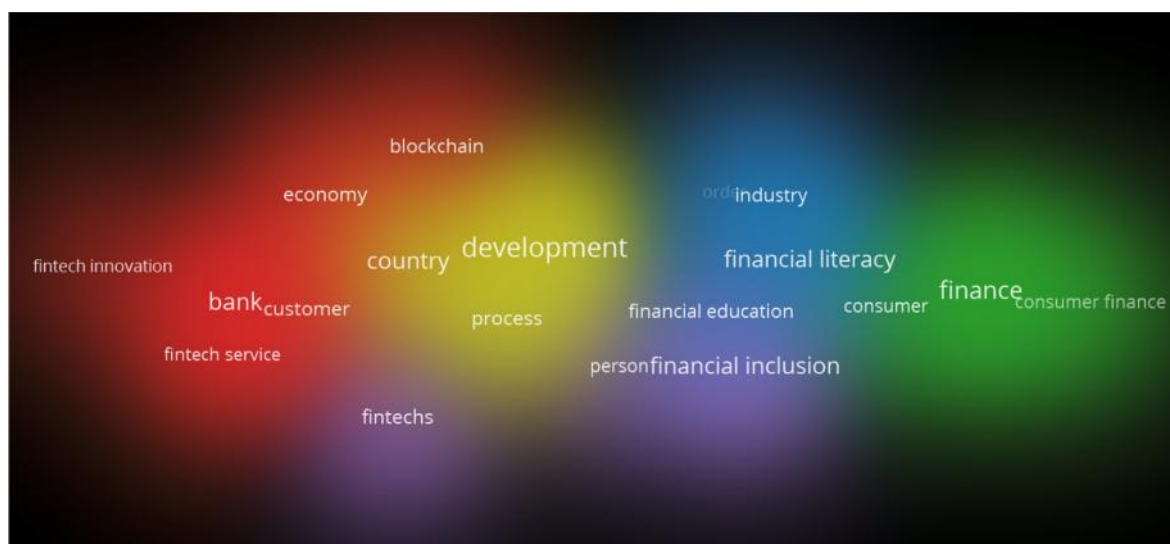
*Figure 5. The cluster density visualization*
*Source: VoSviewer export after data processing*

Referring to the first cluster (red), the key term with the highest number of occurrences is *bank* (27 occurrences), with 13 links and 301 total link strength, related, in turn, to *economy*, *blockchain* and *customer*, all keywords having over 10 occurrences in the analyzed cluster. The other key terms, such as *FinTech innovation* and *FinTech service* registered a number of occurrences below 10. We thus assume that the relationship between FinTech and education was particularly associated with aspects related to the banking field, and generally to the overall economic area and its recent developments. At the same time, the linked terms *FinTech innovation* can be observed, which leads, as a general idea, to the perspective that FinTech and education are closely related to the innovative process.

Cluster 2 (green) shows a strong association with the terms *finance*, *consumer,* and *consumer finance*. It can thus be assumed the existence of an increased interest on the part of scientific research on the consumer, by considering the relationship between financial technology and education.

Within the third cluster (blue), it can be observed that the main two terms, depending on the number of occurrences, are representative for education, but with specificity in the financial field. Besides, *financial education* and *financial literacy*, the keywords with the highest number of occurrences within the group in question, are joined to the term *industry*.

The fourth cluster (yellow) highlights the key term *development* in the foreground, with the highest number of appearances, followed by *country* and *process*. The clear association between the most used mentioned term within the yellow cluster with FinTech is extremely often addressed in the specific literature or by other interested actors. Financial technology itself is specific to development, but it is interesting to note the association with the terms *country* and *process*. The related concepts determine the premise according to which the FinTech - education relationship is more often analyzed from the perspective of development at the state level, there being unquestionably the possibility of the existence of other valences in the association, depending on the notional and semantic content of the terms.

Cluster 5 (purple) focuses on the *financial inclusion*, which brings to the fore the idea of adoption. Therefore, the potentially causal relationship between FinTech adoption and education can be assumed.

Even though the links between the keywords are much more numerous on the map shown in Figure 5, based on the clusters, referring to the main highlighted terms, we can summarize by mentioning the hub of main words associated in the scientific research related to FinTech and education, consisting of: *bank*, *finance*, *financial education*, *development*, and *financial inclusion*.

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Exposing a broad view, the previously mentioned terms could be considered the main directions of interest regarding Fintech and education, addressed in the scientific literature of the last decade, fact that answers the third research question (RQ3) defined in the current study.

# *REVIEW OF THE TOP TEN SCIENTIFIC PUBLICATIONS BASED ON THEIR CITATIONS NUMBER*

The number of citations related to a scientific publication reflects both the degree of trust within the scientific sphere given to the obtained results, as well as their popularity. Thus, a paper whose number of citations is increased can be considered a benchmark to the detriment of a manuscript with few or no citations. Undoubtedly, the time span that has passed since the publication of the respective paper, as well as other exogenous factors, can influence its visibility and, in turn, the number of resulting citations.

To increase the relevance degree of the current research results, and to answer the fourth research question (RQ4), the review of the first ten scientific publications resulting from the database querying, as part of the bibliometric study, has become compulsory. The review of the scientific literature in question also aims to highlight the main perspectives of the existing research, to which the following studies should be related.

The scientific publication with the highest number of citations, registering, at the time of analysis, 39 in Web of Science and over 140 in Google Scholar, is entitled *Data security and consumer trust in FinTech innovation in Germany* (Stewart & Jürjens, 2018). Approaching the concepts of data security and consumer trust as a central theme related to FinTech, the research in question focuses on the study of the key influencing factors on the adoption of financial technological innovation. Although the publication is considered relevant to the query addressed in the present research, the relationship between FinTech and education was not directly analyzed, this aspect being recognized as a limitation even by the authors, stating that, within the study in question, the variables of moderation such as education were not included.

Therefore, although the terms used in the defined query can be found in the text content of the first scientific paper reviewed, they are not necessarily associated, from which a first limitation of the bibliometric study can be observed. The simple association of keywords does not represent the relation of the concepts themselves.

The identified article named *Banking goes digital: The adoption of FinTech services by German households* (Jünger & Mietzner, 2020) ranks second in terms of the number of citations i.e., 36 in Web of Science at the time of the analysis. Aiming to provide notable information regarding the adoption of new technologies and services in the financial industry, by particularly reporting to German households, the results obtained from the study in question reveal the fact that households having, among other, a good level of financial education are more expected to adopt FinTech. Therefore, a first demonstration of the causal relationship between education and FinTech adoption can be observed.

Further, the third publication from the perspective of the number of recorded citations, namely 31 in Web of Science, is entitled *The Global Findex Database 2017: Measuring Financial Inclusion and Opportunities to Expand Access to and Use of Financial Services* (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2020). As it can easily be understood from the title of the paper and through subsequent verification, the research in question aims to analyze the data provided by the World Bank through the Global Findex database. The analyzed paper relates financial technology to education from two perspectives. Firstly, it is stated, with a general perspective, that financial services have the potential to stimulate development, reference being made to the facilitation of investments in education. At the same time, the presented results reveal specific aspects, such as the fact that less educated individuals have a lower potential to have an account at a financial institution

or that access to digital technology tends to be lower among them. Therefore, similar to the second revised scientific research, a causal relationship is recognized, at least between education and the use of financial services.

The fourth scientific publication analyzed, entitled *Consumer finance / household finance: the definition and scope* (Xiao & Tao, 2021), with 17 citations in the Web of Science at the time the current research was conducted, was classified as a review. Focused on discussing the differences and similarities between several terms specific to the financial area, the research results do not directly or indirectly relate Fintech to education. During the review, however, several topics referred to by the authors as non-traditional were considered, such as fintech and financial capacity or literacy, from which the relevance of the scientific publication in the addressed query results, at least at the level of character strings.

Summing up 14 citations recorded in the database used and more than 80 in Google Scholar, the paper *Financial literacy and responsible finance in the FinTech era: capabilities and challenges* (Panos & Wilson, 2020) ranks fifth. Focused on the analysis of existing research, the editorial material, as it was registered in Web of Science database, emphasizes, among other aspects of interest, the importance and necessity of financial education and literacy in the current context, *called the FinTech era*.

The study ranked sixth in the analyzed top, titled *How does financial literacy impact on inclusive finance?* (Hasan, Le, & Hoque, 2021), relates Fintech and education through the lens of financial literacy. However, the authors suggest the need to deliver comprehensive and long-term education programs among the rural population aiming to support the financial inclusion.

Entitled *The role of location in FinTech formation* (Laidroo & Avarmaa, 2020), the seventh scientific publication analyzed reveals, along with other aspects, the fact that the establishment of FinTech benefits from an increased intensity in countries with high enrollment rates in tertiary education. As in most of the previously reviewed research, the FinTech - education causality relationship is highlighted.

With the main objective of analyzing the impact of inclusive digital finance on urban-rural income differences in China, Ji et al. (Ji, Wang, Xu, & Li, 2021) have presented, in the eighth revised paper based on the top considered in this research, some aspects that can indirectly relate FinTech to education. Among the exposed conclusions, it is mentioned that the impact of digital inclusive finance on the urban-rural income gap tends to be more favorable as the education is weaker.

Having as the central point of the research the effect of financial education on the tendency to delegate financial decision-making to a digital asset management tool, known as a robo-advisor, the article *Financial education and digital asset management: What's in the black box?* (Litterscheidt & Streich, 2020), is found on the ninth position in the top subject to review. The results obtained by the authors indicate the potential of indirect influence of financial education on investment results, by supporting the use of financial advice.

Being focused on the business environment, particularly considering the companies in the FinTech sector, the tenth revised paper (Sannino, Di Carlo, & Lucchese, 2020) investigates the demographic characteristics of corporate leaders (CEOs), referring to them as facilitators of sustainable business models. Attempting to outline the reference profile of the executive directors, the authors took into account, among many other aspects, specifications related to education. The findings reveal that some of the demographic characteristics related to the CEO are relevant, but the presence of an MBA is also mentioned as a significant impact for LEADING companies.

Following the review of the first 10 publications classified according to the number of recorded citations, the fact that relatively recent publications tend to directly relate the concepts FinTech or financial technology, and education can be observed. The relationship between the targeted concepts is outlined in direct or indirect associations, conveying different views, but the dominant perspective on the causality between the FinTech and education, referring to the key terms meaning in real life, is noteworthy.

# CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The main purpose of the study carried out in the present paper was to increase the degree of awareness regarding the association between FinTech and education, subject to the approaches of the scientific research area. The analysis was performed using the Web of Science database, for the time span 2011 - 2022, the data source consisting of 64 resulting scientific publications, relevant to the addressed query.

The digitization of financial services represents a process in continuous expansion, which determines, along with other important aspects, new business models, characterized by a shift from traditional to automated or, at least, improved developments. The last decade has shown that FinTech is not only related to common banking services and their progress but represents an adaptation trend among companies.

Intended to bring modern solutions to both consumers and providers of financial services, the implementation of the financial technology can be influenced by many factors, education being one of them. The mentioned association progressively attracts attention in the scientific literature, and the results obtained from the presented study can be summarized as follows:

- The relationship of financial technology or FinTech with education represents, at least at the level of concepts, a current trend in the scientific literature, the interest on the topic being more visible starting from 2017.

- As expected, considering the significance of the key terms based on which the search was carried out in the database, the most popular targeted research areas are in the field of business economics.

- The findings highlight the fact that the relationship between the two concepts is not only one of local interest, but represents a global phenomenon, with countries contributing to the scientific literature covering points from around the world, as a geographical position.

- The key concept of *education* has been related in the scientific research of the last ten years with *financial technology*, mainly in publications within which the focus was on concepts such as *bank*, *finance*, *financial education*, *development*, and *financial inclusion*. The previously listed terms can thus be considered directions or topics of scientific interest related to FinTech and education.

- The review of the top ten scientific publications from the perspective of the number of recorded citations, resulted through querying the Web of Science database, reveals, in addition to other notable aspects, the fact that financial technology and education are related directly or indirectly, through the derivatives of the concepts in question, either as a cause-effect duo, or as aspects associated with the development of the economy as a whole.

- The relationship between FinTech and education can still be considered a novelty subject in scientific research, an aspect demonstrated through the present study. Although the time interval analyzed took into account the last ten years, the resulting scientific publications date from 2017, while their number in Web of Science does not exceed 100. Thus, we can conclude by emphasizing the growing interest from the perspective of the scientific area on the addressed phenomenon in the last five years.

The limitations of the research can be disseminated into endogenous, related to the internal factors of the study and exogenous, beyond the direct control of the authors, determined rather by the chosen research method. Thus, as endogenous limitations, we can refer to the fact that for the bibliometric analysis carried out, a single database was used, namely Web of science, while the terms included in the addressed query may not be the most relevant for the subject addressed. The main exogenous limitation

is specific to bibliometric studies and was also found in the current research, referring to the fact that the resulting scientific publications are not necessarily accurate and representative of the phenomenon under analysis, but may simply include combinations of characters strings.

Considering the recognized research limitations, future research directions aim to expand the bibliometric study by performing the analysis on several databases, such as Scopus and others. Also, refining the Boolean query, by including more relevant terms is considered, to increase the degree of relevance of the results obtained. Moreover, different research methods are intended for combined or individual use.

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# METHODOLOGY OF MEASURING THE QUALITY OF EDUCATIONAL SERVICES[4]

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## ABSTRACT

*Nowadays, education is most often analyzed in the context of its quality. The quality itself is determined by many factors, the proper identification of which may contribute to the desired level of educational services provided. It is undoubtedly considered one of the most important factors influencing the civilization level of societies, having a long-term impact on all aspects of their socio-economic life. Both the issues related to the quality of educational services and the methods of measuring have been the subject of considerations of scientific researchers interested in this problem for many years.*

*Own research results and literature studies in this area lead to the conclusion that one of the factors determining the quality of educational services, and at the same time one of the most important, is the proper recognition of the factors of the quality of educational services and the methodology of its measurement, which is the goal of this study ( article).*

*Thus, it was decided that the weight of the discussion of this article will be focused mainly on the quality of educational services, their socio-economic role, as well as the proper identification of the factors that determine it. Moreover, attention was focused on the issues of the methodology of its measurement. In this respect, the use of the quality gap model based on the Servqual method was proposed as a helpful tool, which, in the opinion of the authors of this article, should be considered a useful tool for the proper recognition of the quality of educational services. It should be noted that the mere identification of gaps and awareness of their occurrence allows for both the formulation of a general assessment of quality and the indication of those areas where the difference (gap) between the expectation and the perception of quality requires improvement. The application of the model of examining the quality gaps in educational services may also be helpful in developing measures to improve the quality of educational services provided.*

*Keywords: quality of educational services, measurement methodology, servqual method*
*JEL Classification: A2, H0, I29*

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# INTRODUCTION

Educational services are one of the most common modern services, and care for their quality is an issue of fundamental social importance. According to the document *Fundamental Goals of Polish Education* (2020) prepared by the Office of the Ombudsman, "general education and training are the most important national investments, guaranteeing a safe and prosperous future of Poland in the family of world nations and European nations. In order for the social effort made for the development of education in Poland not to be wasted, it is necessary to clearly formulate the basic goals of national education, and then ensure that they are achieved as quickly and well as possible."

The services themselves, in addition to substantive subjects and specific rights, are included in the group of goods with the ability to meet needs (Rogozi ski, 2000).

Moving on to the category of quality of service, it should be stated that, as the quality itself, the quality of service is a concept that is difficult to define unambiguously. Its essence is influenced by a number of factors, among which we should distinguish (Urban, 2007):

⌡ the need to take into account different aspects of the service product;
⌡ the role of customers in the process of assessing the quality of services and the way in which they receive the service.

Many researchers specializing in the field of service quality avoid attempts to define the concept of service quality in order to formulate multiple criteria for the description and division of service quality.

It should be noted that the educational service is a specific provision, and the issue of quality assurance in education is closely related to many elements, the measurement and proper identification which can be a starting point for actions aimed at improving the quality of educational services. Making such arrangements is essential for the correctness and effectiveness of any actions taken to improve the quality of educational services.

Thus, due to the undoubted importance of the quality of education, the main objective of the article is to put forward a specific methodology for measuring the quality of educational services. When creating the study, the authors used extensive literature related to the issue of the quality of educational services. Some considerations were devoted to the methodology of quality measurement, presenting the selected measurement methods by ideas. It should be emphasized that in the world of scientific literature the vast majority of studies in this area relate only to academic education.

# SOCIO-ECONOMIC ROLE OF EDUCATION SERVICES

The modern economy is identified with the knowledge-based economy (GOW), the development of which is determined by the social system of verification and transfer of knowledge. Its carriers include, among others, education, treated as a whole of didactic and educational processes (Drabik and Sobol, 2014). Education is critically important in terms of equalizing opportunities and social differences and should be treated as an investment affecting socio-economic development.

The basic goal of education is to equip educated people with knowledge and skills, as well as shaping their personality. Education can be provided in an institutionalized form or take non-institutional forms, including occasional forms. The main and desirable effect of education is to shape a person who is versatile in intellectual, socio-moral, cultural and professional terms, adapted to live in the surrounding reality.

Z. Kwieci ski (2003) proposes to explain the essence of education through the processes that generate it, as presented in Figure 1:
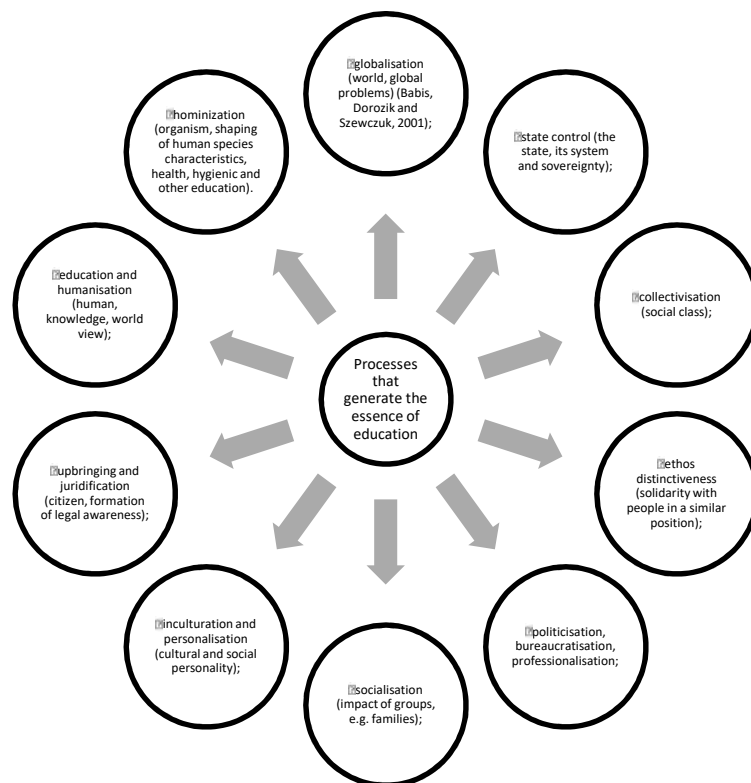


*Figure 1. Processes that generate the essence of education*
*Source: own study based on Encyklopedia pedagogiczna XXI wieku, t.I, Wydawnictwo Akademickie ak, Warszawa 2003*

The author also points out that education should primarily:

⟩ provide the knowledge necessary for active and creative participation in the life of the modern world community;

⟩ shape important values important for the successful functioning of a free, democratic society, such as tolerance, respect for rights, including minority rights, love of freedom, sense of solidarity;

⟩ shape the idea and respect for the common good;

⟩ develop a sense of social bonding and patriotism;

⟩ teach in an appropriately balanced way the ability to combine active cooperation and harmonious cooperation at work, in the family and in local communities with the ability to choose and set their own goals and their achievement;

⟩ teach accountability to yourself and to account for your actions to others.

A report was prepared by the International Commission on Education for the Twenty-First Century, whose Polish title is *Edukacja. Jest w niej ukryty skarb* (Deloros, 1998) should also be considered an important document related to the issue of education. The report's recommendations on the development of education for the future are aimed at ensuring that it leads to the full development of the personality of all people.

Undoubtedly, it should be recognized that education is a broadly defined concept and, in the most general sense, it means upbringing as the education of a person from a child to the moment of reaching maturity, on the intellectual, psychological and moral level. Education in this field is mainly aimed at preparing for life in society, but also at developing one's own judgement. It also promotes the integration of individuals into the cultural, social and economic life of a given community and the preparation of human reserves for its enrichment.

In order to recognize the essence of educational service, the ways of defining it should be presented.

In the literature, the term "educational services" is usually given a broad and general meaning. An example is the definition of P. Kotler, according to which an educational service is any activity that one party can offer to another (Kotler, 2002). According to E. Skrzypek (2006), an educational service is a deliberate and organised sequence of relationships that occur between the teacher and the learner. M. Geryk (2007), on the other hand, defines an educational service as a service in which its seller sells his knowledge or skills, and the buyer acquires them.

An educational service can also be understood as a job, the result of which is the acquisition of knowledge, competences or skills by the recipient of this service (Kolman, 2003). This result is part of the general definition of the service because the acquisition of competences is the result of the will to meet the need, constituting a conscious deficit of competences that are considered necessary for functioning in society.

The educational service is also referred to as a process in which consumers participate in the creation and provision. *Popularna encyklopedia powszechna* (2001) defines it as a total of processes aimed at changing people, primarily children and young people, in accordance with the ideals and educational goals prevailing in a given society.

The efficiency and proper functioning of the service significantly affects the assessment of buyers. This process shall include decision-making procedures on:

- recruitment of educational institutions clients;
- schedules of classes;
- promoting:
- assessing and any means of verifying the level of knowledge and skills;
- activities as a result of which the consumer receives an educational service.

According to the authors G. Zieliński and K. Lewandowski, the essence of educational services is the transfer of competences, in which a commercial thread acts as an important element. This transfer involves a sponsor of the service (usually a state or other group of entities), a Z qualified person providing the service (teacher, instructor, etc.) and a recipient – a learner (pupil, student or adult) (Zieliński and Lewandowski, 2012).

Educational services may, to a certain extent, expose the commercial nature of these activities. M. Geryk (2007), on the other hand, defines an educational service as a service in which its seller sells his knowledge or skills, and the buyer acquires them. Educational services play a special role nowadays, enabling people to adapt flexibly to new conditions of the labour market. J. Czapiński (1995), writing about the costs of the first years of transformation and chances for the future states that less educated people feel more severely both material and psychological costs of adapting to the new reality than the better educated ones. Taking into account that life expectancy also increases

with the level of education, especially among men, education can be seen as a real remedy for most of the negative effects of the rapid social change. The better educated an individual is, the faster and more effectively they adapt to the new rules of life.

Possession and ability to use knowledge translates into a high level of human capital, which results not only from the duration, but also from the quality of education of a given individual, and consequently of the entire society (Skórska, 2012). The education system shapes the general competences of future labour market participants, as well as allows to obtain specific professional qualifications sought-after by employers. Entering the labour market especially by young people depends on the size and structure of labour demand. It can be said that the development of labour demand depends on a number of factors, such as economic change, technological development and, increasingly, the pursuit of a knowledge-based economy.

# *FACTORS DETERMINING THE QUALITY OF EDUCATIONAL SERVICES*

The *United Nations Educational, Scientific and Cultural Organisation* (UNESCO) defines the quality of an educational service as the degree to which the requirements for the educational process and its outcomes, formulated by stakeholders, are met, taking into account internal and external conditions (UNESCO Road Map for Arts Education, Lisbon 2006).

At the same time, the key importance of the effectiveness of education, measured by the degree of adaptation of competences to social and economic life, and thus to the needs of the labour market, is emphasized.

In the scientific literature, the quality of an educational service is considered primarily as (Piotrowski, Kirejczyk, 2001; Topczynska, 2010; Purgailis, Zaksa, 2012; Mazurkiewicz, 2012; Mihaela, 2012):

⎰ the quality of school, i.e. the educational institution, which is defined by: its organizational structure, the management style used, interpersonal relations between the participants of the education process, the methods and means of education used, educational interactions, forms and methods of cooperation with parents, the system of intra-school assessment. The quality of school may be perceived differently by different stakeholder groups, e.g. pupils, the managing body;

⎰ the quality of education or didactic process, which includes: the objectives of education, the content of education, the principles of education, training methods, organizational forms, means of education, plans, programs and methods for the selection of teaching content, textbooks, auxiliary materials, procedures for the control and evaluation of educational results and the results achieved by students in external examinations, in particular the school-leaving exam and exams confirming professional qualifications in individual professions, as well as the number of winners of out-of-school competitions. Assuming that education should be understood both as the development of intellect and the building of students' attitudes regarding their comprehensive development and functioning in society, the quality of an educational service is essentially the quality of education, because the school has no other socially important goals than education understood in this way;

⎰ the quality of teachers' preparation and professional experience;

⎰ the quality of the result, i.e. preparation for the next educational stage or work in accordance with the current expectations and requirements of employers. The assessment of the result should be combined with the assessment of the effectiveness of an educational service, the

measure of which is the volume of knowledge transferred at a given time, with a certain effort and financial outlay.

Factors influencing the functioning of an organization can come from both its interior and and exterior. Identification of these factors requires a diagnosis of the condition of the organization and its environment. When diagnosing the organization itself, its material and intangible resources should be considered in the context of their impact on the economic, organizational, technological, personal or image condition of the organization (Gieraszewska and Romanowska, 1998). The factors of the organization to be diagnosed are most often referred to as micro-environments. The macro-environment includes such spheres as:

⌡ political;
⌡ legal;
⌡ economic;
⌡ cultural;
⌡ social (including demographic);
⌡ international, technological;
⌡ ecological.

Separate spheres can negatively affect the organization or, on the contrary, stimulate its development. In terms of subjects, macro-environments are formed by:

⌡ owners;
⌡ clients;
⌡ competitors;
⌡ suppliers;
⌡ allies;
⌡ scientific and research institutions.

It should be emphasized that the conditions brought by the macro-environment are generally not influenced by the organization (Agunloye, 2012).

A widespread and recognized research method for studying the macro-environment of an organization is PEST analysis. This analysis is carried out in three stages:

⌡ the distinction of important factors concerning particular spheres of the environment Z, their determination must result from the actual impact on the organization;
⌡ determining the impact of individual factors on the organization;
⌡ identification of activities aimed at using knowledge about the identified impact of the examined factors.

PEST analysis can be adequately used to identify economic determinants of the quality of educational services. Due to the need for multifaceted determination of the level of significance of economic determinants for the formation of the quality in question, the authors of this study consider it necessary to identify also significant non-economic determinants. This will make it possible, on the one hand, to position economic determinants in a group of all determinants of significant importance, on the other hand, it will be helpful in trying to determine the impact of economic determinants on other key determinants of the quality of educational services. Such an approach will therefore make it possible to clarify both the direct and indirect impact of economic factors on the quality in question.

Factors determining the quality of educational services can be divided into out-of-school (external) and inside-the-school (internal) ones. A review of the literature on the subject, including both theoretical studies and content relating to educational practice, allowed the authors to compile these determinants of the quality of educational services. The determinants in question, in the proposed division into inside-the-school and out-of-school, were presented in Table 1.

*Table 1. Determinants of the educational services quality divided into inside-the-school and out-of-school ones*

| Inside-the-school determinants of the educational services quality | Out-of-school determinants of the educational services quality |
|---|---|
| Economic determinants | |
| Qualifications and competences of a teacher | Financing of education |
| Qualifications and competences of a school principal | Market aspects |
| Number of students in a school in structural and financial aspects | |
| Equipping a school with teaching aids | Demographic situation |
| Non-economic determinants | |
| Teacher's professional attitude | State educational policy |
| Professional attitude of a school principal | Environmental conditions |
| Curricula | External evaluation of the quality of education |
| Internal evaluation of the quality of education | Standardisation of teaching |

Source: own study based on a review of the literature cited in the article

Within both categories, the authors determined the economic determinants, recognizing (in accordance with their theoretical knowledge) the following factors as having such characteristics:

∫ financial (sources and principles of financing, cost structure);
∫ material (equipment, buildings, infrastructure);
∫ human resources (labour supply, qualifications, competences);
∫ market (supply, demand, structure, relations);
∫ technical and technological Ʒ in relation to the economic effects of the implementation of technology.

# *MEASUREMENT OF SERVICE QUALITY*

In economic science, measurement is an important tool of cognitive processes, constituting in essence a specific type of observation enabling inference to be made on the nature of complexity and significance of the studied phenomena. Methodology of measurement, according to the authors R. Borowiecki and A. Jaki (2008), constitutes a research system presenting both the conduct related to the posing of problems and a description of ways of solving these problems.

The measurement is closely related to scientific definition and consists in determining the metric order between the various manifestations of individual properties and giving scientific events usefulness for the mathematical description. Measurement can be considered as:

∫ a process leading to the acquisition of data;
∫ procedure for determination of symbols describing the defined concepts;
∫ assigning specific numerical values to objects, events or features, enabling them to be given an orderly character.

Measurements can be made in analytical and synthetic terms. The result of the measurement at the analytical level is the vector of inherent property values, and the measurement in a synthetic approach is a numerical description of the distance between the numerical values assigned to the inherent properties of a specific object and the numerical values assigned to the requirements set for individual properties of the object, taking into account the relationship between these requirements (Szydłowski, 2000).

According to E. Kindlarski (1998), the measurement of quality conditions should allow for making decisions similar to the optimal ones. E. Skrzypek (2000) indicates that in order to have information about quality, it should be both measured and continuously checked. Lesi ski (1996) reduces the essence of measuring the quality of services to comparing the values observed with the values required for given services. A quality measure is a numerical measure of one or more properties defining the quality of service. These measures may be determined in SI units or in relative numbers.

The acquisition of data to measure quality and the achievement of these objectives is closely linked with the basic sources of information used in this process. The information used for quality testing can come from various sources, e.g. primary sources collected through empirical and secondary research, such as publications, books and the industry press, publications of organisations and international publications, but also from internal sources, such as folders, leaflets and reports published by them.

Since in most research cases, when measuring and evaluating the quality of services, the use of many tools used to measure the quality of products becomes impossible, the selection of appropriate sources of information and a model for assessing the level of quality of services should always be made earlier, in terms of the purpose of the conducted research. It should be noted that the universality and topicality of the issue of quality measurement require constant verification.

In order to achieve optimal precision in the study, according to N. Denzin (1970), it is justified to use methodological triangulation, giving the possibility of using quantitative methods (observation, questionnaire interview, survey, test, sociometry, quantitative analysis of documents) and qualitative methods (participant observation, personal interview, qualitative content analysis, biographical method, case study) in one study (Nadolna, 2017).

Assuming that quality is defined as the fulfilment of the customer's expectations, according to this definition, the service (intangible product) provider should primarily ensure that the manufactured product satisfies the customer (Pacana and Stadnicka, 2010). The results of the research prove that the degree of meeting the customer's expectations examined *post factum*, i.e. after delivery of the product, does not guarantee success. It is only ensured by shaping the optimal quality by early recognition of customers' expectations (Gazda, 2007). This makes it possible to determine the product pattern to be pursued. This is particularly important in the case of the quality of services, which are characterized by a much higher number of non-measurable features, compared to tangible products, and the assessment of their quality depends to a significant extent on the customer's opinion. There is a common belief that it is difficult to measure the quality of a service, but people usually know when they are getting a bad service.


It should be emphasized that any action aimed at improving the quality of service is associated with the elimination of losses, which is all that does not create added value for the customer (Sage and Rouse, 2009). Therefore, each activity should be treated as a process that can be improved.
As noted, various methods are used to measure quality. For example, S. Borkowski (2004) in his study entitled *Mierzenie poziomu jako ci,* presents the ABCD method. This method consists of the following four steps:
1.  Ordering the causes.
2.  Preparation and completion of a table of individual rank selections.
3.  Preparation and completion of the summary table of assessments.
4.  Ranking of causes.

The presented method can be interchangeably used with the Pareto-Lorenz analysis and used, after identifying the causes causing a given problem, to create a ranking of their importance.

A. Smoluk (2000) in the study *Pomiar jako ci i grupowy wybór* presented a mathematical explanation of the possibility of measuring quality understood as a relation of preferences. According to this author, the family of all preferences in the set M ordered by the relationship is a matrix, which means that the multiplicity product of two preferences is their lower bound. The upper bound, however, is the extension of the union of these preferences to the minimum preference containing this sum. What's more, quality is a property that depends on individual preferences, but quality is also a measure of compliance with the pattern. The author believes that quality changes when the pattern changes. In his view, therefore, there is no objective quality. Quality is a relative concept and depends primarily on experience and needs. Quality is a preference, and a quality feature is a linear preference, called tolerance (preorder). It is reciprocal and transitional in character (...).

The author, T. Wawak, presents a numerical measure of quality as a quotient of the actual state and expectations. If the result of such a ratio is less than 1, this state is referred to as "sub-quality"; if the result is exactly equal to 1, then there is "full quality", i.e. complete fulfilment of expectations by the product; if the result is greater than 1, then it should be referred to as "excess quality", i.e. the actual state of the product, which exceeds all expectations of the customer (Tkaczyk, 2000).

P.B. Crosby (1995) proposes to measure quality at the cost of non-compliance. This author draws attention to the financial aspect of the lack of quality and suggests expressing quality in monetary units. The maximum quality according to this measure is the lack of any costs of non-compliance to the requirements.

J. Dahlgaard, K. Kristensen, G. Kanji (2000) believe that there are two aspects to practical quality measurements. The first aspect concerns whether the features are explicit or hidden, since explicit features are directly measurable, while hidden features are not directly measurable. The second aspect concerns user issues, in particular whether they have a uniform approach to quality or its assessment, or whether they have different perceptions of quality. The combination of these two aspects of measurement allows to create a typology of the concept of quality, which can be the basis for measuring quality in practice. In this approach, quality can be measured in two ways. The first is direct measurement of consumer preferences by means of statistical scaling methods and designing experiments, while the second way is indirect measurements of preferences based on observations of market reactions.

Referring to the issue of researching the quality of services, it should be noted that it is more complicated than researching the quality of products, which results from the nature of the service, i.e. primarily from its following features: intangibility, impermanence, heterogeneity and individuality. The assessment of the level of quality of service provided by service providers depends on both objective factors and subjective ones, a reference point, as well as the level of requirements on the part of the evaluator.

Summing up this stage of considerations, it can be concluded that there are many quantitative and qualitative methods, documented theoretically and verified in practice, that allow for effective measurement of quality. The results of the conducted assessments are used both in the planning of quality improvement, as well as in checking and analysing the results after the implementation of pro-quality changes. At the same time, it should be pointed out that there is a difficulty in selecting the appropriate measurement method, appropriate for the category of the examined problem, as well as the purpose of the conducted research.

# *METHODOLOGY OF MEASURING THE QUALITY OF EDUCATIONAL SERVICES - PROPOSAL*

The model of service quality that is most widely presented and commented on in the literature on the subject is the model by A. Parasuraman, V.A. Zeithaml, L.L. Berry. This model, which according to the authors of this article is the most complicated of the developed quality models, is based on the *Servqual* method.

Using this multi-stage method, it is possible to recognize the expectations and perception of the quality of the services studied (Sztejnberg and Stypułkowska, 2005). Information about the degree of customer expectations' satisfaction is obtained by asking customers questions about the requirements for the service, and then asking the same questions after its performance. Comparing the answers to the same questions allows you to know which areas should be improved, and which the customer is already satisfied with. The scheme of the *Servqual* method presented in the literature, depending on the needs, can be adapted to the nature and specificity of both a specific organization and specific services (Wolniak and Kostorz, 2004).

A typical *Servqual* questionnaire consists of 22 pairs of statements grouped into 5 dimensions:

- *tangibles* (M) Z understood as the external and internal appearance of rooms and a service facility, equipment, infrastructure, promotional materials and the behaviour and presence of personnel shaping the image in the eyes of a customer;
- *reliability* (N), also defined as Z infallibility or conscientiousness, i.e. the ability of a service provider to perform the promised service in the right way and at the promised level Z accurately, soundly, without fail, reliably and on time (Kangis and Voukelatos,1997);
- *responsiveness (R)*, Z understood as the speed of action and response to customer expectations, timely delivery of services, readiness to provide rapid assistance to the customer during the entire service process, but also readiness to respond immediately to customer dissatisfaction signals (it is often also referred to as the responsibility or sensitivity of the service provider to the needs of customers);
- *assurance* (K) Z, defined as the professionalism (skills and expertise of the personnel) and appropriate behaviour of the personnel, i.e.: courtesy, credibility, safety and trust compelled by the personnel;
- *empathy* (E) Z, i.e. an individualized approach to each customer, the ability to understand the needs and expectations of customers and to empathize and identify with them (Parasuraman, Zeithaml and Berry, 1991)

The creators of the *Servqual* method proposed a seven-point Likert scale for the assessment of statements (Berry and Parasuraman, 1991), in which 1 means that the respondent strongly disagrees with the content of the statement, and 7 means that he strongly agrees with it (Parasuraman, Berry and Zeithaml, 1993).

The quality of service model based on the *Servqual* method is essentially a concept of studying five quality gaps (Parasuraman, Zeithaml and Berry, 1983).

Its essence is the assumption that the assessment of the quality of services made by the recipient is shaped by the perception of discrepancies between expectations and observations made by him both during the service performance and after its delivery.

It should be mentioned that quality improvement should be a continuous, endless process. It can be implemented in a variety of ways. The authors acknowledge that improving the quality of educational services requires taking into account the discrepancies between the actual state of an educational service quality and the expectations of school stakeholders. The occurrence of these gaps is a specific defect in the quality of the educational services provided. As a tool helpful in identifying

the defects in question, the authors propose the use of a model based on the *Servqual* method, adapted by authors to measure and monitor the quality of educational services. The advantage of the *Servqual* method is that it allows not only to identify quality gaps, but it also explains the relationships between them. However, the mere identification of gaps and the awareness of their occurrence allows for the development of actions improving the quality of services provided. The model of quality gaps in educational services is presented in the figure below.
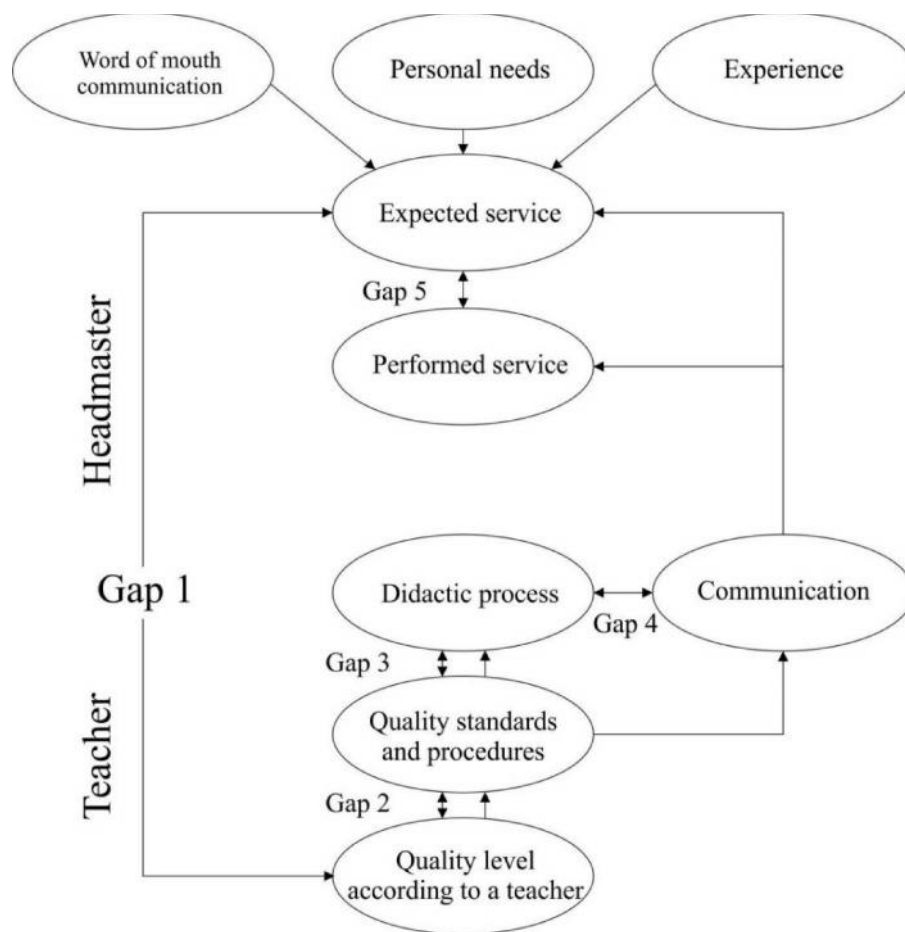


*Figure 2. The model of quality gaps in secondary school educational services*
*Source: own study*

The knowledge obtained by the authors as a result of the considerations made for the purposes of this article allows to specify the recommended research scopes within the identified quality gaps in educational services.

With regard to the first gap, i.e. describing the differences in views and knowledge of the school staff and its clients in terms of understanding the quality of educational service, the findings made by the authors show that many schools have no orientation of what is expected from them by the recipients. It should be assumed that if the school management does not have such knowledge, it will not provide services that meet the expectations of the recipients. Schools should therefore conduct systematic research relating to the identification of educational preferences of potential customers, verifying them in terms of their feasibility. It should be taken into account that the expectations of the recipient in terms of educational offer and related services change along with the development of his relationship with the school. In addition, it should be taken into account that there may be a

misrecognition and misunderstanding by schools of the quality requirements of the recipient due to their lack of sufficient skills in formulating their expectations.

The second gap is the difference between the service provider's perception of the educational service customers' expectations and its features, especially when the school management is unable to translate the knowledge about customers' expectations into the language of procedures and quality standards. This gap is mainly due to:

- unverified belief that the school is able to meet the expectations of its recipients;
- insufficient involvement on the part of the school's management in activities aimed at recognizing the expectations of recipients;
- routine and belief that certain standards or at least part of the applicable quality standards of the educational service offered are not, by definition, feasible;
- a broad, i.e. difficult to take into account, range of customer needs and expectations.

The third gap results from failure to meet the adopted quality standards of the educational service, or setting these standards at a level that does not ensure adequate quality. This gap should be associated primarily with the work of a teacher with a group of students (class), in a situation where a large number of tasks to be performed hinders the provision of high-level services. The identified causes of the third gap are:

- ambiguity and/or conflict of organizational roles at school;
- insufficient involvement of the school staff;
- improper teacher preparation, resulting in the inability to perform specific tasks and ensure the appropriate level of the educational service;
- low level of responsibility of the service provider for the work performed;
- inadequate system of control of the school staff and ignorance, downplaying and even denying the occurrence of a conflict understood as a difference between the expectations of the school and the service recipient's expectations (lack of clarity in the perception of goals and expectations);
- mismatching of equipment, tools and technology to perform tasks at school;
- improper organization or lack of teamwork.

In the authors' opinion, the most common reasons for this gap are the lack of competence or resistance to standards, in both cases resulting in their non-compliance. At the same time, it should be pointed out that ensuring that the school meets the standards for the provision of educational services does not always guarantee the provision of these services at a high quality level. This is often due to the objectively limited capacity of the facility, especially in relation to the material resources at its disposal.

In the authors' opinion, it is a mistake to rely only on the applicable quality standards because in certain situations their strict application may reduce the motivation and commitment of teachers in relation to the work performed, especially in the field of creating and introducing the desired innovations. In addition, the standards impose specific requirements on individual parameters of the educational service, which do not always correspond to the preferences of various stakeholders.

The fourth gap is related to the forms of communication with recipients, used by educational institutions. It is often the consequence of occurrence of the third gap. In various types of messages and announcements, the school promises to offer a certain level of quality of services provided. These messages affect the expectations of service recipients, therefore in the event of non-compliance with the promises made, the recipient has the right to feel dissatisfied. On the other hand, the school, without informing about the quality level of its offer, loses the chance to shape the customer's expectations. According to the authors, the communication properly conducted by the school affects not only expectations, but also the perception of the service by the recipient. The reason for the occurrence of the fourth gap is primarily the tendency to make unrealistic, impossible to fulfil promises.

The fifth gap, which is essentially a component of the remaining gaps, is a clearly perceived discrepancy between the service received and expected. The existence of this gap in an intensified form, in practice, results in the withdrawal of customers from the use of the services of a given school. It should be noted that the basic action to counteract the occurrence of discrepancies between the received service and the expected service is an analysis of the key quality parameters of the educational services provided, carried out by the school management, ongoing, and not only periodic, resulting Z in the immediate taking of appropriate corrective actions in the case of identification of undesirable deviations.

# *CONCLUSION*

Quality improvement should be a continuous, endless process. It can be implemented in a variety of ways. In this study, the authors set themselves the main goal of proposing a methodology for measuring the quality of educational services on the basis of literature analyses. According to the authors, the literature research, experiments in the field of pedagogical work in the education sector and own observations carried out for the purposes of this article made it possible to achieve a goal specified in that way.

Undoubtedly, improving the quality of educational services requires taking into account the discrepancies between the actual state of an educational service quality and the expectations of school stakeholders. The occurrence of gaps is a specific defect in the quality of the educational services provided. As a tool helpful in identifying the defects in question, the authors propose the use of a model based on the *Servqual* method, adapted by authors to measure and monitor the quality of educational services.

In practical terms, the authors also propose that the identified most important factors shaping the quality of an educational service should be assessed by school stakeholders, respondents in two stages. The first step would be to collect information from the respondents on the expectations referring to a service in a given school, and the second step would refer to obtaining information on the perception of this service quality. In both phases, the respondents would express their assessment through scores. Based on the averaged values of all dimensions, the overall result of *Servqual* would be determined. This would allow both the formulation of an overall quality assessment and the identification of those areas where the gap between expectations and perceptions of quality needs to be improved.

Summing up the considerations, the use of the proposed model of examining the quality gaps of educational services, supported by a good understanding of the specificity and conditions of functioning of an educational institution, can be an effective way of acquiring knowledge enabling pro-quality orientation of teachers' work in a way that increases the satisfaction of school stakeholders.

The general conclusion from the conducted analyses is to confirm the importance of properly recognizing the determinants of the educational services quality, using the proposed model as the basis for developing a proposal for shaping the desired level of quality of these services.

It should be noted, however, that actions aimed at developing optimal solutions in terms of improving the quality of educational services, require conducting a number of analyses and research among all stakeholders of the school (employees, students and candidates, parents, employers, superiors, graduates), what will be the subject of further scientific inquiries, as intended by the authors, as a justified continuation of the considerations of this article.

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# ORGANIZATION OF THE HYBRID TEACHING MODEL DURING THE PANDEMIC

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## ABSTRACT

The ability of fast adapting to the new situations and efficient finding solutions to meet the planned activities and goals is considered a premise for doing business in the future. Aware of their academic responsibility, some higher education institutions have recognized their educational processes and organization of teaching activities as a model of successful and socially responsible business, with the tendency for sustainable growth and development. In this respect, the goal of this study is to test the efficiency of the hybrid teaching model through an empirical research of attitudes, motivation and satisfaction of students about the realization of teaching by the application of Moodle distance learning system. The target group were the undergraduate students of the accredited studies at the Faculty of Business Economics and Entrepreneurship from Belgrade, who followed and attended the classes of IT subjects.

The results of the research showed that the students were motivated and satisfied with this way of teaching because different multimedia contents were available and useful to them.

On the other hand, guided by the model of the "flipped classroom", traditional teaching "face-to-face" was used for the additional analysis and practical application of the acquired knowledge. The research results have shown that the students are in favor of improving the teaching with digital tools and new information-communications technologies.

**Keywords:** *hybrid teaching, higher education, distance learning, flipped classroom*
**JEL Classification:** *I12, I23, I25, O31, O33*

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# *INTRODUCTION*

The world economy has found itself in a gap between the acceptance of new ways and principles of doing business by the application of new technologies and the fight for survival by applying the existing models. Developed countries and organizations have swiftly adjusted the existing models of doing business to fluctuations in the market, and the undeveloped countries and countries in development have neither the capacities nor the financial support for tackling such situation. Supply chain breakdown, production halt in the leading branches of industry (car industry, aerospace industry, tourism and catering), restricted movement of people, goods and capital had inconceivable consequences on doing business, so even the greatest optimists do not dare predict the ending of the big crisis period and gradual consolidation. New restructuring is noticeable, both strategical as well as organizational, financial, and also ownership, and market related. The negative consequences of events on the market caused by the COVID-19 pandemic are widely analysed, and concrete support measures are taken.

The pandemic has irreversibly influenced the production and service sectors of the economy, leading to major disruptions, both in terms of the continuance of work and recovery in the foreseeable period, as well as in terms of organizational transformations. The management of large and small organizations met with uncertainties which had not happened ever since the Great Depression from 1929-1933. The knowledge and skills acquired for decades in the past had to be supplemented with new findings by the managers, all in order to survive. (Radi  et al., 2022)

In the newly created environment, the educational system has been multiply struck, so an overall education reform is underway. New models of teaching are analyzed and created which will be made in accordance with the new information-communications and digital technologies, and also in accordance with the new generations of students and necessary knowledge and skills they possess.

The younger population with higher educational status is more inclined to explore novelties, adapt to changes more easily and monitor trends, both technological and life changes. (Ignjatijevi  et al., 2020. p. 849-861.)

Knowledge, intelligent use of information and skill of working with new technologies have become imperative and the basic business request in work markets. That is why it is important to include ICT in the education process of young people who will spend their working life having active contact with information-communications technologies, and the preparation for that is needed during their schooling. (Medi  et al., 2017, p. 103-122.).

Teaching on higher education institutions has suffered significant changes because it was not possible to follow the traditional way of teaching "face-to-face". "The environment for learning on the internet differs quite a lot from the traditional classroom. The application of different technologies improves the learning environment and provides preconditions for the transformation of teaching into learning." (Vu ekovi , Medi  & Markovi , 2020)

Due to the unfavorable epidemiological situation in the country, and in accordance with the recommendations of the Government of the Republic of Serbia and competent Ministries, the Faculty of Business Economics and Entrepreneurship from Belgrade (Faculty in further text) has realized teaching using Moodle distance learning system since March 2020. The faculty successfully passed through the past turbulent period because it had a fully functional distance learning system and trained staff for its effective use. Following the instructions and recommendations of the authorities, the school year of 2020/21 was carried out in a combined way, more accurately using the hybrid teaching model.

Guided by the principles of socially responsible business which are related to obeying the law, transparent business, investing in human resources, and protection of the environment, high quality standards of work and introduction of the quality system, the Faculty has provided students with the

maximally convenient studying conditions. In the Sustainable Development Agenda 2030 adopted by the United Nations in 2015, goal 4 refers to quality education, which is an important factor in the potential development of young people. Target 4.7. states the necessity of ensuring that all learners should acquire the knowledge and skills needed to promote sustainable development. That can be achieved, among other things through education for sustainable development, gender equality, promotion of a culture of peace and non-violence, global citizenship as well as the appreciation of cultural diversity. That, of course, requires the change of national educational policies, the change of curricula, education of teachers and assessment of students. So, realizing that the pandemic will not be a transient state and that its effects will be felt longer than for one semester, the Faculty behaved in a socially responsible and sustainable way, enabling teachers the realization of the new approaches in teaching. After all, the new technologies have greatly changed the environment where contemporary teaching is realized on higher education institutions. Since the Faculty is a private higher education institution, the Faculty's management and the employees reacted in a timely manner to the new situation and studying conditions, and behaved in the market manner – to be competitive and fulfil the new expectations of students (Radi , Popovi , 2014, p. 67-97.)

In the paper the model of hybrid teaching is presented for the subject of Business Informatics, as well as the results of the empirical research of the motivation and satisfaction of students of the Faculty of Business Economics and Entrepreneurship with the application of Moodle distance learning system and their attitudes about such a way of teaching realization.

## *HYBRID AND COMBINED TEACHING*

"Hybrid learning is the hybrid approach aimed at the student, based on successes of *Flipped Learning*, *Blended Learning*, *Distance Learning* and *Online Learning*, in order to consciously create experiences which are deeply personalized, relevant and attractive." (Fullan et al., 2020)

Hybrid teaching, similar to blended learning, includes all forms of learning (for example, live, online, face-to-face). In this case, hybrid learning can be explained as a combination of learning methods face-to-face in the classroom with educational material on the internet (platform) (Sujanem et al., 2018). Although this model is relatively new, its goal is compatible with other educational innovations – helping teachers striving to understand and enable every student to achieve high levels of educational mastery" (Tsai et al., 2011, p.145–152). However, the researches have shown that the hybrid teaching model has potential to give transformative experiences because it positively affects teachers, forcing them to innovate in application of the best and most efficient way of educating students (Tseng et al., 2011, p. 87–102). With combined learning and hybrid teaching students will have an opportunity to study independently and thus develop sustainability during their lives. That is possible because learning through the hybrid model of teaching facilitates and gives opportunities for students to search, find and build their knowledge for solving different problems, to create a flexible and suitable studying atmosphere, find out different information from numerous sources. Hybrid teaching which integrates e-learning has certain advantages such as: (Bowen et al., 2013, p. 61)

(1) a bigger motivation of students for studying,
(2) a larger activity and involvement of students, because the learning is more interactive and challenging,
(3) ICT offer a very wide choice of potential information sources,
(4) ICT can visualize complex models so that they facilitate understanding,
(5) faster and more precise performing of repetitive tasks,
(6) learning process is not limited to time and space.

According to the Institute for the Evaluation of the Quality of Education and Upbringing and the Centre for educational technology, "hybrid teaching presents a flexible approach to the teaching organization which implies a combination of direct work at school and online teaching. By applying the hybrid teaching it is not obligatory for teachers and students to be in direct contact, but their part is planned in relation to the given context (for example the nature of the subject, needs and age characteristics of the students, and so on. (The Institute for the Evaluation of the Quality of Education and Upbringing, 2021)

Hybrid teaching, among other things, presents a response to the need to:

- adapt the teaching to the new and different conditions and situations,
- respect individual differences in the cognitive developments of students,
- respect the differences in studying different teaching subjects,
- increase the share of time devoted to learning,
- enable the students to make decisions independently about the time, place, manner and pace of studying.

The share of online teaching in the hybrid model, conditionally speaking, can be from 5% to 95% percent when speaking about the continuum of teaching supported by digital technologies. Every higher education institution and every teacher must decide where his/her students and his/her teaching material will be in that continuum. During reaching the decision about the share of the online teaching and direct work, the following should be considered: circumstances, characteristics and needs of students, outcomes of learning to be accomplished, the dominant pedagogical approach to teaching, desirable teaching methods related to the requests of subjects' content and available resources. Realization of hybrid teaching requires a continued reviewing and decision-making in the interest of students.

There are several concepts which can present support in planning of hybrid teaching. "Flipped classroom" is the most famous one. (Figure 1). It is a pedagogical model where the typical elements of teaching – lectures and homework have switched places. Students watch short video lectures at home, and they go to the higher education institution familiar with the basic elements of what they will study. At the faculty, the time is devoted to more cognitively demanding activities – practice, projects or discussions, that is, to a deeper understanding of teaching contents for which the students need the teachers' support.

"Higher education has been transformed by technology in order to satisfy the unique needs and learning styles of students. These innovations have changed the way and the place, and also where and how students study, from LMC – Learning Management System to the adaptive studying software and video conferences. For more than a decade, many colleges and universities have successfully integrated distance learning and educational technology in their teaching plans and curricula. More than a third of college and faculty students attended at least one online course in 2018, which indicates the constant distancing from conventional classrooms. "(https://elearningindustry.com/hybrid-and-blended-learning-in-higher-education)
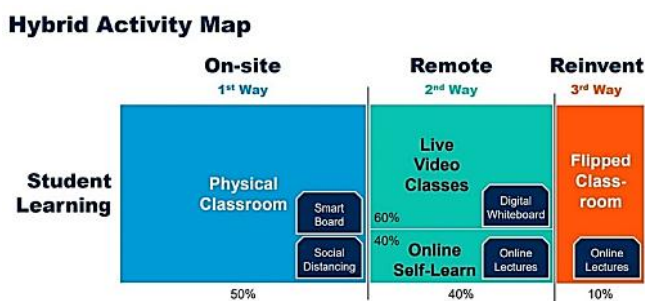


*Figure 1. The map of activities when using hybrid teaching*

*Source: Gartner, 2021, p. 26*

Although hybrid and blended learning differ slightly, they both use the combination of traditional/conventional and online learning, in order to meet the requests and needs of the teaching plan and curriculum and "busy" students (employment and so on). The possibility to personalize instructions so as to fulfill the individual needs of each student is the power of these formats of learning. As a result, hybrid and blended studying models could be especially suitable for people who quit their studies because of obligations, to decide to return to the faculty and finish the studies. It has also become a more common situation in recent years, "at times of dynamic changes in society, that the need for education is not only expressed with graduate secondary school students, or previously mentioned, but also there are more and more cases that people over the age of 40 enroll in studies or continue schooling at the other level". (Radi , 2018)

The advantages these teaching models include are:

⟩ Students have an option of online studying combined with regular studies

Especially for the employed students, these studying models enable them to learn at their own pace, at least to some extent. The more complex or practical subjects can be discussed in the conventional environment of the classroom, while other topics can be encouraged digitally through hybrid and combined models.

⟩ Certain students achieve better results by hybrid studying

Students are often worried about the balance between their private lives and studying, in the way which enables them to fit in their faculty obligations. However, in certain cases, hybrid models of learning can increase the performance of students. The reason for this is the "delivery" of teaching material in various ways, which covers different learning styles and helps students memorize certain materials more easily. Also, by implementing ICT in learning models, there is a greater possibility that the students will be more engaged and focused.

⟩ Students manage their studying by themselves

The increased autonomy of students is another advantage of the hybrid and combined learning models. The combination of conventional classes with flexible studying on the internet potentially inspires students to set their own goals, define their progress and realize their own abilities. Many of these abilities can be transferred to the workplace.

⟩ Fair teaching

For the students who are personally not the most assertive people, online teaching gives them a chance to express themselves more easily, and give thoughtful answers when they are ready. Hybrid and combined learning gives all the students an equal opportunity to stand out and adapt to their individual needs.

# RESEARCH METHODOLOGY AND DESIGN OF THE SUGGESTED TEACHING MODEL

## CASE STUDY: THE EMPIRICAL RESEARCH OF ATTITUDES, MOTIVATION AND SATISFACTION OF STUDENTS WITH THE APPLICATION OF MOODLE DISTANCE LEARNING SYSTEM

The results of the empirical research related to the application of Moodle distance learning system are presented in the paper.

The research was realized with undergraduate students of basic academic studies of accredited study programmes of Business Economics and Entrepreneurship, Finances, banking and insurance, and Law at the Faculty of Business Economics and Entrepreneurship, Belgrade on information study subjects. The realization period was the summer semester of the school year 2020/21, and the number of respondents / students is 159, from the territory of the Republic of Serbia.

Several scientific methods were used in the research, and the base of the research is a questionnaire which comprises the relevant fields of research, dimensions and variables. The questionnaire was created in the electronic version (***Attachment 1***) as a Google questionnaire, which was created for this purpose on Google disk, where the research data of surveyed students directly merged. The base with the research data was downloaded as an Excel document, then transferred into a software programme SPSS 21.0 where the data were statistically processed. The questionnaire is anonymous, the questions were in the form of "the choice of the offered options", which were previously subjected to statistical checks of validity and reliability.

Students filled out the questionnaire after the exams from the chosen subjects. The level of response and the validity of the completed questionnaires is expected and corresponds to results present in literature (Das et al., 2000) (Molina et al., 2007).

The methods of descriptive statistics were used to describe the surveyed population: the average value (arithmetic mean), variability measures (standard deviation) and relative numbers (Table 2). Correlation analysis showed the strength and direction of the links between the key analytical concepts. (Table 1). The reliability and consistency of the statements was measured using the Cronbach's alpha coefficient. The value of this coefficient is 0.95. The values range from 0 to 1, and it is desirable for the coefficient values to be greater than 0.7. In this case (0.95) indicates adequate reliability and consistency.

## THE DESIGN OF THE SUGGESTED TEACHING MODEL – HYBRID TEACHING

Information subject "Business informatics" was presented as a model of hybrid teaching. In coordination with the Student service of the Faculty, all the students were enrolled on the platform and they received their user names, passwords and special Instructions for working in the system and subjects.

By entering a certain subject, students were first introduced to the basic information on the subject – what the goal and outcome were, the literature to be used, the basic and contact information of the subject teacher, as well as concrete steps and assessment of all the activities expected from them related to the given subject.

The subject is organized in such a way that the following teaching materials were made available for the students:

- ꭓ the printed version of the course book for the given subject,
- ꭓ material from the course book, in the electronic form, organized by topics (chapters),
- ꭓ within every topic there were:
  - ꭓ *units* concerning a particular chapter. The units are organized in such a way that they are connected, and it is necessary to read them through in order. After every covered unit, a student gets a short *Self-assessment test*, related to that unit. With the correct answer to given questions, the student moves on to the next unit, and gets a certain number of points, while in case of an incorrect answer, the system returns him to the beginning of that unit to read it through again and get the required answer to questions. This way the student gets acquainted with key questions from every unit and prepares himself and practices for the upcoming colloquia and the exam.
  - ꭓ *presentation* of a particular chapter,
  - ꭓ *additional material with external links* to certain content which can be useful for them for additional knowledge and mastering of the teaching content.
- ꭓ *tasks for individual and/or teamwork* (on the level of one or more chapters),
- ꭓ recorded *video lectures* for that studying subject,
- ꭓ the space for scheduling and realization of *online lectures*,
- ꭓ *the forum* on the level of the subject for the discussion on the given topic of the teacher and students,
- ꭓ *information and details related to the preparation and taking of colloquia and exams*.

Complete teaching material on the subject is available for students to download.

**Traditional/ conventional teaching "face-to-face"**, scheduled in accordance to the fund of classes for a certain subject, in this case Business Informatics, has been used for:

- ꭓ Discussion and analysis of the learned material – the classes were noticeably more dynamic with more discussion and argumentative conversations on a certain topic, because the students had already been familiar with certain terms and data,
- ꭓ practical work on the computer with the application of the learned material with concrete examples from practice (business tasks and problems in certain business systems),
- ꭓ teamwork on a subject project "Advancement of informatics teaching by the application of the new technologies" – with noticeable motivation, huge effort and valuable ideas of students. This project was realized by also using ICT tools online for the teamwork.

## *RESEARCH RESULTS*

The question *"Have you met with distance learning (work) so far?"* was answered by 55.93% of respondents as yes, but they said they had not used this type of work, i.e. learning, while 38.98% of them were familiar with and had used this type of work, i.e. learning. From the above mentioned, it is obvious that *the distance learning (work) system is not unfamiliar to almost all of the surveyed students*.
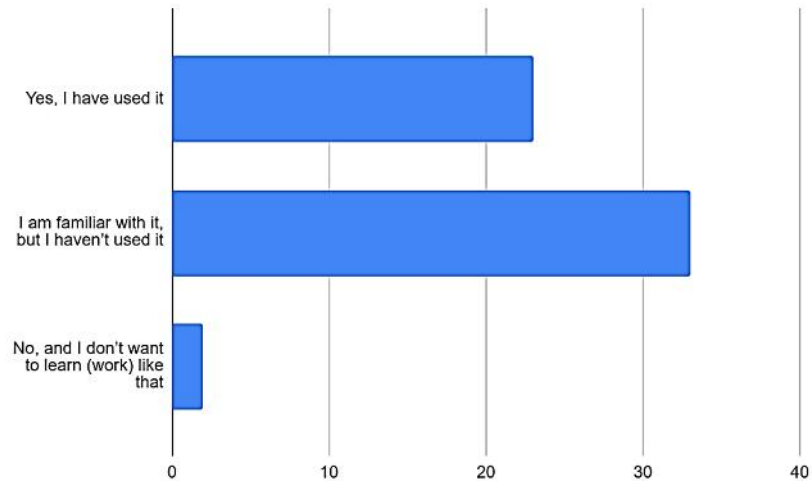
*Graph 1. Have you met with distance learning (work) so far?*

*Source: Author's account based on research*

Graph 2 presents the results of the answers to the question *"Has this situation influenced your opinion on distance learning (work) and to what extent?"* where **94.92% of the surveyed students answered in a positive context regarding the platform and working on it,** where 19% of them stated that they had already used it and are acquainted with its advantages, 27% of respondents plan to use this type of system for work and learning in the future, whereas 47.46% of them say it is very easy to use. ***Basically, we can say that the epidemiological situation has greatly influenced students and their familiarity with and mastering of the characteristics of the system (platform) for distance and work learning***.
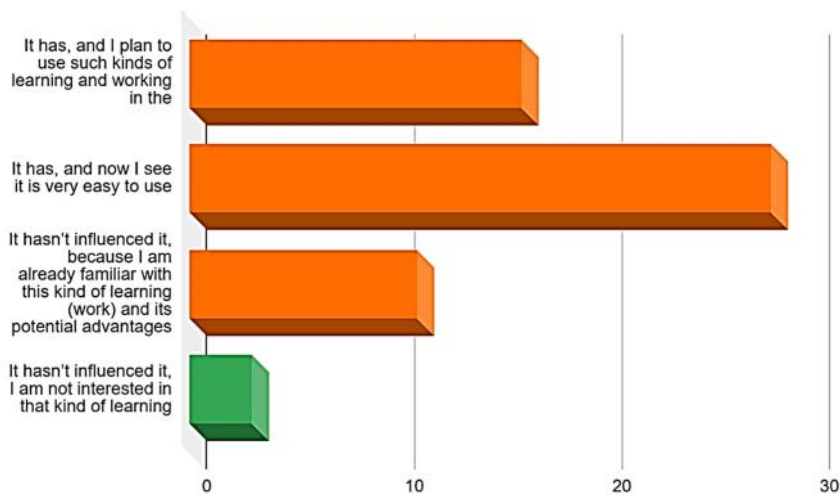


*Graph 2. Has this situation influenced your opinion on distance learning (work) and to what extent?*

*Source: Author's account based on research*

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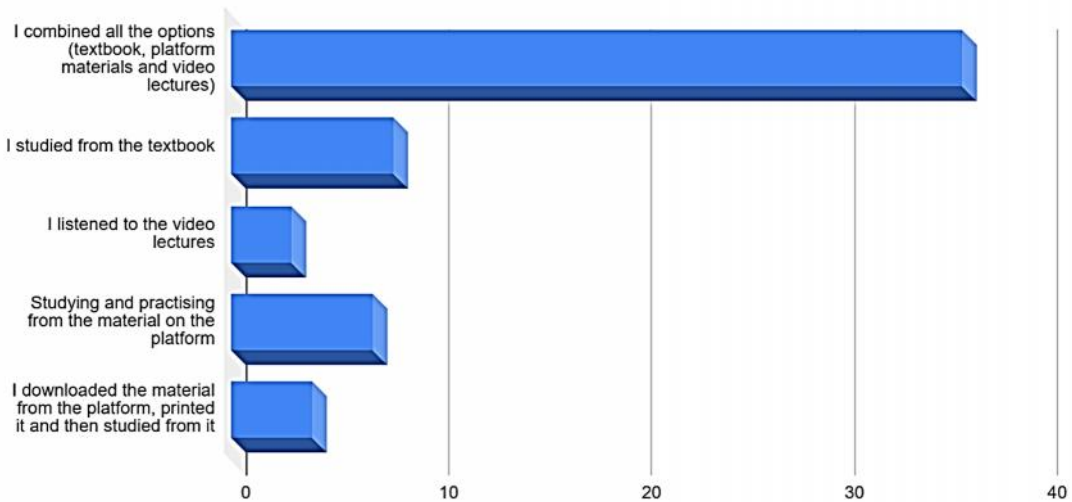
*Graph 3. You prepared the colloquia and exam by?*

*Source: Author's account based on research*

Graph 3 shows the answers to the question of what students used from the available materials for preparation and learning for the colloquia and exams. A large percentage of them, i.e. 61.02% answered that they combined all the possibilities offered, from multimedia materials on the platform and traditional course books to recorded video lectures and mandatory attendance during online classes. These data indicate that *the students are ready to innovate traditional teaching and open to including information and communication technologies, as well as multimedia content as an aid to easier understanding and mastering the curriculum.*

Graph 4 additionally confirms the above mentioned statement, where *96.61% of the surveyed students believe that distance learning (work) can replace the traditional way of teaching, as an aid (27.12%), distance learning (work) can replace certain segments (45.76%) that is, completely (23.73).* ***The platform, i.e., the use of distance learning (work) improved their IT skills and knowledge (81.36%)*** Graph 5.
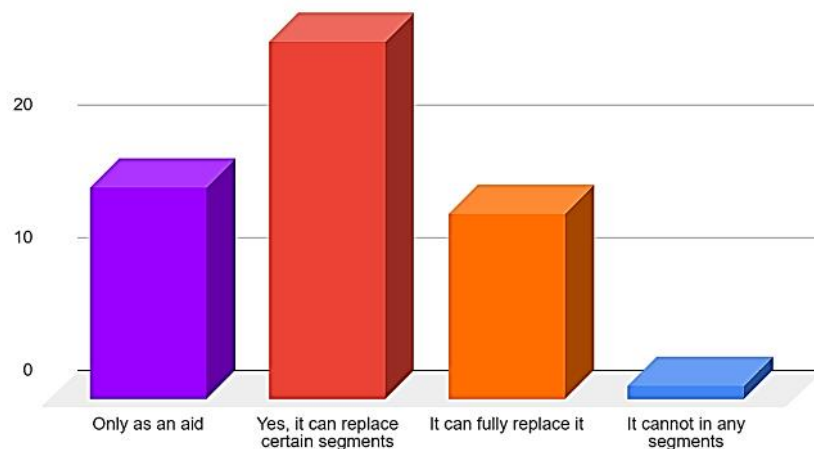


*Graph 4. Can distance learning (work) replace the current traditional work (learning) and to what extent?*

*Source: Author's account based on research*
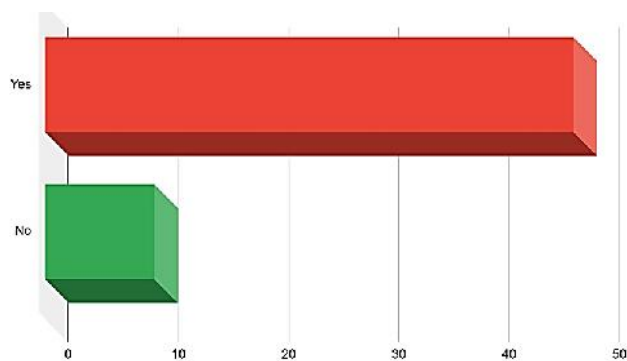
*Graph 5. Do you think that by using the distance learning platform you have improved your IT skills and knowledge?*

*Source: Author's account based on research*

Based on correlation analysis shown in Table 1. *(a number that has a value between    1    1, the closer it is to one in absolute value, the stronger the linear correlation between the variables is)* which describes the existence and strength of the relation among phenomena, in this case among claims, i.e. questions (variables), where the percentage of probability of error is - P-Value - 0.021989, it was found that there is a statistically significant, positive and high correlation among most variables, and the most important correlations are between "Communication with teachers and associates" and "Evaluation criteria", then between "Production of the assigned tasks" and "Acquired knowledge", then "Uploaded teaching materials" "Assessment criteria", as well as "Using the teaching platform" and "Uploaded teaching materials". Table 2 shows the mean value and standard deviation for key analytical concepts.

With 99% of reliability it can be concluded that there is correlation among these phenomena in the student population, not only in the sample being tested, so it can be pointed out that:

⌡ Communication of teachers and associates with students, as well as evaluation criteria clearly defined, is very important, and

⌡ In addition to the multimedia content uploaded on the platform, it is necessary to assign individual and/or team project/practical tasks to students, because it contributes to the sublimation of acquired knowledge.

*Table 1. Correlation analysis for key analytical concepts*

| Correlation | | | | | | |
|---|---|---|---|---|---|---|
| | The use of platform for studying | Educational materials placed and/or sent by mail | Performing assigned tasks | Communication with colleagues and associates | Acquired knowledge | Grading criterion |
| The use of platform for studying | 1 | | | | | |
| Educational materials placed and/or sent by mail | ,81324 | 1 | | | | |
| Performing assigned tasks | ,78488 | ,68076 | 1 | | | |
| Communication with colleagues and associates | ,69968 | ,79133 | ,78452 | 1 | | |
| Acquired knowledge | ,79460 | ,72345 | ,83001 | ,75937 | 1 | |
| Grading criterion | ,72436 | ,82079 | ,73636 | ,89144 | ,81281 | 1 |

*Source: Author's account based on research*

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*Table 2. ean value and standard deviation for key analytical concepts*

| | Using the teaching platform | Uploaded teaching materials | Production of the assigned tasks | Communica tion with teachers and associates | Acquired knowledge | Evaluation criteria |
|---|---|---|---|---|---|---|
| Mean | 4,362069 | 4,586207 | 4,37931034 | 4,43103448 | 4,1551724 | 4,362069 |
| Standard Error | 0,127088 | 0,104452 | 0,13656309 | 0,12568522 | 0,142999 | 0,1294464 |
| Median | 5 | 5 | 5 | 5 | 5 | 5 |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 |
| Standard Deviation | 0,967875 | 0,79548 | 1,0400335 | 0,95719013 | 1,0890479 | 0,9858343 |
| Sample Variance | 0,936782 | 0,632789 | 1,08166969 | 0,91621295 | 1,1860254 | 0,9718693 |
| Kurtosis | 0,352244 | 2,838861 | 1,25303824 | 1,38286718 | 0,3622893 | 0,6035898 |
| Skewness | -1,27763 | -1,91733 | -1,5073681 | -1,5990154 | -1,163223 | -1,364061 |
| Range | 3 | 3 | 4 | 3 | 4 | 3 |
| Minimum | 2 | 2 | 1 | 2 | 1 | 2 |
| Maximum | 5 | 5 | 5 | 5 | 5 | 5 |
| Sum | 253 | 266 | 254 | 257 | 241 | 253 |
| Count | 158 | 158 | 158 | 158 | 158 | 158 |
| Confidence Level(95,0%) | 0,25449 | 0,209161 | 0,27346287 | 0,25168032 | 0,2863506 | 0,2592119 |

*Source: Author's account based on research*

## DISCUSSION

Hybrid and combined learning models can be considered important for higher education institutions to maintain enrollment and enable students to continue learning safely during unforeseen circumstances or instabilities, such as the recent global pandemic. According to a survey conducted by the Institute of International Education (IIE), in the US and EU, almost nine out of ten higher education institutions used combined learning model in the autumn of 2020.

It is thus important to recognize the concepts of hybrid and combined learning and be prepared to adopt and improve these frameworks in order to achieve defined learning outcomes and prepare students for the new ways of learning and working. For example, instead of focusing on gaining deeper knowledge, there has to be a change in teaching skills that students will need in the modern world of work. Although curricula are not adjusted fast enough to meet the future demands of work culture, teachers can apply different methods and strategies to prepare students for work and learning based on teamwork, but also through projects. In addition to teaching key skills such as self-directed learning, effective communication, critical thinking, problem solving, collaboration and project management, teachers must encourage the use of technology in all these aspects. Real-world experiences should play a bigger role in education, as traditional work is no longer enough." (Radi et al., 2022).

The traditional approach is less and less able to respond to the challenges of the time. The differences in the approach to all the categories and levels of education are drastic: knowledge, pupils/students, school/university mission, relations, contents, assumptions, knowledge transformation, etc. (Šormaz et al., 2019)

Hybrid learning occurs when conventional "face-to-face" learning is combined with offline approaches or distance learning such as experimental learning and distance learning courses. The goal is to use the right combination, a learning strategy to effectively teach the curriculum, while meeting the learning needs of students. Additional *learning strategies aim to complement, not*

***replace, conventional "face-to-face" teaching.*** Depending on the number of classes in the subject, a hybrid learning teacher makes a plan for the implementation of teaching so as to provide dates for teaching, discussion and revising certain material that was available to the students, but such teacher provides dates for practical application of the learned material through various types of projects or an online individual and/or team task.

Examples of hybrid learning tools are:

- video conferences,
- systems for management of learning (platforms),
- online tasks,
- online discussion boards, forums,
- pre-recorded video lecture (training).

Combined learning combines offline and online learning. Combined learning, unlike hybrid learning, uses online teaching to supplement, not replace, conventional "face-to-face" learning. In combined learning students engage online to complete assignments, ask questions, connect with other students and communicate remotely with their teachers.

Although hybrid and combined learning are often interchangeable, there is a slight difference between them. Combined learning is primarily focused on combining distance learning with standard teaching, while ***hybrid learning is focused on using any available learning methodology for better teaching the given teaching curriculum (material) either online or offline.*** The other difference is that combined teaching emphasizes the equal division of distance learning and conventional teaching, while hybrid learning emphasizes online or non-traditional teaching.

With combined learning and hybrid teaching students have a chance to learn on their own and thus develop awareness on sustainability and responsibility. It is possible because learning via hybrid teaching model facilitates and provides opportunities for students to seek, find and build their knowledge to solve various problems, create a flexible and suitable learning atmosphere and find out a variety of information from many sources.

As a confirmation of the above and the results of research presented in the paper, the authors cite the results of previously conducted and published research on the use of ICT and multimedia material in teaching as a motivating factor for students, which further establishes the results presented in this paper (Šarkovi Blagojevi et al., 2021, p.100; Radi & Radi, 2015).

- "It is necessary for higher education institutions to focus on the application of the new ways of acquiring and transferring knowledge, especially for the new Y and Z generations, as well as monitoring upcoming trends in education in combination with the existing traditional conducting of teaching;
- The use of LMS for the organization of teaching is not necessary, but it is necessary to enrich teaching with multimedia content, with mandatory practical examples that can be presented by using elements of microlearning (mobile learning, games and programs for simulation and demonstration) (ekerevac & arkovi, 2011, p. 261-269);
- Teamwork with students, active participation and discussion play a great role in motivating and satisfying students with teaching and thus easier adoption of the given material;
- The teacher is the one who needs to show initiative and readiness to improve teaching with using new ways for knowledge transfer and adoption, but it is also necessary for the teacher to be available and at students' disposal not only via electronic communication channels, but also face to face when the students need it;
- Students with advanced knowledge in computer use are more open to introducing and applying ICT in teaching;"

## *FINAL OBSERVATIONS*

The main idea of this paper was to test, analyze and show the efficacy of hybrid teaching through empirical research attitudes, motivation and satisfaction of students about the implementation of teaching by using the Moodle distance learning system. The target group were undergraduate students in accredited study programs at the Faculty who attended classes in computer science subjects.

The analysis of the obtained results led to comprehension regarding motivation, approach, mastery and understanding of teaching content from the part of students, namely:

- distance learning (work) system (platform) is not something new for the students,
- epidemiological situation has greatly influenced students and their getting to know and mastering the characteristics of distance learning (work) (platform),
- students are ready to innovate traditional teaching and are willing to include ICT and multimedia content in the teaching process as an aid to easier understanding and mastering the teaching material,
- students believe that distance learning (work) can replace the traditional way of teaching in certain segment as an aid,
- platform, that is, using the distance learning (work) system improved their IT abilities and knowledge,
- communication among teachers and associates and students, as well as clearly defined evaluation criteria, is really important and
- in addition to the multimedia content uploaded on the platform, it is necessary to engage students through the development of project/practical tasks both individual and team ones, because they contribute to the sublimation of acquired knowledge.

The results obtained can be implemented in educational practice so as to modernize teaching processes and bring them closer to students. The conducted research can be taken as a starting point for future research on this topic, with the aim of a more efficient reform and improvement of higher education, but also education in general in the Republic of Serbia.

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# QUESTIONNAIRE

**Dear colleagues,**
This questionnaire was created for the purposes of a research, in order to improve IT subjects by certain subject professors of the Faculty of Business Economics and Entrepreneurship. Firstly, to evaluate the level of your (un) satisfaction with the realization of teaching of a subject as well as with the Faculty of Business Economics and Entrepreneurship distance learning system. Secondly, to find out if the current epidemiological situation has influenced your attitude towards distance learning (working) by the application of information-communications technologies. That is why we would like you to answer the following questions as objectively as possible.

| 1. Gender: | 1. Male | 2. Female |
|---|---|---|

| 2. Age group: | 20-25 | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | over 50 |
|---|---|---|---|---|---|---|---|

| 3. Are you employed: | 1. Yes | 2. No |
|---|---|---|

4. Evaluate your computer skills from the point of view of the Operating system application, the application of Office (Word, Excel, PowerPoint), as well as the use of the Internet **before** this epidemiological situation.

| Weak | | | | Excellent |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5. Evaluate your computer skills from the point of view of the Operating system application, the application of Office (Word, Excel, PowerPoint), as well as the use of the Internet **at this moment**.

| Weak | | | | Excellent |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6. Did the current events in the world and the emergency situation in our country partly "motivate" you to improve your computer skills, that is, to apply technology in general?

    a) No, and I am not interested
    b) I only started thinking about it
    c) Partially
    d) It motivated me and I improved my skills
    e) Other _____

7. Have you met with distance learning (work) so far?

    a) No, and I don't want to learn (work) like that
    b) I am familiar with it, but I haven't used it
    c) Yes, I have used it
    d) Other _____

8. Can distance learning replace the current traditional work (learning) in certain segments, and to what extent?

    a) It cannot in any segments
    b) Only as an aid

c) Yes, it can replace certain segments
d) It can fully replace it
e) Other _____

9 . Has this situation influenced your opinion on distance learning (work), and to what extent?
a) It hasn't influenced it, I am not interested in that kind of learning
b) It hasn't influenced it, because I am already familiar with this kind of learning (work) and its potential advantages
c) It has, and now I see it is very easy to use
d) It has, and I plan to use such kinds of learning and working in the
e) Other _____

10. How much time did you spend on the platform on average per week performing your studying activities? (1-I didn't use the platform, 2 – Up to 30 minutes, 3 – Up to 1 hour, 4 – Up to 2 hours, 5 – Up to 3 hours, 6 – More than 3 hours)

| Self-evaluation tests | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Material reading and studying | 1 | 2 | 3 | 4 | 5 | 6 |
| Performing assigned tasks | 1 | 2 | 3 | 4 | 5 | 6 |
| Communications with colleagues and lecturers | 1 | 2 | 3 | 4 | 5 | 6 |
| Other | 1 | 2 | 3 | 4 | 5 | 6 |

11. You prepared the colloquia and exam by (you may mark several answers)
a) Studying and practising from the material on the platform
b) I downloaded the material from the platform, printed it and then studied from it
c) I studied from the textbook
d) I listened to the video lectures
e) I combined all the options (textbook, platform materials and video lectures)
f) Other _____

12. After viewing and summarizing everything, which grades would you use to grade this type of work and the stated activities?

| The use of platform for studying | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Educational materials placed and/or sent by mail | 1 | 2 | 3 | 4 | 5 |
| Performing assigned tasks | 1 | 2 | 3 | 4 | 5 |
| Communication with colleagues and associates | 1 | 2 | 3 | 4 | 5 |
| Acquired knowledge | 1 | 2 | 3 | 4 | 5 |
| Grading criterion | 1 | 2 | 3 | 4 | 5 |

13. Do you think that by using the distance learning platform you have improved your IT skills and knowledge?

a) No
b) Yes
c) Other _____

14. How does the information sound to you, which we get from the media about the reform of education, work, but also the new way of life through the constant application of information-

communication technology (computers, smart phones, smart devices, smart payments, chip application, robotics, and so on):

    a) I completely agree, that is the future of work and education
    b) Tempting and useful – maybe it will be easier for us
    c) It doesn't sound very tempting – we are doing fine this way too
    d) I disagree
    e) Other _____

15. What would you change or improve in case the teaching had to be carried out this way next year as well? (Your opinion is very important to us)

*Comment*
(In case we didn't ask you something, and you think it would be useful for the research, or if you wanted to commend someone or a particular activity)

**Thank you for your time!**

# IMPLICATIONS OF EDUCATIONAL ORIGIN ON DEMOGRAPHIC BEHAVIOR OF YOUNG PEOPLE IN SOUTH-EAST SERBIA

*Dragana Peši  Jena  kovi* [10]

## ABSTRACT

*Socio-demographic analyses indicate significant changes in the area of natural and mechanical movement of the population in Serbia: on the one hand, fewer and fewer children are being born, while on the other hand, more and more people are leaving the country. Such processes result in depopulation, the consequences of which are diverse, long-term, and catastrophic for the survival and development of our people. The paper focuses on young people who stay in the country and their marital and reproductive behavior. It is based on the general view that demographic changes can be caused by several economic, psychological, sociocultural, and biological factors. Since the specificity of sociological research is based on emphasizing sociability, and empirical analysis of social conditioning is too extensive a task, research attention in this paper is focused on examining one sociocultural determinant - the educational background of young people. The paper is the result of broader quantitative research conducted on a quota sample of 500 respondents aged 15 to 35 years. Due to the distinct demographic threat, the Region of Southern and Eastern Serbia was chosen as the research area. Results of the research show that the educational origin of young people is a significant determinant of their evaluation and practice of various forms of marital and reproductive behavior. At the normative level, it is evident that young people with more significant educational backgrounds are more advanced on the path of modernization and that they accept modern values to a greater extent, while young people with weaker educational - backgrounds are more inclined to keep traditional values. The practice also indicates that the educational status of both parents is a significant factor for marital / partner and parental status, as well as for the level of youth fertility.*

*Keywords: education, origin, youth, behavior, demography*
*JEL Classification: I20*

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# INTRODUCTION AND THEORETICAL-EMPIRICAL BASIS OF RESEARCH

Under the influence of various factors, the area of demographic behavior in Serbia has been affected by numerous changes. Negative demographic trends over a long time have led to a significantly weakened demographic potential in our country. On the one hand, fewer and fewer children are being born, and on the other hand, an increasing number of people are leaving the country. In other words, depopulation is a consequence of the natural movement of the population, ie. insufficient birth, but the mechanical movement of the population. In that way, Serbia is facing a double loss of human resources.

When it comes to migrations, they affect not only the reduction of the population but also the birth rate, considering that the young population, which is most capable of reproduction, emigrates the most. However, research attention is focused on young people who remain in the country and their marital and reproductive behavior. Based on socio-demographic research and official statistical data, it is possible to single out the fundamental characteristics of the marital and reproductive behavior of young people. In the field of marriage and partnership, "changes are taking place in the direction of reducing the number of young people who have established a marital union, increasing the average age at marriage, ie. postponing marriage, but also giving up the marital union, increasing the number of divorced persons, as well as practicing extramarital forms of partnership "(Peši  Jena kovi , 2021a, p. 352). Also, it is noticed that partnership, and even marriage, lose the function of biological reproduction over time. Namely, it happens that young people have emotional connections, live together or get married, but do not plan to achieve parenthood "(Peši  Jena kovi , 2021b, Markovi  Krsti , p. 27). Reproductive behavior is characterized by a decrease in the number of young people who decide to become parents, postponement of parenthood, ie. a change in the age for giving birth to the first child, low reproductive norms, an increasing share of young mothers giving birth to one child and an increase in out-of-wedlock births. In addition, "the existence of conscious abandonment of birth, the so-called voluntary/sociological sterility, which refers to the personal decision of individuals or couples not to participate in reproduction "(Bobi  2007, p. 73). The consequences of such behavior are reflected in the decline of fertility below the level necessary for simple reproduction and negative natural increase, which cooperatively with the negative migration balance leads to the depopulation of the population.

In terms of the direction of demographic changes, the Region of Southern and Eastern Serbia does not differ significantly from the trends characteristic of Serbia as a whole. However, the changes are not of the same intensity in all regions of the country, and the most pronounced negative trends are characteristic of the regions of Southern and Eastern Serbia. The latest data (2021) show that the depopulation process is most intensive in the Region of Southern and Eastern Serbia. This region has the highest negative values when it comes to population change rates (-15.3) as natural increase rates (-14.4). The data show that in 2021, the lowest rate of total fertility was recorded in this region - the number of children per woman (1.41). Also, the Region of Southern and Eastern Serbia has characterized by the lowest number of marriages (4.4 per 1000 inhabitants) (https://data.stat.gov.rs; https://publikacije.stat.gov.rs). These indicators speak of the need and importance of research on factors influencing the marital and reproductive behavior of young people in this region.

One of the significant socially differentiating factors of attitudes and behavior of young people is the family of origin as an environment in which they grow up, adopt specified values, and form patterns of behavior. An important element of this socio-cultural determinant is the educational level, ie. the school readiness of the parents. It is a mechanism that primarily works in the earliest childhood. Namely, the education-level of parents implies specified values that are transmitted in the family and which then shape the attitudes and behavior of young people. By the education of parents,

which is part of the "cultural capital" (Bourdieu, 1986), certain ideals and lifestyles have formed over time. Accepting such an attitude and not disputing that many other cultural, economic, psychological, and biological factors play a role, this paper will examine the importance of educational origin, the education - status of young parents on their marital and reproductive behavior.

The assumption that the educational background of young people can influence their marital and reproductive behavior is „supported by certain theories and authors who add socio-cultural factors to economic ones when explaining demographic changes. They strive towards a revision of economic theories of family and fertility"(Peši Jena kovi , Markovi Krsti 2021b, p. 25).

Ansley Coale opposes the theory of the (first) demographic transition (Landry, Notestein, and Thompson), according to which demographic changes are directly conditioned by economic factors. His research shows that there is no automatism between economic development and fertility levels. In addition to economic ones, he includes the cultural dimension in his understanding of demographic trends (Coale, 1973). To overcome the limitations of microeconomic theories (Leibenstein, Easterlin, Becker), Rodolfo Bulatao cites the importance of social and cultural factors (Bulatao, 1984). According to the ideational-cultural theory, the change in fertility takes place more under the influence of cultural than economic factors (Cleland & Wilson, 1987). The theory of the second demographic transition in explaining changes in the dementia of marital and reproductive behavior includes various factors (structural, cultural, and technological), as well as their interaction (Van de Kaa & Leastheaghe, 1986). Current demographic trends with the above theoretical approaches are the basis of this research..

## *RESEARCH METHODOLOGY*

This paper will examine the importance of the educational level of parents of respondents for the evaluation and practice of some models of marital and reproductive behavior in young people. The study examined differences in the assessment and praxis of certain forms of marital and reproductive behavior between young people whose parents have different levels of education. Quantitative techniques - surveys and scaling - were used to collect data.

The dependent variables in the analysis of the evaluation of marital and reproductive behavior are four scales. Each of the scales is composed of three attitudes. Respondents were presented with views and were asked to express their degree of agreement with each of them on the Likert five-point scale. After the examination, all attitudes that were negatively formulated were reversed and the reliability of the measurement scale was checked. The Cronbach's alpha coefficient is the bigger one than 0.7 for all four scales, which shows very good reliability and internal consistency on each scale (DeVellis, 2012). The range of possible values on each scale is from 3 to 15, where the theoretical mean value that divides the scale into two poles is 9.

The scale of marriage valuation consisted of the following attitudes: 1. Marriage is sacred, 2. Every man should live in marriage and 3. Marriage is an outmoded institution. The Cronbach's alpha coefficient indicates the high reliability of this scale ( = 0.836).

The cohabitation evaluation scale included the views: 1. It is okay for two people to live together before marriage, 2. It is okay for a couple to live together even though they have no intention of getting married, and 3. It is a shame to live in an extramarital union. The Cronbach's coefficient is somewhat lower here but of satisfactory reliability ( = 0.706).

The scale of evaluation of the traditional pattern of birth/parenthood consists of the following statements: 1. Parenthood is the most significant thing in life, 2. Having children is very important for the functioning of marriage, and 3. Children need to be born as much as possible to survive as a nation ( = 0.722).

The scale of evaluation of parenthood out of wedlock: 1. It is OK to be a parent in an extramarital union, 2. It is OK for a woman/man in the role of mother/father to become a single parent, and 3. It is a shame for a woman to give birth to an illegitimate child ( = 0.714).

The dependent variables used for the analysis of the practice refer to the achieved, planned, desired, or ideal marital and reproductive behavior of the respondents:

• achieved (marital / partnership status, years of marriage, parental status, years of parenthood, number of children of respondents);

• planned (marriage plans, cohabitation tendencies, parenting plans) and

• ideal and desired behavior (desired number of children, ideal number of children, ideal age for a woman to marry, ideal age for a man to marry, ideal age for a woman to give birth to her first child).

The independent variable in all analyzes is the level of education of the parents. For the sake of easier analysis, we have classified the levels of education into two categories: 1. primary or secondary, and 2. higher or higher.

The research was conducted in the Region of Southern and Eastern Serbia, in 9 statistical districts (Nisava, Toplica, Jablanica, Pirot, Branicevski, Podunavlje, Bor, Zajecar, Pcinj). The quota sample consisted of a total of 500 respondents. Due to the increasing delay of marriage and parenthood, and the phenomenon of "prolonged youth" (Ule, 1989), the respondents ranged in age from 15 to 35 years.

## *RESEARCH RESULTS*

The paper started from the opinion that the educational level of parents implies some values that are transmitted in the family and which then shape the attitudes and behavior of young people, in this case, related to marriage, cohabitation, and parenthood - married and out of wedlock. Given the above, the general assumption is that there are differences in the evaluation and practice of certain forms of marital and reproductive behavior of young people according to the educational level of their parents. This general assumption consists of a series of specific hypotheses.

Hypothesis 1: Young people whose parents have higher or higher education value extramarital affairs and out-of-wedlock parenting more than young people whose parents have primary or secondary education.

*Table 1. Differences in the evaluation of cohabitation and out-of-wedlock parenting according to the educational level of the respondents' mothers*

| | Educational level of respondents' mothers | | | | t | p | 2 |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=350) | | Higher or higher education (n=150) | | | | |
| | AS | SD | AS | SD | | | |
| Evaluation of cohabitation | 11,19 | 2,979 | 12,77 | 2,200 | -6,563 | 0,000 | 0,07 |
| Evaluation of out-of-wedlock parenting | 10,46 | 3,129 | 11,92 | 2,365 | -5,705 | 0,000 | 0,06 |
| Evaluation of marriage | 11,82 | 3,104 | 10,05 | 3,737 | 5,098 | 0,000 | 0,04 |
| Evaluation of birth /parenthood | 11,91 | 2,819 | 10,62 | 2,980 | 4,604 | 0,000 | 0,04 |

The results in Table 1 show that respondents whose mothers have a higher level of education value cohabitation more (AS = 12.77, SD = 2,200), compared to respondents whose mothers have lower levels of education (AS = 11.19, SD = 2,979). Also, parenting out of wedlock is more positively assessed by respondents whose mothers have higher or higher education (AS = 11.92, SD = 2.365) than by respondents whose mothers have primary or secondary education (AS = 10.46, SD = 3.129).

*Table 2. Differences in evaluation according to the educational level of the father of the respondents*

| | Educational level of the respondent's father | | | | t | p | 2 |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=332) | | Higher or higher education (n=168) | | | | |
| | AS | SD | AS | SD | | | |
| Evaluation of cohabitation | 11,27 | 2,998 | 12,43 | 2,392 | -4,694 | 0,000 | 0,04 |
| Evaluation of out-of-wedlock parenting | 10,45 | 3,109 | 11,79 | 2,533 | -5,176 | 0,000 | 0,05 |
| Evaluation of marriage | 11,76 | 3,105 | 10,35 | 3,758 | 4,483 | 0,000 | 0,03 |
| Evaluation of birth /parenthood | 11,74 | 2,926 | 11,09 | 2,885 | 2,364 | 0,018 | 0,01 |

When it comes to the educational level of the respondents' fathers and the evaluation of these forms of behavior, the situation does not differ significantly. Namely, the values of cohabitation are higher for the respondents from the group of those whose fathers have higher levels of education (AS = 12.43, SD = 2.392), ie the values are lower for the respondents whose fathers have primary or secondary education (AS = 11.27, SD). = 2,998). Similarly, respondents whose fathers belong to the second group value extramarital parenting more (AS = 11.79, SD = 2.553) than respondents whose fathers belong to the first group (AS = 10.45, SD = 3.109) (Table 2). These differences are statistically significant (p = 0.000). This square shows moderate differences in the evaluation of cohabitation ( $^2$ = 0.07) and parenthood out of wedlock ( $^2$ = 0.06) when it comes to different levels of education of respondents 'mothers, and small differences in evaluation of these behaviors according to educational groups of respondents' fathers ( $^2$ = 0,04; $^2$ = 0,05). As expected, in addition to these differences, statistically significant differences were found in the evaluation of marriage and childbirth and parenthood in the traditional sense with regard to the educational level of the respondents' parents. Namely, respondents whose parents have primary or secondary education value marriage and parenthood more in the traditional sense. The magnitude of these differences expressed by eta squares is small ( $^2$ = 0.01–0.04).

Hypothesis 3: Young people whose parents have higher educational status (higher or higher education) consider that the ideal time to get married and give birth later is compared to young people whose parents have lower educational status (have primary or secondary education).

*Table 3. Differences in the ideal time for marriage and childbirth according to the educational level of mothers*

| | Educational level of respondents' mothers | | | | t | p | 2 |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=350) | | Higher or higher education (n=150) | | | | |
| | AS | SD | AS | SD | | | |
| Ideal age for a woman get married | 24,79 | 3,172 | 26,16 | 2,441 | -5,219 | 0,00 | 0,05 |
| Ideal age for a man to get married | 28,56 | 3,033 | 29,94 | 3,165 | -4,602 | 0,00 | 0,04 |
| Ideal age for a woman to give birth to a first child | 25,42 | 2,892 | 26,89 | 2,558 | -5,374 | 0,00 | 0,05 |

*Table 4. Differences in the ideal time for marriage and childbirth according to the educational level of fathers*

| | Educational level of the respondent's father | | | | t | p | 2 |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=332) | | Higher or higher education (n=168) | | | | |
| | AS | SD | AS | SD | | | |
| Ideal age for a woman get married | 24,82 | 3,112 | 25,96 | 2,730 | -4,013 | 0,000 | 0,03 |
| Ideal age for a man to get married | 28,33 | 2,968 | 30,24 | 3,075 | -6,725 | 0,000 | 0,08 |
| Ideal age for a woman to give birth to a first child | 25,44 | 2,833 | 26,69 | 2,779 | -4,693 | 0,000 | 0,04 |

The best years for a woman to marry for respondents whose parents have higher educational levels are around 26, and for respondents whose parents have lower educational status around 24. Young people from the group of parents with higher levels of education believe that the best years to give birth to the first child are after 26 (close to 27), while for the second group of respondents (parents with primary or secondary education) the ideal years for the first child are after 25 . The ideal time for marriage for respondents whose parents have a higher educational status is around the age of 30, and for respondents from the second group, a little before that, around the age of 28. All these differences are statistically significant (p = 0.000), and this square indicates small to moderate differences ( $^2$ = 0.03–0.08) (Table 3 and Table 4).

Hypothesis 4: Young people whose parents have higher levels of education later marry and become parents compared to young people whose parents are of lower educational status.

*Table 5. Differences in the years of marriage according to the educational level of mothers*

| | Educational level of respondents' mothers | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=110) | | Higher or higher education (n=22) | | | | |
| | AS | SD | AS | SD | | | |
| Age at first marriage | 25,21 | 3,805 | 28,50 | 3,461 | -3,756 | 0,000 | 0,09 |

*Table 6. Differences in the years of marriage according to the educational level of the fathers*

| | Educational level of the respondent's father | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=101) | | Higher or higher education (n=31) | | | | |
| | AS | SD | AS | SD | | | |
| Age at first marriage | 25,15 | 3,814 | 27,74 | 3,715 | -3,331 | 0,001 | 0,07 |

The results shown in the previous two tables show that young people whose parents have primary or secondary education marry around the age of 25, while those from higher education families marry later - after 27 and 28, respectively. These differences are statistically significant (t = -3.756, p = 0.000; t = -3.331, p = 0.001), and this square indicates that they can be estimated as differences of medium size ( $^2$= 0.07-0.09).

*Table 7. Differences in the years of parenthood according to the educational level of mothers*

| | Educational level of respondents' mothers | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=103) | | Higher or higher education (n=22) | | | | |
| | AS | SD | AS | SD | | | |
| Age at which they became parents for the first time | 25,84 | 3,918 | 29,18 | 3,347 | -3,713 | 0,000 | 0,10 |

*Table 8. Differences in the years of parenthood according to the educational level of fathers*

| | Educational level of the respondent's father | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=97) | | Higher or higher education (n=28) | | | | |
| | AS | SD | AS | SD | | | |
| Age at which they became parents for the first time | 25,87 | 3,991 | 28,39 | 3,521 | -3,026 | 0,003 | 0,06 |

Empirical findings given in Tables 7 and 8 show that respondents whose parents have lower education have previously become parents. Namely, they had their first child around the age of 25, while the respondents from the second group achieved the parental role after the age of 28 and 29, respectively. The statistical significance of these differences was determined (t = -3.713, p = 0.000; t = -3.026 p = 0.003), and this square shows a slightly more pronounced difference here ($^2$ = 0.06-0.10).

Hypothesis 5: Young people whose parents have higher or higher education have a lower number of children compared to young people whose parents have primary or secondary education status.

*Table 8. Differences in the actual number of children according to the mother's education*

| | Educational level of respondents' mothers | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=103) | | Higher or higher education (n=22) | | | | |
| | AS | SD | AS | SD | | | |
| Actual number of children | 1,67 | 0,617 | 1,36 | 0,492 | 2,184 | 0,031 | 0,03 |

*Table 9. Differences in the actual number of children according to father's education*

| | Educational level of the respondent's father | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=97) | | Higher or higher education (n=28) | | | | |
| | AS | SD | AS | SD | | | |
| Actual number of children | 1,68 | 0,605 | 1,39 | 0,567 | 2,247 | 0,02 | 0,03 |

Empirical data given in Tables 8 and 9 show that there are statistically significant differences in the number of children / in the level of fertility with regard to the educational level of their parents. The average number of children is higher among respondents whose mothers have primary or secondary education (AS = 1.67, SD = 0.617), compared to the average number of children whose mothers have higher or higher education (AS = 1.36, SD = 0.492 ); (t = 2.184, p = 0.031). Also, young people whose fathers have lower levels of education have a higher number of children (AS = 1.68, SD = 0.605) than young people whose fathers have a higher educational status (AS = 1.39, SD = 0.567); (t = 2.247, p = 0.026).

In addition to these differences, statistically significant differences were found in the ideal, desired and planned number of children.

*Table 10. Differences in the ideal, desired and planned number of children according to the mother's education.*

| | Educational level of respondents' mothers | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=350) | | Higher or higher education (n=150) | | | | |
| | AS | SD | AS | SD | | | |
| Ideal number of children | 2,47 | 0,729 | 2,22 | 0,664 | 3,808 | 0,00 | 0,02 |
| Desired number of children | 2,42 | 0,763 | 2,04 | 0,713 | 5,385 | 0,00 | 0,05 |
| Planned number of children | 2,16 | 0,716 | 1,85 | 0,649 | 4,510 | 0,00 | 0,03 |

*Table 11. Differences in the ideal, desired and planned number of children according to the education of the fathers*

| | Educational level of the respondent's father | | | | t | p | $^2$ |
|---|---|---|---|---|---|---|---|
| | Primary or secondary education (n=332) | | Higher or higher education (n=168) | | | | |
| | AS | SD | AS | SD | | | |
| Ideal number of children | 2,44 | 0,699 | 2,31 | 0,750 | 1,964 | 0,05 | 0,00 |
| Desired number of children | 2,38 | 0,734 | 2,16 | 0,814 | 3,075 | 0,00 | 0,01 |
| Planned number of children | 2,12 | 0,678 | 1,96 | 0,761 | 2,469 | 0,01 | 0,01 |

It is clear from Tables 10 and 11 that respondents whose parents have a higher level of education have a lower ideal, desired and planned number of children.

Hypothesis 6: Among young people whose parents are of lower educational status, the percentage of those who have married together is higher, and the percentage of those who cohabit is lower than among young people whose parents are of higher educational status.

*Table 12. Marital / partner status according to the educational level of mothers*

| | Marital / partner status of respondents | | | | | |
|---|---|---|---|---|---|---|
| Educational level of respondents' mothers | Married | | In common law marriage | | Not married | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=350) | 104 | 29,7 | 26 | 7,4 | 220 | 62,9 |
| Higher or higher education (n=150) | 21 | 14,0 | 20 | 13,3 | 109 | 72,7 |
| Total (N=500) | 125 | 25,0 | 46 | 9,2 | 329 | 65,8 |

Table 12 shows that the percentage of marriages is twice as high among those whose mothers have lower levels of education (29.7%) than among respondents whose mothers have higher levels of education (14%). On the other hand, there are almost twice as many respondents in cohabitation whose mothers have higher educational status (13.3%), compared to respondents whose mothers have lower educational status (7.4%). There are more unmarried young people in the category of mothers with higher or higher education (62.9%) than in the category of mothers with primary or secondary education (72.7%). The differences are statistically significant ( $x^2$= 15,886, (n = 500), df = 2, p = 0,000), and the correlation indicators show the correlation, ie the influence of low intensity (V = 0.178, C = 0.175).

The educational status of the respondents 'fathers also proved to be important for the respondents' marital / partnership status.

*Table 13. Marital/partner status according to the educational level of the respondent's father*

| Educational level of the respondent's father | Marital / partner status of respondents | | | | | |
|---|---|---|---|---|---|---|
| | Married | | In common law marriage | | Not married | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=332) | 95 | 28,6 | 25 | 7,5 | 212 | 63,9 |
| Higher or higher education (n=168) | 30 | 17,9 | 21 | 12,5 | 117 | 69,6 |
| Total (N=500) | 125 | 25,0 | 46 | 9,2 | 329 | 65,8 |

The results of the research given in Table 13 show that significantly more respondents whose fathers have primary or secondary education (28.6: 17.9) were married, while cohabitation was concluded by more respondents whose fathers have higher or higher education (12.5: 7.5). There are more unmarried young people whose fathers have higher levels of education (69.6: 63.9). The chi-square shows the statistical significance of the difference ( $x^2$ = 8.726 (n = 500), df = 2, p = 0.013), and the correlation indicators indicate a low-intensity correlation (V = 0.132, C = 0.131).

Hypothesis 7: There are significantly more parents among young people whose parents have primary or secondary education than among those whose parents have higher or higher education.

*Table 14. Parental status of respondents according to the level of education of the respondents' mothers*

| Educational level of respondents' mothers | Parental status | | | |
|---|---|---|---|---|
| | Parent | | Not parent | |
| | N | % | N | % |
| Primary or secondary education (n=350) | 103 | 29,4 | 247 | 70,6 |
| Higher or higher education (n=150) | 22 | 14,7 | 128 | 85,3 |
| Total (N=500) | 125 | 25,0 | 375 | 75,0 |

Among respondents whose mothers have lower levels of education, there are twice as many parents (29.4%) than among respondents whose mothers have higher levels of education (14.7%) (Table 14). The chi-square test (with Continuity Correction) confirms the statistical significance of the difference ( $x^2$ = 11,429, (n = 500), df = 1, p = 0,000), and the Fi correlation coefficient shows a low-intensity correlation (phi = 0.156 ).

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*Table 15. Parental status of respondents according to the level of education of the respondents' fathers*

| Educational level of the respondent's father | Parental status | | | |
|---|---|---|---|---|
| | Parent | | Not parent | |
| | N | % | N | % |
| Primary or secondary education (n=332) | 97 | 29,2 | 235 | 70,8 |
| Higher or higher education (n=168) | 28 | 16,7 | 140 | 83,3 |
| Total (N=500) | 125 | 25,0 | 375 | 75,0 |

The results show that there are almost twice as many parents among respondents whose fathers have primary or secondary education (29.2%) than among respondents whose fathers have higher or higher education (16.7%) (Table 15). The chi-square test (with Continuity Correction) indicates that this difference is statistically significant ($^2$ = 8.713 (n = 500), df = 1, p = 0.003), and the Fi correlation coefficient shows a low-intensity relationship (phi = 0.137).

Regarding the planning of marriage among young people, there are statistically significant differences with regard to the educational level of both parents.

*Table 16. Marriage plans according to the educational level of the respondents' mothers*

| Educational level of respondents' mothers | Marriage plans | | | | | |
|---|---|---|---|---|---|---|
| | Planning a marriage soon | | Not planning a marriage soon, but would like to be married | | Not planning or thinking about marriage at all | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=246) | 62 | 25,2 | 125 | 50,8 | 59 | 24,0 |
| Higher or higher education (n=129) | 19 | 14,7 | 64 | 49,6 | 46 | 35,7 |
| Total (N=375) | 81 | 21,6 | 189 | 50,4 | 105 | 28,0 |

Marriage is soon planned by a higher percentage (25.2%) of respondents whose mothers have primary or secondary education, compared to that percentage among respondents whose mothers have higher or higher education (14.7%). Young people from the category of mothers with higher levels of education (35.7%) are more prone to indifferent attitude towards marriage or its rejection than respondents whose mothers have lower levels of education (24%). There is a considerable uniformity of respondents who postpone marriage (about 50%). The differences are statistically significant ($^2$ = 8.442 (n = 375), df = 2, p = 0.015), and indicators of the degree of correlation indicate a correlation of low intensity (V = 0.150, C = 0.148).

*Table 17. Marriage plans according to the educational level of the respondent's father*

| Educational level of the respondent's father | Marriage plans | | | | | |
|---|---|---|---|---|---|---|
| | Planning a marriage soon | | Not planning a marriage soon, but would like to be married | | Not planning or thinking about marriage at all | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=237) | 58 | 24,5 | 123 | 51,9 | 56 | 23,6 |
| Higher or higher education (n=138) | 23 | 16,7 | 66 | 47,8 | 49 | 35,5 |
| Total (N=375) | 81 | 21,6 | 189 | 50,4 | 105 | 28,0 |

The results shown in Table 17 show that more respondents whose fathers have primary or secondary education are planning a marriage soon (24.5: 16.7), while a higher percentage of respondents whose fathers have higher or higher education have an indifferent or negative attitude towards marriage (35.5: 23.6) .Slightly more respondents from the category of fathers with lower educational status showed a tendency to postpone marriage (51.9: 47.8). The chi-square test shows that these differences are statistically significant ( $^2$= 7.142, (n = 375), df = 2, p = 0.028), and indicators of the degree of correlation indicate a correlation of low intensity (V = 0.138, C = 0.137).

When it comes to parenting planning, no statistically significant differences were shown with regard to the educational level of the respondents' parents.

*Table 18. Parenting plans according to the educational level of mothers*

| Educational level of respondents' mothers | Parenthood planning | | | | | |
|---|---|---|---|---|---|---|
| | Planning or expecting parenthood soon | | Not planning parenthood soon but would like to become a parent | | Not planning or thinking about parenthood at all | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=247) | 65 | 26,3 | 137 | 55,5 | 45 | 18,2 |
| Higher or higher education (n= 128) | 22 | 17,2 | 73 | 57,0 | 33 | 25,8 |
| Total (N=375) | 87 | 23,2 | 210 | 56,0 | 78 | 20,8 |

It is noticed that parenting is soon planned or expected by a significantly higher percentage among respondents whose mothers have primary or secondary education (26.3%) than among those whose mothers have higher or higher education (17.2%). On the other hand, among young people whose mothers have higher levels of education, there is a higher percentage of those who do not plan or think about parenthood at all (25.8: 18.2). Also, the percentage of those who postpone parenthood

among them is slightly higher (57: 55.5). The chi-square test here did not show statistical significance of the difference ($^2$ = 5.383, (n = 375), df = 2, p = 0.068).

*Table 19. Parenting plans according to the educational level of the respondent's father*

| Educational level of the respondent's father | Parenthood planning | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Planning or expecting parenthood soon | | Not planning parenthood soon but would like to become a parent | | Not planning or thinking about parenthood at all | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=235) | 59 | 25,1 | 135 | 57,4 | 41 | 17,4 |
| Higher or higher education (n=140) | 28 | 20,0 | 75 | 53,6 | 37 | 26,4 |
| Total (N=375) | 87 | 23,2 | 210 | 56,0 | 78 | 20,8 |

It turned out that among respondents whose fathers have higher educational status, a higher percentage of those who have an indifferent or negative attitude towards parenting plans (26.4: 17.4), while among respondents whose fathers have lower educational status, slightly more plan or expect parenthood soon (25: 1:20). As with marriage planning, respondents whose fathers have lower levels of education are shown to be slightly more likely to delay parenthood (57.4: 53.6). These differences did not prove to be statistically significant ($^2$ = 4.624, (n = 375), df = 2, p = 0.099).

Regarding the tendencies for life in cohabitation, there are statistically significant differences between respondents whose mothers have different educational status ($^2$ = 14,040, (n = 329), df = 2, p = 0,001), and indicators of the degree of connection indicate a correlation of low intensity V = 0.207, C = 0.202).

*Table 20. Tendencies of extramarital affairs towards the educational level of the respondents' mothers[11]*

| Educational level of respondents' mothers | Extramarital affairs – tendencies | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Would live with their partner in cohabitation before marriage | | Would live in cohabitation permanently | | Would not live with a partner before getting married | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=220) | 124 | 56,4 | 50 | 22,7 | 46 | 20,9 |
| Higher or higher education (n=119) | 60 | 55,0 | 41 | 37,6 | 8 | 7,3 |
| Total (N=329) | 184 | 55,9 | 91 | 27,7 | 54 | 16,4 |

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[11] The analysis includes respondents who do not have marital or extramarital status.

The results shown in Table 20 show that a significantly higher percentage of those who accept cohabitation as a permanent community is among respondents whose mothers have higher educational levels (37.6: 22.7), while on the other hand, among young people whose mothers have lower educational status a significantly higher percentage of those who reject cohabitation (20.9: 7.3). The percentage of those who agree to cohabit in the pre-marriage phase is fairly even (about 55%).

The educational status of the fathers, in contrast to the educational level of the respondents' mothers, did not prove to be particularly important for the tendency to live in an extramarital union.

*ble 21. Tendencies of extramarital affairs towards the educational level of the respondents'*
*fatthers*

| Educational level of the respondent's father | Extramarital affairs – tendencies | | | | | |
|---|---|---|---|---|---|---|
| | Would live with their partner in cohabitation before marriage | | Would live in cohabitation permanently | | Would not live with a partner before getting married | |
| | N | % | N | % | N | % |
| Primary or secondary education (n=212) | 117 | 55,2 | 53 | 25,0 | 42 | 19,8 |
| Higher or higher education (n=117) | 67 | 57,3 | 38 | 32,5 | 12 | 10,3 |
| Total (N=329) | 184 | 55,9 | 91 | 27,7 | 54 | 16,4 |

The results in Table 21 show that the largest and fairly uniform percentage in both categories accept cohabitation as a temporary form of living together (about 55%). It is noted that a higher percentage of those who permanently accept cohabitation among respondents whose fathers have higher or higher education (32.5: 25), and that on the other hand, a higher percentage of those who reject cohabitation among those whose fathers have primary or secondary education (19.8: 10.3). However, these differences did not prove to be statistically significant ( $^2$= 5.776 (n = 329), df = 2, p = 0.056).

## *DISCUSSION*

Results of the analysis showed statistically significant differences in the evaluation of different forms of marital and reproductive behavior with regard to the educational level of the respondent's parents. According to the data, higher levels of parental education also mean higher values that young people attach to cohabitation and parenthood outside of marriage. On the other hand, young people whose parents have lower levels of education value marriage and the traditional model of birth and parenthood more.

Differences in both actual and ideal times for marriage and parenthood were registered. Young people whose parents have a higher level of education perceive the right time for marriage and parenthood significantly later than young people whose parents have a lower level of education. In accordance with the ideal time, young people with a significant educational background got married and became parents much later than young people with a weaker educational background.

In the further discussion of the results, we will refer to results of the research on the influence of the educational status of the respondents themselves on their marital and reproductive behavior. The educational level of young people has proven to be the significant factor when it comes to evaluating different models of marital and reproductive behavior of young people, their tendencies to live in cohabitation, as well as the time to marry and give birth/parenthood. However, it did not prove to be a significant determinant for the marital / partnership and parental status of young people, for the number of children achieved, or for young people's plans regarding marriage and parenthood (Peši Jena kovi , 2020, pp. 402-403). The situation is different in this analysis, where we examine the educational background of young people, ie. the educational status of their parents. Namely, the education level of both parents proved to be influential for the marital / partner and parental status, as for the level of youth fertility. Young people whose parents have lower levels of education have largely fulfilled their marital and parental role, while on the other hand, young people who have parents with higher levels of education are more likely to live with their partner unmarried. Also, the results show that young people whose parents have lower levels of education have a higher average number of children compared to young people whose parents have higher levels of education. When it comes to marriage planning, research shows that young people whose parents have a primary or secondary education are more determined to start a marriage soon, while young people with parents with higher or higher education are more prone to indifferent and negative attitudes towards marriage planning. The educational level of mothers has also proved significant in the tendencies to live in the cohabitation of young people, while the educational status of fathers does not show importance in this regard. It is noticed that young people whose mothers have lower levels of education are more inclined to reject life in cohabitation, while the readiness for permanent life in cohabitation is more pronounced among young people whose mothers have higher educational status.

These differences in the educational status of parents are statistically significant, which confirms that educational background is a strong indicator of the evaluation and behavior of young people.

## *CONCLUSION*

The last decades of our region have been marked by numerous dramatic events: the breakup of Yugoslavia, the collapse of socialism, interethnic wars during the 90s (1991-1995), sanctions, armed conflicts in Kosmet (1998-1999), NATO bombing in 1999, the collapse of the economic system, the decline of social activities and institutions, the October 5, 2000 revolution, and the global economic crisis. "Life in constant stress, poverty, unemployment, care for existence are the basic features of living in this period" (Raševi , 2015, p. 84). Apart from economic and political events, partly under their influence, changes in the field of culture took place on the social scene. The transition from a socialist to a capitalist society brings with it a value division between traditionalism and modernism. Some segments of society, religious institutions, and remnants of patriarchal family authority emphasize the importance of nurturing and maintaining traditional values until the influence of globalization from the West, through various means of mass communication, offer and adopt new values. The fundamental feature of a transitional society becomes the "meeting, crossing and simultaneous presence of all time dimensions, present, past and future in equal measure" (Mili , 2001, p. 327). In a society whose significant features are the prevailing economic crisis and the transitional model of the normative-value system, the category of young people who are in the period when the major turning points (transitions) in life are taking place has especially endangered. "It is precisely these coincidences of the social crisis with the natural crises of young people, as well as the coincidence of the social transition with the natural transitions that have catastrophic consequences for the youth. The point is that the social transition disrupts youth transitions. (Mihailovi , 2004, pp. 26–27). The climate of uncertainty and insecurity makes their decisions to marry and form their own family much more difficult and less certain. Statistics and the results of

numerous socio-demographic surveys show a decrease in the number of young people deciding to marry, practicing extramarital partnerships, postponing marriage after the age of 30 or even giving up marriage, increased number of singles, increasing divorce, decreasing number of young people deciding for parenthood, low reproductive norms and an increase in out-of-wedlock births among young people.

Accepting the view that numerous and different factors (economic, psychological, cultural, biological) both individually and in interaction have an influence on demographic change, this paper examines the importance of parents' education background on the marital and reproductive behavior of young people. Due to the shifting of the boundaries for marriage and parenthood, the sample in the research consisted of people aged 15 to 35. Due to the distinct demographic threat, the Region of Southern and Eastern Serbia was chosen as the research area.

The research confirmed all the assumptions made, which points to the basic conclusion that educational background can be considered a significant determinant of the marital and reproductive behavior of young people. Parents' education level has proven to be an important predictor of their marital / partner, parental status, and fertility levels. More young parents and those who are married are among the group of young people whose parents have lower levels of education, while more cohabitants are among the category of young people whose parents have higher levels of education. The achieved level of fertility is higher among young people whose parents have a lower educational status. In terms of marriage planning, the education level of both parents is significant, while in terms of the tendency to live in cohabitation, only the education level of the mother is significant. Young people whose parents have lower levels of education are more inclined to plan marriage more recently, while young people who have parents with higher educational status are more prone to indifferent or negative attitudes towards marriage. Willingness to live in cohabitation without marriage is more pronounced among young people whose mothers have higher levels of education, while rejection of life in cohabitation is more common among young people whose mothers have lower levels of education.

In the relation traditionalism - modernism, we can say that more traditional patterns are more pronounced among young people whose parents have lower educational levels, while on the other hand, modern patterns are more common among young people whose parents have higher education status. It is evident, therefore, that modernization, in this case in terms of marital and reproductive behavior, is not the same for different categories of young people. In other words, these and other findings (Peši Jena kovi , 2020, 2021a, Peši Jena kovi , Markovi Krsti , 2021b) confirm the claims of many theorists (Beck 2001; Giddens 1998, 2005; Wilson 2003; Bauman 2000; Budon 2005; Inglehart 1997; Inglehart & Baker 2000) that modernization it does not follow a straightforward model but takes on specific shapes. It is more pronounced among young people with high cultural capital. Empirical findings have shown that different socio-cultural factors can enhance or diminish the effects of modernization. It was found that individualization does not take place so quickly in some categories of young people, in less educated respondents, as in those whose parents have lower educational levels, in those who grew up or are growing up in a very traditional family, in rural areas. On the other hand, it was determined that the higher educational level of the respondents, the higher education level of parents, especially mothers; less traditional families and life in the city, associated with the acceptance and practice of values that accompany the process of modernization, which is actually a step towards individualization.

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# PART II - EMPLOYMENT AND HUMAN RESOURCES IN THE CONTEMPORARY TIMES

# EDUCATION AND COMPETENCIES AS EMPLOYMENT FACTORS IN THE REPUBLIC OF SERBIA

*Sla ana Vuji i [12],*
*Oliver Mom ilovi [13],*
*Nenad Ravi [14]*

## ABSTRACT

*Education in today's business conditions has strategic importance for the development of knowledge-based societies. Investing in education is one of the determinants of the democratization of society. The goal of modern education is to strengthen professional knowledge as well as to acquire key competencies so that people are ready for new professional challenges and inclusion in modern societal trends. An educated individual with knowledge and the ability to apply knowledge in practice is often cited as the main result or desired goal of the educational process.*

*The aim of the paper is to analyse the impact of education and acquired competencies on employment in the Republic of Serbia through empirical research.*

*Keywords: education, competencies, employability*
*JEL Classification: I21*

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# INTRODUCTION

In Serbia, the basic strategic document in the field of employment is the National Employment Strategy for the period 2021 to 2026. The low level of total employment and the slow dynamics of creating quality jobs are mentioned as one of the problems within the aforementioned strategy. The reason for this is the rapidly changing requirements of the labour market, which leads to a mismatch between knowledge, skills and competencies of the workforce. Many authors have analysed the factors that influence unemployment (age, level of education, possession of the necessary knowledge, gender...). Nickell (1979) analysed the relationship between education and the frequency of unemployment duration. He concluded that each year of education shortens the expected duration of unemployment by over 4%, and that obtaining qualifications at a regular or higher level reduces the expected duration of unemployment by 12%. Mincer (1991), similarly, shows that the duration of unemployment is shorter for workers who are better educated, that is, those who possess certain knowledge. Education is seen as an investment in human capital that is expected to reduce the probability of being unemployed. Drucker (1993) emphasizes knowledge as the only important and key development resource. Hillage, Pollard (1998) state that for individuals, employment depends on "the knowledge, skills and attitudes they possess, the way they use these important elements, how they present them to employers and the context (i.e., on the personal situation and the situation on the labour market) within which they are looking for a job". Globerman (1986), Bartel & Frank (1987) state that more educated workers have an advantage in adapting to changes and applying new technologies. Ionescu, Ionescu and Jaba (2013) state that the more educated you are, the less likely you are to be unemployed. Bairagia (2015) states in his study that in developed countries, with an increase in the level of education, unemployment decreases, while in developing countries, as the level of education increases, so does unemployment. Employment is forced (Endovitsky et al.,2021) to carry out the learning process throughout his working life, constantly completing and updating his profile of competencies, and, if necessary, be ready to change the trajectory of his professional activity. Constant learning and acquisition of knowledge in today's conditions leads to the development of competencies that help to increase the possibility of employment. Competencies of employees are considered one of the most important resources of organizations, regardless of their field of work.

# EDUCATION IN TODAY'S BUSINESS CONDITIONS

The most important factor in creating "knowledge societies" are human resources. Focusing on their development requires education and training for living and working in a knowledge-based society. We can say that education is a key and priority area for poverty reduction. The entire world, developed and developing, is faced with increased demands in the field of education. In almost all countries of the world, the very organization and functioning of the education system is the subject of discussions and comprehensive analyses by experts in this field. Today's education is faced with very difficult tasks and we can safely say that education is under great pressure from both social, economic and personal demands. Education, which is connected with research and innovation, has a key role in the development of the individual and society, and therefore in the creation of highly qualified human capital. Education and professional development is very important for the development of an individual because through learning, i.e. through both formal and

informal education, and through various trainings, the individual acquires knowledge that will help them to perform on the labour market. The field of non-formal education is very important in Serbia, it enables persons who have not completed formal education or have finished school with which they cannot find a job in the profession, to actually retrain in the process of non-formal education to perform some of the more demanding jobs, or to apply for a job in Serbia, or looking for a job abroad (Šormaz,2020).

The International Labour Organization defines skills necessary for employment as: skills, knowledge and competencies that improve the worker's ability to secure and keep a job, to progress at work and to manage when changes occur, to secure another job if they want it or if they are fired and to enter the labour market more easily in another period of life. This attitude leads us to think about permanent education as a necessity for acquiring the necessary set of skills and knowledge.

Radovic Markovic (2011) states that "even where there are opportunities for employment, many cannot find a job because they do not have adequate education or the required skills", and that education "must work on new employment and reduce the difference between the offer of workforce and the needs of the economy".

## COMPETENCIES OF EMPLOYEES

Many authors believe that the skills of employees are becoming increasingly important for improving the competitiveness and productivity of organizations, the introduction of innovations, but also for the employment of the workforce. There is a great compliance between researchers that e 's skills are becoming more and more important for the improvement of competitiveness, productiveness and innovations, as well as employment of labour and its professionalization (Radovi  Markovi  et al.,2019). Human resources are a very important resource of the organization, i.e. for the organization to be successful in its functioning, the employees in the organization must be competent. The efficiency of the employees, as well as the efficiency and success of the organization depend on the competencies of the employees. The concept of competency does not have a single definition because the definition of competency varies depending on roles, positions and even organizations (Hoffman, 1999; Jubb & Robotham, 1997). Hoffman (1999) states that there are two schools of thought that define the concept of competency: the American approach that views competency as a basis of personality attributes; and the British approach that views competency as a set of performances and standards. According to Hoffmann, the concept of competency can be classified into personal competencies and competencies based on a task or job. Good competencies are considered to enable employees to clearly understand the behaviour they need to demonstrate in the workplace and the levels of performance expected of them in order to achieve organizational results. *Figure 1* shows the effect of competencies on organizational and employee performance.
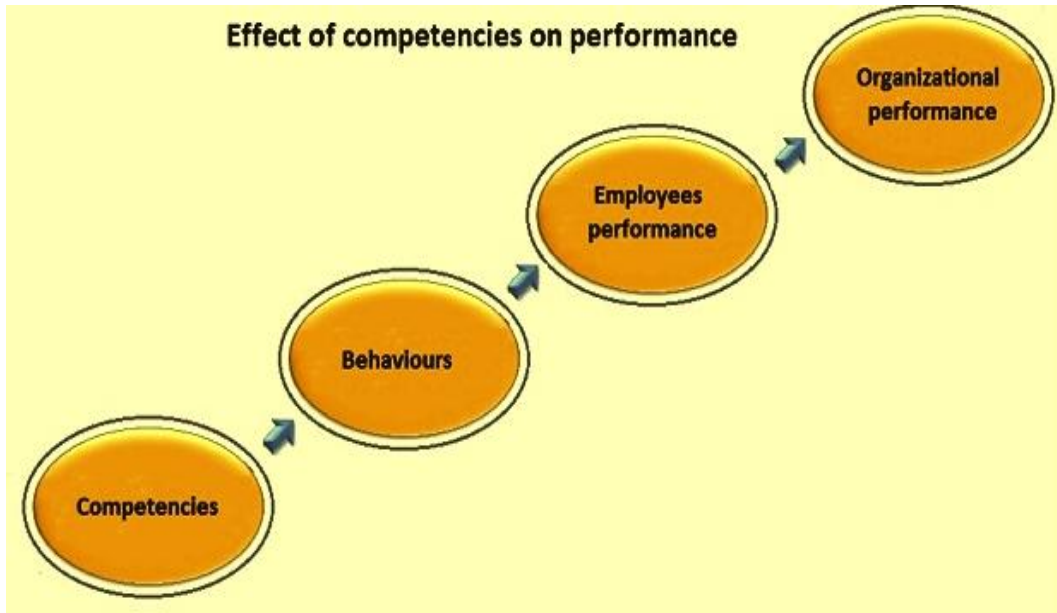
*Figure 1. The effect of competencies on organizational and employee performance*

*Source:* https://www.ispatguru.com/role-of-employee-competency-on-performance/

Work-related competency is considered to be important for quality work performance as well as for achieving competitive advantage of organizations. Many organizations have developed competency-based training to improve employee effectiveness (Maimunah 2011) because competent employees have the ability to perform their jobs better than those who are less competent. In today's conditions prevailing on the labour market, we could say that the competency of employees is the most important foundation for the execution of successful processes in the organization. The environment for learning has changed rapidly through the applying of new technologies as well as expectations towards professional knowledge in the information age (Vu ekovi et al,2020)

# UNEMPLOYMENT IN THE REPUBLIC OF SERBIA

According to the data of the Statistical Office of the Republic of Serbia (Labour Force Survey, 2021), in 2021 the number of employees in the Republic of Serbia was 2,848,800. This is 72,100 (or 2.6%) more than in 2020, while the number of unemployed in 2022 is 352,400 and compared to 2020, it is higher by 53,200 (or 17.8%). *Figure 2* shows the unemployment rate in the Republic of Serbia in the period from 1999 to 2021.
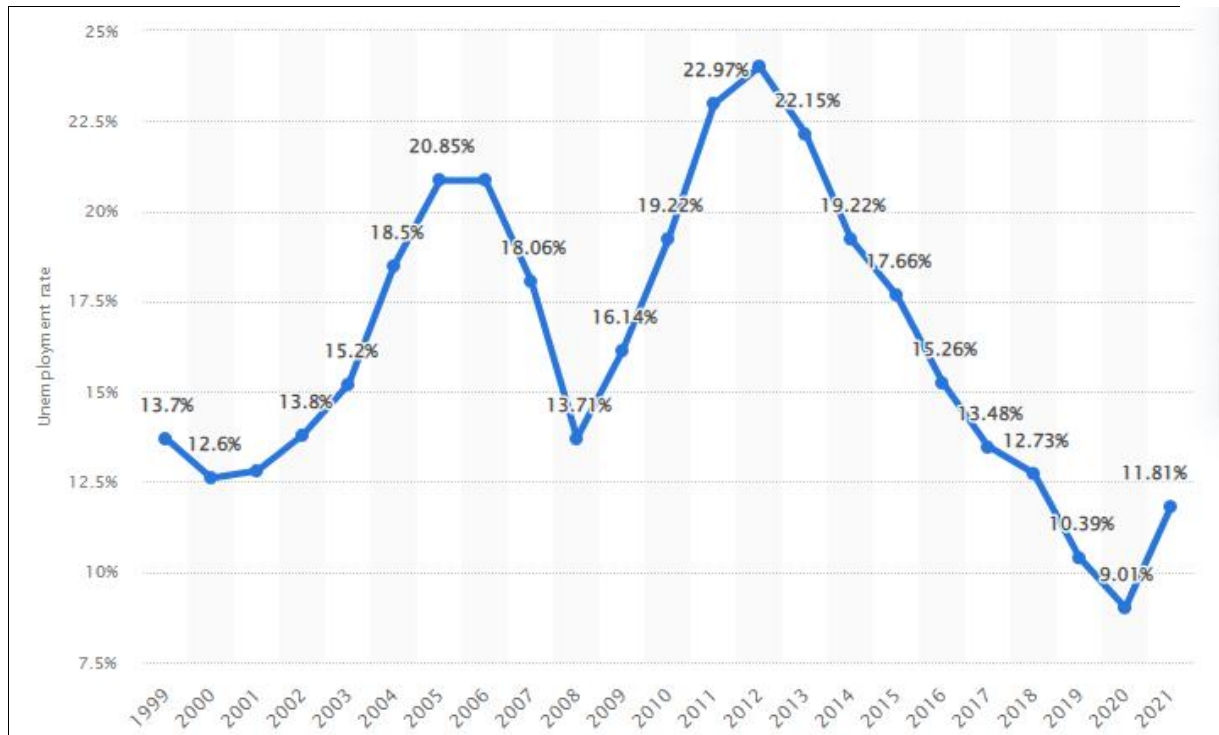


*Figure 2. The unemployment rate in the Republic of Serbia, 1999 - 2021*

*Source:* https://www.statista.com/statistics/440532/unemployment-rate-in-serbia/

We can conclude that the highest unemployment rate for the observed period was in 2012. The effects of the economic crisis began to be felt in 2008 and reached a peak between 2012 and 2013. In the period from 2013 to 2020, a decrease in the unemployment rate was recorded. However, the COVID-19 pandemic caused serious disruptions in the labour market, so in 2020, an increase in the unemployment rate was recorded.

In *Figure 3*, we can see the unemployment rate by region in the Republic of Serbia in 2021.
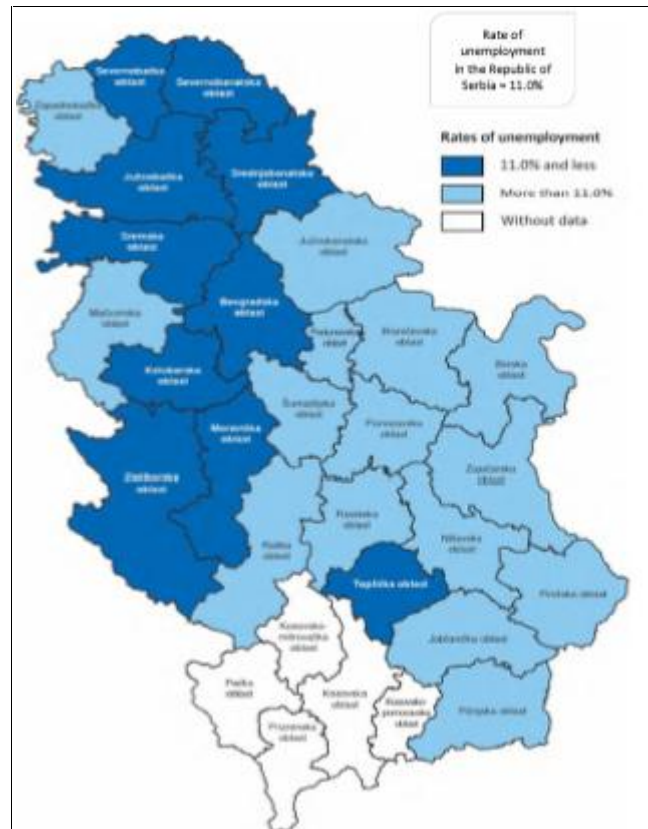
*Figure 3. The unemployment rate by region*

The labour force survey of the Statistical Office of the Republic of Serbia showed that the unemployment rate of the population aged 15 and over at the level of the Republic of Serbia is 11.0%. At the regional level, the unemployment rate had the lowest value in the Belgrade Region (8.8%), followed by the Vojvodina Region (9.5%) and the Sumadija and Western Serbia Region (12.6%). The worst situation on the labour market is recorded in the Region of South and East Serbia, which shows the highest unemployment rate (13.6%).

The highest youth unemployment rate (32.3%), along with the lowest employment rate (18.5%), was recorded in the Region of Southern and Eastern Serbia. Compared to 2020, the female unemployment rate increased by 1.9%, while the unemployment rate in the male population is higher by 0.8% (Bulletin – Labour Force Survey in the Republic of Serbia, 2021, Statistical Office of the Republic of Serbia, Belgrade). *Figure 4* shows the number of unemployed according to age groups, gender, region and type of settlement in 2021.

| | Republic of Serbia | | | | | | | |
| | | Srbija – sever | | Srbija – jug | | | Type of settlement | |
| | Total | Beo-gradski region | Region Vojvo-dine | Region Šumadije i Zapadne Srbije | Region Južne i Istočne Srbije | Region Kosovo i Metohija | Urban | Other |
|---|---|---|---|---|---|---|---|---|
| Unemployed (15–74) | 352.4 | 73.2 | 81.5 | 113.6 | 84.1 | ... | 214.2 | 138.2 |
| 15–24 years | 61.2 | 11.2 | 16.5 | 20.3 | 13.2 | ... | 32.6 | 28.6 |
| 25–34 | 94.6 | 19.4 | 18.9 | 34.0 | 22.3 | ... | 58.9 | 35.7 |
| 35–44 | 90.7 | 20.7 | 22.7 | 25.4 | 21.9 | ... | 55.9 | 34.8 |
| 45–54 | 69.1 | 14.4 | 13.3 | 23.1 | 18.3 | ... | 44.5 | 24.6 |
| 55–64 | 35.6 | 7.2 | 9.8 | 10.5 | 8.1 | ... | 21.7 | 13.9 |
| 65 + | 1.3 | / | / | / | / | ... | / | / |
| Male (15–74) | 180.4 | 34.0 | 45.2 | 57.8 | 43.4 | ... | 109.0 | 71.4 |
| 15–24 years | 35.8 | 5.8 | 9.9 | 12.1 | 8.0 | ... | 18.6 | 17.2 |
| 25–34 | 47.6 | 9.4 | 10.5 | 16.5 | 11.2 | ... | 30.4 | 17.2 |
| 35–44 | 43.6 | 8.3 | 11.8 | 12.8 | 10.7 | ... | 27.4 | 16.3 |
| 45–54 | 32.2 | 5.7 | 7.6 | 10.7 | 8.3 | ... | 20.2 | 12.0 |
| 55–64 | 20.1 | 4.5 | 5.2 | 5.4 | 5.0 | ... | 11.9 | 8.2 |
| 65 + | 1.0 | / | / | / | / | ... | / | / |
| Female (15–74) | 172.0 | 39.2 | 36.3 | 55.8 | 40.7 | ... | 105.2 | 66.8 |
| 15–24 years | 25.3 | 5.4 | 6.6 | 8.2 | 5.2 | ... | 14.0 | 11.4 |
| 25–34 | 47.0 | 10.0 | 8.4 | 17.5 | 11.1 | ... | 28.5 | 18.5 |
| 35–44 | 47.0 | 12.3 | 10.9 | 12.6 | 11.2 | ... | 28.5 | 18.5 |
| 45–54 | 36.9 | 8.7 | 5.7 | 12.5 | 10.0 | ... | 24.3 | 12.6 |
| 55–64 | 15.5 | 2.8 | 4.6 | 5.0 | 3.1 | ... | 9.8 | 5.7 |
| 65 + | / | / | / | / | / | ... | / | / |

*Figure 4. The number of unemployed according to age groups, gender, region and type of settlement in 2021 (in thousands)*

*Source: Bulletin – Labour Force Survey in the Republic of Serbia, 2021, Statistical Office of the Republic of Serbia, Belgrade*

## EMPIRICAL RESEARCH ON THE IMPACT OF KNOWLEDGE AND COMPETENCY ON EMPLOYABILITY IN THE REPUBLIC OF SERBIA

In order to determine the role of education and competency on employment in the Republic of Serbia, an empirical survey was conducted using a survey questionnaire of 22 statements on a sample of 417 respondents in the period from April to June 2022. The questionnaires were distributed in written or electronic form to the respondents.

Figure 5 shows the research model.
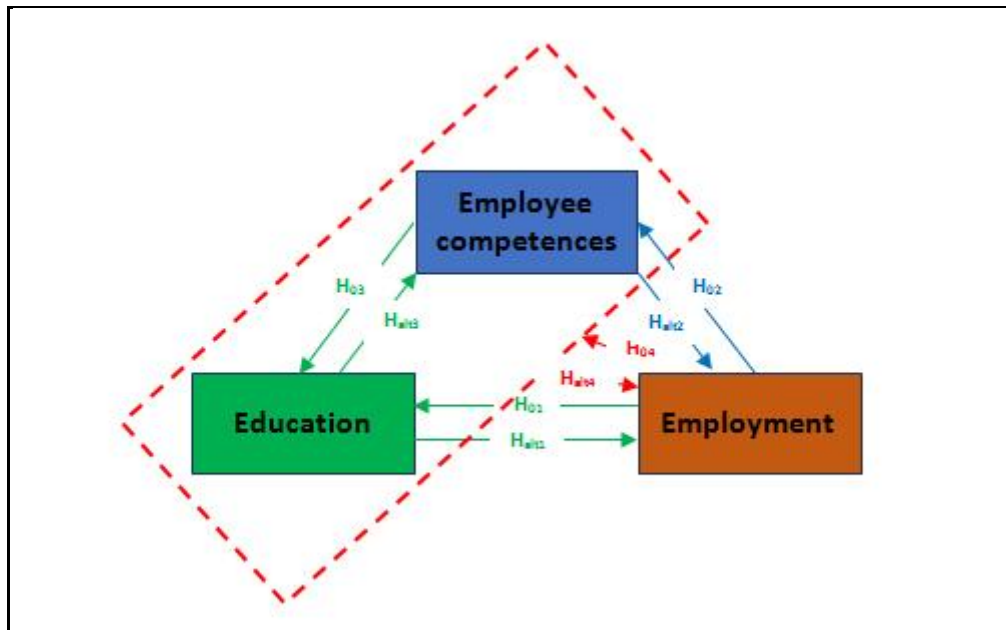
*Figure 5. Research model*

The following hypotheses have been put in place:

$H_{01}$: *Education does not affect employment*
$H_{alt1}$: *Education affects employment*

$H_{02}$: *Employee competences do not affect employment*
$H_{alt2}$: *Employee competences affect employment*

$H_{03}$: *Education does not affect the competences of employees*
$H_{alt3}$: *Education affects the competences of employees*

$H_{04}$: *Employee education and competences do not affect employment*
$H_{alt4}$: *Employee education and competences affect employment*

For each question in the questionnaire, an answer was offered by which the employees assessed how much they agreed with the statement in the form of a five-point Likert scale (1 –very little, 2 – little, 3 – medium, 4 – significant, 5 – very significant).

Variables (abbreviations):

ED – *Education* (6 statements)
EC – *Employee competencies* (8 statements)
EM – *Employment* (8 statements)

# CORRELATION ANALYSIS

The opinion and analysis of respondents' attitudes to the statements made in the Questionnaire based on the Research Model (Figure 5), are given through the interpretation of Pearson's correlation values on (Chart 1) a *Scatterplot Matrix*. The directions of all possible connections between the variables are positive, which means that there is a positive correlation between those variables. The highest correlation coefficient – the connection between the variables in the set model is between the variable ED (Education) and EM (Employment) and it is 0.8486 and it is strong, and the coefficient of determination – how accurately we can predict the variable EM with the help of the variable ED, is 0.9211 or 92.11%. The smallest correlation coefficient – the connection between the variable ED and EC is 0.6736 and it is medium strong, and the coefficient of determination – how accurately we can predict the variable EC with the help of the variable ED, is 0.8207 or 82.07%. The direction of the connection between the variables is positive, which means that there is a positive correlation between all of them.
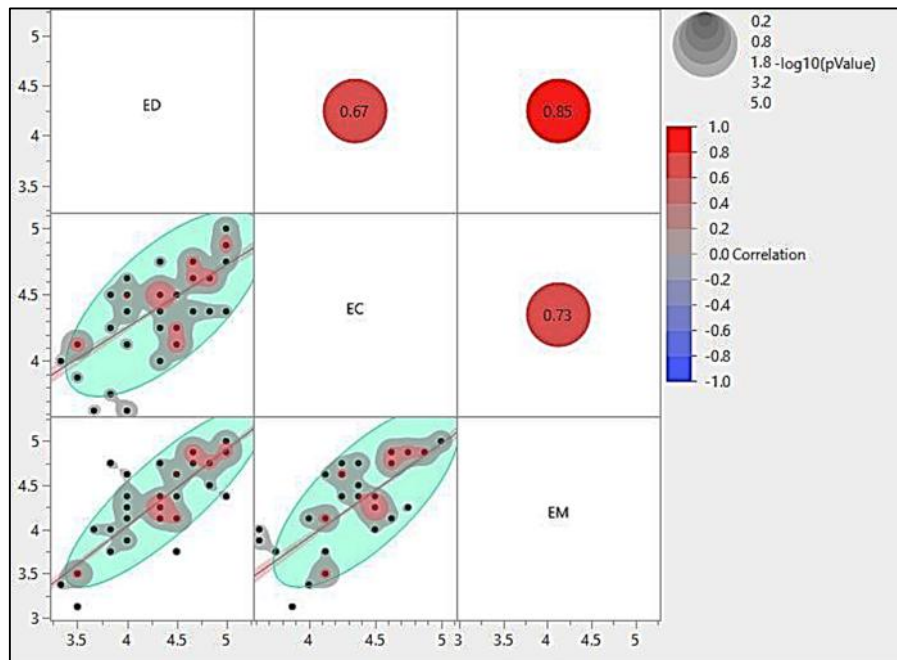


*Chart 1. Scatterplot Matrix*

# REGRESSION ANALYSIS

Based on the derived Theoretical System Model (Figure 5), the statistical significance of the influence of independent variables on the dependent variable was given, shown in (Table 1), namely: ANOVA, Std Beta, RSquare in (%), correlation between variables, hypotheses and regression equations. Detailed values for: ANOVAs and coefficients of regression equations are given in the appendix (from table 1 to table 8). Based on the obtained results, the set auxiliary hypotheses of the system model can be confirmed or rejected.

*Table 1. Scores of statistical significance of the influence of independent variables*

| Independent / Dependent Variables | ANOVA | Std Beta | RSquare u (%) | Correlation | Hypotheses | Regression Equation |
|---|---|---|---|---|---|---|
| **ED/EM** | [F(1,415)=1068,232 p<0.0005] | 0.848649 | 72.02 | Very positive | $H_{01}$ rejects, $H_{alt1}$ confirms | $y_3 = = 0.5778603 + 0.8646873 \cdot x_1$ |
| | *Table 1 in the Appendix* | | | | | *Table 2 in the Appendix* |
| **EC/EM** | [F(1,415)=463,8663 p<0.0005] | 0.726499 | 52.78 | Medium very positive | $H_{02}$ rejects, $H_{alt2}$ confirms | $y_3 = = -0.32337 + 1.0583066 \cdot x_2$ |
| | *Table 3 in the Appendix* | | | | | *Table 4 in the Appendix* |
| **ED/EC** | [F(1,415)=344,7893 p<0.0005] | 0.673644 | 45.37 | Medium very positive | $H_{03}$ rejects, $H_{alt3}$ confirms | $y_2 = = 2.3687353 + 0.4711776 \cdot x_1$ |
| | *Table 5 in the Appendix* | | | | | *Table 6 in the Appendix* |
| **ED&EC/EM** | [F(2,414)=670,4316 p<0.0005] | 0.87407 | 76.40 | Very positive | $H_{04}$ rejects, $H_{alt4}$ confirms | $y_3 = = -0.400146 + 0.6701469 \cdot x_1 + 0.4128813 \cdot x_2$ |
| | *Table 7 in the Appendix* | | | | | *Table 8 in the Appendix* |

Partial linear regression equations were derived based on (Table 1).

In linear regression, the most important thing is to test the hypothesis – is the slope parameter $\beta_{01}$ equal to zero? If such a test would lead us to conclude that $_{01}$=0, then we should not use the estimated regression line for prediction purposes. Based on the hypothesis $H_{01}$ – that there is no linear relationship between the variations of the observed phenomena in the basic set, i.e. *$H_{01}$: Education does not affect employment*, we limit ourselves to the following patterns (Formulas 1 and 2):

$$H_0 : \beta_0 = 0 \qquad\qquad 1$$
$$H_{al} : \beta_0 \neq 0 \qquad\qquad 2$$

Since the non-standard value of the coefficient for the independent variable ED (*Table 1. Coefficients* in the Appendix) is $_{01}$=0.8646873 and is not equal to 0, and the value $t_{(empirical)}$=32.68>t(830, 0.05)=2.581, $H_{01}$ is rejected for the risk level =0.05, i.e. for the certainty level P=0.95 (95%) and we adopt the alternative hypothesis *$H_{alt1}$: Education affects employment*.

In linear regression, we can test the hypothesis through the coefficient of determination R and limit ourselves to the following patterns (Formulas 3 and 4):

$$H_0 : R = 0 \qquad\qquad 3$$
$$H_{al i1}: R \neq 0 \qquad\qquad 4$$

Since the Prob>F value is <0.0005 (*Table 1. ANOVA* in the Appendix) and is less than the significance level =0.05 for [F(1,415)=1068.232 p<0.0005], we reject the hypothesis $H_{01}$ and we adopt the alternative, *$H_{alt1}$: Education affects employment.* $H_{01}$ is rejected for the risk level =0.05, i.e. for the certainty level P=0.95 (95%).

Based on the data from (*Table 2* in the Appendix), (Formula 5) and (Chart 2) of the linear regression equation *Prediction Profiler* were derived.

$$E = 0.5778603 + 0.8646873 \cdot E \qquad\qquad 5$$



*Chart 2. Chart of the linear regression equation for the dependent variable EM and the independent variable ED*

***We can conclude that as the level of ED (Education) increases, so does the level of EM (Employment).***

Based on the hypothesis H02 – that there is no linear relationship between the variations of the observed phenomena in the basic set, i.e. *$H_{02}$: Employee competencies do not affect employment*, we limit ourselves to the following patterns (Formulas 6 and 7):

$$H_0 : \beta_0 = 0 \qquad\qquad 6$$
$$H_a : \beta_0 \neq 0 \qquad\qquad 7$$

Since the non-standard value of the coefficient for the independent variable ED (*Table 4. Coefficients* in the Appendix) is $_{02}$=1.0583066 and is not equal to 0, and the value $t_{(empirical)}$=21.54>t(830, 0.05)=2.581, $H_{02}$ is rejected for the risk level =0.05, i.e. for the certainty level P=0.95 (95%) and we adopt the alternative hypothesis *$H_{alt2}$: Employee competencies affect employment.*

In linear regression, we can also test the hypothesis through the coefficient of determination R and limit ourselves to the following patterns (Formulas 8 and 9):

$$H_0 : R = 0 \qquad\qquad 8$$
$$H_{alt2} : R \neq 0 \qquad\qquad 9$$

Since the Prob>F value is <0.0005 (*Table 3. ANOVA* in the Appendix) and is less than the significance level =0.05 for [F(1,415)=463.8663 p<0.0005], we reject the hypothesis $H_{02}$ and we adopt the alternative, *$H_{alt2}$: Employee competencies affect employment.* $H_{02}$ is rejected for the risk level =0.05, i.e. for the certainty level P=0.95 (95%).

Based on the data from (*Table 4* in the Appendix), (Formula 10) and (Chart 3) for the P*rediction Profiler* linear regression equation were derived.

$$E = -0.32337 + 1.0583066 \cdot E \qquad\qquad 10$$
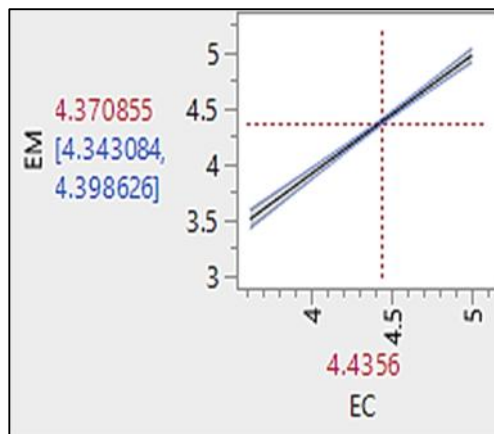


*Chart 3. Chart of the linear regression equation for the dependent variable EM and the independent variable EC*

We can conclude that as the level of EC (Employee Competence) increases, so does the level of EM (Employment).

Based on the hypothesis $H_{03}$ – that there is no linear relationship between the variations of the observed phenomena in the basic set, that is: $H_{03}$: Education does not affect the competencies of employees, we limit ourselves to the following patterns (Formulas 11 and 12):

$$H_0 : \beta_0 = 0 \qquad\qquad 11$$
$$H_a : \beta_0 \neq 0 \qquad\qquad 12$$

Since the non-standard value of the coefficient for the independent variable ED (Table 6. Coefficients in the Appendix) is $_{03}$=0.4711776 and is not equal to 0, and the value $t_{(empirical)}$=18.57>t(830, 0.05)=2.581, $H_{03}$ is rejected for the risk level =0.05, i.e. for the certainty level P=0.95 (95%) and we adopt the alternative hypothesis $H_{alt3}$: Education affects the competencies of employees.

In linear regression, we can also test the hypothesis through the coefficient of determination R and limit ourselves to the following patterns (Formulas 13 and 14):

$$H_0 : R = 0 \qquad\qquad 13$$
$$H_{al,3}: R \neq 0 \qquad\qquad 14$$

Since the Prob>F value is <0.0005 (Table 5. ANOVA in the Appendix) and is less than the significance level  =0.05 for [$F(1,415)=344.7893$ $p<0.0005$], we reject the hypothesis $H_{03}$ and we adopt the alternative, $H_{alt3}$: Education affects the competencies of employees. $H_{03}$ is rejected for the risk level  =0.05, i.e. for the certainty level P=0.95 (95%).

Based on the data from (Table 6 in the Appendix), (Formula 15) and (Chart 4) of the Prediction Profiler linear regression equation were derived.
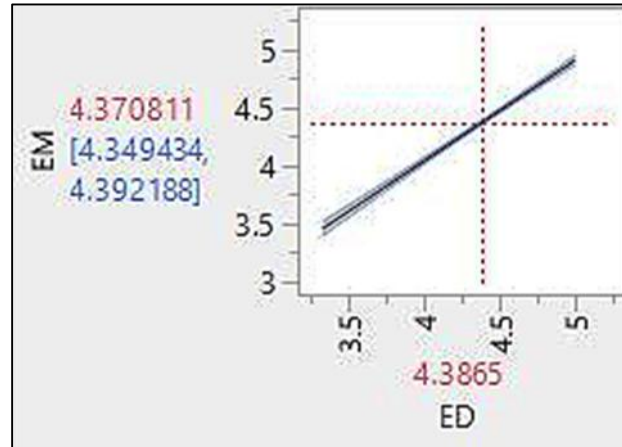
$$E = 2.3687353 + 0.4711776 \cdot E \qquad\qquad 15$$
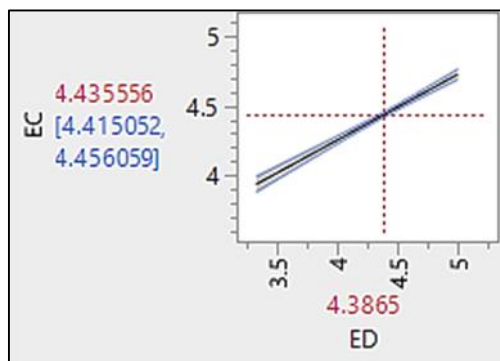


*Chart 4. Chart of the linear regression equation for the dependent variable EC and the independent variable ED*

We can conclude that as the level of ED (Education) increases, so does the level of EC (Employee Competencies).

Based on the hypothesis $H_{04}$ – that there is no linear relationship between the variations of the observed phenomena in the basic set, that is: $H_{04}$: Employee education and competencies do not affect employment, we limit ourselves to the following patterns (Formulas 16 and 17):

$$H_0 : R = 0 \qquad\qquad 16$$
$$H_{alt4}: R \neq 0 \qquad\qquad 17$$

Since the Prob>F value is <0.0005 (*Table 7. ANOVA* in the Appendix) and is less than the significance level  =0.05 for [$F(2,414)=670.4316$ $p<0.0005$], we reject the hypothesis $H_{04}$ and we adopt the alternative, *$H_{alt4}$: Employee education and competencies affect employment.* $H_{04}$ is rejected for the risk level  =0.05, i.e. for the certainty level P=0.95 (95%).

The multiple determination coefficient is 0.7640, which means that the dependent variable EM can be explained by the independent variables ED and EC with 76.40%. The correlation between the variables is positive and strong. The independent variable ED has a greater influence on the dependent variable EM than on the independent variable EC.

Based on the data from (*Table 8* in the Appendix), (Formula 18) of the *Prediction Profile* multiple linear regression equation was derived.

$$E \quad = -0.400146 + 0.6701469 \cdot E \quad + 0.4128813 \cdot E \qquad\qquad 18.$$

The multiple linear regression equation for the dependent variable EM and the independent variables ED and EC is shown in (Chart 5).
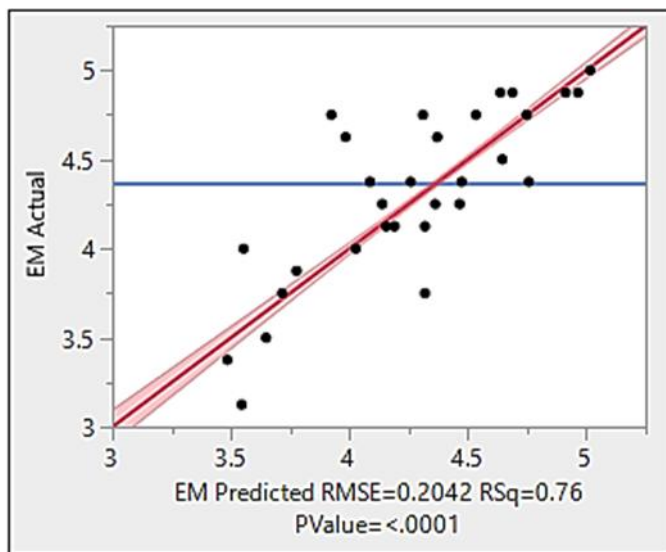


*Chart 5. Multiple linear regression equation for the dependent variable EM and independent variables ED and EC*

## *CONCLUSION*

Educated and competent employees are the dream of every employer. We can say that education is one of the most important factors in the effectiveness and speed of economic development. Education provides the necessary competencies for the labour market, which is becoming more and more dynamic every day. We have already stated that employee competencies are considered one of the most important resources for any type of organization, regardless of its line of work. Today, organizations need an employee who has good skills and competencies because every job requires an employee to have some knowledge and skills. The conducted research showed that as the level of EC (Employee Competency) increases, so does the level of EM (Employment), and as the level of ED (Education) increases, so does the level of EC (Employee Competency). Based on research on a projected sample in the Republic of Serbia, we can conclude that there is a great influence of education and competency on employment, because as the levels of education and competency increase, so does the level of employment.

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# APPENDIX

*Table 1. ANOVA for variables ED & EM*

| Source | DF | Sum of Squares | Mean Square | F Ratio |
|--------|-----|----------------|-------------|---------|
| **Model** | 1 | 52.682252 | 52.6823 | 1068.232 |
| **Error** | 415 | 20.466654 | 0.0493 | **Prob > F** |
| **C. Total** | 416 | 73.148906 | | <0.0001 |

*Table 2. Coefficients for variables ED & EM*

| Term | Estimate | Std Error | t Ratio | Prob>|t| | Std Beta | VIF |
|---|---|---|---|---|---|---|
| Intercept | 0.5778603 | 0.116558 | 4.96 | <0.0001 | 0 | . |
| ED | 0.8646873 | 0.026456 | 32.68 | <0.0001 | 0.848649 | 1 |

*Table 3. ANOVA for variables EC & EM*

| Source | DF | Sum of Squares | Mean Square | F Ratio |
|---|---|---|---|---|
| Model | 1 | 38.608047 | 38.6080 | 463.8663 |
| Error | 415 | 34.540859 | 0.0832 | **Prob > F** |
| C. Total | 416 | 73.148906 | | <0.0001 |

*Table 4. Coefficients for variables EC & EM*

| Term | Estimate | Std Error | t Ratio | Prob>|t| | Std Beta | VIF |
|---|---|---|---|---|---|---|
| Intercept | -0.32337 | 0.21841 | -1.48 | 0.1395 | 0 | . |
| EC | 1.0583066 | 0.049138 | 21.54 | <0.0001 | 0.726499 | 1 |

*Table 5. ANOVA for variables ED & EC*

| Source | DF | Sum of Squares | Mean Square | F Ratio |
|---|---|---|---|---|
| Model | 1 | 15.642833 | 15.6428 | 344.7893 |
| Error | 415 | 18.828240 | 0.0454 | **Prob > F** |
| C. Total | 416 | 34.471073 | | <0.0001 |

*Table 6. Coefficients for variables ED & EC*

| Term | Estimate | Std Error | t Ratio | Prob>|t| | Std Beta | VIF |
|---|---|---|---|---|---|---|
| Intercept | 2.3687353 | 0.111795 | 21.19 | <0.0001 | 0 | . |
| ED | 0.4711776 | 0.025375 | 18.57 | <0.0001 | 0.673644 | 1 |

*Table 7. ANOVA for variables ED, EC & EM*

| Source | DF | Sum of Squares | Mean Square | F Ratio |
|---|---|---|---|---|
| Model | 2 | 55.891921 | 27.9460 | 670.4316 |
| Error | 414 | 17.256985 | 0.0417 | **Prob > F** |
| C. Total | 416 | 73.148906 | | <0.0001 |

*Table 8. Coefficients for variables ED, EC & EM*

| Term | Estimate | Std Error | t Ratio | Prob>|t| | Std Beta | VIF |
|---|---|---|---|---|---|---|
| Intercept | -0.400146 | 0.154612 | -2.59 | 0.0100 | 0 | . |
| ED | 0.6701469 | 0.03291 | 20.36 | <0.0001 | 0.657717 | 1.8308176 |
| EC | 0.4128813 | 0.047052 | 8.78 | <0.0001 | 0.283432 | 1.8308176 |

# INDIVIDUAL DIFFERENCES IN THE ADAPTIVE PERFORMANCE OF BULGARIAN ICT EMPLOYEES

*Ergyul Tair*[15]

## *ABSTRACT*

*The paper traced out the results from survey on adaptive performance of Bulgarian ICT employees. Random sample included 204 persons aged 21 to 50, as 64 % were women. The results presented high levels in Reactivity in face of emergency, Interpersonal adaptability, Managing work stress, Creatively problem solving and Training efforts of ICT employees. There is a gender effect in adaptive performance and women to a greater extent than men declared Reactivity in face of emergency, Training efforts, and Interpersonal adaptability. There were no statistically significant age differences, except for Management of work stress, which declined with age, and Creative problem solving, which were rated higher by 30 to 39 year olds employees. The positive associations between personality traits and adaptive performance were established. Emotional stability moderately contributes to reducing employee Reactivity, and weakly but significantly increas d Management work stress. Intellect/Imagination personality trait moderately increased Creative problem solving and Training effort. Finally, Agreeableness positively contributes to Interpersonal adaptability. Established gender differences and personality traits associations suggested an individual approach to employees both in selection and training. The high adaptive performance that ICT employees demonstrate can be considered a key advantage of organizations for efficiency and success in the dynamic and turbulent business environment.*

*Keywords:* adaptive performance, personality traits, age and gender differences, IT employees
*JEL Classification: M12*

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# INTRODUCTION

The modern business world and work context is characterized by increased uncertainty, complexity, and constantly changes. Globalization, technology, demographic changes, and different work forms are just a few of the macro-level factors, and concerns about health, the future, the workplace are only a few of those on a micro-level describing the challenges. There is a common assumption that change may be better handled by organizations with more adaptable abilities among their employees. The ability of an organization's members to regulate, manage, and utilize change increases the likelihood of the organization's survival and success. Especially in times of economic challenges, as a result of sudden changes and reorganization, caused by important events such as the pandemic, military conflicts, and uncertainty about the future, the issue of adaptive performance of employees is gaining importance for the effectiveness of the organizations.

To a much greater extent than other organizations, those in the IT sector have to adapt to changes on the one hand, due to continuous change in the technologies themselves, and on the other hand, due to the increased demands on them from the customers. The most developed technologies under the influence of COVID-19 are technologies for remote access as VDI, videoconferencing, online communication, employee performance monitoring; artificial intelligence and machine learning; virtual and augmented reality; cybersecurity; MedTech, telemedicine, etc. Also, IT services exports have grown much faster than overall service exports before the pandemic over the past two decades, indicating the growing globalization of economies through digital technology (UNCTAD 2019). The pandemic significantly influenced Internet traffic, which increased as more activities were carried out online. The UNSTAD projections are that Internet traffic in 2022 would surpass all Internet traffic up to that point in time. Furthermore, even though the global IT service industry pride itself on their ability to respond quickly and creatively to changing market conditions, the current pace and scale of change has never been seen before.

All this puts employees in the IT sector under great pressure and their ability to adapt and cope with change will be key factors for the efficiency and success of the sector. Based on these premises, results from survey on adaptive performance of employees from several companies in the IT sector in Bulgaria were presented. The focus were on mean level and the effects of individual characteristics such as age, gender, and personality traits on employees' adaptive performance.

# ADAPTIVE PERFORMANCE: THEORETICAL PERSPECTIVES, DEFINITIONS AND MEASURMENT

In the last two decades numerous Organizational and Work psychology scholars and researchers hardly try to understand the dynamic nature of employee performance under conditions of change and ambiguity (for details see Jundt, Shoss, & Huang, 2014). They are fully convinced that in these constantly changing conditions, the understanding of performance must be revised, taking into account the changed work requirements in the new millennium (e.g. Ilgen & Pulakos, 1999). This has led to a number of different constructs with which to measure change in individual behavior in the workplace. Among the terms in the literature were adaptive performance, adaptability, adaptation, adaptive expertise, adaptive transfer, and performance adaptation. The interchangeable use of these terms has resulted in substantial conceptual ambiguity regarding whether they refer to identical, partially overlapping, or distinct constructs.

Contributing to this confusion is the fact that the adaptive performance literature has used terms in a manner inconsistent with the broader performance and individual difference literatures (Jundt,

Shoss, & Huang, 2014). For example, whereas the term performance is typically reserved for behavior relevant to an organization's objectives (Campbell, 1999), some have considered adaptive performance to reflect the willingness or ability to change in addition to the enactment of change behaviours (e.g. Pulakos, Arad, Donovan, & Plamondon, 2000). Also, adaptability has been used as a label for enacted behavior as well as individual differences in willingness or ability to adapt (e.g., Kozlowski et al., 2001; Pulakos et al., 2000). Since the early 1990s, the concept of employee performance has been broadened to include behaviours that align with organizational development (for details see Charbonnier-Voirin, & Roussel, 2012). For example, adaptive performance (Hesketh & Neal, 1999; Pulakos et al., 2000) refers to an individual's capacity for adaptation to dynamic work situations (Hesketh & Neal, 1999) and to the capability to modify behaviour according to the requirements of new environments, situations, or events (Johnson, 2001).

Job performance is a multidimensional construct reflecting the totality of behaviours or individual actions required to accomplish the objectives of an organization (see Campbell, 1999), as distinction between task and contextual performance was made (Borman & Motowidlo, 1993; Johnson, 2001). The adaptive performance can be meaningfully differentiated from other facets of performance (e.g. Hesketh et al., 1996), as Pulakos et al. (2000) proposed several components of adaptive performance based on research review and incidents in the army. The proposed eight dimensions of adaptive performance, including: dealing with uncertain or unpredictable work situations; handling emergencies or crisis situations; solving problems creatively; handling work stress; learning new tasks, technologies and procedures; demonstrating interpersonal adaptability; demonstrating cultural adapt ability; and demonstrating physically oriented adaptability. Different combinations of these factors were considered required depending on the specific organizational and work context (Pulakos et al., 2000, 2002). For example, handling emergencies or crisis situations corresponds, among other things, to the speed with which an individual is able to react to or avoid a hazard, crisis situation, or an emergency in an appropriate way. Another dimension of adaptability reflects the capability to solve new problems or the ability to find solutions and develop creative approaches to handle atypical or complex problems. Employees are also expected to be able to manage the stress associated with the rapid and unpredictable nature of change in their working conditions. Given continuous technological innovation and the evolution of various occupations, employees need the ability and willingness to engage themselves in new learning to deal with change in an efficient manner. To the extent that work environments are increasingly characterized by team or project work and the formation of multidisciplinary teams, employees are expected to adjust their interpersonal behaviours to work effectively with a wide range of co-workers and clients, etc (for details see Charbonnier-Voirin, & Roussel, 2012).

Based on these components the concept of adaptive performance can defined in general terms as an individual's ability to adapt to dynamic work situations (Hesketh & Neal, 1999). Employees demonstrate adaptive performance by adjusting their behaviours to the requirements of work situations and new events (Pulakos et al., 2000). In addition, Pulakos and colleagues (2000, 2002) developed the Job Adaptability Inventory for assessing behaviours within the domain of adaptive performance. The original version consists of 132 items while the short form has 68 items. Some tools development was made based on Pulakos and colleagues (2000, 2002) inventory. For example, Han and Williams (2008) developed a 12-item measure (in Korean) including only four of the original eight dimensions (handling emergencies, solving problems creatively, handling work stress, and dealing with uncertainty). Griffin and Hesketh (2005) also developed a scale based on Pulakos et al. (2000, 2002) with 18 or 20 items depending on the sample, and relating to how employees perform a number of tasks requiring adaptability. Both tools items and factor analyses are not presented or some statistical indicators did not meet the usual standard (for details see Charbonnier-Voirin, & Roussel, 2012).

Based on these unavailable or poorly developed instruments, and a general lack of a widely available, psychometrically sound, multidimensional scale of adaptive performance is proposed by

Charbonnier-Voirin and Roussel (2012). Using both qualitative and quantitative methods, they develop and evaluate a 19-item scale measuring five dimensions of adaptive performance. The first one is "Creativity", represents the employees' ability to find solutions for, or new approaches to, complex or previously unknown problems. Second, "Reactivity in the Face of Emergencies or Unexpected Circumstances" combines items that account for the ability to manage priorities and to adapt to new work situations. Third, "Interpersonal Adaptability" represents employee ability to adjust their interpersonal style to work effectively with different others, whether within their own organization or in partner firms. Forth, "Training and Learning Effort" captures the tendency to initiate action to promote personal development. And finally, "Managing Stress", corresponds to an individual's ability to maintain his or her composure and to channel his or her team's stress.

The results from their consistent studies support the stability of the structure of the model proposed (for details see Charbonnier-Voirin, & Roussel, 2012). The internal consistency reliability of each of the five factors is supported as well, as the discriminant validity of the construct dimensions suggesting that adaptive performance and contextual performance are complementary but different constructs. The five factors returned by the exploratory and the confirmatory analyses reflected the behavioural domain they identified with the exception of Physical Adaptability, available in multidimensional model offered by Pulakos and colleagues (2000, 2002). Also, Charbonnier-Voirin and Roussel (2012) findings differed from Pulakos et al. (2000, 2002) in that Interpersonal and Cultural Adaptability are best represented by a single factor. Adaptive performance scale proposed by Charbonnier-Voirin and Roussel (2012) was used in our IT employees study, as well as in other personality and adaptive performance survey (e.g. Naami et al., 2014).

## ADAPTIVE PERFORMANCE STREAMS OF RESEARCH: FOCUS ON INDIVIDUAL JOB BEHAVIOUR

The recognition of the importance of adaptation at work has been considered in three separate streams of research (see Huang et al., 2014). First, adaptive performance has been examined as part of one's job behavior that pertains to meeting unexpected or changing demands of one's work environment (e.g., Hesketh & Neal, 1999; Johnson, 2001; Pulakos, Arad, Donovan, & Plamondon, 2000). Second, research on adaptive transfer highlights the generalization of newly acquired knowledge and skills (Blume, Ford, Baldwin, & Huang, 2010) to unpredictable and dynamic task environments (e.g. Kozlowski et al., 2001). And third, newcomer adaptation focuses on newcomers' experiences during organizational entry as they negotiate unfamiliar work roles and establish new interpersonal relationships (e.g., Chan & Schmitt, 2000).

In the paper we focus on individuals' job behavior at work or adaptive performance. As it was mentioned before adaptive performance is considered a separate dimension from task and contextual performance (Hesketh & Neal, 1999; Pulakos et al., 2000), although successfully performing adaptive behaviours may contribute to both task and contextual performance (see Johnson, 2001). Pulakos et al. (2000) created an eight-dimensional taxonomy for described adaptive performance, while Griffin and colleagues (2007) situated adaptive performance at three work role contexts: individual, team, and organization. Huang and colleagues (2014) offered an alternative framework for considering adaptation and suggested adaptive performance as having two interrelated forms: reactive adaptation that deals with prescribed demands versus proactive adaptation that deals with changes initiated by the focal individual. In details, workers may engage in reactive changes in response to the demands of the environment (e.g., handling a crisis, adjusting to different people) imposed upon them, and they may pursue proactive changes to modify the environment and adjust their behaviors accordingly (e.g., implementing a new method, developing oneself). Although adaptive performance can be narrowly defined as a response to environmental change (e.g., Griffin

et al., 2007), several researchers have considered the proactive form of adaptation (see for details Huang et al., 2014).

Evolutionary psychology theory considers individual differences as theoretically important because of their role in social adaptive problems (see Buss, 2009). That is, individuals change their behavior in response to their environment (Confer et al., 2010), and individual differences may arise because of different but functionally adaptive ways to adjust to environments. Among the personality traits that have been actively studied in organizational and work environments in recent years are the Big Five traits (e.g. Barrick, Mount, & Judge, 2001; Barrick, Mount, & Gupta, 2003; Chiaburu, Oh, Berry, Li, & Gardner, 2011; McCrae & John, 1992). Among them, emotional stability and extraversion receive consistent coverage in major trait theories (e.g. Eysenck, 1970), manifest strong genetic underpinning (e.g. Keller, Coventry, Heath, & Martin, 2005), and exert stable effects on objective life events (Magnus, Diener, Fujita, & Pavot, 1993). According to Eysenck, extraversion and emotional stability account for much of the variation in personality traits (Eysenck & Eysenck, 1985).

Emotional stability is associated with the inclination to fight or flight in the presence of probable danger (Nettle, 2006). In the present workplace, the challenges workers confront and cope with are not ones where organizations would want them to retreat (i.e.,"flight") but rather require individuals to utilize available resources to manage the change (i.e., "fight"). Thus, the unstable individual's general tendency to engage in threat appraisals and avoidance self-regulation can be maladaptive in the face of changing task environments, whereas being emotionally stable can facilitate successful adaptation to scheduled or unforeseen changes in the workplace (see Huang et al., 2014)). Indeed, emotional stability has been positively linked to several mechanisms instrumental to adaptive performance, including training (Vasilopoulos, Cucina, & Hunter, 2007), transfer of training to new tasks or contexts (Blume et al., 2010), working in teams (Barrick, Mount, & Judge, 2001), coping with work stress (Liu, Wang, Zhan, & Shi, 2009), as well as adjusting to new contexts (Brooks & DuBois, 1995). Further, when faced with a stressful novel task, emotionally stable individuals tend to engage in the more effective task-focused coping and eschew the less effective emotion-focused coping (Boyes & French, 2010). Pulakos et al. (2002) argued that emotional stability would relate to adaptive performance because of the propensity to stay calm and level headed in the face of challenge and difficulty, and they found support for that relationship in their study of U.S. Army personnel.

Extraversion is associated with reward seeking and bold exploratory activity (Nettle, 2006). Extraverted individuals tend to adopt an approach orientation (Elliot & Thrash, 2002) and engage in challenge appraisal in stressful situations (Gallagher, 1990). Given a novel task or work environment, extraverted employees are more likely to welcome the challenge than to stay reluctant to adapt or change (Huang et al., 2014). Furthermore, extraversion has been associated with behaviors characterized by change initiation, such as interests in enterprising activities (Barrick, Mount, & Gupta, 2003), decision to become entrepreneurs, and constructive-change-oriented communication (LePine & Van Dyne, 2001). Personality and organizational psychologists have long differentiated between two primary aspects of extraversion (DeYoung, Quilty, & Peterson, 2007): ambition (dominance) that corresponds to the need for power and sociability that represents the need for social interaction (e.g., Hogan, 1982). Ambitious individuals may engage in contextual performance as a means to get ahead (Hogan, Rybicki, Motowidlo, & Borman, 1998), and Huang et al. (2014) suggested that the ambition aspect of extraversion in contrast of sociability aspects can predict adaptive performance.

Other three personality traits of big five model also can be considered as related with adaptive performance. Openness to experience has been described as a willingness to develop creative solutions to problems and seek out variety. The pursuit of novelty and complexity embodied in openness to experience may offer an advantage for evolutionary adaptation (Nettle, 2006). There is some evidence that openness relates to pursuit of new, changed environments and relates to adjustment to a new environment (see for details Huang et al., 2014). Conscientiousness is associated

with long-term planning and goal striving that can benefit an individual's success in a particular environment (McCrae & John, 1992). As, Pulakos et al. (2002) found that achievement orientation, an aspect of conscientiousness, predisposes employees to manage changes as a means to attain positive work outcomes. Finally, agreeableness is important in interpersonal interactions, with its effect on fitness and adaptation hinging in large part on the group environment one is in (Nettle, 2006). Individuals high in agreeableness may see an adaptive advantage by establishing cooperative relationships and fostering supportive networks with others. However, unless adaptation requires interpersonal interaction and tolerance, agreeableness may not relate to adaptation more broadly (Huang et al., 2014).

As noted above, employees' attempts at adaptive performance can take on reactive versus proactive forms. Huang and colleagues (2014) performed a meta-analytic investigation to check their specific expectations about personality trait effects on reactive and proactive adaptive performance. Their datasets included 18 managerial samples and 53 employee samples (total N=7,535) with Pulakos and colleagues' (2000, 2002) Job Adaptability Inventory and seven-factor Hogan Personality Inventory (HPI; R. Hogan & Hogan, 2007). The results received clearly support that Emotional stability contributes to reactive forms of adaptive performance, whereas ambition is instrumental to proactive forms of adaptive performance. The differential effects of ambition across job levels also attest to the notion that managers have more opportunities to engage in proactive forms of adaptive performance. As mentioned above, Emotional stability enables employees to stay calm and unperturbed in the face of emergency or unexpected changes. When facing changes imposed by external task environments, employees with high emotional stability can better utilize existing resources to deal with the novel demands, whereas employees with low emotional stability may resort to unproductive ways to cope with the deviation from the routine. In contrast, ambition primarily drives the desire and pursuit of changes in the workplace as a means to achieve status and power.

The findings consistent with those of Pulakos et al. (2002) highlight the significant association between emotional stability and adaptive performance and proved that to appropriately cope with changes that occur in the work environment, an individual needs to approach potentially stressful transitions rather than engage in avoidance behavior. From an evolutionary psychology perspective, emotional stability represents functionally adaptive ways of responding to environmental threat, with high emotional stability reflecting a willingness to face and deal with change. Perhaps more important, the finding that ambition predicts adaptive performance, as ambitious employees and managers have the dispositional tendencies to anticipate change, proactively modify how objectives are achieved at work, and seize the opportunities to improve (Huang et al., 2014). The meta-analytic results also provide some interpretative context regarding conscientiousness and openness. The wide credibility interval for conscientiousness may suggest variability in adaptive requirements and/or opportunities across jobs and hence variability in the predictive utility of conscientiousness. As proposed above, openness was relevant for both reactive and proactive forms of adaptive performance.

In survey with Adaptive performance scale (Charbonnier-Voirin, & Roussel, 2012), NEO-Five Factor Inventory (McCrae & Costa, 1985), and self-efficacy scale (Schwarzer & Jerusalem, 1995) Naami and colleagues (2014) showed a positive and significant relationship between two personality traits of self-efficacy and openness to experience with adaptive performance. Moreover, the results of multiple regressions showed that openness to experience had the maximum portion in explaining adaptive performance variance.

Other individual differences in adaptive performance that are attracting research attention are cognitive abilities and goal orientations. A number of researchers have sought to examine how general cognitive ability predicts adaptive performance given its association with advantages in problem solving, learning, and success across various performance and life domains (see for details Jundt, Shoss, & Huang, 2014). Unfortunately, these studies have assessed cognitive ability broadly

(e.g. SAT/ACT scores, GPA) making it difficult to determine exactly which cognitive functions (e.g., attention and working memory) most strongly relate to adaptive performance. However, Allworth and Hesketh (1999) found that abstract reasoning, numerical reasoning, and clerical speed and accuracy assessments all positively correlated with adaptive performance. In contrast, Griffin and Hesketh (2003) found that cognitive flexibility, indicated by switching to a more direct problem-solving rule, did not relate to adaptive performance.

On the basis of the notion that individuals differ in the types and targets of goals they set for themselves, and findings that these goals play a role in achievement settings, numerous adaptive performance studies have examined goal orientation (see for details Jundt, Shoss, & Huang, 2014). In summary, there is mixed support for the importance of trait goal orientations as predictors of adaptive performance. Although studies have found fairly consistent positive indirect (or mediated) effects of mastery goal orientation, performance orientation effects are equivocal. These findings, especially regarding mastery orientation, suggest potential value in research on interventions aimed at shaping the state components of these orientations through training, leadership, or organizational culture/climate (see Kozlowski et al., 2001, for an example).

In addition, some studies have investigated other individual difference as predictor of adaptive performance like demographic factors or narrow personality traits. For example, in a biographical study, O'Connell, McNeely, and Hall (2008) found that women reported higher levels of adaptability (e.g., "I find it very discouraging when the work that I do in my job changes") than men, and that there were no significant effects for age or race. They also found that employability and education levels were positively related to self-ratings of adaptability. For narrow traits, Blickle et al. (2011) found that political skill positively predicted peer-rated adaptive performance. In addition, research from the sales literature has identified self-monitoring, empathy, locus of control, tolerance for ambiguity, and service orientation as predictors of adaptive sales behaviors (e.g., customizing products and matching sales pitches to the customer; Gwinner, Bitner, Brown, & Kumar, 2005; Spiro & Weitz, 1990).

Based on these research results, and more specifically on previous inconsistent effects of Big Five factors (e.g. Griffin & Hesketh, 2003; Huang et al., 2014; Neal et al., 2012; Pulakos et al., 2002) in this research personality effects on adaptive performance of IT employees were studied. In addition, some demographical characteristics as age and gender effects were considered. Finally, based on Huang and colleagues (2014) meta-analytic results and suggestions for variability in adaptive requirements and/or opportunities across jobs our study focus on employees in ICT sector in Bulgaria.

## BULGARIAN ICT SECTOR: CURRENT STATUS AND RESEARCH

Information and communication technologies sector (ICT) is one of the main engines for building a competitive economy, based on knowledge and innovation. The ICT industry in Bulgaria is conditionally divided into four main sectors – software services, hardware, telecommunications, and others have their own structural features related to the level of representation and development. The largest and fastest growing industrial sector in Bulgaria in the last five years is the software services. It is an undisputed favourite and pillar in the development of the ICT industry in the country. 10% of the growth of the Bulgaria GDP is generated in the ICT sector, and the investment and innovation in the sector are the main factor for increasing the productivity in the country.

In its Global Competitiveness Report 2014-2015 the World Economic Forum has ranked Bulgaria 52nd in the world out of a total of 144 countries. This reports also highlights that Bulgaria outperforms many other EU countries, including Romania, Hungary, Slovenia, Slovakia, Croatia and Greece. The sector ranks among the first growing sectors in the country with average annual increase

of 17% since 2007. In 2019 the number of the newly established ITC companies in the country has grown enormously (ICT industry in Bulgaria 2019, Annual observer by CBN Pannoff, Stoytcheff, Co). This trend has continued in the first 2 months of 2020 until the Covid-19 pandemic emergence in the country.

As of 2011, those engaged in the sector were 1.8%, while in 2016 they reached 2.7% of the working people in the country and continues to grow (Georgieva, Galev, Yalamov, Koleva, & Georgieva, 2017). According to another CBN study, 50 ICT companies with 249+ staff based in Bulgaria are employing between 44,000 and 47,000 employees. This is the big business in the ICT industry, represented by subsidiaries of multinational, mainly American, Western European and Asian global ICT corporations, as well as 9 private Bulgarian companies. The main question for ICT industry is whether it managed to survive the Covid-19 crisis, or it's heavily affected by the new economic order. As per the ICT Industry Observer Bulgaria 2020 by CBN Pannoff, Stoytcheff Co, in these complex economic times the software industrial sector recorded the largest absolute growth in revenues from all 82 sectors in Bulgaria.

Eurostat data on the profile of those employed in the broad ICT sector point out that throughout the European Union it is dominated by men with higher education in the age group up to 35 years (Eurostat, 2017). At the country level (with most of the ICT sector concentrated in the capital Sofia) in Bulgaria men have the smallest share among those employed in the industry – 70% in 2016 compared to 90% in Slovakia and 83% on average for the EU. Part of the reasons for this may be found in the distribution of labour in total for the economy, as in Bulgaria there are no big differences in employment between men and women. According to Eurostat data from 2016, the difference in employment rate between men and women in Bulgaria is 7% compared to 11% on average for EU, 26% in Malta and 18% in Italy, which achieve the weakest result on this indicator. Another distinctive feature of the IT employees in Bulgaria is the higher education, as in 2016 80% of them have higher education. The remaining 20% are students, self-taught people or people studying in centres without the status of higher education institutions and\or online platforms that offer courses in programming and IT skills learning. The share of those employed in higher education has decreased compared to 2011, when they were 84% of all, which is further proof of the reduced requirements of employers, and to expand the popularity of alternative forms of IT education.

The dynamics and the shortage of personnel cause IT sector companies to pay more and more attention to in-house training as a strategy to maintain and increase competitiveness of employees. According to research covering a total of 350 employees in the IT sector in Bulgaria, 32% of the respondents answered that the company they work for conducts training for its employees every month, and 17% - every year. A little over 4% of respondents indicate that their company does not conduct training (Dimitrova & Vladov, 2017).

Our research results in different jobs, including IT employees presented some significant gender, age and personality differences in work behavior and outcomes. First, work engagement increased with age and work experience, as older people (over 40 years) and those with longer experience (over 20 years) being more enthusiastic and committed to their work. At the same time, a comparison between different professional groups shows that employees in healthcare sector are more engaged in their work than employees in the IT sector. Probably a specificity in the IT sector where the work is often project-based, within a certain period, implies a task than work engagement. Also, the personality traits of conscientiousness and agreeableness moderately increase work engagement (Tair, 2017). The presence of positive informal relations between employees significantly contributes to increasing their work engagement. Specifically, the results of the regression analysis shown that 17% of the variance in work engagement is explained by the ability to create and maintain friendly relationships among employees (Tair et al, 2016a).

Second, research results on trait emotional sell-efficacy and stress coping strategies of Bulgarian employees established some gender and personality effects. Employees presented a preference for active stress coping strategies (e.g. planning, positive reframing, and seeking instrumental support),

followed by emotionally focused strategies (e.g. emotional expression and emotional support), and the least was resignation or acceptance, and religion to cope with stress. Women were more likely than men to favor emotionally focused coping strategies, as research reports a tendency for women to report more emotional experiences than men (e.g., Brebner, 2003). In details, personal trait emotional self-efficacy and gender explained 29% of the variance in emotional expression and emotional support seeking, with this behavior being more characteristic of women. Individual characteristics and emotional self-efficacy influenced stress coping strategies, which were related to positive reframing explaining 26% of the variance, and active stress coping strategies explaining 20% of the variance. The presence of emotional control and social competences increase the use of positive reframing, as better emotion management skills contributed to a small increase in the use of active coping strategies, while assertiveness, empathy, and life satisfaction weakly decreased the use of active coping strategies (Tair, 2020).

Third, the results from research of counter-productive work behavior described typically as intentional behavior that harms the organization or its members or as work place deviance, also establish significant age, gender and personality differences. In details, there was a significant gender differences as men were more ready to engage in almost all measured dimensions of  counter-productive work behavior (withdrawal, sabotage, organizational damage, and verbal aggression) Also, age differences were established as 30-39 old in the Study 1 and 30-55 old in Study 2 represent a greater willingness for violation of the organizational rules. Among the personality traits as the most significant factor for work deviance stood out the introversion, especially in relation to antisocial behavior and verbal aggression, and to a lesser extent in terms of withdrawal (Tair et al., 2016b).

Finally, the results from representative study on work motives, counting different intrinsic and extrinsic factors presented both similarities and differences in work motives of Bulgarian employees. Although, salary and interesting work were most motivating factors for all studied employees, also significant age and gender differences were established. Similarities in preference to good salary, safe work conditions, etc. were reveal, as well as significant age-based differences in other work motives were established. In details, motives as enjoyable work and career development were more favored from younger employees, while older focus on applying skills, transferring knowledge, and co-worker relationships. Finally, similarities between males in females in motives as salary, career development, etc. were discovered, but some gender differences highlighted males as more oriented to extrinsic motives (e.g. work conditions and co-worker relationships), while females emphasis on intrinsic motive or on work satisfaction (Tair, 2018).

Research on the organizational culture and team effectiveness in software companies in Bulgaria shows that market culture is leading for organizations (Pancelieva & Ilieva, 2017). In other words, the sector primarily values innovation, entrepreneurship and creativity, and market excellence. In second place is the adhocratic culture, which means that in the IT sector personal initiative and freedom are encouraged, people willingly take risks, experiment and want to be the first. Therefore, based on presented differences in work behavior along with preferences in IT companies organizational culture we can expect some age, gender and personality effects on adaptive performance of Bulgarian ITC employees.

# ADAPTIVE PERFORMANCE STUDY OF BULGARIAN ICT EMPLOYYES

In this study, we examine the role of personality traits (e.g. emotional stability, extraversion, consciousness, agreeableness, and openness), age and gender on adaptive performance of Bulgarian IT employees. The research study used an online format on the Google forms platform in 2021. A random sample included 204 employees aged 21 to 50 (M=33.99; SD=7.25) from different IT organization. The average age of employees of 34 years fully corresponds to the average age for the sector presented in national and European statistics (Eurostat, 2017). The sample is gender imbalanced, with females predominating, who are 64% of the sample. The result mirrors the distribution of men and women in the IT sector, where nearly 70% are men.

Measures:

Adaptive performance scale (Charbonnier-Voirin & Roussel, 2012) with 19-items, and includes 5 areas: 1) dealing with emergencies and unexpected situations (4 items); 2) work stress management (3 items); 3) creative problem solving (4 items); 4) learning or training effort (4 items); and 5) interpersonal adjustment (4 items). Reliability coefficients Cronbach's alpha for 5 subscales ware presented on Table 1 (.71-.88), and indicated very good psychometric properties of the scales.

The Mini-IPIP, a 20-item short form of the 50-item International Personality Item Pool - Five-Factor Model measure (Goldberg, 1999). The Mini-IPIP scales: Extraversion, Agreeableness, Consciousness, Emotional stability, and Intellect/Imagination (Donnellan et al., 2006). The scales with four items per trait, had consistent and acceptable internal consistencies (Cronbach's alpha at or well above .60).

Results and discussion

*Table 1. Descriptive statistics and reliability coefficients of Adaptive performance subscales*

| AP Subscales | Min | Max | Mean | Mean/items | SD | Cronbach's alpha |
|---|---|---|---|---|---|---|
| Creative problem solving | 7.00 | 28.00 | 21.12 | 5.28 | .96 | .71 |
| Reactivity in the face of emergencies | 4.00 | 28.00 | 24.36 | 6.09 | .91 | .87 |
| Interpersonal adaptability | 4.00 | 28.00 | 24.32 | 6.08 | .91 | .88 |
| Training effort | 6.00 | 28.00 | 21.32 | 5.33 | 1.06 | .83 |
| Managing work stress | 4.00 | 21.00 | 17.02 | 5.67 | .99 | .74 |

*Source: Author calculations*

The descriptive results presented in Table 1 on the five subscales of adaptive performance testify to the presence of high evaluations of IT employees on all aspects studied. Reactivity in face of emergency and Interpersonal adaptability scored nearly equally high, followed by scores on effective stress management skills, and finally, but well above average scores on Creatively problem solving and Training efforts or readiness for learning and increasing knowledge and skills in job performance. Therefore, the employees studied presented a highly adaptive performance expressed in their ability to manage priorities and to adapt to new work situation, adjust their interpersonal style to work effectively with different others, maintain his/her individual or team's stress to find solutions for, or new approaches to, complex or previously unknown problems, and tendency to initiate action to promote personal development.

Table 2 shows the differences in adaptive performance of ICT employees depending on gender. The results of analysis of variance confirmed statistically significant differences in three of adaptive performance facets. In details, women to a greater extent than men declare reactivity in face of emergency, training efforts, and interpersonal adaptability. Women's higher reactivity may be linked to their higher emotionality (e.g., Brebner, 2003), and preferences to emotionally focused coping strategies (Tair, 2020). And our other studies show a greater tendency of women towards work motives related to training and skill development or internal motivation (Tair, 2018). The established tendency for better interpersonal adaptation of women can be attributed to the generally more tolerant attitude of women and orientation towards cooperation unlike men who are more prone to engage in counter-productive work behavior (Tair et al., 2016b). The results also consistent with some studies (e.g. O'Connell, McNeely, & Hall, 2008) found that women reported higher levels of adaptability.

*Table 2. Gender differences in Adaptive performance of ICT employees*

| AP Subscales | Gender | N | Mean | SD | t, p |
|---|---|---|---|---|---|
| Creative problem solving | Male | 72 | 20.58 | 3.80 | -1.15, |
| | Female | 132 | 21.30 | 3.85 | .253 |
| Reactivity in the face of emergencies | Male | 72 | 23.48 | 3.77 | -2.19, |
| | Female | 132 | 24.72 | 3.55 | .038 |
| Interpersonal adaptability | Male | 72 | 23.46 | 3.76 | -2.09, |
| | Female | 132 | 24.70 | 3.54 | .38 |
| Training effort | Male | 72 | 19.71 | 4.40 | -3.30, |
| | Female | 132 | 21.94 | 4.05 | .001 |
| Managing work stress | Male | 72 | 17.15 | 2.95 | .440, |
| | Female | 132 | 16.94 | 2.98 | .660 |

*Source: Author calculations*
*Table 3. Age differences in Adaptive performance of ICT employees*

| AP Subscales | Age group | N | Mean | SD | F, p |
|---|---|---|---|---|---|
| Creative problem solving | 21-30 | 69 | 20.64 | 3.57 | 3.02, |
| | 31-39 | 71 | 21.70 | 3.64 | .044 |
| | 40-50 | 64 | 20.73 | 4.54 | |
| Reactivity in the face of emergencies | 21-30 | 69 | 24.10 | 3.63 | .808, |
| | 31-39 | 71 | 24.78 | 2.90 | .447 |
| | 40-50 | 64 | 24.06 | 3.59 | |
| Interpersonal adaptability | 21-30 | 69 | 24.08 | 3.62 | .806, |
| | 31-39 | 71 | 24.68 | 2.90 | .446 |
| | 40-50 | 64 | 24.08 | 3.60 | |
| Training effort | 21-30 | 69 | 21.36 | 3.89 | .857, |
| | 31-39 | 71 | 21.70 | 4.41 | .426 |
| | 40-50 | 64 | 20.65 | 4.56 | |
| Managing work stress | 21-30 | 69 | 16.89 | 3.11 | 3.05, |
| | 31-39 | 71 | 17.52 | 2.58 | .048 |
| | 40-50 | 64 | 17.50 | 2.69 | |

*Source: Author calculations*

There were no statistically significant age differences in adaptive performance subscales by age, except for managing work stress, which declined with age, and creative problem solving, which were rated higher by 30 to 39 years old employess (see Table 3). It is likely that as employees get older, they are less likely to rate their stress coping skills as effective. Regarding the higher ratings of employees aged 30 to 39 for choosing non-traditional or innovative approaches to dealing with work problems, the experience they have accumulated in life and work probably also contributes.

*Table 4. Significant correlations of Adaptive performance subscales and Big Five traits*

| AP Subscales/ Personality traits | Emotional stability | Agreeableness | Intellect |
|---|---|---|---|
| Creative problem solving | | | .27* |
| Reactivity in the face of emergencies | -.29* | | |
| Interpersonal adaptability | | .23* | |
| Training effort | | | .22* |
| Managing work stress | .21* | | |

*Source: Author calculations (* p=.05)*

Table 4 presents statistically significant correlations between personality traits and adaptive performance subscales. Three of the personality traits presented significant associations with adaptive performance. Specifically, Emotional stability (the opposite side of Neuroticism) on the one hand moderately contributes to reducing employee reactivity, and on the other hand, weakly but positively contributes to increasing the skills to deal with work stress. Intellect/Imagination trait, or an orientation toward unconventional thinking, moderately increases creative problem solving at work and is weakly but positively associated with employees' willingness to learn and develop their skills at work. Finally, Agreeableness positively contributes to interpersonal performance.

Positive associations of Emotional Stability with adaptive performance may be explained by personality trait specificity. Research established that being emotionally stable can facilitate successful adaptation to scheduled or unforeseen changes in the workplace (see Huang et al., 2014). Indeed, emotional stability has been positively linked to several mechanisms instrumental to adaptive performance (e.g. Vasilopoulos, Cucina, & Hunter, 2007), and coping with work stress (Liu, Wang, Zhan, & Shi, 2009), etc. Further, when faced with a stressful novel task, emotionally stable individuals tend to engage in the more effective task-focused coping (Boyes & French, 2010), as moderately negative association on Emotional stability with Reactivity in the face of emergencies confirm. To explain the relationship between Intellect/Imagination and adaptive performance it can be mentioned that the people who have high results on this trait, have a high tolerance in the face of new situations, and see new things as an opportunity to satisfy their curiosity. Thus, they are open to solve a new problem or learning new things, etc. Also, the changes will not be as stressful events and this enables them to adapt more effectively facing unpredictable situations (Naami et al., 2014). Agreeableness as a personality trait implies an orientation towards others, cooperation and mutual assistance. Therefore, it is not surprising that a positive association with interpersonal performance is found. Also, our research in Bulgarian context presented that positive informal relations between employees significantly contributes to increasing their work engagement (Tair et al, 2016a).

# CONCLUSION

Despite the limitations of the study related to the small random sample, the obtained results still give us reasons to draw the following conclusions. First, the established high results of adaptive performance among the employees studied may be a result of the self-assessment questionnaires, but can be related probably both to their high efficiency as a result of working in a dynamic and rapidly changing environment, and to the regular trainings that are carried out in the ICT sector to improve the hard and soft skills of employees. Second, established gender differences and associations with personality traits suggested an individual approach to employees in the ICT sector both in terms of selection and training. Specifically, emphasis on the personality traits of Openness or Intelligence/Imagination, Emotional stability, and Agreeableness in selection to ensure adaptive performance. A gendered approach to training, suggesting a greater need for men to be motivated to continue training and learning effort, and promote personal development, while for women to develop skills to reduce reactivity in the emergencies or unexpected circumstances or ability to manage priorities and to adapt to new work situations, and better emotional regulation.

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# CAREER DEVELOPMENT INTENTIONS OF YOUNG PEOPLE IN THE IT INDUSTRY DURING THE POST-COVID-19 PERIOD

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## *ABSTRACT*

*Based on number of evidences every crisis leads to a change in the values and the attitudes of the human beings so it is expected that the Covid-19 and post-Covid-19 periods will also leave their own foot prints in the contemporary life, and particularly in the work and career development orientations and attitudes. This article aims to evaluate what are the intentions for career development of the young people in the IT industry. The survey was held in a software R&D center of an international company where 90 of their software engineers took part research. The results show that most of the surveyed employees are satisfied with their careers and opportunities for professional development, and that they have no intention of leaving their organization. Employees are satisfied with the level of their remuneration, the opportunities for career growth and development. They are not looking for mobility and going outside the organization and the country, nor a change of their filed of expertise. However, the surveyed employees are representatives of the generation "Y" and "Z" sharing the values of the Protean and Boundaryless careers. In the same time declaring no intentions to leave their organizations means that they are looking for security and stability living in the context of the Covid-19 pandemic. In conclusion it could be said that the two generations are close enough so a common organizational practice would influence both of them. Also, these practices should be directed towards building a career development programs and trainings which will provide opportunities for personal career development and career management so the modern career attitudes of the employees would be satisfied but within the particular organization. This would ensure the employees' retention as well as the company's sustainability during the post-Covid-19 period.*

*Keywords:  career development, career satisfaction, career intentions, young people, post-covid-19*

*JEL Classification:  J24*

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# *INTRODUCTION*

Every crisis, transition or global change usually is leading to a number of consequences which are not only economical or socio-political, but mostly they are arising adaptive processes in individual's values, attitudes, believes and behaviors (Ilieva, 2009). Except the tragedies that Covid-19 caused, another scar that this crisis also left on the humanity is the direct effect on people's way of living and functioning. One of the main aspect of people's life is the work and during the pandemic a lot of people had lost their jobs, some had been forced to leave their jobs if they wanted to save their lives and other had to adapt to the new way of working like remote work (Yoon et al., 2021). All of this leads to changes in people's perceptions, values and priorities in life, ways of communicating, taking decisions and actions. For example, the freedom of choice and activity were severely limited, access to social life, cultural events and the pleasures of modern life were minimized. It is a completely new stage in the human being evolution to which the society will adapt over the time and which will change forever our lives and values. One of the main issues during the Covid-19 and the post-Covid-19 period is how the dimensions of work and career planning and intentions for development has changed based on the completely new reality and way of working and living. Do the fear and insecurity take over people's minds which makes them stay at their current workplace or just the opposite – the dynamic is increasing and the frequent job changes and working abroad are more and more common processes. Also, whether the situation generates a greater interest in entrepreneurship or in self-employed and "freelance" professions than seeking hierarchical development in a single organization, especially among the young people.

Currently in the labour market, especially in the IT industry, there are mainly two generations – the generation "Y" or the Millennials, and the generation "Z", born after 1995. Both generations are characterised by an attitude and affinity for technology, autonomy, flexibility. But while the first still cherish the pragmatic values such as freedom, comfort, financial success and work-life balance, the second are characterized by living in two worlds – the virtual and the real one, and who prefer mobility over stability (Ilieva and Vitanova, 2019). Perhaps for them, the world that has changed now would be much more convenient and tailored to their needs, with the exception of mobility opportunities, which are limited internationally in one or another way. On the one hand, anti-epidemic measures make life much more tangible in the online environment and virtual world. Some social media platforms had even started the development of full virtual reality could replace a real concert or vacation. On the other hand, the remote work extends the business access to new labor markets and broaden their chances to fill in their demands for professionals. Some companies are already taking advantage of the situation to cover their staff shortages, which brings new and different opportunities for people to develop professionally too.

Bulgaria's statistics show that unemployment has been falling since the start of the 2020 pandemic with a rate of 5.3% for 2021 (NSI, 2022), which should mean that the labor market is stabilizing. At the same time, employment is also declining, with the highest number of people leaving the workforce at the beginning of the pandemic and the levels for 2021 still falling short compared to those of 2019, which is partly attributed to the increased number of people leaving the workforce (Minkov, 2022). Thus, labor market conditions add more challenges for businesses, the government and the people who need to find a way to make a living and provide the desired quality of life for their families.

Along with unemployment, inequality and negative growth, other problems also arise. Like such ones related to people's virtual management, motivation and job satisfaction in a virtual environment, social distance and loneliness, especially for people living alone, the need for organizational support of the mental health and well-being of the employees. The factors studied so far, but in the conditions of Covid-19, can completely change their meaning for humans and reveal brand new horizons such as attitudes towards working from home (Kniffin et al., 2021). For those who live alone and their work requires more focus and deepening, it would be fruitful to work from home, but if they are a

more social and extroverted type of person, the lack of contacts can be detrimental to their motivation and overall sense of life. Working from home and losing track of the boundary between work and private life, can also affect their mental health, rest and time for their loved ones (Allen, Cho and Meier, 2014; Ramarajan and Reid, 2013; Autin et al., 2020).

With the start of the Covid-19 crisis, a number of scientists in the field of organizational psychology reacted with analyses and specific recommendations to the new situation. In these publications, the call is also for career counsellors to assist and help people depending on the effect of the crisis on them. Psychological care for employees and topics such as inequality between different social groups are encouraged (Autin et al., 2020). The U.S. National Career Development Association, consisting of career consultants, is developing an instructional framework that is applicable to professional development across a number of fields and includes objectives of consistent achievements such as knowledge acquisition, knowledge feasibility and measurement, analysis. These goals are achieved respectively in three relational areas - career management, educational achievements and lifelong learning and personal social development. With this, the authors suggest that this should be combined with proven effective mentoring programs and preservation of scholarship programs, in order to ensure faster adaptation to increasingly dynamic professional development conditions (Vusse et al., 2021).

The key word here is adaptability, and it is necessary for every aspect of life, including career development as a process that people go through. Savickas argues that managing his own career depends on personality adaptability. It is a major factor in professional transitions and the ability of the person to deal with difficult situations, decision-making, curiosity and career choices, personal control over career activities and career development attitudes. And if before the traditional understanding for career development was to be executed within one organization with the time the career development believes are more and more close to the concepts of the Protean and Boundaryless career (Savickas, 2018).

The Protean career consists in the fact that the individual's career development is based on his goals and interests, expanding his skills and knowledge, achieving expertise in a given direction and working on short-term projects and with more detailed awareness of exactly what he will do as a job. This career development understanding makes the individual to choose his own professional path, which steps and stages to follow, and what values to adopt where the main goal is self-realization, lifelong learning, flexibility and high adaptability (Hall and Moss, 1998).

On the other hand, the Boundaryless career is a life-long collected professional experience which accumulates abilities, competencies and image throughout the individual's moving from one organization to another. It symbolizes people's career behavior and highlights that careers are not limited to only one organization. The career and the career management refer to the whole context which means that the taken position does not define the competencies, but the competencies are the driving force of the business. Each organization is part of a larger set of organizations that interact through selection, retention processes, diversity of opportunities, exchange of information and social activity. This way the career can be the embodiment of psychological success where the individual is the leading figure who is more and more independent from the organization, fulfilling the main idea of the Protean career (Arthur, 1994). Later, a model was created that combines the two concepts as an expression of the modern career development concepts, comprising 4 main components - a career governed by the individual, a career based on values, attitudes towards mobility and organizational mobility (Briscoe and Hall, 2006).

It is believed that attitudes of the Protean career and Boundaryless career could perform an adaptive function, especially in the context of rapid changes and uncertainty (Briscoe et al., 2012). According to the career adaptability model of Savickas, the individual develops 4 copping resources related to the career planning – concern for his own career future, control over career decision-making, curiosity about self-awareness and the world and confidence to solve problems (Zaharieva, 2018). In short - it implies that adaptive readiness mobilizes adaptability and resources that

determine adaptive responses and lead to an adaptive outcome that includes determination, security, commitment and satisfaction (Savickas et al., 2018).

In the context of the Protean career, career satisfaction is seen as a major indicator of career success through the eyes of the individual, who would be able to successfully guide his or her direction of development if he had a clear personal identity to make the right career decisions for him/her (Vos and Soens, 2008). A survey of low-skilled employees in China supports the theoretical assumption that career adaptability is in a positive relationship with career satisfaction and in a negative relationship with intentions to leave the organization (Chan and Mai, 2015). Therefore, career satisfaction has a significant influence in establishing employees' intentions in relation to their career development. The aim of this study is to explore the career development intentions of young people in the IT sector in the post-Covid-19 period when the pandemic restrictions were cancelled as well as to investigate the relationship of the career satisfaction and career development intentions.

# *METHOD AND SAMPLE*

The methodology of the survey includes two questionnaires – one measuring career satisfaction and the other – career intentions. The coefficient of internal consistancy of the career satisfaction scale is =.88, which shows a very good degree of reliability (Greenhaus, Parasuraman and Wormley, 1990; Fields, 2002). In the current study it is used an adapted questionnaire in Bulgarian consisting of 5 items (Zaharieva, 2018) which Cronbach's Alpha is quite high =0.84.

The career development intentions questionnaire includes seven items that are evaluated on a five-tier Likert scale ranging from "I strongly disagree" to "I strongly agree." The measured Cronbach's Alpha is = 0. 41 which gives the basis to take into account that the conduct of the post-Covid-19 crisis has some effect on career intentions. This implies to refine the included items that measure the individual's career intentions in the future.

The survey was attended by 90 respondents from two departments of an international IT company with an entity in Bulgaria which develops automotive software. The surveyed individuals are mostly young people who are grouped by age as follow: 17% are under the age of 25, 46% are between 25-35 years old, 38% are in the range of 36-45 years. 77% of the respondents are men and 23% are women. The groups by general working experience are balanced and are allocated as follow: 29% of the participants have up to 5 years working experience; a bit more than 22% have general working experience between 11 and 15 years; ith more than 16 years of experience are 20% of the sample and 29% had experience between 6 and 10 years. A similar balance is discovered in the groups ddivided by experience within the surveyed organization. 35% of the surveyed employees have up to 1 year of experience, 37% have 1-2 years of experience within the company and 28% are those with 3 years of experience who are part of the organization since the beginning. 72% of the sample are regular employees and the remaining 28% were distributed between middle management and supervisors. Regarding their familly status 68% form the employees don't have children, 17% have 1 child, 12% are with 2 children and 3% have more than 2 children.

# *RESULTS AND DISCUSSION*

The descriptive statistics of the data shows that the surveyed employees intend to continue their career development within their professional expertise, as well as to stay in the organization (Table 1). Respectively, the intentions to search and find new opportunities, develop outside the country and change the field of activity have the lowest mean. This demonstrates the willingness of employees to pursue a professional development within the organization. The t-test analysis found

no statistically significant differences between the male and female group, except for their intentions to stay in the organization, where the male group recorded higher averages (x=4.65) than that of women (x=4.29).

*Table 1. Descriptive Statistics of Career Development Intentions*

| Intent on career development | Mean | Std. Deviation |
|---|---|---|
| I intend to acquire new competences and skills in my professional field. | 4.63 | 0.589 |
| I intend to stay in my current organization. | 4.57 | 0.671 |
| I want to combine work in different fields. | 3.39 | 1.187 |
| I want to find a job in an international organization. | 3.27 | 1.216 |
| I intend to seek career development outside the country. | 1.69 | 1.002 |
| I'm looking for opportunities for a new job. | 1.66 | 0.926 |
| I intend to change my field of work. | 1.64 | 1.042 |

Career satisfaction also did not register statistical differences by demographic criteria according to the conducted t-test and one-way ANOVA analysis. The averages shown high career satisfaction (Table 2). The highest registered value is regarding the satisfaction of learning new professional skills followed by the subjective feeling of achieved career success and goals.

*Table 2. Descriptive statistics of Career Satisfaction*

| Career satisfaction | Mean | Std. Deviation |
|---|---|---|
| I am satisfied with my mastery of new professional skills. | 4.24 | 0.865 |
| I am satisfied with the success I have achieved so far in my career. | 4.18 | 0.712 |
| I am satisfied with the progress made in achieving my career goals. | 4.12 | 0.732 |
| At this time, I am satisfied with the income I receive for this job. | 4.06 | 0.916 |
| I am satisfied with the realization of my career growth goals. | 4.01 | 0.786 |

Following the correlation analysis, it is found that there is a statistically significant positive relationship between career satisfaction and staying in the job (r=0. 451 at p<0.01) and an expected negative correlation between career satisfaction and the search for new opportunities (r=-0.401 at p<0.01) (Table 3). They are moderate and suggest that when employees are satisfied with the opportunities to improve their qualifications, the success they achieve in the job and the achievement of their goals, they would feel good about the company they work for and would not seek other opportunities for a new job. The career satisfaction is also in a weak negative correlation with the intentions of combining work with other areas of activity (r= -0.214 at p<0.05). This result can be explained by the fact that employees do not feel the need to engage in other fields of activity when they have sufficient opportunities to develop their current place of work.  Accordingly, it can be assumed that, despite the Covid-19 pandemic, the employees bring development opportunities to the

forefront of their careers and, being satisfied with them, do not have the intention to leave the organization. Due to the lack of data on their development intentions prior to the Covid-19 pandemic, it cannot be established whether there has been a change in their intentions and desires for professional development. It should be taken into account also that the biggest part of the sample are young people at the age 25 to 45 years which career attitudes are towards remaining and growing within the company and seems they are not affected by the trends in frequent shifts and greater mobility and diversity. These are also people who are in the career establishment stage, which can also influence the formation of a mindset of stability and retention in the workplace instead of looking for alternatives to shifting jobs and other forms of career mobility.

*Table 3. Correlation Analysis of Career Satisfaction and Career Development Intentions*

| | | **Career satisfaction** |
|---|---|---|
| **Staying in the current job** | Pearson Correlation | **0.451**[**] |
| | Sig. (2-tailed) | 0 |
| | N | 90 |
| **Search for new opportunities** | Pearson Correlation | **-0.401**[**] |
| | Sig. (2-tailed) | 0 |
| | N | 90 |
| **Acquiring knowledge and skills** | Pearson Correlation | 0.086 |
| | Sig. (2-tailed) | 0.422 |
| | N | 90 |
| **Combining work with other areas of activity** | Pearson Correlation | **-0.214**[*] |
| | Sig. (2-tailed) | 0.042 |
| | N | 90 |
| **Interest in working in an international organization** | Pearson Correlation | 0.171 |
| | Sig. (2-tailed) | 0.107 |
| | N | 90 |
| **Intention to change the sphere** | Pearson Correlation | -0.197 |
| | Sig. (2-tailed) | 0.063 |
| | N | 90 |
| **Intent on career development outside the country** | Pearson Correlation | -0.16 |
| | Sig. (2-tailed) | 0.132 |
| | N | 90 |
| .** - Correlation, n.e.c. at p<0.01 | | |
| .* - Correlation significant at p<0.05 | | |

A regression analysis was also conducted which found no influence of career satisfaction on career intentions. This opens a horizon for further researches on the subject and detection of other factors that influence employees' intentions such as job satisfaction in general, attitudes about mobility and other personal and situational factors.

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# *CONCLUSION*

The limitations of this study are related to the lower reliability of the questionnaire on career intentions and the lack of previous data on the intentions of career development before Covid-19 as a basis for comparison in the search of changes. However, the collected data gives an idea that even in the post-Covid-19 crisis, most of the surveyed employees are satisfied with their careers and opportunities to develop professionally, and that they have no intention of leaving their organization. This is indicative enough that the researched organization manages to meet the expectations of professional development of its employees (for the given period) even in the context of a global crisis that affects all aspects of the human life. Employees are satisfied with the level of their remuneration, the opportunities for career growth and development. They are not looking for mobility and going outside the organization or the country, nor looking for a change of their professional field. The researched organization may be pleased with the results, which are kind of feedback to the management, but this also provides a significant information for follow-up regarding further development of training programs, career paths and periodical study of employees' attitudes and intentions in order to form a long-term and stable employee retention's policies.

As mentioned above the results of this study provide clarity on the expectations of young people who are in a period of establishing and stabilizing their careers. The established patterns also provide a reason to make findings about how the Covid-19 pandemic affects their career attitudes and orientations. The desire to stay in the same organization and not to seek opportunities to work in another organization or abroad is determined by their career satisfaction, but reveals a need for security that becomes more pronounced during the Covid-19 and post-Covid-19 periods. The orientation towards stability and security creates prerequisites for job retention and reduces the likelihood of mobility, which is an essential component of the Boundaryless career. Having in mind that the surveyed employees are representatives of the two generations that dominate the current labor market, namely generations "Y" and "Z", it emerges a trend towards the horizontal career that corresponds to the modern career concepts. The lack of differences in the career development intentions and the career satisfaction between the surveyed representatives of the generations "Y" and "Z" reveals a high degree of closeness between generations, which would also facilitate the introduction of organizational approaches for career development that meet the preferences of these generations.

The employees' orientation towards their career development is focused on developing their own competences and expanding knowledge and skills related their professional areas which characterize the horizontal career. The results are in line with the views of the modern Protean career and show the need of developing trainings and development programs for employees that will allow them to expand their professional competences and manage their careers appropriately. Career management is accepted as both individual responsibility and contribution, corresponding to the need for personal self-improvement and development. On the other hand, young people seek to achieve stability and security by seeking the retention and development of the present workplace. In this sense, the career development of young people in the post-Covid-19 period integrates two orientations, which must be taken into account by the organizations when introducing training and development programs for employees. On the one hand, it is necessary to maintain and increase employee career satisfaction, which determines the intentions to remain and retain a job in the current organization and limits the search for other career opportunities, thereby creating staff stability. On the other hand, however, in order to achieve stability and retention of staff, organizations need to develop policies to provide appropriate training programs to meet employees' needs for new knowledge and skills and personal development, as well as to provide diversity and challenges for employees in the course of work.

In conclusion, it can be summarized that the retention of employees in the post-Covid-19 period is a challenge for organizations and is in practice a significant problem for many of them. The results of the study underline that the orientation towards diversity and the acquisition of new skills and competences as a feature of the contemporary Protean career does not necessarily imply a mindset of mobility and change of work, which is a leading component in the views of the "career without borders". The attitudes of the surveyed young people towards career development show that it can be successfully combined with retention and career development and growth within the current organization with expansion and deepening of professional competences. Integrating these two career trends of young people from generations "Y" and "Z" not only retains and develops employees, but also creates a competitive advantage for organizations, especially in the context of overcoming the consequences of the Covid-19 pandemic.

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%D0%B1%D0%B5%D0%B7%D1%80%D0%B0%D0%B1%D0%BE%D1%8

# THE INCOMPATIBILITY OF THE LABOR MARKET AND STUDY PROGRAMMES OF THE HIGHER EDUCATION INSTITUTIONS IN THE REPUBLIC OF SERBIA

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## *ABSTRACT*

*Technological progress poses great challenges for the whole world, and we, as part of that world, must adapt to those changes as soon as possible. Fuelled by this rapid change, the job market has become unpredictable. The changes are so fast that it is necessary to predict what will be demanded on the labour market in the coming period. If higher education institutions react by introducing new educational profiles when the need arises in the labour market, it may already be too late due to the average period of study for a student in our country. Once they finish their studies, it may already be "too late". Students go through "learning pathways" in higher education, knowing nothing about how the skills they will acquire will fit into the needs of the labour market years after they graduate. Higher education institutions have a mission to turn the industrial revolution, which the whole world is going through, into a favourable opportunity for their students and thus be the first or among the first ones to create changes. Changes are fast, many higher education institutions have not yet started to study Industry 4.0, and developed countries are already moving to Industry 5.0. The paper will try to show the discrepancy between the accredited study programmes and the needs of the market in the Republic of Serbia. We will try to show that personnel are still being trained for the current demands of the market for which there is very little need, and at the same time we do not have quality personnel who are ready to implement Industry 4.0, let alone Industry 5.0*

*Keywords: study programmes, labour market, incompatibility, unemployment, inactivity rate*
*JEL Classification: A00*

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# *INTRODUCTION*

The changes that happen every day in the market and industry in the world are difficult to follow, especially for our countries in the Balkans. We have witnessed that until recently there was talk about Industry 4.0, which unfortunately received little attention in higher education institutions, while the world is already `working hard on the implementation of Industry 5.0. As is known, at the center of Industry 4.0 is the digitization and automation of production processes, where the role of man is reduced to a minimum. However, we know that the greatest asset of any company is the knowledge, skills and competences of its employees. Developed countries have realized that competitive advantage is still created by employees together with the application of technique and technology. Digitization has not been abandoned, but the human being is put in the foreground, around whom everything revolves. The changes that have occurred in the market should also be monitored by higher education institutions, through the introduction of new study programs or the revision of existing ones. The economy of the Republic of Serbia is as underdeveloped as in the surrounding countries, and the question arises whether we need personnel who are trained to create changes or just quality workforce for companies coming from developed countries. In other words, should we educate more staff who have completed basic studies or should we also educate experts with master's and doctoral studies in addition to these staff. The accreditation cycle in the Republic of Serbia takes place over a period of seven years, but this does not mean that study programs cannot be revised. The national accreditation body allows changes in study programs, as well as the introduction of new study programs. We have witnessed that recently there is an increasing demand for personnel dealing with IT technologies. Institutions that educate these personnel reacted and introduced new study programs in this field or increased the number of places in existing programs. When talking about IT technologies, new needs for personnel not only for programmers but also for specific knowledge and skills such as animation, software engineering, applied software engineering, web design, biotechnical and information engineering, information systems and technologies, and information technologies in many areas etc. In addition to all this undertaken, there is still a gap between the required personnel of IT technologies and the offer on the market. There are currently over 100,000 programmers in the Republic of Serbia, and the world today lacks about one and a half million programmers, and it is estimated that by the end of 2025, that number could be greater than four million. Serbia has somewhat recognized the need for training experts in this field and in 2021 alone, the number of programmers increased by as many as 93,900, which is slightly less than Greece, where the number of programmers increased by 110,700 or 37.7% and Cyprus (16,600 or 29.7% ) and Portugal 225300 developers (Source RTS). However, the fact that there is a gap between the education system and the needs of the labour market is shown by the large number of unemployed people from different educational profiles, as well as the fact that, even if those who have already graduated cannot find a job for years, there are still open places for education for those same people. profiles. There is a traditional mismatch between the labour market and the number of students enrolled in certain faculties. In the last few years, the situation in that field has improved a little, because the number of places for students in the IT group has increased. However, our big problem in the education system is the unevenness of private and state faculties, which is why those who complete their studies at private faculties often remain on the labour market, because employers will not hire them, because they believe that they do not have adequate expertise, which in most cases is not true. Similar problems are experienced by neighbouring countries as well as most of the countries in the world. Discussions on this pre-issue were discussed at a meeting in Barcelona, organized by the European Institute of Innovation and Technology (EIT) and its initiative for higher education, attended by representatives of more than 260 universities and higher education institutions from Europe, the US and Asia. Through the workshops, institutions' capacities, relevant higher education strategies, academic and entrepreneurial culture, digital infrastructure, quality of management, internal communication and potential assessment of the school's impact were reviewed. The

conclusion from this meeting is that there is a gap between the education offered in higher education institutions and the required market. Many countries, primarily the European Union, are trying to solve the problem through certain funds to help universities, staff education and encourage business ideas through entrepreneurship and innovation, incubators, hubs, etc. The results of this action are already visible, but it remains up to the institutions to use their program in cooperation with businessmen. The process of accreditation of study programs in Serbia requires the participation of businessmen in creating the study program, as well as monitoring the satisfaction of businessmen who employ graduates. In my previous experience as a reviewer, I have the feeling that all this is done just for the sake of form and that few institutions that have cooperated with the economy have defined the study program with its outcome and competencies.

## *ACCREDITED STUDY PROGRAMS IN SERBIA*

## *UNIVERSITIES IN THE REPUBLIC OF SERBIA*

The educational proctor of higher education in the Republic of Serbia is shared by 9 universities whose founders and capital owners are the state and 10 universities whose founders and majority owners are private individuals (National Entity for Accreditation and Quality Assurance in Higher Education (NEAQA) 2022 year). The largest university in the country in terms of the number of students, the number of employees and the number of faculties is the University of Belgrade. There are 31 faculties within the University of Belgrade. When analysing the number of study programs that are accredited at the faculties of the University of Belgrade, we come to the following data (Figure 1):

⟩ 96 bachelor study programs
⟩ 162 study programs of master studies
⟩ 80 doctoral study
⟩ 8 integrated studies i
⟩ 37 study programs of specialist studies
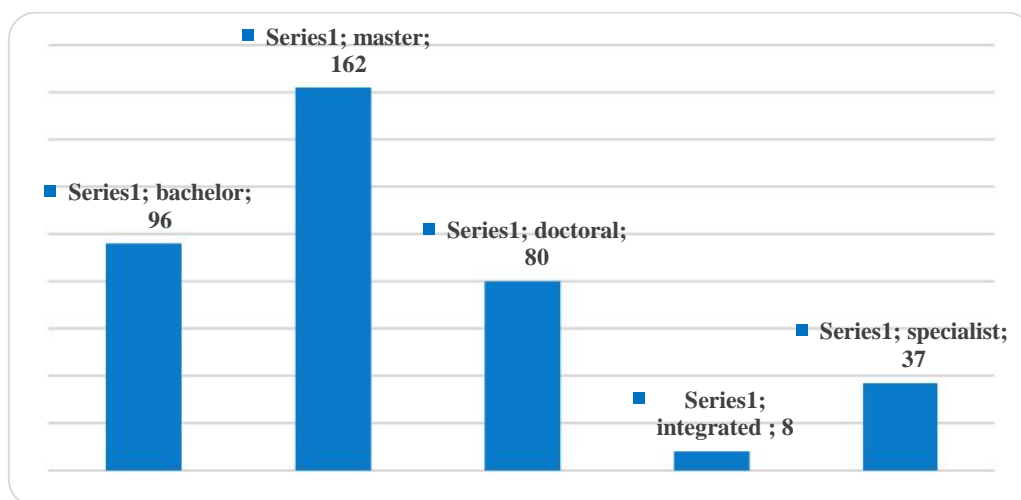


*Figure 1. Accredited study programs conducted at the University of Belgrade*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

The University of Novi Sad has 14 faculties and teaches the following accredited programs (Figure 2):

⌡ 141 bachelor study programs
⌡ 166 study programs of master studies
⌡ 71 doctoral study
⌡ 9 integrated studies i
⌡ 15 study programs of specialist studies
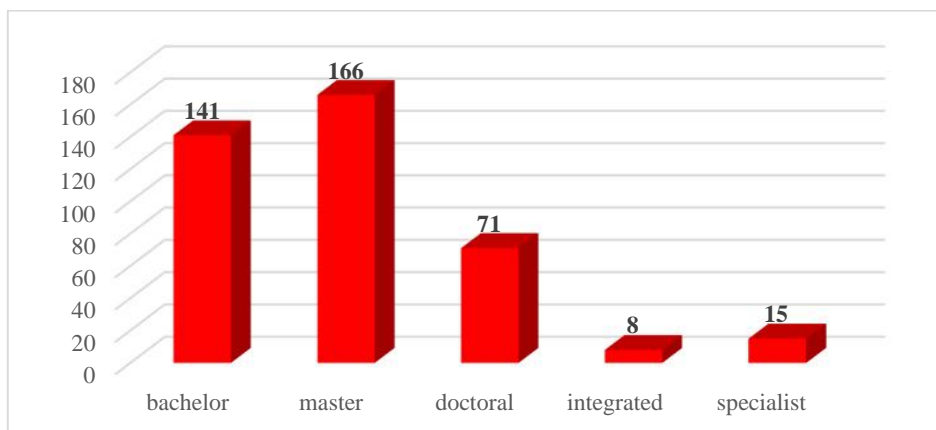


*Figure 2. Accredited study programs conducted at the University of Novi Sad*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

The University of Niš also has 14 accredited faculties (Figure 3):

⌡ 51 bachelor study programs
⌡ 58 study programs of master studies
⌡ 26 doctoral study
⌡ 5 integrated studies and
⌡ 4 study programs of specialist studies
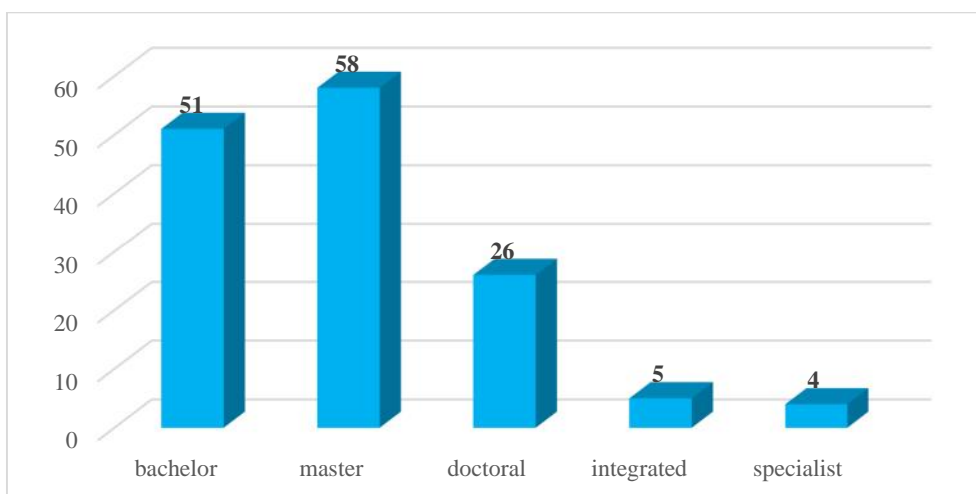


*Figure 3. Accredited study programs conducted at the University of Niš*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

The University of Kragujevac has 12 accredited faculties with the following number of studio programs (Figure 4):

  ʃ 58 bachelor study programs
  ʃ 60 study programs of master studies
  ʃ 24 doctoral study
  ʃ 4 integrated studies and
  ʃ 1 study programs of specialist studies
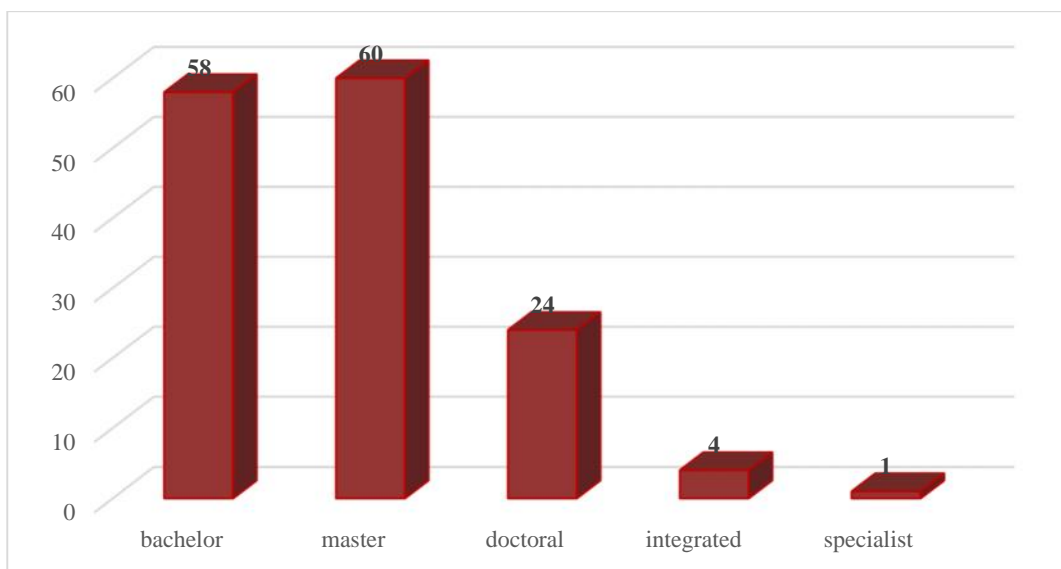


*Figure 4. Accredited study programs conducted at the University of Kragujevac*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

In addition to these universities in the Republic of Serbia, there is also the University of Arts in Belgrade (5 faculties), which teaches 11 study programs of basic academic studies, 16 master's study programs, 11 doctoral study programs and 2 specialist study programs. The University of Defence in Belgrade, which consists of two faculties and which has accredited 10 undergraduate study programs, 9 master's study programs, 6 doctoral study programs, 8 integrated and 2 specialist study programs. The State of Serbia is also the founder of the Criminalistics and Police University in Belgrade, which offers classes in 4 study programs of basic academic studies, 4 master's study programs, 3 doctoral study programs and 1 specialist study program. Out of 4 study programs of basic studies, one program is basic vocational studies.

The State University in Novi Pazar is the only integrated university in Serbia that offers classes at (Figure 5):

  ʃ 17 bachelor study programs
  ʃ 17 study programs of master studies
  ʃ 4 doctoral study
  ʃ 4 integrated studies
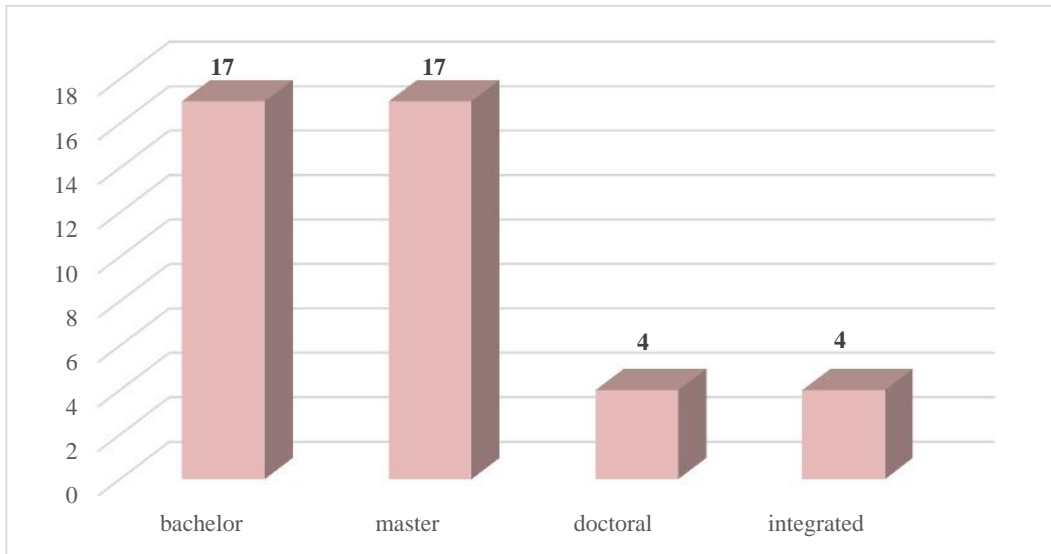
*Figure 5. Accredited study programs conducted at the State University in Novi Pazar*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

The University of Pristina with its temporary headquarters in Kosovska Mitrovica has 10 faculties with the following accredited programs (Figure 6):

⌡ 39 bachelor study programs
⌡ 34 study programs of master studies
⌡ 14 doctoral study
⌡ 2 integrated studies and
⌡ 1 study programs of specialist studies
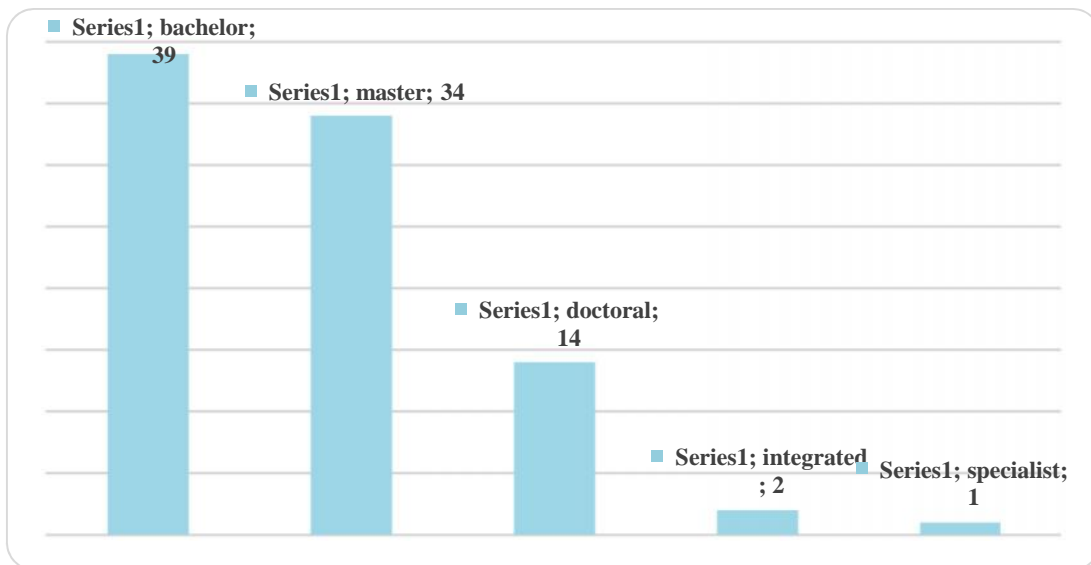


*Figure 6. Accredited study programs conducted at the University of Pristina*

*Source: NEAQA, 2022,* https://www.nat.rs/en/accreditation-of-institutions/

In addition to the universities founded by the Republic of Serbia, there are also 9 universities founded by private individuals in the educational area of Serbia, namely:

⌡ Megatrend University (6 faculties and 3 departments)
⌡ ALFA University (4 faculties and 1 department)
⌡ University Business Academy (7 faculties)
⌡ International University Novi Pazar
⌡ Metropolitan University (2 faculties)
⌡ Sigidunum University (3 faculties)
⌡ Union University (4 faculties)
⌡ Educons University (4 faculties)
⌡ Union University – Nikola Tesla (9 faculties)

*Table 1. Number of accredited study programs at private universities*

| University | bachelor | master | PhD | specialist | integrated |
|---|---|---|---|---|---|
| Megatrend | 21 | 8 | 8 | - | - |
| ALFA | 13 | 14 | 3 | | |
| University Business Academy | 27 | 19 | 11 | 3 | 3 |
| International University N.P. | 2 | - | - | - | - |
| Metropolitan | 25 | 12 | 4 | | |
| Sigidunum | 30 | 22 | 6 | | |
| Union | 11 | 14 | 4 | | |
| Edukons | 17 | 13 | 8 | | |
| Union – Nikola Tesla | 42 | 43 | 14 | | |

*Source:* https://www.obrazovanje.rs/sr/
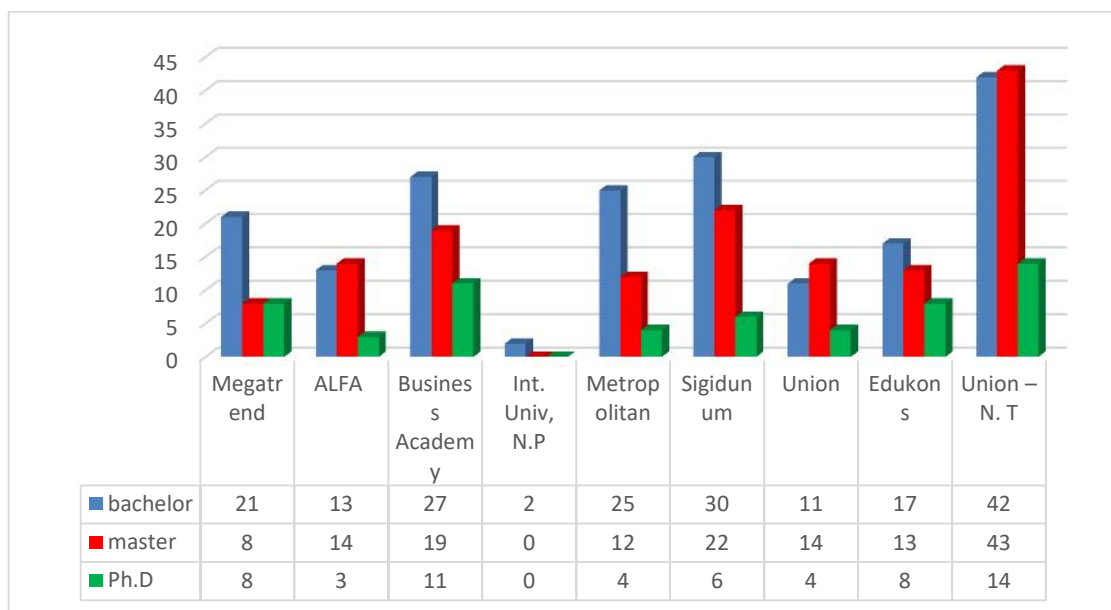


*Figure 7. Number of accredited study programs at private universities*

*Source: https://www.obrazovanje.rs/sr/*

According to data analysis, we have come to the fact that 427 study programs of basic studies are currently accredited in Serbia, which are conducted at universities and faculties founded by the Republic of Serbia, and 188 study programs are conducted at universities whose founders are private individuals. Master's studies are conducted in 526 and 145 study programs. This data shows that at state colleges and universities more classes are held from master's study programs than from basic studies, while this is not the case at private colleges and universities (Figure 7). It is a good indicator that we have more accredited master's study programs than basic ones, which indicates that students in basic studies acquire basic knowledge and are oriented in a more general direction, while master's studies offer a greater possibility for specialization in performing certain jobs. State universities and colleges can do this because they have a much better workforce and better equipped laboratories. When analysing the accreditation of master's study programs at privately owned faculties, they are mostly continuations of undergraduate study programs, with a small number of elective subjects and a minimum number of hours of active teaching. In many study programs, there are only auditory exercises and not laboratory, computer and calculus exercises. We often encounter study programs where there is not a single teaching assistant or associate. The reason for this is the limited number of quality employees and the equipment of the space. Most colleges and universities choose study programs where a computer classroom is sufficient for exercises. The labour market is unpredictable and the way of working of companies from 20 years ago has been overcome, and the teaching system has not followed that, so we have cases where the study program and subjects have not changed for years. Today, we need as many interdisciplinary and multidisciplinary programs as possible, primarily master's studies. There is a problem that a student chooses subjects from another study program at his faculty, let alone at a university or from another university, We have introduced a diploma supplement that does not serve the purpose for which it is intended because if we are making programs that were the same 20 years ago then we do not need a diploma supplement. We do not allow students who have completed basic studies in one study program to enrol in a master's degree in another study program, or we allow them with a difference in exams. Where is the interdisciplinarity? We encountered a case where a student completed basic studies in computer science and wanted to enrol in a master's degree in project management, but they did not allow him or he received 30 points in the ESPB exam. We cannot understand that it is the economy that chooses experts and that we need to adapt to it. If we educate an expert that no one will hire, of course there will be little interest in enrolling in those studies.
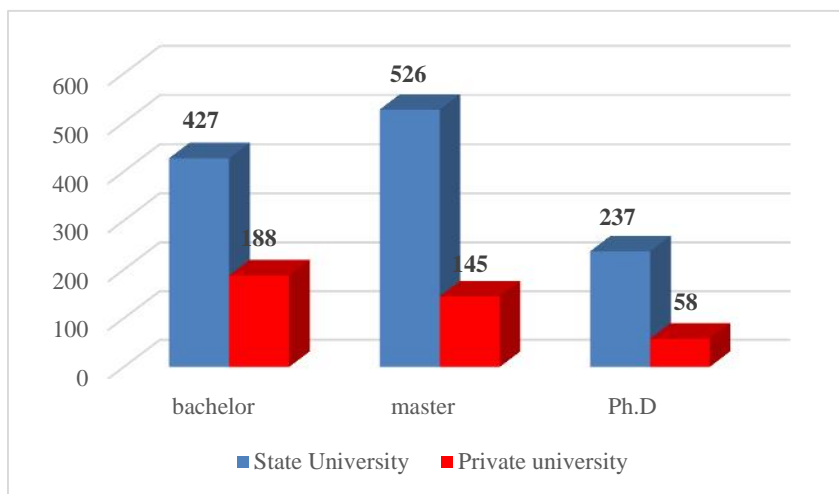


*Figure 8. The total number of accredited undergraduate, master's and doctoral study programs in Serbia*

*Source: NEAQA, 2022, https://www.nat.rs/en/accreditation-of-institutions/*

When we analyse the study programs of doctoral studies, the information is that 237 study programs are taught in state faculties or universities, and 58 study programs are taught in private faculties and universities. In Serbia, doctors are educated in 295 study programs, which is a lot and unnecessary (Figure 8). A country with an estimated population of 6,900,000 in 2020 and where around 2% of the population is illiterate, functional illiteracy is much higher (assumption that 1/3 of the population is functionally illiterate) doctoral studies are conducted in approximately 300 study programs. Perhaps this is the reason why we increasingly have a large production of doctors of science, but a very poor education. According to the data of the Republic Statistical Institute, 11,329 PhDs out of a total of 12,429 teachers and 4,526 associates were employed in faculties and universities in 2021. The study programs of specialist studies and interdisciplinary studies are mostly carried out at faculties of medicine and dentistry and are not interesting for analysis. It is an interesting fact that there are very few faculties that conduct studies on specialist academic studies. In addition to teachers, higher vocational schools also employ lecturers, and the condition for someone to be a lecturer is completed master's studies, which are no longer available, and specialist academic studies. There are fewer and fewer staff who can be chosen as lecturers because there are few faculties that teach specialist studies. The analysis shows that 66 study programs of these studies are taught in Serbia, 99% of which are studies in medicine and dentistry, which is a different type of specialist studies than those conducted at other faculties. At the same time, there are about 200 specialist study programs at the University of Zagreb. The majority of higher vocational schools are from the technical-technological field or from the social-humanistic, i.e. economic field, so we see that there are a small number of students at SAS who could be employed at higher schools. No Faculty of Economics in Serbia offers classes at SAS, while at the Faculty of Economics in Zagreb, classes are offered in 32 study programs. In Vojvodina, 2 higher business schools, 3 technical and 5 higher vocational schools for educators are accredited, and only FTN conducts SAS and that with a small number of enrolled students (few interested candidates). This is another indicator of the gap between education and the labour market. Specialist academic studies were conceived to fill the gap created by the abolition of Master's studies, but unfortunately they did not rise to the challenge. Primarily because the faculties did not recognize their importance and remained on the margins of the educational system. The best example of this is that in this school year, out of the total number of places for enrolment in the first year of study at all new universities, the University of Novi Sad has provided only 1.36% of places for candidates who want to enrol in specialist academic studies. Even that number is not filled, but it is much less. According to the data of the Republic Statistical Institute, in 2021, 3,562 specialists and masters were employed at universities and faculties in Serbia. Most of these staff are about to retire and have a master's degree because these studies stopped being conducted in 2005.

## SCHOOL OF PROFESSIONAL STUDIES (COLLEGES AND UNIVERSITIES)

In addition to universities and faculties in the Republic of Serbia, there are also high academic schools and high schools of professional studies. There is a small number of universities of academic studies (13 schools) that teach basic and master studies and are not relevant for the analysis of the educational area of Serbia. In addition to higher academic studies, there are also higher vocational schools, of which there are currently 57 in Serbia, of which 15 higher vocational schools are privately owned and 43 higher vocational schools are state-owned. Colleges of vocational studies educate students on a total of 392 study programs, including:

⌡ 211 bachelor study programs
⌡ 52 study programs of master studies
⌡ 129 study programs of specialist studies
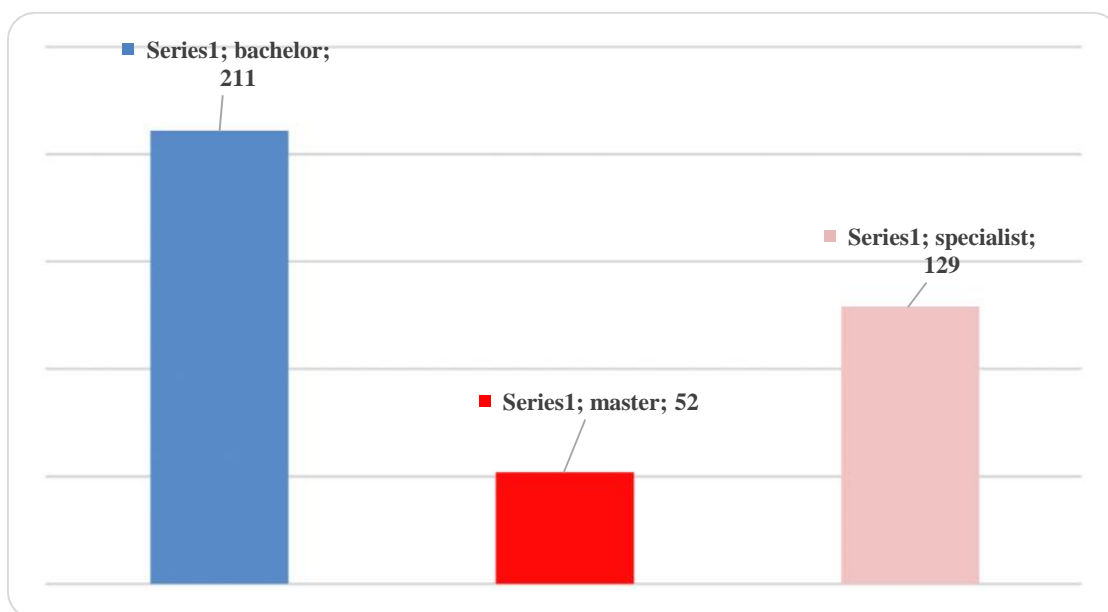
*Figure 9. The total number of accredited study programs of bachelor, master's and specialist studies at higher graduate* studies founded by the state

*Source: NEAQA, 2022, https://www.nat.rs/en/accreditation-of-institutions/*

Vocational schools founded by the state educate students in 211 study programs of basic studies, 52 master's programs and 129 study programs of specialist vocational studies (Figure 9). There is a big difference between the number of accredited basic and master vocational studies. The reason should be found in the provisions of the Law on Higher Education, which only introduced the Master of Vocational Studies a few years ago. Many higher vocational schools have not yet succeeded in accrediting a sufficient number of master's studies. One of the reasons for the small number of study programs is the provision that teachers teaching at master's vocational studies must be doctors of science. At the academic level, we have seen a small number of specialist study programs while this is not the case with specialist vocational studies. The reason for the large number of these programs is that there were no master's studies and specialist studies were the only type of study to continue the study process. With the last change in the law, specialist vocational studies were classified as a degree, which led to a decrease in the number of students interested in these study programs. A decrease in the number of study programs of specialist vocational studies is expected in the coming period. Analysis of the study programs of higher vocational schools whose founders and capital owners are private persons, and of which 15 students are educated on the following study programs: 54 study programs of basic studies, 7 master's programs and 11 students on study programs of specialist vocational studies (Figure 10). The reasons why more specialist than master's studies are accredited are the same as for state higher education institutions.
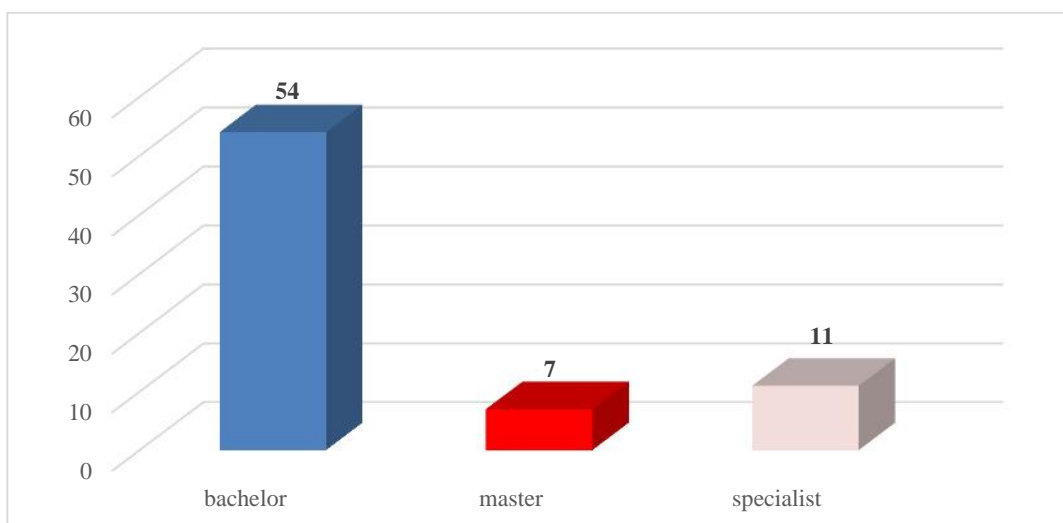
*Figure 10. The total number of accredited study programs of bachelor, master's and specialist studies at higher graduate studies whose founders are private persons*

*Source: NEAQA, 2022, https://www.nat.rs/en/accreditation-of-institutions/*

When analysing the total number of accredited study programs in Serbia, we come to the fact that 880 undergraduate study programs are accredited, of which 615 programs are conducted at faculties or universities and 265 programs are conducted at higher vocational schools (Figure 11). Master's academic studies can be enrolled in 671 study programs and Master's vocational studies in 59 study programs. There is a much greater number of specialist vocational study programs than specialist academic ones, namely 140 vocational and 63 academic studies. According to the data of the Republic Institute of Statistics in the school year 2021/22. 243,730 students were enrolled in all higher education institutions and at all levels of study in the Republic of Serbia. A total of 205,58 students were enrolled in state and private universities - of which 85.3% or 174,837 students were enrolled in state and 14.7% or 30,221 students in private faculties.
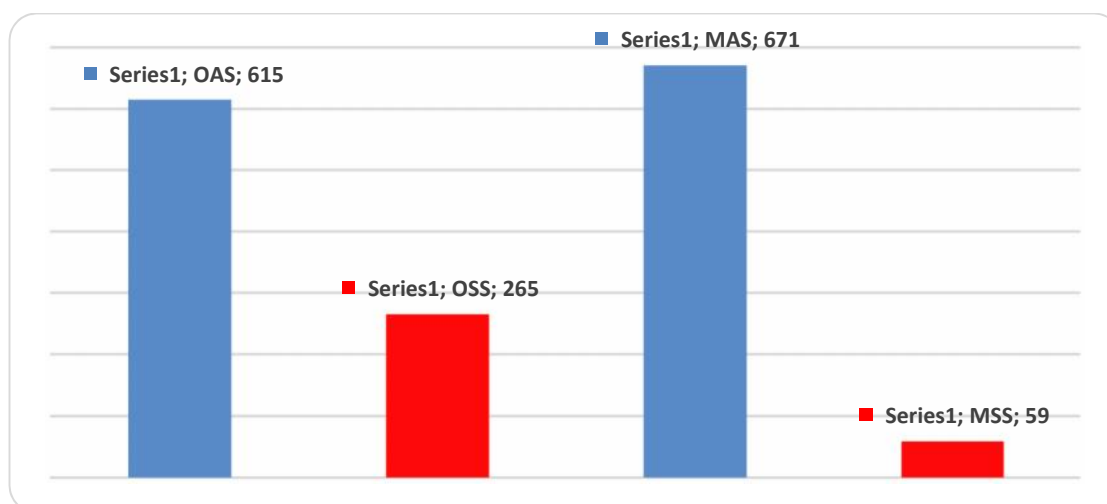


*Figure 11. The total number of accredited undergraduate and master's study programs at universities, colleges and vocational schools*

*Source: NEAQA, 2022, https://www.nat.rs/en/accreditation-of-institutions/*

A total of 38,672 students are enrolled in state and private vocational high schools - of which 84.1% or 32,533 students are in state vocational high schools, and 15.9% or 6,139 students are in private ones. Observed according to the method of financing their studies, 40.5% of students enrolled on budget, and 59.5% of students on self-financing. The number of newly enrolled students in this school year is 48,508 students, of which 24,521 were enrolled at the expense of the budget and 23,987 students were self-financed.

## THE LABOR MARKET IN THE REPUBLIC OF SERBIA

In this part of the work, we will try to answer the questions, what is the labour market for, what are the characteristics of the modern labour market and the current situation and problems. The labour market has a number of characteristics. Its constituent elements are living people who act as labour force carriers and are endowed with such human qualities as psychophysiological, social, cultural, religious, political, etc. These characteristics have a significant influence on people's interests, motivation, level of work activity and affect the state of the labour market. The basic difference between work and all other types of productive resources is that it is a form of human life, the realization of his life goals and interests. Therefore, the price of labour is not only a kind of resource price, but the price of the living standard of social prestige, the well-being of the employee and his family. The labour market is a market for labour resources as a commodity whose equilibrium price and quantity are determined by the interaction of supply and demand. Market agents represented by entrepreneurs and the working-age population enter into certain relationships on the labour market. Therefore, the labour market is such an economic environment or space in which, as a result of competition between economic subjects through the mechanism of supply and demand, a certain amount of employment and the level of wages is established. The function of the labour market is determined by the role of work in the life of the population, when work is the most important source of income and well-being. The economy sees work as the most important production resource, and if we add to that that the biggest asset of any company is its employees and that they bring a competitive advantage, then we see the importance of work in the economy. Unfortunately, work is a consumable and limited resource that needs to be taken care of. It follows from this that the market has two functions: Social function, which is to ensure a normal level of income for the well-being of the population. The economic function is the rational spending in the use of labour as a limited resource. The labour market performs a number of stimulating functions that contribute to the development of competitiveness between its participants, increasing interest in highly efficient work, improving and changing the profession. The classic model of the competitive labour market is built on the following basic principles: a large number of employers who represent the interests of companies and express the demand for labour; a large number of workers who are carriers of labour force and express the proposal of labour supply. The behaviour of subjects on the labour market is rational due to the achievement of their own interests and benefits. Employers want to compensate for their work by paying as little as possible, because in this way they reduce costs and increase profits and profits, and employers want to receive more compensation for their invested work, because in this way they ensure better living conditions and a higher standard of living. Jobs offered by employers and labour offered by workers should be homogeneous. However, by analysing the labour market in Serbia, we see that there is no homogeneity, but on the contrary, a gap between the supply and demand of labour. There are professions where there are a large number of unemployed and a large number of graduated students waiting at the bureau to get a job, and on the other hand, there is a need for certain professions where there is not a sufficient number of trained and quality personnel. However, the state still educates personnel who find it difficult to find work, even as students who are financed from the budget. Through the enrolment policy, the state should influence the number of staff who cannot find employment by not enrolling students at the expense of the

budget in those programs. Those who want to study on those programs should pay the tuition. An analysis should be made of how many economists, lawyers, psychologists, etc. are needed in this country, which are difficult to find. On the other hand, there is a need for personnel from the natural and mathematical field, who are in short supply. We also lack engineers, but primarily those who deal with multidisciplinary sciences. Our University of Bijeljina has recognized this need and started accrediting new study programs such as Mechatronics, Renewable Energy Sources, Logistics Engineering and others. The labour market is characterized by perfect competition, realized through the mechanism of flexible market prices, when neither individual employers nor individual employees can influence the market situation as a whole; equilibrium compensation rates do not depend on the behaviour of individual companies or groups of workers, but are determined by the general situation, that is, by the general interaction of all participants in the market process. Currently, there is no perfect competition in the Serbian market, as in the whole of Europe, because we are witnessing the demand for labour force of certain profiles, which are in short supply on the labour market. Examples of this are truck and bus drivers, craftsmen of all professions, etc. The free European market also contributed to the non-competitiveness of the market, and a large number of qualified workers go to the countries of the European Union in search of work, better wages and a better life. Competitiveness in the market is also affected by the demographic picture, because there are more and more workers who are in their later years and are retiring, and the number of young people is decreasing. The majority European countries are facing a decline in the birth rate and an increase in the mortality rate, so that population growth is declining. This situation has not bypassed our country as well as other neighbouring countries. In reality, there is no single abstract labour market in which absolutely all companies and employees would participate. The labour market as a whole consists of a number of local labour markets, segments, sectors characterized by regional, sectoral characteristics, the role of professional teams, qualification groups, gender and age, national and other differences (Udovi ki et al, 2021). Changes in the level of earnings under the influence of supply and demand fluctuations occur in local markets (segments), taking into account specific conditions and having a special dynamic. On the labour market, there is a mass movement of the workforce, and its quantitative and qualitative composition is constantly changing, as we have already said in the previous part. At the same time, the demand for labour is constantly changing, because the expansion of production, its modernization, structural changes require special highly qualified training of workers, development of new modern professions (Arandarenko, et al, 2021). Higher education institutions should monitor this and react in time with new study programs or by revising existing ones. Here, as well as in the world, there is always a mismatch between the supply and demand of qualified labour. There are two segments of the market: the primary business market and the secondary business market. The primary job market also includes highly qualified workers and it is the group of best paid workers whose employment is stable and guaranteed. The secondary job market does not require special training and high qualification. Today, the economy is increasingly looking for labour from the primary job market. The world of industry is rapidly changing, so we have only just started to deal with Industry 4.0 at our faculties, while the developed world has already seen its shortcomings and is turning to Industry 5.0. When will our higher education institutions introduce study programs with Industry 5.0 subjects if they do not introduce an entire study program dedicated to smart production. Before presenting the characteristics of the labour market, let's just give basic information about the Republic of Serbia. The Republic of Serbia covers an area of 88,499 km² and, according to the 2011 census, has 7,186,862 inhabitants. According to the 2020 population estimate, 6,899,126 people live in Serbia. The census will soon take place, so we will have a true picture of the population. In the last five years, an increase in the number of employed people has been recorded in Serbia, from 2,131,079 in 2018 to 2,273,591 in 2021 (Figure 12). By increasing the number of employees, the number of unemployed persons decreases, so that in 2018 there were 552,513, and in 2021, 477,564 unemployed (Serbian Business Registers Agency (SBRA)).
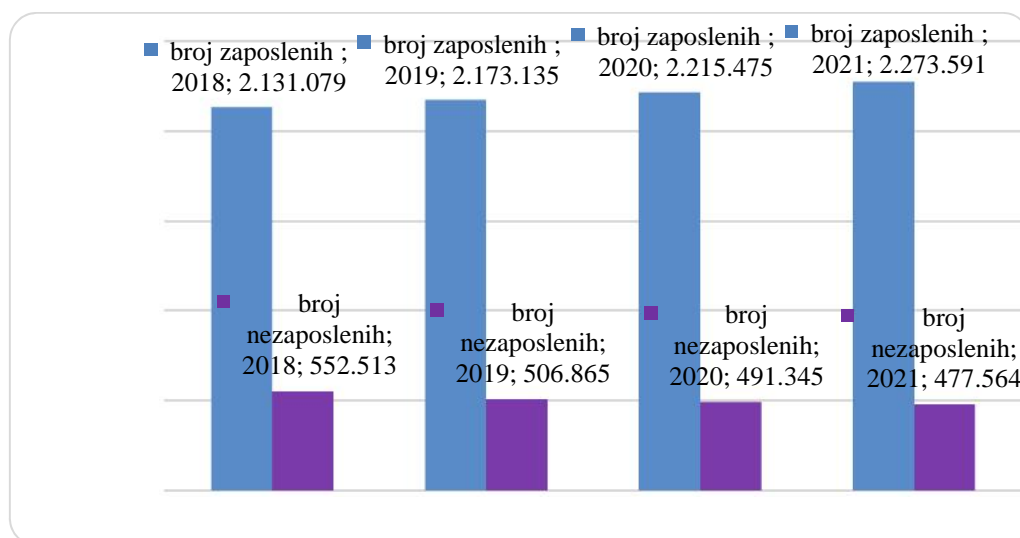
*Figure 12. Number of employed and unemployed in Serbia from 2018 to 2021*

*Source: SBRA, 2022, https://pretraga2.apr.gov.rs/APRMapePodsticaja/*

According to the data of the Agency for Economic Register in Serbia, in 2021, out of 477,564 unemployed, 55,000 are unemployed with a higher vocational education and 12,246 with a higher vocational education. This data only supports the claims that there is a gap between supply and demand for labour. We have over 67,000 highly qualified unemployed (Table 2) and at the same time we have a demand for programmers, they say there is a shortage of about 100,000 programmers, about 4,000 mechatronics engineers, even quality managers. While on the other hand, we have a lot of unemployed managers, it means that they do not have enough knowledge, skills and competences that the economy is looking for.

*Table 2. Qualification structure of the unemployed population*

| | **2018** | **2019** | **2020** | **2021** |
|---|---|---|---|---|
| Unqualified | 166.001 | 154.134 | 150.015 | 149.907 |
| Lower vocational education and semi-qualified | 18.617 | 16.503 | 15.073 | 14.520 |
| Qualified | 119.912 | 107.931 | 101.008 | 98.378 |
| Secondary education | 162.724 | 150.604 | 147.577 | 144.774 |
| Highly qualified | 3.709 | 3.254 | 2.947 | 2.739 |
| Higher vocational education | 16.403 | 14.403 | 13.239 | 12.246 |
| Higher vocational education | **65.147** | 60.036 | 61.486 | 55.000 |
| **In total** | 552.513 | 506.865 | 491.345 | 477.564 |

*Source: SBRA, 2022, https://pretraga2.apr.gov.rs/APRMapePodsticaja/*

It should be added to these data that in 2021, 41395 students completed their studies in Serbia and that most of them are looking for a job. It is interesting to note that only 211 students received their bachelor's/master's/doctorate degrees under the old law if it is known that the deadline for students to complete these studies is October 1, 2022. years. The analysis shows that over 3,000 students in graduate programs have not yet completed their studies and are expecting an extension of this deadline.

*Table 3. The number of students who graduated at all levels of study in 2021*

| Higher vocational schools | | Faculties/Universities | | | |
|---|---|---|---|---|---|
| Failed at the 1st degree study | Failed at the second-degree study | Failed at the 1st degree study | Failed at the second-degree study | Failed at the third-degree study | Old programs |
| 8118 | 531 | 20995 | 10819 | 719 | 211 |

*Source: Work of the author, 2022*

The analysis of the labour market of Serbia shows that there is a mismatch between supply and demand and that educational institutions do not follow the needs of the market for certain personnel. This problem has been noticed in many countries and various research studies have been carried out, and we especially highlight the study "Future of Skills: Employment in 2030", whose research partners are Nesta, Pearson and the Oxford Martin School. All these studies show that the most important abilities for the future will be: problem solving, creative thinking, originality and adaptability. Faculties, universities of higher education should educate personnel who will have these abilities. Entrepreneurs are often described as "initiators of the knowledge triangle". As EIT Governing Board President Alexander von Gabein stated, many believe that cutting-edge research and education in themselves lead to innovation. So why are we educating staff that the market is not looking for? Perhaps we can find this answer in the world ranking lists of the success of universities, where we either do not exist or are somewhere far away. If we analyse the Shanghai list, which is the most famous in the world, we see that of the Balkan countries, only the University of Belgrade is among the first 500 and not one more. A few years ago, the University of Zagreb was also on that list, but it fell off the list. Maybe the lack of sufficient funds is part of the problem, because we can't get modern laboratory equipment and schools, and another reason is because our young and promising experts go to countries where they will be better paid and have better working conditions. We must not look for excuses, but to continue with the reforms of higher education, not to hide behind the Bologna Declaration and to attribute everything that is wrong to that way of studying, but to come to grips with it and start seriously dealing with the problems. Recently, in the material for the accreditation of a study program in the study program's competency standard, I read that the institution determines the competencies according to the teacher's competencies. Students have forgotten that the outcome and competencies of the study program should be aimed at students and not teachers. However, maybe this institution was just being honest and said what most faculties do, which is to tailor study programs according to teachers and not according to the needs of the market and students. We ignore that the users of the services of universities, faculties and colleges are precisely the employers and the economy, and the students are indirect users because they will receive adequate compensation for their work. The purpose of these institutions is not knowledge, as they will tell you in many colleges and universities, but in addition to knowledge, skills and competence. Knowledge can be acquired sitting at home and surfing Google. If we want our students to be successful, let's give them more skills and competencies that will set them apart from students from other study programs.

## CHANGES TO BE MADE

First of all, we must look up to developed countries and learn from them, if we cannot be the creators of change, at least we should follow those who create those changes. We must not only be addicted to foreign technology, we must also develop our own. An example for learning is the American market, which plays a large role in the triangle of knowledge, which is business - education

- research. The economy and entrepreneurs enjoy the fruits of knowledge, skills and competences that come from research institutions and turn their potential into new business ventures. This model is known as the triple helix model for innovation. Higher education institutions are not alone on this path, because the economy and the state must be in the triple spiral for the realization of innovation and social progress. In the new distribution of roles, higher education institutions are expected to provide education, research and publish results, set academic standards, open communication with the economy, internationalize and work on curriculum improvement. The focus of curriculum creation and proposal should be shifted from higher education institutions to the economy and business, because the companies that will one day employ a student feel the trends in the labour market best. Companies are also expected to participate in joint research with higher education institutions, commercialize research, help strengthen academic entrepreneurship. Representatives of business and higher education institutions should jointly implement knowledge exchange programs and business idea incubation programs. The state is expected to plan and implement adequate policies, plan aid funds, help strengthen partnerships between universities and the economy. As a result of the cooperation, all three parties should produce joint investments, science and technology parks, support programs and an integrated approach to research and commercialization. Are our higher education institutions ready for new challenges? Higher education institutions are changing because new financing models are emerging, the focus is shifting to employment and entrepreneurship, where the student is the consumer of the service. In order for institutions to achieve these goals, one of the ways is internationalization. Higher education institutions should regularly monitor and carry out their self-assessment, i.e. self-evaluation, with which they will examine their innovation and entrepreneurial potential and, based on that, create an action plan with a list of priorities and the implementation of proposed measures. The self-evaluation process should guide us through the process of identifying priorities and action plans in eight key areas for growth and success today, namely:

1. Leadership and management
2. Organizational capacities and resources
3. Entrepreneurial thinking and learning
4. Help and support for students to become future entrepreneurs
5. Digital transformation and capability (Industry 4.0 and 5.0)
6. Exchange of knowledge and international and domestic cooperation
7. Internationalization
8. Monitoring and measuring business performance

Today, students enter higher education almost exclusively to acquire qualifications and expect greater career opportunities in business and industry in the future.


## CONCLUSION


The incompatibility of the education and labour market system is manifested through inconsistency of labour supply and job offers, which is in a positive correlation with the long-term unemployment in the Republic of Serbia. In addition to long-term unemployment, the labour market in the Republic of Serbia is characterized by: inefficiency of human potential - low activity rate (in Serbia the rate of inactivity is 44.5%), high unemployment rate of young people (25.3%), disparities in regional unemployment, internal migration problem, etc. The formal education system inadequately perceives the needs of the labour market. Moreover, the emphasis is put on the quantity not on the quality which results in increasing number of unemployed graduates. Although it is still not developed in the Republic of Serbia, the lifelong learning model is highly needed on the modern

labour market. The importance of this model is best seen through the changes in the structure of the economy in the last few years, especially through the expansion of the service sector. In the Republic of Serbia, there is a significant increase in the number of employees in the information technology companies (Ran elovi , S, 2021) The question is whether this trend is followed by the study programs that are being taught at the universities and faculties in the Republic of Serbia. There are a large number of higher education institutions that train quality personnel through a large number of study programs. World companies are coming to our country, and one of the reasons is the quality workforce. However, in the research we noticed a gap between supply and demand on the labour market and that we are still training personnel for those profiles for which there is no interest. Many higher education institutions do not follow the trends brought by the industry and the market and carry out their self-timing and revisions of study programs, but some programs have had the same teaching for the last 20 years. Private colleges and universities are more ready for changes and react to them faster, the only problem is that these institutions educate personnel whose education requires less funds. This refers to reducing the number of classes, avoiding laboratory and computer exercises and enrolling in those programs where less funds are needed to equip laboratories. Serbia has potential because more than 41,000 students complete their studies annually, and we see that the number of unemployed is also decreasing, so most of them will find employment. Some get a job already while they are studying, and these are mostly students of natural and engineering sciences, because there is a deficit for these experts. It is necessary for higher education students to start thinking innovatively and in an entrepreneurial spirit, and with the help of the state and the economy, the quality of staff should rise to an even higher level. This approach will enable quick and high-quality program changes, release the potential of higher education institutions for innovation, entrepreneurship and better preparation of students for the labour market in the future. This kind of distribution, where the industry provides direct input to higher education institutions, is a great advantage, through which it is possible to constantly adapt the program to the needs of the labour market.

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# CHANGE MANAGEMENT AS A SUCCESS FORMULA FOR INDIVIDUALS AND ORGANIZATIONS

*Gordana Gavri* [20],
*Claudia Ogrean*[21],
*Aleksandra Golubovi   Stojanovi* [22]

## ABSTRACT

*The speed of organizations' response to events in the environment has become an important characteristic of their competitiveness in the global market, where it is said that they no longer big eat small, but fast spores. Success is on the side of those who are able to see business opportunities faster than others, give quick and adequate answers to all challenges, solve problems in innovative ways, constantly offer new products, simply react faster to competition challenges and reach consumers faster. Simply put, success is on the side of those who are ready to consciously and consistently embrace changes. The task of modern managers is to create an organizational environment that supports and encourages change. It is also known that people naturally resist change because they perceive it as something very stressful, frightening and traumatic which disturbs their current situation. Therefore, one of the most serious challenges faced by modern managers is overcoming the resistance of employees while maintaining the internal stability of the organization in the process of change. Change management has become an area that is receiving increasing attention and strategic resource not only at the corporate level but also at the national and international levels. Change has become the key to success not only for organizations but also for individuals if they want to remain competitive in the labor market and that is why it is necessary to pay attention to this topic.*

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# INTRODUCTION

People have always wanted to trade or conduct other types of business with people from different parts of the world and continents. Limiting business factors were mostly related to distance, weather conditions, and road safety. Times have changed drastically, and thus the conditions of doing business. The advancement of information and communication technologies has transformed the world into the global village free of barriers McLuhan envisioned (McLuhan, 1962) 60 years ago. No matter how much McLuhan's idea about the world without any boundaries seemed utopian, today it is our reality. Organizations are no longer tightened by national borders. They may spread globally as they grow (while some of them are even born global), which requires changes in the ways they operate.

By the middle of the 1980s organizations operated in circumstances that involved certainty and stability, without major turbulence. In their book Management, Robbins and Coulter compare an organization to a boat sailing on calm water to its destination. Storms that briefly disturbed the balance were rare, so the work of managers was easy because the future looked like the past. Only those managers who worked in the field of telecommunications, computer software and women's clothing faced somewhat more dynamic business circumstances and did not have the privilege of relying on the predictions they used in the past. Today's organizations, their managers and employees, are sailing "a raging river with uninterrupted rapids"(Robbins & Coulter, 2016, p. 214), where security and predictability no longer exist and storms are a natural state.

Although the fact that you have freedom and the opportunity to go out into the world seems idyllic, the challenges that the process of globalization has brought with it, and which primarily relate to global competition, represent a huge pressure for organizations. Changes that used to be sporadic and rare, today are constant, fast, sudden and unexpected, which makes modern working conditions extremely dynamic. Speed has become a significant feature of competitiveness in the global marketplace, where big no more eating small, but fast spores. Success is on the side of those who are able to see business opportunities faster than others, give quick and adequate answers to all challenges, solve problems in innovative ways, constantly offer new products, simply react faster to competition challenges and reach consumers faster. Also, the time when consumer choice was limited to just a few models is behind us. Borders have opened and buyers have been given a wide range of options. Their requirements and expectations are now different, and more sophisticated, and thus the challenge for organizations is higher. And, because everything happens quickly and abruptly, with increased expectations, companies face significant risks and the loss of won positions. It has become absolutely impossible to predict with certainty how things will turn out in the market arena. Products and services that are very current and in demand today, may become obsolete or even undesirable for consumers tomorrow, so we can rightly consider modern business as a kind of hazard.

The presence of constant competition, as well as the organization's need to survive and thrive in the global market, necessitates the ability and willingness of the company to constantly change and adapt in order to successfully overcome uncertainty and competition. The task of modern managers is to create an organizational environment that builds an organizational culture of change. One should not always wait for change to happen, but one should initiate changes, even in those moments when the environment and competition do not consider it necessary. Every change is a new opportunity for the organization and that is how it should be understood. Frank (2015, p. 186) says that "the world has not been static for a long time and whoever waits too long will not survive, because others will use the given chance".

# THE NEED TO INTRODUCE CHANGES IN ORGANIZATIONS

According to Peter Drucker, we are living in the age of discontinuity (Drucker, 1992) , which prevents the desired precision of predictions and necessitates work on flexibility. Successful organizations use new forms of organizational structures and processes that allow them to become more organizationally flexible and adaptable and generate amazing products and services. That gives them more proactive control over their future, rather than waiting for them to react to changes in their market (Ackoff et al., 2006, p. 139).

In order to follow all the changes with success, knowledge is necessary, and the first change that the organization needs to introduce is the attitude towards knowledge. The business has become very complex and in order to remain top in their business, it is necessary to follow the latest knowledge in order to know more than the competition and thus be one step ahead of them. Employees are the organization's only resource with the ability to acquire knowledge, which means that modern managers must focus on employees more than ever before, encouraging and empowering their potential. This is a significant change from the period up to the mid-1980s when organizations were created with strict relations of authority, divided into sectors, when employees (except when it came to managers) were not expected to think, but to do what they are told, and managers would control and coordinate their work. In 1994, a survey was conducted among business people in various industries. They were asked, "What percentage of time do you think people in your organization spend thinking, learning, and innovating?" The responses received ranged from 5 to 15 percent (Goldman et al.,1995, p. 190). Learning has become an existential need and therefore the dominant process in a person's life, which today spends most of its working time mastering innovations. The frightening uncertainty that has traditionally accompanied major organizational change has now been replaced by frightening uncertainty when it comes to deciding to stay the same (Cameron & Quinn, 2006, p. 1).

Due to a growing awareness of the need for change, many organizations decided to reorganize every five years. It is frequently costly, time-consuming, and has a negative impact on the morale of many people affected by the change. Nevertheless, such changes seem to be necessary to adapt to internal or external changes (Ackoff at al., 2006, p.197). Otherwise, organizational inertia may install, drawing the company into a spiral of failure (Rothaermel, 2019).

Changing organizational culture is important, because it is considered crucial for other organizational changes. The father of modern management, Peter Drucker, concluded long ago that "we are in one of those great historical periods that occur every 200 or 300 years when people no longer understand the world and the past is not enough to explain the future." (Cameron & Quinn, 2006, p. 1) and all these continuous, unpredictable, and sometimes alarming changes do not allow the organization or manager to remain static in their work. The introduction of various changes has become a necessity for every company (reengineering, TQM).

Today, it is also known that the courage to take risks can bring the company the desired profit, and therefore the attitude towards insecurity needs to change. Out of fear of risk, many organizations make mistakes and remain conservative, so they operate at a loss. An example is Japanese car manufacturers who gave up placing mini-vans on the US market after conducting a survey in which they did not receive customer support. In contrast, Chrysler, which also conducted market research and received a negative response, decided to take the risk, believing that there would be customers and that it would succeed. And they succeeded. It was one of the most profitable years in Chrysler's history.

The trend of change has only just begun and is unlikely to stop any time soon. New business conditions require new organizational behaviors. It is likely that future organizations will be called changeable organizations (Risti  at al., 2007, p. 207). Organizations that encourage change based on

the acceptance of risk, creativity, innovation and responsibility of each individual for the business of the organization, will certainly do better.

Change management is considered particularly important for organizations in countries such as Serbia in transition. The transition has brought with it privatization, and the ultimate goal of privatization is to increase the efficiency of organizations. In addition to the process of transition and privatization, companies in Serbia also faced the challenge of the globalization process, which made the overall situation in the domestic market much more complex. Suddenly, it is necessary to make radical changes in the current way of working and doing business and get out of your comfort zone. People naturally refuse to change, so it is clear why the process of change takes a long time.

Research on organizational culture conducted in Serbia during 2015 and 2016 - which included 1000 respondents employed in micro, small, medium, and large companies in the Republic of Serbia, both domestic and foreign - showed that:

⌡ companies in Serbia need to work on adaptability in all areas of business in a manner that is more responsive to changes;

⌡ there is a degree of adaptability in domestic and foreign companies. New and improved ways of working are constantly acquired in foreign companies that better meet the needs and desires of consumers, and therefore directly affect decisions and operations. Foreign companies more often encourage direct contact with customers.

⌡ innovation is an essential factor of adaptability (Gavri , 2016, p. 125).

Neither the strongest (most powerful) nor the biggest will remain on the market, but those who successfully adapt to changes. That is why the organizations of the future should have the organizational behavior of the future, ie. a culture that encourages and supports the implementation of organizational change.


## *CHARACTERISTICS OF THE CHANGE IMPLEMENTATION PROCESS*


Today's business environment is described as an environment of hypercompetitiveness, which means that the situation in the environment is such that the market is fiercely competitive, with this level of competition constantly increasing (Coulter, 2010, p. 202). Also, the rate of change in the environment is constantly growing and with its complexity, accurate forecasting is becoming more and more difficult and less and less likely (Ackoff at al., 2006, p.10). Despite the different forecasting models that exist and which organizations apply and spend millions of dollars for these purposes, no company has been able to predict any crisis so far. That is why it is important for today's organization to constantly change and create a culture of change that will ensure its success.

Any problems (health, emotional, organizational, physical, social, political) are a consequence of disharmony caused by some change. Therefore, changes in the organization can bring many problems, but also open up numerous opportunities. Organizational changes are a long-term and comprehensive process, which means abandoning firmly rooted principles of work, , therefore, employees and managers decide only in a situation where the current situation begins to seriously threaten the survival of the organization.

Implementing change requires a lot of patience and perseverance as well as constant support from management. In order for a certain change to be successfully implemented in the organization, it takes time for everyone affected to adjust adapt to it (since people are the bearers of all changes, we primarily think of them here). People will accept change and start cooperating with management to implement it only when they realize that the "status quo" poses a greater threat to them than the threat that change brings. Namely, for any type of change that the organization decides (strategic or

operational: expansion into new markets, the introduction of a better planning system, large purchases or mergers with other companies, change of culture, new performance management methodology) the existing situation will be disrupted, which provokes different reactions among employees - from passionate support to resolute resistance. Woodrow Wilson, the former president of the United States, once said, "If you want to make enemies for yourself, try to change something." (Hill, 2014, p. 52).

The process of introducing changes is uncertain due to possible resistance. It is said that "As action most often provokes a reaction, so change most often provokes resistance." (Beli  et al., 2006, p. 54). Therefore, changes should be taken seriously, involving all employees in the process, because change only gains value when it is accepted by all employees and when implemented in their work or behavior begins to bring the desired results.

Change is risky and can very easily fail, which further demotivates people and increases their resistance to change. Individuals are the only ones who know how to embrace risks and be resilient to setbacks.

Due to the topicality of the given topic, the authors Richard Beckhard and David Gleicher even created a formula for change, which is called Gleicher's formula after one of the creators. The formula helps to see the potential success or failure of organizational change and reads:

$$D \cdot V \cdot F > P$$

where:

D represents dissatisfaction with the existing situation,

V is a vision of what can be changed and achieved,

F are the first concrete steps to realize the vision,

P represents resistance.


Changes can be made if the result of multiplying the three factors (D, V, and F) is higher than P. If any of the factors D, V or F have a low value or are not present at all, their common set cannot exceed the resistance (Beli  et al., 2006, p. 53).

The key conditions that need to be met for effective implementation of changes would be:

⌡ that employees respect the manager and trust him, that is, to believe that the change he/she proposes is in the best interest of the organization and themselves,
⌡ organizing people into a team that is ready to adopt change and cooperate with each other,
⌡ unlimited communication - if employees do not have enough information, they will not be for change and most important
⌡ free employees from all fears in order to successfully lead the organization to a new and better future state announced by the change program (Krsti  et al., 2018,p. 120-121).

Fear is destructive, it prevents people from taking risks, makes them to withdraw and avoid communication, which means that when there is fear among employees in an organization, it will be unable to implement any change. Managing organizational change is the process of leading and managing human emotions and reactions in a way that minimizes the inevitable decline in productivity that accompanies change (Radovi  – Markovi , 2008, p. 120).

The mentioned conditions are connected. Gaining trust in the manager and his/her work and well-established communication will significantly facilitate the realization of the other two conditions.

One of the most important changes is the change of organizational structure. The dominating organizational structure of the past, known as bureaucratic organization (classic organizational structure), is now regarded as extremely inefficient and inflexible, and needs to be changed and improved. Instead of high specialization, broad knowledge is preferred, instead of formalization, less

formal behavior and procedures, strict centralization should be replaced by decentralization, direct control of freedom and teamwork. New trends in the formation of the organization should also, instead of a pronounced hierarchy and a large number of hierarchical levels, create a structure that will allow the free flow of information and which will contribute to the development of innovation and creativity of employees. An organization, which is dedicated to nurturing good interpersonal relationships and affirmation of learning, is an organization that successfully manages its future, not allowing itself to become a victim of the circumstances that the future brings. Thus, the traditional mechanistic organization/structure is increasingly challenged by the emergence of the organic organization/structure - one that is "highly adaptive and flexible", based on: cross-functional and cross-hierarchical teams, free flow of information, wide spans of control, decentralization, and low formalization.

Although change can be a challenge for an organization and a time-consuming process, the rewards that follow are undeniable.

## *INDIVIDUAL CHANGE AS A KEY TO ORGANIZATIONAL CHANGE*

Survival is the basis of human evolutionary aspirations; accordingly, individuals have had to continually adapt to the environment - by changing their habits and behaviors - in order to survive. In the years ahead, the degree of human adaptability, as well as the adaptability of organizations and society as a whole, will be put to a serious test.

In the last two decades, significant changes in the labor market have taken place in Serbia, caused by the process of globalization and transition. Many people lost their jobs due to the privatization of companies and the staff reductions. A large number of them simply did not cope with the new circumstances of work and work organization, because the knowledge and skills they possess do not correspond to the current needs of organizations. Suddenly, they were confronted with the harsh truth that they are no longer needed, ie. that they are functional surplus.

Namely, modern business conditions have taken away job security and brought some new rules, so it is best to say that most managers and workers today work in a climate that can best be characterized as "temporary". Lifelong employment, secure jobs, regular and secure salaries, fixed working hours, organizations responsible for the career development of their workers and, finally, a secure pension, are almost non-existent today. Most modern organizations are characterized by a drastically smaller number of workers than before, who are mostly employed temporarily and are most often paid based on results. In other words, "less and fewer contracts of employment are being concluded, and more and more contracts of performance" (Djuri in & Janoševi , 2007, p. 414).

A significant difference in relation to the past is contained in the fact that in the past, only managers were expected to think in organizations, while workers were there to do what they were told. Today is different. Everyone is expected to think and show their knowledge - workers must constantly update their knowledge and skills in order to respond to new work demands. This is the only way to successfully deal with the complexity of the new era of rapid change. Hence, it is clear why the need for people who think responsibly about the future to constantly improve, progress, develop as individuals and workers have increased. Such an approach allows them to keep their jobs and remain competitive in the labor market because the workers of the future are so-called "portfolio" workers whose portfolio consists of all the professional knowledge and skills to do various jobs acquired during life and working life. So, modern living and business conditions require people to change, because there is no longer a "secure job for life", but today we only have a "secure career" that we build ourselves.

This is simply the era of knowledge workers, just as it was of farmers in the agricultural age or of employees with strength (hands-on abilities) in the industrial age. Modern work means working

smarter, not harder. Simply put, "while in the age of industrialization, products and technologies conditioned what and how a person should work at his workplace, in today's knowledge society, the situation is the opposite: a person largely has to organize his work himself. He must determine what he will do and how. In fact, he manages himself" (Frank, 2015, p. 90). We can also say that "more complex circumstances, speed, pace and working conditions require extremely intellectually strong and educated employees" (Gavri  et al., 2017, p. 67), and that modern business conditions have made man more ambitious than he had ever been.

Modern workers must accept the attitude of "lifelong learning" as a concept that is no longer a mere phrase but an imperative. We are witnesses of the past time in which learning as an activity ended up to the maximum of the thirtieth year of life, and then that knowledge was exploited until the end of the working life. Today, knowledge is becoming obsolete at a faster rate than ever before, and workers who are highly qualified, flexible and ready for lifelong learning have an advantage when hiring.

Investing in education today can be seen as an investment that „prepares a person for life in society by engaging them in various social functions, but also for the best possible performance of these functions; increases human skills and knowledge, increases individual and social productivity; provides continuous search for opportunities for the application of scientific achievements, technological discoveries and innovations; reduces the risk of business operations, expands the possibility of fitting into new activities; affects the increase of the GDP, and thus ensures continuous economic growth, higher level of employment and real incomes, as well as the increase of the standard of living and well-being; it affects the vitality and regeneration of the nation, the ability to reason and think critically, etc." (Dimitrijevi  & Mijailovi , 2021, p. 153) that is, it brings benefits to both individuals and organizations.

Employees who think responsibly about their future should, when choosing a job and organization, as well as when making decisions about moving to another organization, choose those companies that offer them the most opportunities for learning, professional growth and development. People must be aware that the new age calls for greater investments in themselves and their development through the acquisition of new skills and experiences - to fit constantly evolving requirements. Only such a pattern of behavior allows them to become multifunctional and flexible and thus more easily adapt to dynamic changes in the world of work, increase the security of their employment, open new opportunities for advancement, provide opportunities for better earnings, etc.

Employees should look at themselves as independent entrepreneurs who are constantly monitoring not just which qualifications are competitive in the labor market, but also how they are changing/evolving (in terms of required skills and competencies) - in order to keep pace with change. Employees will eventually become specialists, while "superiors will know less and less about the jobs of subordinates, so some authors talk about a modern organization in which every worker will be a manager at the same time." (Djuri in & Janoševi , 2007, p. 416).

People should also develop a passion for constant learning and improvement, independent of the company, and in areas that are not directly related to their current job (Gavri  & Majdarevi , 2014, p.596). The key to success is to make every effort to be more worthy, and thus to provide themselves with the opportunity to work for the rest of their lives - as they can no longer expect a (single) job for the rest of their lives. A rich portfolio is their key map for a secure future. Modern workers must live in accordance with the motto "be ready", which means that they should not wait for the organization to enable their career development and provide an opportunity for training, but they should take the initiative and manage their careers. Experience and research to date show that young workers are more successful in adapting to new trends, while older employees find it difficult to change their established habits and are considerably more resistant to new working and business conditions.

Work as a factor of stability that enables a person to develop, change the world in which he/ she lives, to make he/ she  life more beautiful, easier and richer (the overall quality of life of an individual

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depends on work, ie income earned in this way: where and how he/ she lives, what education his/her children gets, what his/her social life looks like, etc.), has always had a special place and importance in the life of each individual. The income from work for most people, in a poor country like Serbia, is the only basis of existence. That is why every issue related to the impossibility of employment or loss of a job is extremely sensitive. Simply, the fear of losing a job is the most intense of all the fears that modern individual faces. Knowledge and its permanent innovation are today the basic conditions of work, and it is logical that not accepting the latest trends in knowledge can leave serious consequences for the life of the individual.

As already mentioned, the loss of a job and the inability to find another will bring multiple changes in an individual's life, which will further synergistically reflect on other aspects of his life. There will be a decline in living standards, and thus the overall quality of life. In some cases, the survival of the individual and his or her family may be compromised. In fact, the consequences of losing a job or not being able to find one depend to a large extent on the orderliness of the life of the individual and his personality.  For some, unemployment literally raises the question of existence, for others it is a question of survival above the poverty line, for others it is a question of maintaining a certain identity, for others it is a question of psychological existence, for others it is a question of status-symbolic status, for others ... (Mihajlovi  & Mihajlovi , 2011, p. 17). If their existence is not endangered, people will certainly be able to bear what happened to them more easily and the loss of their job will not be so tragic. However, if we take into account the fact that people by nature find it difficult to come to terms with any kind of defeat, such events will surely shake the psyche of even the most stable (Gavri  at al., 2015, p. 394). Unfortunately, the situation in Serbia is such that most people live on the edge of existence, so losing their job has a very depressing effect on them.

Given the extremely challenging working conditions in Serbia, as well as the significant deviations from the system we have been accustomed to in the past, it is vital to begin and make changes in consciousness, as well as in the current way of working and doing business - in order to survive and succeed. The internal transformation of a person is an extremely complicated process because it implies getting out of one's own comfort zone and replacing something that is known with something that is new and uncertain.

In this sense, we can conclude that "as modern business conditions are characterized by rapid change and uncertainty" (Gavri  & Milanovi , 2018, p. 311), it is important for workers to continuously strengthen their potential, take initiative, be informed and involved in achieving organizational goals (Kirin & Gavri , 2017) and thus ensure their competitiveness in the labor market or in the organization.

In addition to business, change has become the law of modern individual's private life as well. In terms of personal/private life, changes related to family, parenting patterns, behavior, education, also require human adjustment. Many employees, young and old, married and single, talk about the growing pressure in effective job management and life responsibilities, concluding that work is increasingly "disrupting life" (Kossek Ernst et al., 2015, p. 5). The emotion of fear, which has become dominant as a result of the feeling of threat generated by all of these changes that must be implemented, is completely natural and logical. Managers must not neglect it and providing support to people in the process of all these changes has become one of the key activities of human resource management, especially if we take into account the fact that events in an individual's private life reflect on work and vice versa.

The companion of fear of an uncertain future is a concern. Like fear, it paralyzes and has a destructive effect on people. Only the smartest ones, who want to minimize the consequences of the stress they are in, will direct their energy to work smarter and more in order to achieve their goals. In that sense, if changes are imposed, the recommendation for an individual would be to dedicate himself/herself to finding ways to accept them more easily and direct his/her thoughts towards positive things, than to worry about possible consequences.

The definition of an individual as a being with a certain past and predictable future (Risti et al., 2007, p. 19) can no longer be considered relevant due to the new style and new conceptions of life and work to which individuals are exposed, which are completely contrary to traditional approaches. Changes have obviously become a condition for further development and prosperity, so people who think responsibly about their future must forever say goodbye to the attitude of learning in just one period of life. In short, the external changes that take place require a human response by internal change and the rejection of everything that is old and unproductive.

For an individual, the most significant change he/she needs to make is to change his/her attitude towards change. Organizations are full of people who cultivate the attitude that they do not want change because they simply think that they do not need it. Such attitudes in times of change are extremely unproductive and will certainly not bring success. They can only slow them down and pull them back.

Although change cannot happen without the individual's own decision and desire, it is the organization that, by giving encouragement and support, can greatly help the individual to dare and embark on the path of personal change and prosperity.

## *ORGANIZATIONAL SUPPORT FOR INDIVIDUAL CHANGE*

The most important question facing every company in the 21st century is: Are we changing at the rate at which the world around us is changing? (Hamel & Brin, 2009, p. 57). Given that people are the bearers of all changes in the organization, we can reformulate this question: Do we help our employees to change and develop at a speed that allows us to respond in a timely manner to all demands for change in the world around us?

Modernization is a phenomenon closely related to business culture, and only those organizations that adjust their business culture to the latest trends and market demands in time will be able to count on an adequate place in the global division of power and capital. The current crisis has only further strengthened the trend of knowledge domination, so that today it is more than clear to everyone that only continuous innovation of knowledge can accompany the raging river of civilizational changes and that you will be successful only if you know more and learn faster than the competition.

The organizational culture that brings success is based on a system of values that support the exchange of knowledge, employee development, acceptance and initiation of change, openness in communication and cooperation, etc. People in the organization must become aware that, in case they do not cooperate and do not allow each other to move and develop, they will go straight to the catastrophe (Adizes Kalderon, 2012, p. 232).

First of all, it is necessary to change the current approach to what a manager's job is. The manager is no longer the commander, but the inspirer, the one who "raises" the self-confidence and independence of his employees, a true leader. He is expected to create an organizational environment where a person can activate and manifest all his potential. Modern management theories emphasize that people are no longer mere executors of work, but should be treated as associates and partners of management. In other words, a working atmosphere is needed that enables employees to succeed and that motivates them to express themselves. Modern managers need to be aware that the success of an organization and its power comes from within and that the organization is as successful and powerful as the successful and powerful individuals in it actually are. In this regard, the fear that some managers have of investing in their employees is completely unjustified. Such an atmosphere would create a habit for people to work, to change, which would contribute to an easier change of organizational culture.

Management is obliged to provide continuity of training and development to all employees in the organization because this is a process that once started, is never completed. Education is a

permanent process that lasts throughout the working life. Formal education does not provide lifelong knowledge, and education in Serbia could be said to train young people for past, not future roles. It has been proven that the fund of professional knowledge is lost at a high speed, ie. obsolete and rebates (after 10 years of graduation, effective knowledge does not exceed 40% of acquired knowledge) (Risti et al., 2006, p. 163). We must not forget the fact related to the speed of knowledge creation - in the last thirty years, half of all the knowledge that humanity has at its disposal has been created. Scientists estimate that the next jumps will be shorter, so they predict a doubling of the total knowledge in the interval of eight to ten years (Panteli -Vujani & ukanovi -Karavidi , 2014, p. 7) or even faster: "Knowledge Doubling Every 12 Months, Soon to be Every 12 Hours" (Schilling, 2013).

Every change starts from the top, and the leadership should be the first example and support others. In other words, if managers are not ready and motivated to change, the desired performance will most likely be absent. Hamel and Brin express the same attitude in their book The Future of Management: "There are no adaptable organizations, only adaptable people. While the company's management processes can either slow down or encourage adaptation, the willingness of individuals to change is what matters at the end" (2009, p. 192). When we talk about the support of managers to employees in the process of change, we mean that people are worried about change, wondering if they are really necessary, whether they are running the company in the right direction, etc. and that because of the uncertainty rather, they ever need to rely on their leaders and gain their support and understanding. Their resistance to change will be all the stronger, and the need for support and understanding greater, if the individual has invested more in a given system, especially if it brought success. Often, resistance to change that is perceived as a threat is provided at the level of a group of people or even on the entire sector.

The individual always adjusted to the organization, he always strengthened and glorified it. But that same person also destroyed the organization, and that was when the interests of the organization came into conflict with those of individuals - in the long run. That is why it is said that the organization is the cause of man's rise but also his fall, ie his creativity, but also his destructiveness (Markovi , 2003, p.79). Therefore, in order to achieve the desired goals, the organization must provide the necessary support to employees, which are indispensable factors in the success of any company. In the traditional case, the worker serves the system; and when we talk about the knowledge worker, we mean that the system must serve the worker (Draker, 2005, p.94). Only by acting together, they can achieve goals.

## *CONCLUSION*

The 1990s saw the end of traditional organizations and the beginning of a period in which change has become the key to survival and growth. Gradually, "most traditional organizations have accepted, in theory at least, that they must either change or die" (Beer and Nohria, 2000). The first two decades of the new century - with their numerous (social, economic, or technological) disruptions (ie the ubiquity of social media in both individual and organizational life, the impetus of platform businesses, or the greening/electrifying of the automobile industry) and several black swan events (ie the global financial crisis, or the COVID-19 pandemic) - did nothing else than to strengthen this assessment. The changes that challenge organizations today are more complex and vital than ever - if considering the global amplitude of some (ie technology - ICTs and their plethora of applications, from Big Data analytics to new business models), the rapid pace of others (ie knowledge, skills, and competencies becoming obsolete faster than ever before), the tensions/contradictions they may generate within the organization (ie embracing change and flexibility while maintaining direction and focus), or the myriad of subtle (and often imperceptible) interconnections among them. This ever-changing framework calls for a change in management philosophy.

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Maintaining the attitude of organizations towards changes as occasional disturbances that briefly upset the balance in an otherwise peaceful and stable business world will put any organization at great risk, so "leaders should view change not as an occasional disruptor but as the very essence of the management job" (Schaffer, 2017). Successful organizations frequently have the mindset that nothing can harm or destroy them. Such organizations are called arrogant organizations and they often lose their competitive advantage because their strong cultures support past practices and make change difficult. There are a large number of companies that have allowed their arrogance to undermine their earlier successes. Some of these businesses will probably bounce back and regain their footing eventually, but millions of profits and clients could be gone permanently, which is the steep price they paid for their inability to change.

An organization that is responsible with its future embraces the changes brought about by environmental events, frequently initiates them, and supports and encourages its people as they navigate these changes.

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# PART III - BUSINESS IN THE CONTEMPORARY TIMES

# ECONOMIC DEVELOPMENT OF SMALL COUNTRIES AND ROLE OF GLOBALIZATION: COMPARATIVE ANALYSIS

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## ABSTRACT

The scientific paper studies the impact of globalization on the economic level of development of small countries. This paper reveals that the integration of small countries into the global economy in the last ten years is a very uneven process. This is shown by a comparative analysis among selected small countries, which have an approximate number of inhabitants. In order to more objectively evaluate the progress of these countries and their inclusion in global business flows, some of the basic indicators of development were analyzed. In terms of methodology, in addition to using the literature and our previous research, our analysis of the impact of globalization on economic development was measured by the globalization index (KOF) of small countries. Based on it, one can gain an insight into the current investment climate and understand the global business environment. The main result of the research showed that it is necessary to effectively solve the issues of transition to a changing global trade regime, strengthening innovation capacities and constantly meeting the key challenges arising from global process. This is especially important for those small countries that are lagging in their economic development. Namely, attracting investments can be an important driver of development and reduction of lagging behind advanced small economies.

*Keywords: economic development, small countries, globalization, gross national product, technological innovation*

*JEL Classification: F01, F21, F43*

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# INTRODUCTION

Economic prosperity is the key element to quality of life and is also necessary for the nation to be competitive in the world economy (WDM, 2020). In line with this, local economies should move from production-based to ones based on creativity and innovation. However, local economies and their prosperity cannot be provided without insights into the determinants of their prosperity in a globalized economy (Radovi  Markovi  , Tomaš, 2019).

While the term globalization is used to describe how trade and technology have made the world into a more connected and interdependent place, it cannot be separated from the economic and social changes that have developed as a result. When talking about globalization, it is important to recognize the impacts it has had on different nations worldwide that are involved. Namely, some countries have successfully adapted to the changes and benefited from globalization. On the other hand, many developing countries, have not achieved continuous increase in their GDP per capita over the last five years.

Given that economic growth occupies a central place in the economic policy of every country, it is therefore necessary to monitor over the years how this goal is successfully achieved (Hasan, 2019).

We are particularly interested in small countries and the way they have adapted to global trends. In line with this, the investigation is used to explain why many small countries achieve a relatively high level of GDP (gross domestic product) per capita while others are not able i.e., how a national economy is able to achieve macroeconomic growth and microeconomic market efficiency.

The research started with the basic assumption that the level of globalization is reflected positively in the context of economic development of selected small countries.

# THEORETICAL OVERVIEW

Research conducted by Pedroni (2004), found that globalization has a strong relationship with economic growth. Economic growth is a consequence of a lower level of budget deficit, growth of credit rating of a country and lower level of public debt expressed in GDP (Radovi -Markovi , 2019b.)

Globalization both creates opportunities for advancement within developing nations and contributes to the demise of traditional values. There are benefits and downsides to globalization. Some benefits of globalization are that it increases economic growth in nations participating, makes production more affordable for companies, promotes positive relationships between different countries, and brings opportunities for jobs and technology (among other things) to developing or poorer nations.  However, there are also disadvantages to globalization. Some of these include the fact that the economic growth is unequal (richer nations will usually benefit more than poorer ones), it can cause local businesses to struggle because of the competition, it increases the chances for global recessions (if countries depend on each other and one starts to struggle it will affect the others too), it exploits developing nations for cheaper labor costs, and it displaces jobs to other nations where production is cheaper.

Based on the opinion of many scholars, globalization has interrupted previously strong local and regional economic identities of countries, (Radovi -Markovi , 2019a; Alishahi, Refiei, and Souchelmaei, 2019). In this context, they believe that thanks to globalization the world is much more

integrated than ever (Neuland & Hough, 1999; Radovi Markovi , et.al.,2021). Based on the opinion of many scholars, globalization has interrupted previously strong local and regional economic identities of countries, (Radovi -Markovi , 2019a; Alishahi, Refiei, and Souchelmaei, 2019). However, globalization trends are not equally acceptable in some parts of the world, in individual markets and within them (Radovic Markovic, 2019 b). Namely, "once a country decides to become integrated into the global economy, success is not guaranteed for all of them" (Ferdausy, Rahman, Das, 2008, p.2). While the term globalization is used to describe how trade and technology have made the world into a more connected and interdependent place, it cannot be separated from the economic and social changes that have developed as a result. For small economies, continued participation in the world markets is not a choice but an economic imperative. According to Robinson (2018), the lack of economic hinterland affected the dependence of small countries on global markets, free trade, and unfettered capital flows to sustain their livelihood.

A great number of research studies that look at the comprehensive effects of globalization on economic growth are done after 2006. Our recent research has shown that the effect of economic globalization depends on the GDP level of a country, regardless of its size (Radovi -Markovi and Tomaš, 2019). The relationship between economic globalization and economic growth is important especially for economic policies (Samimi and Jenatabadi, 2014; Radovi Markovi and Tomaš, 2019). Their findings also noted that the countries must receive the appropriate income level to be gained from globalization. Another research conducted by Ying, Lee, and Chang (2014), investigated the impact of globalization on economic growth of ASEAN countries from the period of 1970 to 2008, showed that economic globalization has a significantly positive influence on economic growth. Consequently. the impact of globalization on the economic growth of countries could be changed by a series of complementary policies such as the improvement of human capital and the financial system. (Radovi Markovi and ukanovi , 2022).

## *RESEARCH METHODOLOGY*

Our paper relies on our extensive research, as well as on a review of the literature and the latest results. Primary and secondary literature sources were used. Our intention was to see using comparative methods, what has changed in this domain in recent years.

Our analysis of the impact of globalization on economic development will be measured by the globalization index (KOF). Namely, a quantification of the level of globalization was enabled at the global scale by the KOF Index of Globalization, which was first introduced in 2002 and updated in 2012.

KOF Index of Globalization has enabled us to follow the evolution of globalization in selected countries for the period of 2015 - 2019. Based on it, one can gain insight into the current global business environment.

## *IMPACT OF GLOBALIZATION ON SMALL COUNTRIES*

Components of globalization include GDP, industrialization, and the Human Development Index (HDI).

⌡ GDP is the market value of all finished goods and services produced within the borders of a country for a year and serves as a measure of the country's overall economic performance.
⌡ Industrialization is a process that, driven by technological innovations, affects social changes and promotes economic development.

ʃ The Human Development Index contains three components: population life expectancy, knowledge and education as measured by adult literacy and income.

*Table 1. Small countries by population (300.000 – 2,100.000)*

| Country | Population number |
|---|---|
| Latvia | 1,886,198 |
| Estonia | 1,326,535 |
| Iceland | 341,243 |
| Cyprus | 1,207,359 |
| Northern Macedonia | 2.083.000 |
| Montenegro | 628,066 |
| Slovenia | 2,078,938 |
| Luxembourg | 625,978 |
| Malta | 441,543 |

*Source: World Population Review,2020*

Based on Table 1, you can see that those small countries (populations range from 300,000 to just over 2 million inhabitants) have been singled out. Although small countries are implied and taken into account by countries with under 10 million euros in 2015, they are not included. we have singled out here for our analysis of those where there is not a big difference in size.

***Table 2**.GDP per capita,2020*

| Country | GDP per capita |
|---|---|
| Luxembourg | $117,725 |
| Latvia | $20,200 |
| Estonia | $25,054 |
| Iceland | $78,598 |
| Cyprus | $21,823 |
| Northern Macedonia | $6,576 |
| Montenegro | $9,139 |
| Slovenia | $28,001 |
| Malta | $37,002 |

*Source: World Population Review,2020*

From Table 2, it can be seen that, of all European countries, Luxembourg is closest to Montenegro in terms of population. Despite this, Luxembourg has slightly more than eleven times higher GDP per capita than Montenegro. However, Luxembourg is not only better than Montenegro in terms of GDP, but also better than other European countries. This also confirms the opinion of several scientists (Radovi -Markovi , 2019), that the size of a country measured by the number of its inhabitants is neither an obstacle nor a limiting factor in its high economic development. This

claim can be argued with other examples by comparing the size of a country and the level of GDP per capita. Namely, in terms of size, the closest are Malta with 441,543 inhabitants and Iceland with 341,243 inhabitants. Although Iceland is slightly smaller than Malta, it has twice the GDP of Malta according to the latest data. Other pairs of countries by approximate size are Slovenia and North Macedonia (2,078,938 and 2,083,000 respectively), as well as Cyprus and Estonia (1,207,359 and 1,326,535 respectively).

While there is a big difference between North Macedonia and Slovenia in terms of economic development (Slovenia has five times higher GDP than North Macedonia), that difference is not big between Cyprus and Estonia. In other words, Estonia is ahead of Cyprus in terms of GDP by slightly more than $3000. These country pairs were chosen with the intention that other small developing countries could strive to emulate the example of the best and their development over the last few decades.

## MOVEMENT OF GROSS SOCIAL PRODUCT IN SMALL COUNTRIES, 2009-2019

Based on statistical indicators, Estonia is the highest ranked among the countries analyzed, followed immediately by Luxembourg. Slovenia and Latvia have approximate rankings (30th and 32nd respectively) while the worst positioned is Northern Macedonia (58th). Montenegro is also on this list with 55 positions. (Chart 1).
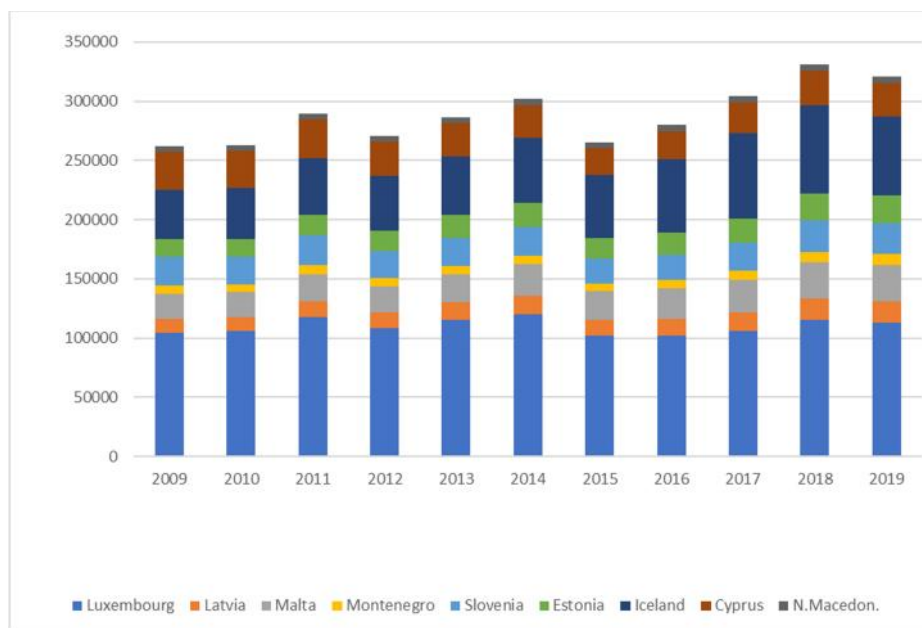


*Chart 1. GDP movement (2009-2019)*

*Source: Radovi  Markovi , et-al, 2021*

By analyzing the impact of globalization on GDP growth for 2015-2019, Luxembourg may have had the lowest growth rate of 8% during the observed period. (Chart 2)

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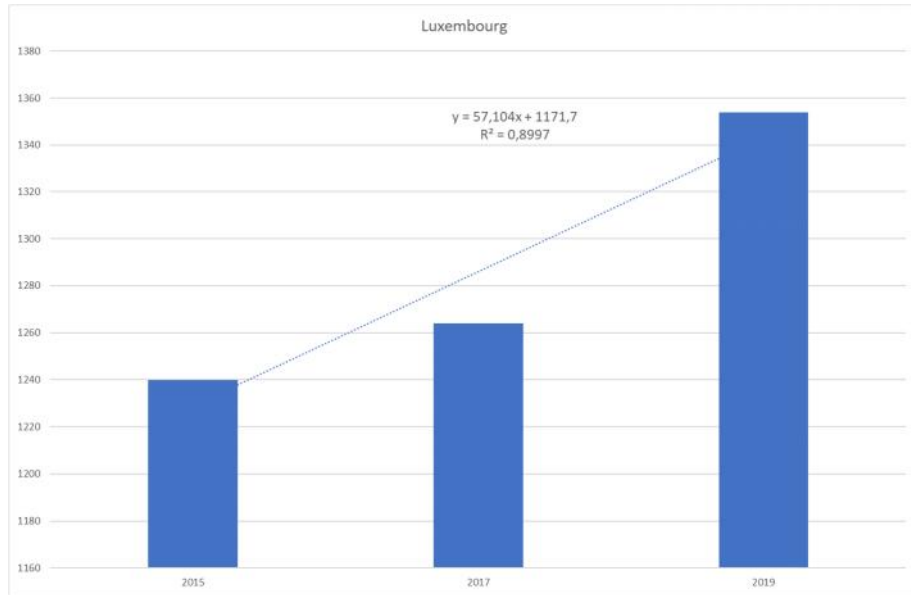
*Chart 2. Impact of globalization on Luxembourg GDP growth, 2015-2019*

*Source: Author*

Just behind Luxembourg was Cyprus with 12 per cent of GDP growth. (Chart 3)
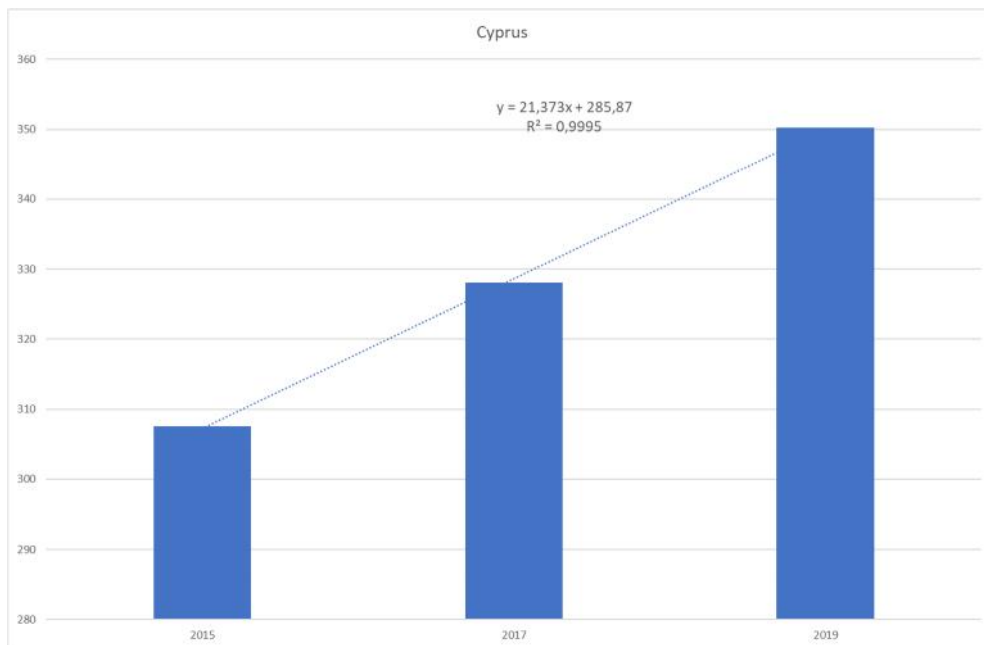


*Chart 3. Impact of globalization on Cyprus GDP growth, 2015-2019*

*Source: Author*

Estonia and Montenegro, by contrast, had the highest GDP growth rates of 23 per cent and 21 per cent respectively. (Charts 4 and 5)
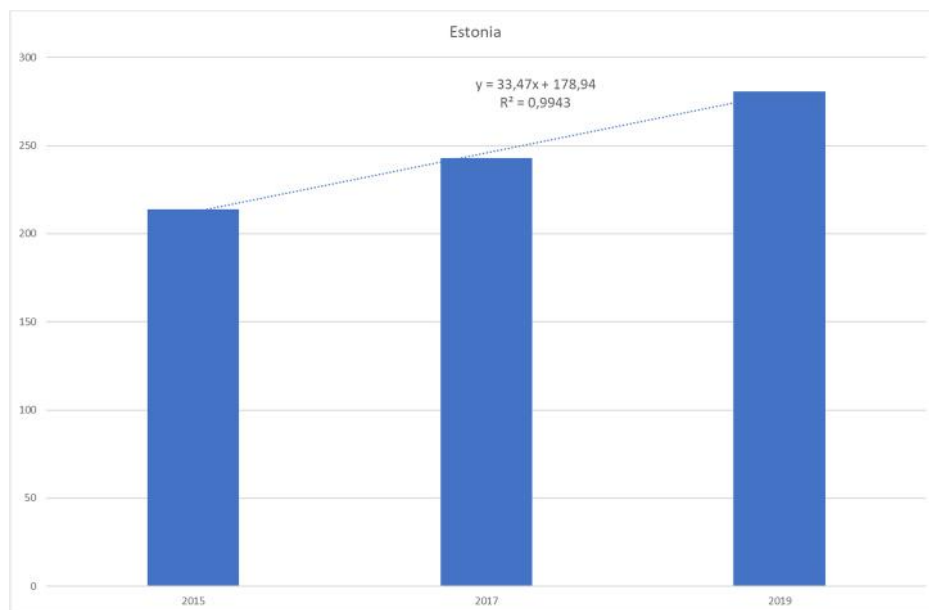


**Chart 4.** *Impact of globalization on Estonia's GDP growth, 2015-2019*

*Source: Author*

Estonia has already experienced many benefits of increasing international integration, most obviously in significant convergence. From the great recession in 2009 Estonia gained an impressive 20% in GDP per capita relative to the EU27 average (Price, Wörgötter ,2011),
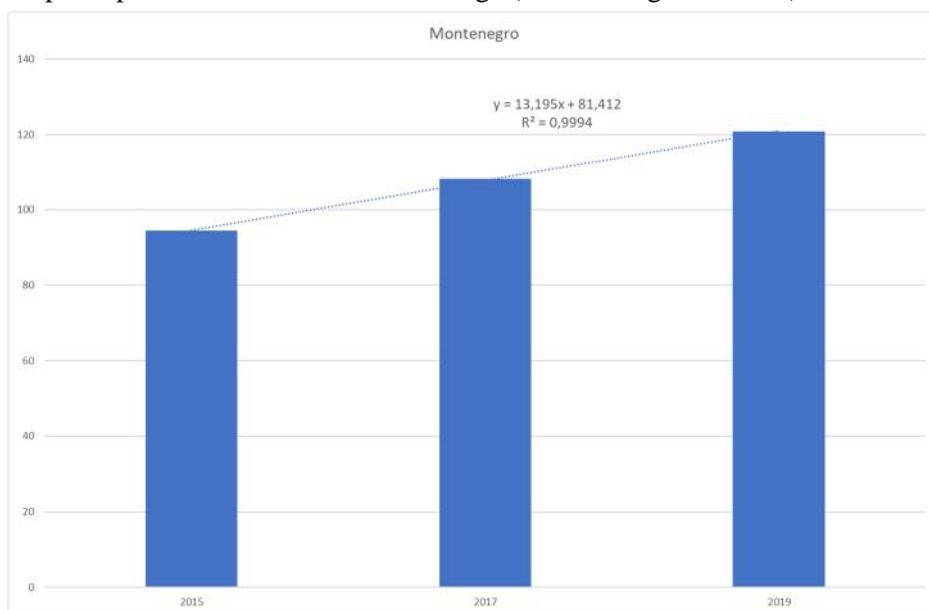


**Chart 5**. *Impact of globalization on GDP growth of Montenegro, 2015-2019*

*Source: Author*

To reduce the inequalities that exist between Montenegro and Luxembourg, as well as other countries that are the same size but differ greatly by development level, we need to change our approach to regional co-operation and create new strategies related to the political and macroeconomic stability of western Balkan countries.
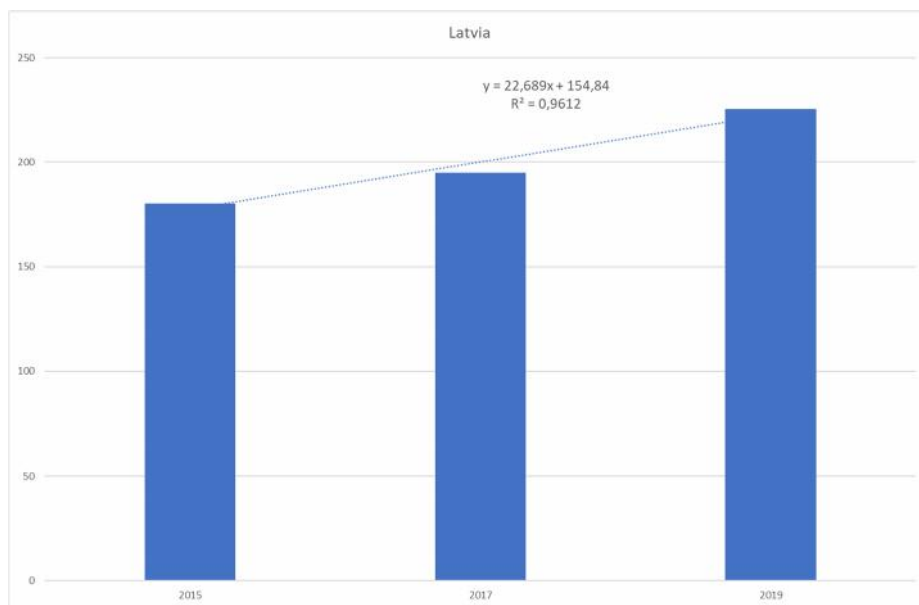


*Chart 6. Impact of globalization on Latvia's GDP growth, 2015-2019*
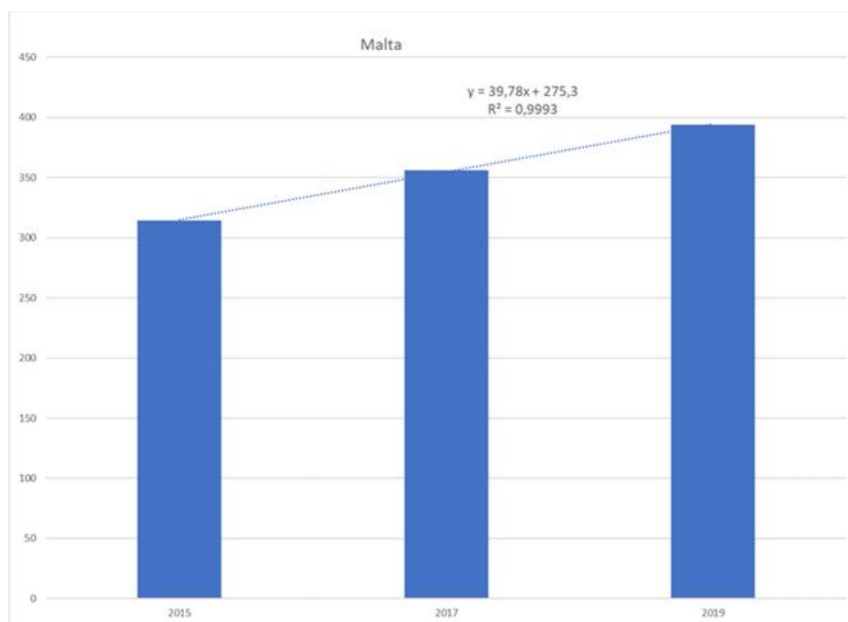
*Source: Author*



*Chart 7.  Impact of globalization on Malta GDP growth, 2015-2019*

*Source: Author*

Compared to Malta and Latvia, Iceland lagged slightly behind (i.e.. the GDP growth rate affected by globalization was 19%. (Chart 8).
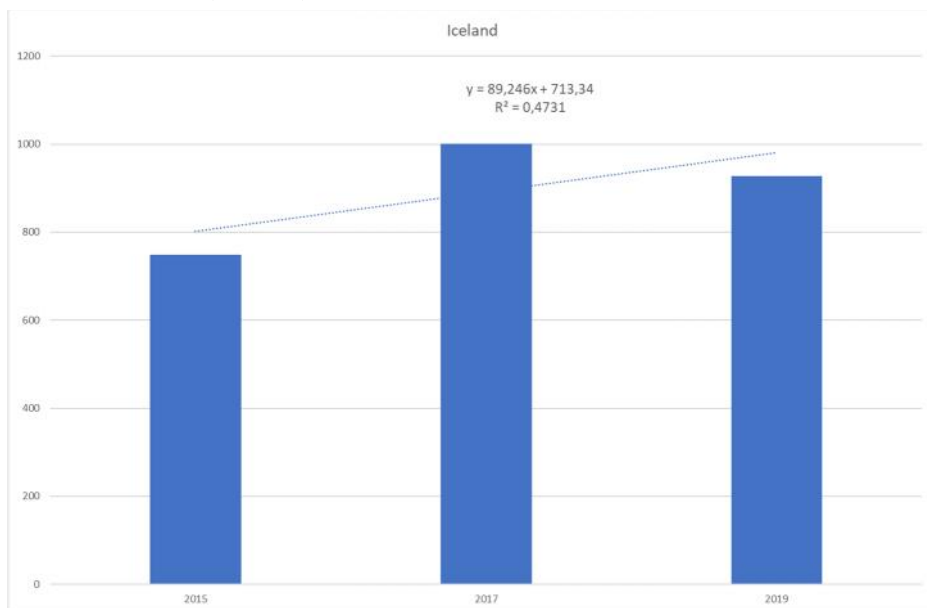


*Chart 8. Impact of globalization on Iceland GDP growth, 2015-2019*

*Source: Author*

By comparing the impact of globalization on the economic growth it can be concluded that Montenegro, Malta, and Cyprus have identical dependencies. globalization directly affects their economic growth.
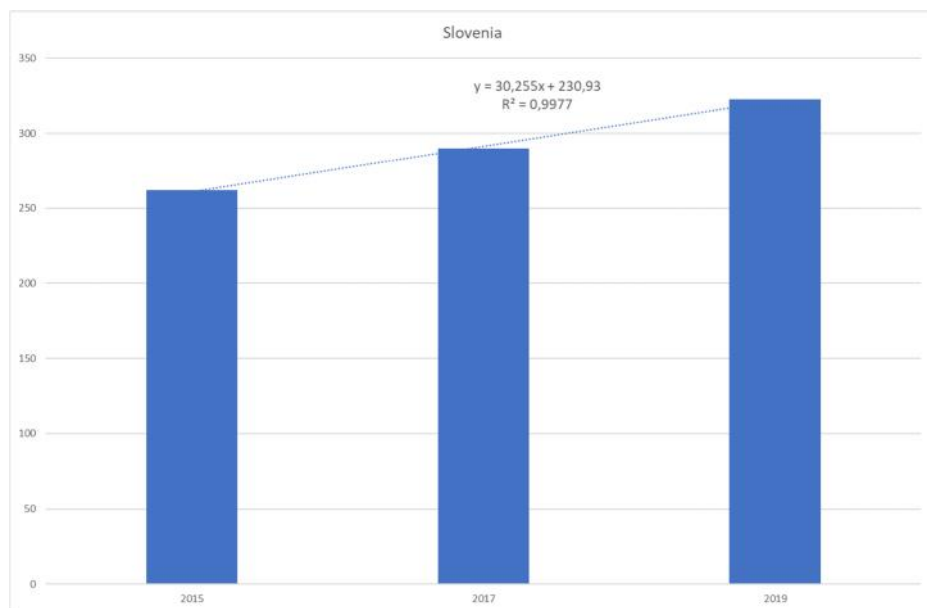


*Chart 9. Impact of globalization on Slovenia GDP growth, 2015-2019*

*Source: Author*

Slovenia (Chart 9) and Estonia, although they have a high GDP growth dependence on the level of their globalization, are noted that globalization has no primal impact on economic growth. Iceland and Luxembourg show the lowest dependence on economic growth from globalization.

# *CONCLUSION*

As they face the challenges and possibilities of globalization, small states are discovering that they do not have enough institutional capacity to fully participate in international financial and trade negotiations -- the outcomes of which can have a profound impact on their economies. Small economies have been shown to be largely less diversified by nature and have relatively high foreign trade risks. Despite these shortcomings, several small economies have achieved high rates of economic growth, as our analysis shows. Some of the reasons explained by this success are the relatively small size of the agricultural sector, the concentration on intensive export work, and sociological and psychological factors such as the ability to respond flexibly to change.

Luxembourg - Estonia and other small countries with high GDP and high levels of integration into the global economy - are often used as role models for their economic policies. To that end, their high rank in terms of quality of life. Namely, their high level of equality in wages, high employment rates and social security of the population are cited as the main reasons for their continued progress. However, this is not the only reason for their success, reflected in the constant provision of the highest standard of living for citizens.

By comparing Luxembourg to Montenegro as countries of the same size as other countries, we could see big differences. Although both countries are European, Montenegro is much poorer and less technologically advanced. Also, its economy is less competitive (i.e., according to the global competitiveness index, Luxembourg ranked 18th in the world in the world. and Montenegro ranked 73rd. among 171 countries (WEF ,2019).

Based on other WEF indicators (2019), Luxembourg ranks 20th among the world's countries in macroeconomic stability. By application of new technologies and skills rank 17 and 19 respectively.

Their different histories and development strategies were built by different groups of institutions, and these institutions influence how globalization exerts influence in each country (Brautigam, Voolcock, 2001).

The priority must be to improve the business environment to attract domestic and foreign investment for development. In this context, attracting investment can be an important driver of development and a reduction in lag behind advanced economies. Specifically, fiscal policies that prioritize encouraging increased investment in infrastructure, human capital and research and development can help the economy reach a higher level of development. All this must be accompanied by structural reforms. In addition, greater investment in social welfare measures could contribute to general social well-being and prosperity. It is also necessary to effectively address the issues of switching to a volatile global trade regime, strengthening innovation capacities, and constantly addressing key challenges arising from global processes.

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# NEW OPPORTUNITIES OF THE CHINESE COMPANIES IN THE BIG DATA ERA

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*Balázs Laki28*

## ABSTRACT

*In the course of the unprecedented economic transition in China becoming global scale economic and technological power, Chinese economic actors have tendencies in every sector using big data to strengthen their high-added value activities and improving the quality of their business processes and evidence based managerial decision-making capabilities. The era of big data is surging, and many industrial sectors are trying to tap the value of big data. However, the storage and management of massive and complex data, mining and even visualization are new challenges. The financial services, government, education and other industries have also begun to use big data to improve work efficiency. The characteristics of big data are the large amount of data, the variety of data, and the maximization of the value of non-standardized data. In the future, big data will be like infrastructure, with data providers, managers, and regulators. The complexity of data will turn big data into a major industry. Lack of scarce natural resources forced to evolve "Big data" and related technological solutions, which can serve as a base for the knowledge-based society. By 2025 the Internet of Things (IoT) generates around three times more data compared to everything else, including the whole internet. Big data can be regarded as an asset for long-term strategic competitive advantage, a wealth, a value that can be measured and calculated. Many experts believe that in the era of big data, whoever can effectively monopolize data may become the hegemon of the world. In this review paper aiming analyzing how big data affects society from the development and application of big data, revealing challenges and the business opportunities of the Chinese companies in this era*

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***Keywords:*** *big data, competitive advantages, distinct features*
***JEL Classification:*** *O33; O39*

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# *INTRODUCTION*

Since 2012, the term Big Data has been mentioned and used more frequently. People use it to describe and define the massive data generated in the era of information explosion. The cover of the column of The Wall Street Times, the news that entered the White House website in the United States, appeared in some Internet-themed lectures in China, and was even written into investment recommendation reports by Guojun Securities, Guotai Junan, Galaxy Securities coming according to Bayue Talk, 2012 (Schoenberg, 2012).

Some people say that the 21st century is the era of data and information. Mobile Internet, social networks, and e-commerce have greatly expanded the boundaries and application fields of the Internet. While enjoying the convenience, you also contributed our "whereabouts" for free. You have to accept this reality everyone will be transparent when the Internet enters the era of big data. All kinds of data are rapidly expanding and becoming larger, which determines the future development of enterprises impacting on their competitiveness. Although enterprises may not realize the hidden dangers of problems caused by the explosive growth of data, as time goes by, people will become more and more aware to the importance of data to the business. The era of big data poses new challenges to human's ability to control data and also provides unprecedented space and potential for people to gain deeper and more comprehensive insights. The era of "big data" has arrived, and in business, economics and beyond, decisions will increasingly made evidence-based on data and analysis rather than experience and intuition (Lohr, 2012). Via application of artificial intelligence-based solutions for example natural- natural-language processing, pattern recognition, and machine learning algorithms, on devices, sensors linked with the Internet of Things, we can exploit advantages of Big Data over many fields (Preetipadma, 2020).

Big data refers to data that exceeds the processing capacity of traditional database systems. Its data scale and transfer speed are very demanding, or its structure is not suitable for the original database system. International Data Corporation regards big data as a new generation of architecture (Manyika et al., 2011). To capture the value in big data, you have to choose another way to deal with it. Data hides valuable patterns and information that have traditionally required considerable time and cost to extract. Leading companies like Walmart or Google pay high prices to mine big data for information. Today's various resources such as hardware, cloud architecture and open source software make the processing of big data more convenient and cheap. Even startups in garages can rent cloud service time at a lower price. For enterprise organizations, the value of big data is reflected in two aspects: analytical use and secondary development. Analyzing big data can reveal hidden information. In retail, the analysis of store sales, geographic and social information can improve customer understanding. The secondary development of big data is the specialty of those successful Internet companies. Facebook customizes a highly personalized user experience and creates a new advertising model by combining a large amount of user information. This business practice of creating new products and services through big data is no coincidence. Google, Yahoo, Amazon, and Facebook are all innovators in the big data era. In addition, the database management field contains also many large, highly competitive companies in the tech industry such as Microsoft, Oracle and IBM (ICAEW, 2017). The Chinese internet sector has been a driving engine for rapid economic growth and innovation for many years. Internet-search Company Baidu, e-commerce Companies Alibaba and JD, and social media Company Tencent have built their business models, operations and cultures around big data.

## MAIN FEATURES OF BIG DATA

As there are many types of devices generating data, IDC segments the global data sphere into four groups (Reinsel, Gantz and Rydning, 2017)

⎰Entertainment industry. Image and video content created or consumed for entertainment purposes.

⎰Non-entertainment image/video. Image and video content for non-entertainment applications including for example video surveillance footage or advertising.

⎰Productivity data. Traditional productivity-driven data such as files on PCs and servers, log files, and metadata.

⎰Embedded systems. Data created by embedded devices, machine-to-machine, and IoT.

McKinsey first used the term "big data" in its 2011 report, which refers to a collection of data whose content cannot be captured, managed and processed with traditional database software tools within a certain period of time (McKinsey, 2011). IDC defines big data as a new generation of architecture and technology designed to obtain value from high-frequency, large-capacity, and different structures and types of data more economically. McAfee pointed out that big data has three characteristics, namely "3V": "Volume, Velocity, and Variety" as you can see the below Figure 1.
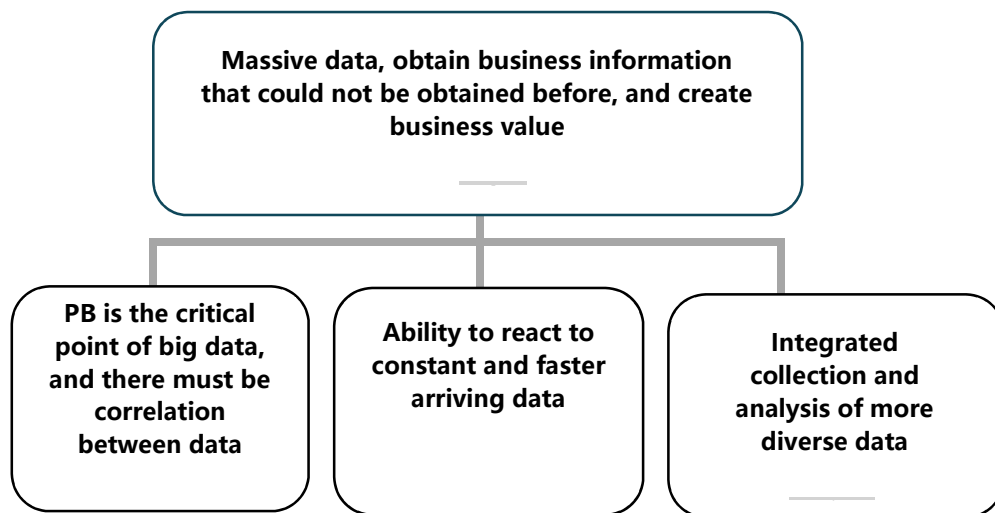


*Figure 1. Big Data characteristic*

*Source: Own edition based on Reinsel, Gantz and Rydning (2017)*

From other aspect, the big data differing from the regular data possessing with the following four distinct features:

*Massive*: Businesses face massive growth in data volumes. For example, a recent report from IDC predicts that by 2025, the volume of data worldwide will expand by a factor of 100. Currently, the size of big data is an ever-changing metric, with a single dataset ranging in size from tens of terabytes to petabytes. In short, storing 1PB of data would require 20,000 PCs with 50GB hard drives. Additionally, data can be generated from a variety of unexpected sources.

*Diversity*: A common belief that people use the Internet to search is the primary cause of data diversity is partly true. However, the increase in data diversity is mainly due to new multi-structured data and types of data including weblogs, social media, internet searches, cell phone call records, and sensor networks. Among them, some sensors installed on trains, cars and planes, and each sensor increases the variety of data.

*High speed:* High speed describes the speed at which data is created and moved. In the era of high-speed networks, it has become a popular trend to create real-time data streams based on high-speed computer processors and servers that optimize software performance. Businesses need to know not only how to quickly create data, but also how to quickly process, analyse, and return it to users meet their real-time needs. According to IMS Research on the speed of data creation, there will be 30.8 billion internet-connected devices worldwide by 2025 (Statista, 2022a).

*Volatility*: Big data has a multi-layered structure, which means that big data can take on variable forms and types. Compared with traditional business data, big data has irregular and ambiguous characteristics, making it difficult or even impossible to use traditional application software for analysis. Traditional business data has evolved over time to have a standard format that can be recognized by standard business intelligence software. The challenge facing businesses today is to process and extract value from complex data in all its forms.

# *BIG DATA ERA RESHAPING THE FUTURE*

The concept the process of thinking about big data is derived from the United States, because data should be penetrated in various industries, and it is also an important factor for companies to achieve long-term development. The relevant content can be collected, managed, and finally processed with the help of conventional software within the allowed time. That is big data. On another level, big data is data that can not be processed scientifically by traditional databases and IT technology (Xiaofeng and Xiang, 2013; Fang, Wu and Luo, 2018). These data are massive and have an impact on the development of enterprises and industries. There are many differences between big data and traditional data, which have a positive impact on the innovation and development of enterprises and various industries and it is necessary to carry out in-depth thinking about it (Wenlian and Jianming, 2013). Through sorting out big data, we know that it embodies three notable characteristics, namely, diversification, rapidness and large-scale characteristics. Specifically, first, diversification. There are many types of big data, including three types: unstructured, structured, and semi-structured. Among them, unstructured mainly includes web page data, video data, audio data, image data, which have many influences in social development. At the same time, through data analysis of e-commerce and social networks, it is found that unstructured presentation data has exploded, which currently accounts for about 76% of the overall data. The speed of data generation is relatively fast. At present, data in the process of production and processing reflects the phenomenon of speed growth, forming a variety of data streams with faster development speeds. The total amount of big data is relatively large. Through the analysis of big data, we know that the total amount of data in various places is continuously increasing, and the amount of data storage in electronic form will increase. These are the characteristics embodied by big data, and it is necessary to think about these characteristics in order to analyse the management model. As the most popular IT vocabulary nowadays, big data has attracted the attention of experts and scholars in many fields. As a massive, large-scale, and diversified information asset, the strategic significance of big data technology is not to master such a huge amount of information, but to process the data and increase the value of the data through professional processing. To some extent, big data can be understood as an industry, and processing capability is the key to measuring the profitability of the industry.

At present, with the advent of the era of big data, the importance of data has gradually become crucial and has become an important resource. It is as precious as gold and energy, but it can be repeatedly used to continuously stimulate economic development. Under the huge global population and application market, exploring big data-based solutions and in-depth insights into complex and changing markets have become important means for companies to improve their competitiveness. Just by intuitive experience, anyone can feel that the era of big data has come.

The global big data market is predicted to raise to 90 billion U.S. dollars by 2025 as you can see on the below Figure 2. Chinese big data market is growing at an even greater scale.
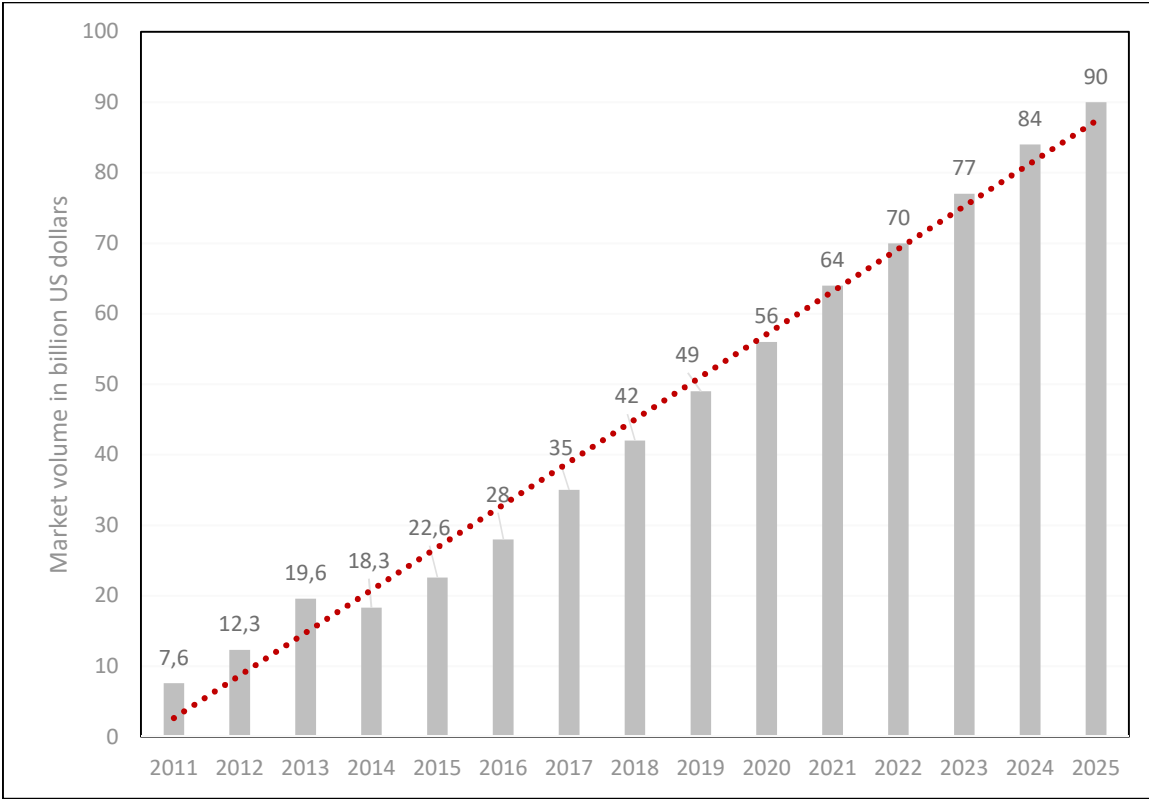


*Figure 2. Big data global market size revenue forecast in billion U.S. dollars (2011-2025)*
*Source: Own edition based on Statista (2022b)*

The below Figure 3. depicts the current global big data volume growth since 2010.

Schoenberg (2012) mentioned in the "Big Data Era" that the biggest change in the big data era is to abandon the desire for causality and instead focus on correlations. That is, as long as you know the "what", you don't need to know the "why". This has overturned human thinking conventions for thousands of years, and has posed a new challenge to human cognition and the way of communicating with the world. Compared with Chinese companies, American companies know the value of big data and can tap the hidden value of big data to get the most benefit. They have established big data thinking, which encourages them to continue to innovate and mine better data. The United States collects much more data than China. They not only collect understandable data, but also collect "unintelligible" data, and spend a lot of resources on storage, so that the data has always been valuable. In contrast, in China, most companies still use big data as a marketing tool, but big data can also help people change business models and profit models. This is where the greatest value of big data lies. Compared with China, the United States is the most different in that they have big data thinking and know how to use the value of big data. Regarding critical infrastructures, espionage and military usage, they are on par, but the business usage is very far from equal. Big data has made people's attitudes towards the world completely new, and the changes that have been set off one after another have not only changed marketing and manufacturing, but also changed the business model. Data itself is a source of value, which means that there are new business opportunities. No industry can have "immunity" against big data. It is the so-called survival of the fittest. Only by adapting to big data can it continue to survive in this revolution (Shaoshan and Bo, 2012; Linya and Linjing, 2013; Cheah and Wang, 2017)

There is a need to integrate a variety of data. Big data has many impacts on the existing development of enterprises. While providing a variety of market data to enterprises, it also brings more challenges to them. (Sharma, Pabby and Kumar, 2017). Based on the analysis of relevant academic data, it is learned that under the influence of big data, companies need to integrate multiple data in order to obtain more business value. Enterprises not only need to obtain structural data through traditional channels, but also need to collect a lot of information in social networks and the Internet of Things (IoT) to master more development data. Analysing the existing statistical data, it can be seen that most companies mainly carry out data collection work through traditional methods, and can only collect structured corporate data, but cannot collect and process unstructured data in development. It can be said that how to deal with many semi-structured and unstructured development data is still a challenge for enterprises, and how to effectively integrate the three types of data is also a challenge for enterprises. Therefore, under the influence of big data, enterprises need to integrate all kinds of data, and obtain more development value by integrating all kinds of data. (Linrong, 2015)

## ROLE OF BIG DATA IN CHINESE BUSINESS PROCESS

According to the "Twelfth Five-Year Plan", China will build the next generation of information infrastructure (Gang, 2013). To cultivate and develop strategic emerging industries, the new generation of information technology industry focuses on the development of new generation mobile communications, next generation Internet, triple play, IoT, cloud computing, integrated circuits, new displays, high-end software, high-end servers and information services. The added-value of strategic emerging industries accounted for about 8% of GDP. Since big data first appeared in the

"Government Work Report" in March last year (Kequiang, 2021), the executive meeting of the State Council mentioned the use of big data six times in a year to promote cloud computing, big data, IoT, mobile Internet and other technologies and modern manufacturing combination; in line with the development trend of "Internet +". Made in China 2025 has designed a top-level plan and roadmap for China's manufacturing industry in the next 10 years (Institute for Security and Development Policy, 2018). The curtain of the three major transformations from Chinese products to Chinese brands.

The change of big data affects the decision-making of enterprises. In the past, the development and management of enterprises required a large amount of human and material resources to carry out logical analysis and sorting under the condition of integrating all resources, to further calculate the causality of the incident, and to solve the problem of the enterprise. Provide valuable suggestions for problems that may arise in operation. Nowadays, big data enterprise management methods have more high-tech support, which can integrate a wide range of data information and then perform overall electronic computer technology analysis and processing, fully meet and realize the needs of dividing data, and implement optimization on the basis of original operations. The management and development plan of the company leads the enterprise to the pinnacle of maturity and excellence. One of the important contents of modern enterprise management is to master the advanced nature of data, and realize the development and connotation enhancement of the enterprise by virtue of the management of data information. Perform quantitative and comprehensive analysis on the platform of data digitalization and then achieve optimized management and big data processing.

With the development of the network economy and the endless emergence of network enterprises, network consumption based on the Internet is developing rapidly due to its remarkable convenience and economy. More and more people gradually abandon the traditional offline shopping methods and start to choose online shopping. In the network economy environment, the traditional business model has many drawbacks, such as information asymmetry, uneconomical transportation channels, sales time lag, etc., which leads to a series of problems. This requires new business models to improve the traditional business models. The inconvenience caused. In the network economy environment, the innovation of the business model of an enterprise is the key to gaining a competitive advantage. Business model innovation is the focus of innovation for network enterprises in today's Internet, IoT and big data era. In order to adapt to market changes, network enterprises also need to innovate their business models to gain their own competitive advantages in response to changes in the needs of online consumers and the new dynamics of online consumption.

In recent years, the Internet, cloud computing, mobile and the Internet of Things have developed rapidly. Ubiquitous mobile devices, Radio Frequency Identifications (RFIDs), and wireless sensors are generating data every minute and every second, and the Internet services of hundreds of millions of users are generating huge amounts of interaction all the time. The amount of data to be processed is too large and growing too fast However, business needs and competitive pressures have put forward higher requirements for the real-time and effectiveness of data processing, which cannot be dealt with by traditional conventional technical means. In this case, technical personnel have developed and adopted a number of new technologies, including distributed cache, Massively Parallel Processing (MPP)-based distributed database, and distributed file system.

The role of big data in the company competitiveness based on three main pillars: value discovery, value creation and value realization, respectively for the external environment of the enterprise, market opportunities; internal processes, finance, human resources. Big data can be crucial in enterprise business model innovation; as a driving force transformation of the enabling role (leverage), supporting the IT system to take into practice new business models (Jiang and Xu, 2019; Minatogawa et al., 2019)

The below Figure 4 indicates the continuously increasing number of the Chinese big data companies in the last decade time-period.
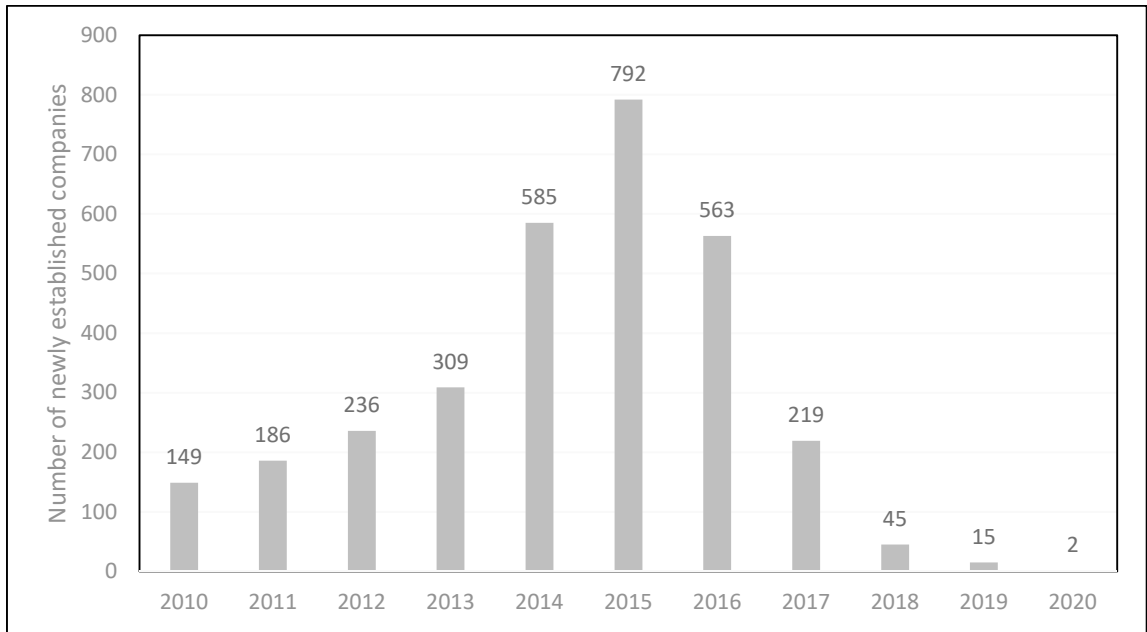
*Figure 4. Growth in the number of big data companies in China from 2010 to 2020*

*Source: Own edition based on Statista (2020a)*

The number of internet users, provides large amounts of data, and provides opportunities for China to play a dominant role in innovating with big data. In addition to, the Chinese government has strongly committed itself put emphasis on big data, with a wide range of activity to encourage investment and adoption, and ambitions for big data to speed up traditional industry sectors transformation and supporting the development of economy.

The below Figure 5 reveal share of application of big data technologies in China in the different sectors
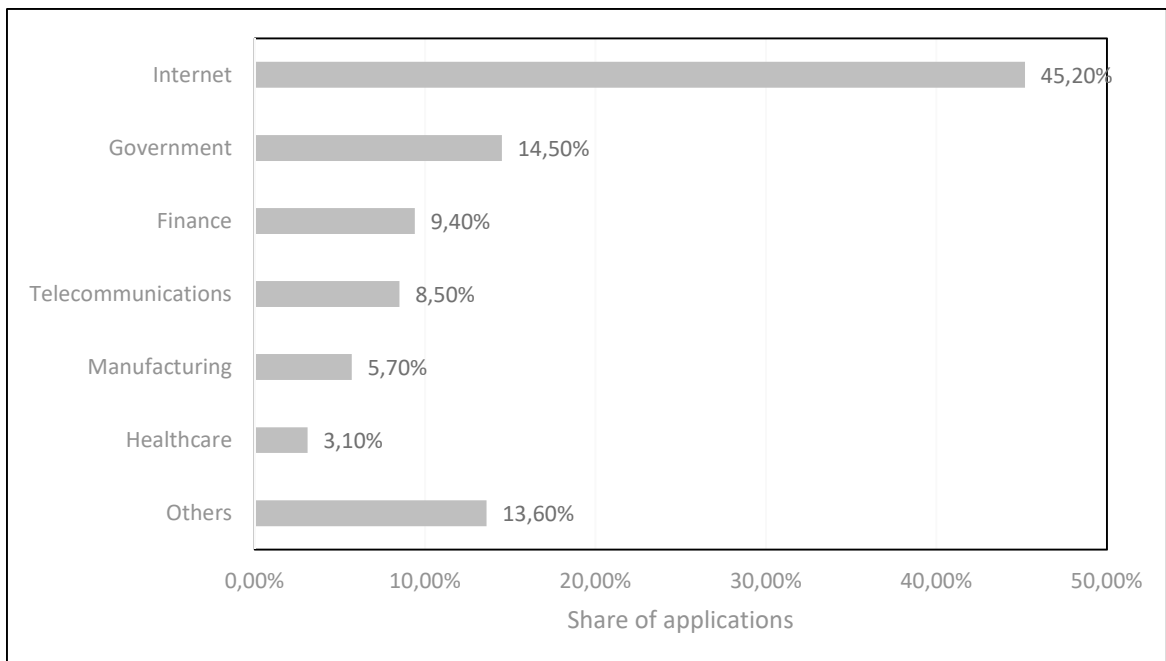


*Figure 5. Distribution of big data industry applications in China in 2020, by type*

*Source: Own edition based on Statista (2020b)*

With a share of 45 percent, the software segment would become the large big data market segment in China in 2020.

Depending on the company size and business profile, using big data and applications of related technologies, the following opportunities and challenges can emerged:

## 1) Small and Medium sized Enterprises (SME) sector

The competitive intelligence of Chinese SME's have the following characteristics: intelligence demand industry are obvious, and the pertinence is strong; the customer demand-oriented and the competitive environment taken into account; the proportion of informal channel sources is large, and the sharing rate is low; specific decision-making, pursuit of convenience in the use of information. In the environment of big data, as the competitive intelligence of SME's built on the basis of data analysis and information processing, its development will face unprecedented challenges based on its original characteristics. The market failure theory believes that information asymmetry is the root cause of the financing difficulties of SMEs. However, SME big data can integrate all kinds of information that directly or indirectly reflect the credit status of SMEs, and accurately restore the true operating conditions of SMEs. The application value of SME big data technology mainly manifested in the following three aspects (Wang and Wang, 2020):

- *Improve financing efficiency:* Financial institutions fully understand customer credit status and actual business conditions, save information investigation time, use accurate credit assessment and continuous risk tracking, and thereby reduce the requirements for customer collateral, thereby speeding up lending and greatly improving financing efficiency.

- *Reduce financing costs:* The first is to analyse the data collection, find potential customers, and conduct point-to-point precision marketing to reduce the cost loss of blind marketing. Second, after locating potential customers, it is convenient to obtain customer information covering customer behaviour information and reduce the cost of information acquisition. The third is to follow up with customers, which can effectively reduce the cost of continuous supervision in the post-loan management process.

- *Discover potential value:* Financial institutions excavate massive amounts of data, can discover customers' potential needs and financing preferences, and further implement market segmentation, establish exclusive product systems for different customer groups, develop affordable, simple, transparent, and safe exclusive financial products, and provide diversification And differentiated financial services to efficiently allocate financial resources.

## 2) Large cluster companies

*The influence of cloud accounting on group enterprise fund management*: Fund management is particularly important for group companies (Zhiyan et al., 2013). The fund management of group companies mainly includes core content such as fund receipt and payment management, fund allocation management, fund analysis and assessment management. A reasonable fund management system can improve the efficiency of fund utilization, ensure the uninterrupted production and operation activities of the enterprise, and provide business managers with suggestions and measures for the rational use of funds based on the flow of funds and monitoring conditions, and promote the production technology and management level of the enterprise improve. The cloud accounting platform in the era of big data provides the possibility for group companies to achieve reasonable fund management. Cloud accounting technology can not only meet the integrated management of financial information of group companies, but also has a profound impact on the level of fund management, fund management safety, and fund utilization.

*Cloud accounting can improve the fund management level of group companies:* Capital management can enable group companies to realize centralized capital management and automatic capital processing, which can improve the corporate capital management level, strengthen capital

management and control, and maximize the value of capital. Fund management includes fund receipt and payment management, fund allocation management, fund analysis and assessment management. These management processes involve many different entities, such as between group companies and subsidiaries, and between branches and branches. Since the entities are different, fund management appears to be more complicated and it also takes a long time for the information flow to pass between the entities. This will reduce the level of the group enterprise in terms of fund management, which may affect corporate performance. On the cloud accounting platform in the era of big data, cloud technology can analyse data by storing enterprise transaction data, and can reflect the transaction situation of the enterprise in real time, clarify the main body of the capital flow, and let the management personnel of the group company clearly understand. In order to make the decision that is most conducive to the long-term development of the group and improve the efficiency of capital management. It can determine the capital flow situation and capital surplus situation of the branch company. (Kelly, 2017)

*Cloud accounting can strengthen the security of group enterprise fund management:* Since there are generally many branches of group companies, it is difficult to guarantee the complete symmetry of information, and the group inevitably has some management loopholes in the monitoring of the capital business and operation mode of the branch companies. Under the traditional accounting digitisation model, group companies do not fully know how the branch companies operate cash flow and at the same time, they are not clear about the business transactions between the branch companies and their docking banks, so that the bank-enterprise interconnection information cannot be uploaded to the group company in time. This will generate a certain amount of capital management risk. In addition, some group companies have insufficient control, and there is a phenomenon of concealing capital information in the branch companies. The group company cannot clearly monitor each financial business of the branch company, which causes the group manager to be unable truly understanding the financial affairs of the branch company. Status, thereby making wrong decisions and affecting the safety of fund management. Big data and cloud accounting technology provide technical support for group companies to achieve full coverage of fund management and scientific business decision-making.

### 3) Internet companies

*Internet companies accelerate the construction of a big data ecosystem:* At present, the big data industry is surging, and Internet companies and operators are accelerating their competition. Operators have advantages in the authenticity and breadth of data, but they are inferior to Internet companies in terms of data depth. In the face of powerful operators, Internet companies have built a big data ecosystem based on their own data platforms by taking advantage of their more precise grasp of user needs. However, operators are subject to institutional factors, and the commercial application of big data is slow to advance. How can operators better cope with the wave of the big data industry? At present, Internet companies are accelerating to seize data portals, establish data platforms, and construct big data ecosystems based on their own data platforms (Pappas et al., 2018; ICAEW, 2017)

In terms of infrastructure, Google's 36 data centres around the world have adopted leading cloud computing technology and architecture, and have invested heavily in the construction of trans-Pacific submarine optical cables and optical cables in the United States. In terms of big data technology, its independent innovation technology leads the world, Google's engineers published a number of papers on big data, spread to the industry through open source, leading the technical direction, in order to speed up the integration of big data technology. Google acquired several Internet companies closely related to big data technology. In terms of talents, Google spares no expense to hire people with real talents and practical learning providing very relaxed and free R&D work environment for its employees. Tangible results examples for encouraging the creativity and innovations can be: data acquisition, Google's early search engine, Google's other products, such as image data, Translation behaviour, location data, Google Maps, social data, video data, game data, emails all provide massive amounts of data for Google's big data research and application. At present, Google's big data product

line has begun to take shape, mainly including highly profitable precision advertising and more mature Google Trends, Google Analytics, Google Machine Translation, Google Spell Check. Google also retains its big data in society. Some public welfare applications, publicly disclosed data include disease prediction, anti-human trafficking. (In China, Baidu is the main one, not Google, however, there is a major operation in Hong Kong).

One of the most successful Chinese Internet companies in big data is Taobao, which relies on its services to buyers and sellers. It has accumulated a large amount of data resources. There are more than 1 billion products on Taobao, and countless users have more than 3 billion views, comments, and tens of millions of successful transactions every day. With a large amount of targeted real data, the company has unique advantages in the fields of trade, commodities and life. In order to make effective use of these data, Taobao has established a set of big data collection, sorting and mining platform from simple to complex authoritative voice in macroeconomic forecasting. With the help of the big data platform, Taobao takes the lead in breaking the ice of Internet finance, and its flagship product Yu'ebao will set off a revolution in the financial industry. Baidu, Tencent, Suning, Ping An, Gome and other companies have also made great efforts in big data in domestic Internet companies. They all have good applications and performance.

There are some problems in the commercial application of big data, and the application is relatively lagging behind. Compared with Internet companies, operators need to turn resource advantages into operating advantages. Although the three operators have some differences in the application of big data, they all face common obstacles in several aspects. This one includes lag of their own IT system facilities, lack of a unified data system, centralization, unification and standardization of data need to be further improved. Furthermore, lack of a unified and open platform to provide open API interfaces for SP/CP or large and medium-sized enterprises, ERP, human resources, engineering projects, procurement and some financial services management cannot centralize data exchange and sharing.

- There is no unified and effective consideration in the organization of the industrial chain. There are many links in the industrial chain between operators, integrators, and equipment vendors, and demand transmission is slow.

- The internal mechanism is outdated. Most managers of operators are still in the conceptual stage of big data in terms of concept, and they are still in a relatively traditional stage in terms of driving force. Big data is still in the experimental stage of researchers, and there is no single assessment content and indicator. A clear framework, big data elements in business management has not really been integrated into the operating system.

- Lack of talent in big data. Since big data technology is still relatively new, it takes a while to learn. In addition, the mainstream values and voices of employees in state-owned enterprises still depend on the level of management, and growth in big data is not an easy road.

- Countermeasures for operators: open cooperation to enhance value. So, under the current situation, how can operators seize the opportunity of rapid development of big data?

First, making good use of big data internally is a top priority for operators. The application of big data is mainly to provide background intelligent support for other services of operators. The trump card business of operators is still broadband and traffic products, and the internal application of big data focuses on providing support for these services. To this end, operators need to identify the internal application direction that can use big data to get the most benefit, and convert external business requirements into actual data requirements. When operators make good use of big data, they should focus on two goals: reducing operating costs and improving user experience.

Second, facing the outside world, open cooperation is the only way for operators to transform their value. Compared with Internet companies, operators have shortcomings in the operation of the big data market. Therefore, in order to expand big data services beyond network products, operators

need to rely on third parties in order to appear as big data providers and provide big data services for government affairs, public services, and commercial enterprises.

# *CONCLUSIONS*

The marketing management model of enterprises in the era of big data is facing opportunities and challenges. Enterprises will continue to create and innovate new marketing models and marketing thinking in the big data environment, which are in line with the development of the times. Personalized marketing strategies, analysis of user needs and behaviour, and user responses bring continuous business value and market value to enterprises. , but also help to establish a winning core competitiveness for the future of the enterprise.

In the era of big data, in order to achieve marketing, enterprises will adopt the method of changing the marketing management mode, but blindly transplant and imitate, do not combine with the background of the times, and have no innovation. Often more failures, less success. Before the top-level design and basic construction are completed, blindly transplanting and imitating the marketing management model will not only fail to survive smoothly, but may also lead to the emergence of marketing channels.

In general, good enterprises have to take precautions and start preparations from now on to prepare for the later data collection and analysis of the enterprise. Chinese enterprises should focus on the following five specific aspects, so that when faced with overwhelming big data, they can ensure that the enterprise can develop rapidly.

*Targeting enterprise data*

Almost every organization may have a steady stream of data that needs to be collected, whether it is a social network or a workshop sensor device, and every organization has a large amount of data to process, IT personnel need to understand what data is generated during their business operations, use your own data as a benchmark to determine the scope of the data.

*Based on business needs*

Although each enterprise will generate a large amount of data, and it is different and diverse, which requires enterprise IT personnel to start collecting and confirming what data is required by the enterprise business now, and find the data that can best reflect the business situation of the enterprise. Effectively capturing and structuring data from your training operations enables companies carrying out big data analytics that drive improvements in output, quality, and employee engagement forwarding a proactive organizational culture and values.

*Re-evaluate enterprise infrastructure*

Big data needs to be collected in servers and storage facilities, and most enterprise information management architectures will undergo major changes. IT managers need to be prepared to expand their systems to address the continuous expansion of data. IT managers need to understand the company In the case of existing IT facilities, the establishment of facilities for processing big data is oriented to avoid the purchase of some unnecessary equipment.

*Pay attention to big data technology*

Big data is a term that has only emerged in recent years, and not all IT personnel are very familiar with big data. Today's cutting-edge technologies such as Hadoop, MapReduce, and NoSQL are technologies that have just emerged in recent years. Besides the top three popular database management system (DBMS) in the world Oracle, MySQL and Microsoft SQL numerous free and open-source BDMS such as PostgreSQL and Apache Cassandra can also be highly competitive. Enterprise IT personnel should pay more attention to this technology and tools to ensure that the right decisions can be made in the face of big data in the future.

*Training the employees of the enterprise preparing them for operating Big Data Management Systems*

What most companies lack is talent, and when big data comes, companies will lack talent in collection, collection and analysis. For some companies, especially those with fewer people, staff will face huge amount of data, which will be a challenge, and companies should provide more training to employees in normal times to ensure that employees can adapt to related work when big data arrives. On the other hand, big data based education methods can be applied in regular employee training as well. Big data can integrate each trainee's testing scores with larger datasets such as demographics and testing histories to determine which methods are effective and where reinforcement or retraining is needed. Tailor made, personalized evaluation will suggest which training modules are most effective for your employees.

Taking into practice the above mentioned points, when big data era comes, facing a large amount of data will not be helpless, but will be confident, and the benefits obtained from the data will also promote the rapid development of enterprises. Big data also allows companies to predict future trends and needs (e.g. combining big data and Artificial Intelligence resulting unprecedented synergies in business and production technologies, entertainment and commerce). Accepting social responsibility will improve organizational branding and employee motivation throughout the 21st century business environment.

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# MOST IMPORTANT TRENDS IN PROJECT MANAGEMENT

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## ABSTRACT

*Project management, which is today a scientific discipline, has an unquestionably important role in modern business, and its getting more important day by day. For this reason, development trends within project management are of particular interest. This paper briefly presents the results of research into current trends in project management for two time periods. The first one covers the period from 2019 to 2022, and the second is a forecast of trends for the period until 2030. During the analysis of current trends in project management, a categorization of all considered trends was carried out, and on that occasion key categories of trends were identified (digital technologies, artificial intelligence, organizational approach and human orientation). Current research trends are presented and analysed, unified and integrated according to years, literature sources, and identified categories. An analysis of the significance of trends in project management was carried out, where the durability of trends was introduced as a key criterion, and on that occasion the most significant trends in project management were distinguished, namely: artificial intelligence and automation, i.e. expanding its application; greater focus, i.e. greater focus on data analytics for information-based project management; the rise of telecommuting, remote access or operation from anywhere as a distributed cloud, i.e., a "cloud-first" approach that appears to be becoming the standard. This paper is primarily intended for project managers, especially when planning the implementation of new projects, but it can also be useful for organizations when adopting and establishing their organizational and business strategies, as well as for analysts and theoreticians in project management working with forecasts and trends.*

*Keywords: trends, research, project management, project*
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# INTRODUCTION

When it comes to trends, there are currently two concepts of the meaning of the word trend (TCD, 2021). The first concept is behavioural, which is a synonym of the word "fashion", which usually means a social mechanism responsible for controlling the choices people make. The second concept of the word is the statistical concept, which is a synonym of the word "business analysis", and which offers business actors the possibility of dealing with potentially different circumstances as well as effectively adapting to them.

Trends, according to (Feigenbaum E, 2021), "represent the determination of progression based on statistical analysis of historical data over a selected time frame." Three types of trends are common, namely:

⌡ constant increase (up trend), which is recognized by having the maximum or minimum level repeatedly exceeded.
⌡ constant decrease (bearish trend), which is recognized by having the maximum or minimum level in constant downward movement.
⌡ constant flatness (horizontal trend), which is recognized by having all maximum or minimum levels aligned.

State authorities and business entities use trends in order to predict the future, i.e. to shape their strategic decisions, and also planning decisions, based on those trends.

Planning means choosing one of the possible sets of activities in order to achieve the expected desired state, and according to the principle on which it can be realized, it can be systemic or procedural (Krsti M, 2016).

Systemic planning has a repetitive character and implies the repeatability of activities in certain time intervals, and it has a relatively stable character when it comes to policy, procedures and rules.

Process planning has an ad hoc character and has a one-time use by implementing programs and projects with a defined goal, deadlines and resources for their realization.

Both principles are applied both in business entities and outside them, for example within the state administration, social community, etc.

This paper focuses on process planning.

Process planning is always based on a particular project.

According to (PCMG, 2004)a project is "a series of activities aimed at achieving clearly defined goals within a defined time period and budget, and should include:

⌡ clearly identified stakeholders, including the primary target group and end users;
⌡ clearly defined arrangements for coordination, management and financing;
⌡ monitoring and evaluation system (to support performance management); and
⌡ adequate level of financial and economic analysis, indicating that the benefits of the project will exceed its costs".

The realization of projects on a scientific basis is dealt with by the science known as project management, which was recognized as a special scientific discipline in the 1950s, and managers who practice this type of management are called project managers.

According to (WPM, 2021), project management is "the process of leading a team and its work to achieve goals and meet success criteria within a given time frame and within given constraints."

Project management methods are universal and can be applied to any project, regardless of its type, size, nature, industry, sector or area of implementation. In this sense, we can talk about project

management in construction projects, in industrial projects, in organizational projects, in IT projects, in biotechnology projects, in local projects, in public projects, in scientific projects, in sports projects, etc.

It is of interest for project management to first determine and then observe the trends of its development so that project managers (within economic organizations, governments, state bodies, and other organizations) can in a timely manner align their policy with their predictions. Therefore, it is important to look at project management trends in the right way. In this sense, this paper presents the results of the conducted theoretical research on current trends in project management.

# *RESEARCH METHODOLOGY*

The research methodology within this manuscript consists of a theoretical desktop research of project management trends for two time periods, the first for current trends in the period from 2019 to 2022, as well as the second, which represents the forecast of trends for the time period until 2030. The research methodology included the following research steps:

⌡ study of available literature sources from project management;
⌡ collection of relevant data on the development trends of project management;
⌡ identification of current and future trends in project management;
⌡ categorization of identified project management trends;
⌡ analysis of current trends and project management by years, literature sources and identified categories; and
⌡ analysis of the significance of identified trends in project management.

In researching the current trends in project management, several research methods were used, out of which the most important were:

⌡ historical method (since the previous historical time period is treated in addition to the current one);
⌡ analytical method (for analysing project management trends);
⌡ synthetic method (for the synthesis of the final research report);
⌡ descriptive method (both for individual descriptions of trends and for the description of the final research report);
⌡ comparative method (for comparing research trends in different time periods);
⌡ empirical method (in presenting the author's own experiences on this topic);
⌡ statistical method (statistical methods were also used when interpreting certain research trends);
⌡ presentation method (for interpretation and presentation of research results); and
⌡ inductive method (for drawing conclusions in the field of project management trends).

# *PROJECT MANAGEMENT TRENDS*

The results of the research on trends in project management for two time periods are considered in this paper. The first time period covers years 2019 to 2022, and the trends for each year were observed individually. The second time period includes the prediction of future trends for the period up to 2030. In the continuation of this chapter, the mentioned trends are discussed in more detail.

The key trends in project management for **2019** are (Aston B, 2020):

⟩ Expanding the application of automation and artificial intelligence. Machine automation and artificial intelligence can improve decision-making in business organizations at multiple levels, since consistency in decision-making is achieved much more easily with algorithms than with humans, and the more complex the projects, the more value can be derived from machine learning strategies to understand the process. risks and outcomes. Hence, the importance of applying automation and artificial intelligence is gaining importance every day.

⟩ Increasing the business value of "soft skills". The family of social "soft skills" consists of skills such as emotional intelligence, coordination, teaching and negotiation. In this sense, this family is recognized as important in many fields of work, and is therefore ranked relatively high, i.e. as the second most desirable skill family of employers (right after the family of "complex problem-solving skills").

⟩ A growing tendency towards combining methods. As a result of the complexity of the work environment, numerous different methodologies are being adapted and fall under the umbrella term of project management, whose principles are becoming indispensable in work processes in finance, construction, marketing, etc., which leads to the merging of existing and new methods. Of the applied methodologies, the most significant are Agile and Waterfall.According to (Bernsen R, 2022), the Agile methodology is an adaptive iterative approach, which adapts to changes along the way through iterations. The project itself gets divided into sub-projects managed by multi-functional teams, the basic principle of which is to respond to change in accordance with the plan. The Waterfall methodology or traditional project management is a process that consists of 5 phases (conceiving and starting the project; defining and planning the project; starting or executing the project; performance and control; closing the project), whereby the phases are completed one after the other without returning to the previous phases.

⟩ An increasingly competitive landscape. In the atmosphere of increased competition, the margins of web design agencies are reduced (to 10%) so that they are forced to specialize if they want to survive, which is especially pronounced in the digital niche, so they are forced to make their services significantly different, in order to differentiate themselves from its competitors.

⟩ The growing importance of human-centred design. Digital project managers will be tasked with creating products that meet user needs, driven by customer insight and user feedback.

The key trends in project management for **2020** are (Aston B, 2020):

⟩ Constant changes in digital technologies. Business entities are placing increasing emphasis on the "technological quotient" of their employees, which implies the development of their abilities to adapt to technology, manage it and integrate it based on the needs of the organization or a specific project.

⟩ Growing importance of Change Management for the success of the project. Since most projects involve change management in some capacity, for this reason Change Management is slowly becoming a daily routine.

⟩ Increasing the role of Risk Management. Risk management is one of the top 5 value adding processes, but at the same time the most difficult to implement. Risk management implies increasing the scope and robustness of risk assessment before the start of the project, and the application of a standard risk management strategy in all projects, but the return on investment in it by the project manager is well worth it.

⟩ Increasing organizational cooperation. Organizational cooperation is a condition for the realization of any significant work. In this sense, people have always had to work together to

complete certain projects. In the meantime, the number of available tools that a project manager can use for productive collaboration with his/her team has increased significantly.

⟩ Increasing the scale of the globalized Gig economy. It has evident growth and includes collaboration and remote work (freelancing), which already significantly affects the management's approach to projects, because project managers with a remote team are faced with a whole new set of challenges in managing time, people and tasks.

⟩ Greater focus on data. Data today is generated by organizations, governmental and non-governmental sectors, and also by us. Today, when we are able to collect much more data (for example, from understanding customer needs, through the availability of production or service inputs to risk-related details), it is realistically expected that all this data must be useful, and that we should find a use for them. Therefore, data analysis is becoming an indispensable and important key activity in almost every development project.

The key trends in project management for **2020** are also (Adair R, 2020):

⟩ The trend of employing project managers. It is widely believed that project management continues to be a growing, attractive skill set that employers want. Today, the growth of jobs and the lack of talent in project management are increasingly being pointed out, which all together indicates an increasing need for qualified and experienced managers of projects and programs. It is to be expected that the talent shortage in project management will be even more pronounced in the future.

⟩ Learning in new ways. The overwhelming majority of organizations require project managers to have some type of formal certification, which usually requires continuous professional development. The way in which it can be reached is developing dramatically, especially in the light of digital technologies, where distance learning technologies come to the fore.

The key trends in project management for **2021** are (Panetta K, 2021):

⟩ Impact of information technologies (IT) on behaviour change. The increasing sophistication of information technologies has made it possible to increasingly apply the collection, combination and processing of data for the purpose of behaviour change. The data are collected from various sources, such as: data on commercial customers; data about citizens processed by the public sector and government agencies; personal data processed by social media; data on the application of facial recognition in public monitoring processed by the security sector; location data processed by mobile telephony; etc.

⟩ Overall experience. Overall experience represents the resulting experience that is obtained by combining multiple experiences, that is, customer experience, employee experience, and user experience in order to transform the business outcome, especially in the part where all the aforementioned experiences intersect.

⟩ Improving computer privacy. Today, the issue of computer privacy is high on the priority level of both organizations and all of us. For organizations, the enhancement enables them to securely collaborate on research across regions, and with competitors, without sacrificing confidentiality, and integrates three technologies that protect data while it's in use. The first approach provides a trusted environment in which sensitive data can be processed or analysed. The second approach performs processing and analytics in a decentralized manner. A third approach encodes data and algorithms before processing or analytics.

⟩ Distributed cloud. Today, working in the cloud has become commonplace. The cloud represents a virtual place where cloud services are distributed to different physical locations, but the operation, management and evolution remain the responsibility of the cloud provider.

- Operations anywhere. This operating model basically allows business entities to deliver and access them at any location, i.e. anywhere — where customers, employers and business partners work in a physically remote environment.
- Cyber security network. It is a distributed architectural approach to scalable, flexible and reliable cyber security control, based on a modular basis, which allows the security scope to be defined around the identity of a person or thing.
- Intelligent composition-based business. It is a business that can be adapted and thoroughly rearranged based on the current situation, and includes increasing autonomy and democratization throughout the organization, which enables parts of the business entity to react quickly.
- Artificial intelligence engineering. There is a need to operationalize responsibility within the framework of AI engineering management, where responsible artificial intelligence emerges addressing issues of trust, transparency, ethics, fairness, interpretability and compliance.
- Hyper-automation. The idea that everything that can be automated in the organisation should be automated, especially inherited business processes that have not been modernized in the meantime.

The key trends in project management for **2021** are (Adair R, 2020):

- Emergence of new artificial intelligence tools. It is becoming evident that the impacts of artificial intelligence are currently filtering into project management in the form of tools and resources. In this sense, many tools on the market today take over repetitive tasks and automate them using "bots" and other artificial intelligence software that helps with work-flow, interaction with resources, and responding to insights and suggestions.
- The changing face of teams. The development of personal and leadership qualities in employees leads to high levels of autonomy, which results in employees being more motivated and engaged. Research shows that employees who spend at least some time working remotely are more likely to be engaged in their jobs. These new ways of working also affect the way we work together in teams.

The key trends in project management for **2022** are (Patra A, 2022):

- Artificial intelligence and automation. According to the Project Management Institute, 81% of professionals believe that artificial intelligence and automation will affect their organizations, and estimates are that this percentage will only increase in the coming years. Automation of low-value tasks is of particular interest here because it frees up project managers and allows them to focus their efforts and energy on strategic tasks, so that each project achieves its strategic goals. Therefore, organizations are increasingly adopting artificial intelligence and automation to ensure successful project completion in several ways, such as: generating performance insights; support for decision-making processes; making estimates and forecasts; optimization of resource allocation; enabling data visualization; performing a risk analysis.
- Advanced software for resource and project management. According to the Wellington company, 54% of surveyed organizations do not have access to KPI (Key Performance Indicator) in real time for their projects, and more than a third of organizations need more than 1 day to collect all relevant data. This only confirms the need for advanced resource and project management software that can no longer be ignored. If these are further combined with the possibilities of automation based on artificial intelligence, then they can bring positive changes in the way organizations manage their projects, regardless of their complexity. Here are some of the ways the right software can make a huge difference: using historical project data to provide better bids and plans for future projects; review the availability of resources, skills and other details to streamline: allocation; automatic tracking

of time spent on tasks and projects through artificial intelligence; quick budget allocation and monitoring to stay on top of finances; recording all costs with invoices for all projects in real time; monitoring all projects through customizable dashboards and making better-informed decisions on the fly; informing all stakeholders and team members about project status, progress and changes made in real time.

⟩ Rise in remote work. Remote work has been on the rise for a long time, but during the global pandemic it experienced a real expansion. Due to the pandemic, many organizations have allowed their employees to work remotely for security reasons. Remote work is expected to continue for the foreseeable future, bringing special challenges for project managers. This is where cloud-based project management software comes into play, which can be easily implemented when working remotely, and which can include all the data relevant to the project manager in terms of monitoring, verifying and using it for real-time decision-making.

⟩ Demand for emotionally intelligent leaders. In recent years, in addition to organizational and analytical skills, social skills are increasingly being demanded of project managers, of which emotional intelligence stands out. The successful implementation of the project requires effective management of human resources, which requires the project manager to understand those involved in the project. In this sense, for the project manager, the ability to connect and empathize with others is becoming more and more important, especially in the context of the increase in remote work.

⟩ Greater focus on data analytics for data-driven project management. All organizations, regardless of direction and size, continuously generate large amounts of data. Therefore, it is expedient to use the data to make better decisions. In this sense, data analytics and reporting can help identify early indications of a reduction in production volume, measure project implementation, etc. If analytics based on artificial intelligence is also used, a more complete picture can be obtained, both of the organization as a whole and of all projects. In this way, project managers are provided with the possibility of collecting data for decision-making in real time.

⟩ Hybrid projects management. The post-pandemic era is increasingly characterized by efforts to find a more reliable and efficient methodology for project success, which is why organizations are experimenting with the application of a hybrid approach, which involves combining different elements from two or more methodologies. The hybrid concept concerns the structure of the project team, that is, the question of how the project team is composed and managed. This has enabled organizations to find unique approaches that suit specific industries and projects.

⟩ Increasing emphasis on the soft skills of managers. Until recently, the value of project managers depended on their certifications and their skills in applying different methodologies. Today, more and more organizations are shifting their focus to soft skills. This is because current AI-based solutions are able to handle the technical parts of project management, while managers are relieved and able to focus on strengthening their soft skills such as conflict resolution, stakeholder engagement, negotiation, mentoring and training, decision making and team building.

⟩ Projects and organizational strategy come together. As a rule, projects and organizational strategy are two separate areas. In the new concept, project managers assume a more practical role in implementing a broader organizational strategy. This is why they are increasingly being asked to focus on understanding the relationship between program, portfolio and project management, that is, how individual projects relate to each other and how they relate to the organization's overall strategic goals.

⟩ Cloud-first approach becomes standard. The demand for the implementation of solutions "in the cloud" is growing every day in an increasing number of organizations. To improve their performance, many organizations resort to this increasingly popular approach. The growth of hybrid and remote work environments contributes to the development of this approach, as

they allow work resources to access data from anywhere. In addition, this approach offers all solutions that have become more accessible and flexible, making them easier to implement. It can be expected that this cloud-based approach will soon become the new standard for intelligent project management in the organization.

⌡ Growing attention concerning mental health. Recently, organizations have been paying more and more attention to mental health. The reason lies in the fact that organizations are increasingly moving to hybrid or remote work, and this leads to an increase in the level of stress among employees, primarily due to the need to adapt to new conditions and changes. Therefore, organizations must look for ways to help them effectively manage stress and mental health. In this sense, organizations have several measures at their disposal: the implementation of flexible working hours in order to give their employees more freedom in terms of working hours; fitness programs for employees to relieve stress and other measures.

The key trends in project management for **the next ten-year period** are (Harrin E, 2020):

⌡ Blockchain. It is a digital asset that represents a growing list of records, called blocks, each of which contains the cryptographic hash of the previous block, a time-stamp, and transaction data. In order to use this digital asset on projects, organizations are increasingly forced to hire someone with blockchain skills.

⌡ Artificial intelligence. It is a matter of greater application of the features of some project management tools, and robotic processing will help automate routine tasks in the project management office. Some research indicates that already 70% of organizations are researching or using artificial intelligence.

⌡ Human-machine cooperation. It is not yet known how exactly this cooperation might look outside of artificial intelligence in a project environment, but cooperation is certainly coming. The cooperation could have an impact on routine jobs, especially when it comes to jobs related to system testing.

⌡ Application of mobile devices. It is expected that mobile devices will become even more powerful in the foreseeable future, and that all the functions of project management software will become available in the majority of equivalent mobile applications.

⌡ Remote access. It is becoming increasingly important that tools and systems now available at home are also available remotely in the future for people based outside the home office, which will require the expansion of connectivity and data security beyond the walls of the headquarters.

It is important to emphasize here that the key skills of project managers for the next ten-year period are predicted to be the following managerial skills, namely (Harrin E, 2020) :

⌡ data analysis, analytics and management,
⌡ security and data protection,
⌡ compliance with legal and regulatory policies,
⌡ on-line cooperation and leadership,
⌡ knowledge management,
⌡ making data-based decisions.


## *SOLUTION DISCUSSION*


The previous chapter tell us about the key trends in project management. In this sense, the current annual trends for 2019, 2020, 2021 and 2022 are presented, as well as the forecast for the next ten-year period, i.e. for the period until 2030. The research included trends for the next ten-year period

in order to see whether the current trends will remain valid for a longer period of time, that is, which trends will dominate in the future.

After the analysis of annual trends, the following was done.

First of all, the categorization of all considered trends was carried out, and on that occasion, the categories into which all trends were classified were identified, namely:

ʃ digital technologies (DT),
ʃ artificial intelligence (AI),
ʃ organisational approach (OA),
ʃ focus on people (FP).

Then, the summary results of the research were compiled, presented in Table 1, in which the current trends are integrated and presented chronologically, by year, by established categorization, as well as by the literary sources from which they were taken.

*Table 1. Project management trends*

| Year | Current trends | Categor ization | Source |
|---|---|---|---|
| 2019 | Expanding the application of automation and artificial intelligence | AI | (Aston B, 2020) |
| | Increasing the business value of "soft skills" | FP | |
| | A growing tendency towards merging methods | OA | |
| | An increasingly competitive landscape | PO | |
| | The growing importance of human-centred design | FP | |
| 2020 | Constant changes in digital technologies | DT | (Aston B, 2020) |
| | Growing importance of change management for project success | OA | |
| | Increasing the role of Risk Management | OA | |
| | Increasing organizational cooperation | OA | |
| | Increasing the scale of the globalized Gig economy | OA | |
| | Greater focus on data | DT | |
| | The trend of employment of project managers | FP | (Adair R, 2020) |
| | Learning in new ways | OA | |
| 2021 | The impact of IT on behavior change | DT | (Panetta K, 2021) |
| | Overall experience | FP | |
| | Improving computer privacy | DT | |
| | Distributed cloud | DT | |
| | Operations anywhere | DT | |
| | Cyber security network | DT | |
| | Intelligent composition-based business | OA | |
| | Artificial intelligence engineering | AI | |
| | Hyper-automation | DT | |
| | The emergence of new artificial intelligence tools | AI | (Adair R, 2020) |
| | The changing face of teams | OA | |
| 2022 | Artificial intelligence and automation | AI | |
| | Advanced software for resource and project management | DT | (Patra A, 2022) |
| | The rise of telecommuting | DT | |
| | Demand for emotionally intelligent leaders | FP | |

| | | | |
|---|---|---|---|
| | Greater focus on data analytics for data-driven project management | OA | |
| | Management of hybrid projects | OA | |
| | Increasing emphasis on the soft skills of managers | FP | |
| | Projects and organizational strategy come together | OA | |
| | A cloud-first approach becomes standard | DT | |
| | Growing attention to mental health | FP | |
| 2020 2030 | Blockchain | DT | (Harrin E, 2020) |
| | Artificial Intelligence | AI | |
| | Human-machine cooperation | OA | |
| | Application of mobile devices | DT | |
| | Remote access | DT | |

*Source: Authors*

In order to see the most significant trends, both current and those in a more distant future, a significance analysis was conducted, where the durability of trends was introduced as a key criterion. This was based on the assumption that if a trend lasts at least two years, it becomes significant, that is, the longer a trend lasts, the more significant it is, and vice versa, if a trend lasts only one year, it is less significant. In this sense, Table 2 presents the way in which the most significant trends in project management were identified for the considered periods. It should be emphasized that certain current trends presented in Table 2 do not have the same names, which is understandable because they were defined by different authors, but from the context of their explanations, given in the previous chapter, an unambiguous connection can be established. To illustrate the method, in Table 2, the years of the trends in the time column are marked with two colours. The years of duration of trends in certain years are marked in blue, while "duplicate" trends are marked in green, that is, those trends that are repeated in two or more years.

*Table 2. Method of identifying significant trends in project management*

| Current trends | Year | | | | |
|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2020-2030 |
| Expanding the application of automation and artificial intelligence | ■ | | ■ | ■ | ■ |
| Increasing the business value of "soft skills" | ■ | | | ■ | |
| A growing tendency towards merging methods | ■ | | | | |
| An increasingly competitive landscape | ■ | | | | |
| The growing importance of human-centred design | ■ | | | | |
| Constant changes in digital technologies | | ■ | | | |
| Growing importance of change management for project success | | ■ | | | |
| Increasing the role of Risk Management | | ■ | | | |
| Increasing organizational cooperation | | ■ | | | |
| Increasing the scale of the globalized Gig economy | | ■ | | | |
| Greater focus on data | | ■ | | ■ | |
| The trend of employment of project managers | | ■ | | | |
| Learning in new ways | | ■ | | | |

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| | | | | | |
|---|---|---|---|---|---|
| The impact of IT on behaviour change | | | ■ (blue) | | |
| Overall experience | | | ■ (blue) | | |
| Improving computer privacy | | | ■ (blue) | | |
| Distributed cloud | | | ■ (blue) | ■ (blue) | |
| Operations anywhere | | | ■ (blue) | ■ (blue) | ■ (blue) |
| Cyber security network | | | ■ (blue) | | |
| Intelligent composition-based business | | | ■ (blue) | | |
| Artificial intelligence engineering | | | ■ (green) | | |
| Hyper-automation | | | ■ (blue) | | |
| The emergence of new artificial intelligence tools | | | ■ (green) | | |
| The changing face of teams | | | ■ (blue) | | |
| Artificial intelligence and automation | | | | ■ (green) | |
| Advanced software for resource and project management | | | | ■ (blue) | |
| The rise of telecommuting | | | | ■ (green) | |
| Demand for emotionally intelligent leaders | | | | ■ (blue) | |
| Greater focus on data analytics for data-driven project management | | | | ■ (green) | |
| Management of hybrid projects | | | | ■ (green) | |
| Increasing emphasis on the soft skills of managers | | | | ■ (green) | |
| Projects and organizational strategy come together | | | | ■ (blue) | |
| A cloud-first approach is becoming standard | | | | ■ (green) | |
| Growing attention to mental health | | | | ■ (blue) | |
| Blockchain | | | | | ■ (blue) |
| Artificial intelligence | | | | | ■ (green) |
| Human-machine cooperation | | | | | ■ (blue) |
| Application of mobile devices | | | | | ■ (blue) |
| Remote access | | | | | ■ (green) |

*Source: Authors*

Based on the presented analysis carried out in Table 2, the most significant trends in project management were distinguished, namely:

⌡ artificial intelligence and automation, i.e. expanding its application,
⌡ greater focus data analytics for information-based project management,
⌡ the rise of remote work, remote access, i.e. operation anywhere,
⌡ distributed cloud, i.e. the "cloud first" approach is becoming the standard.


## *CONCLUSION*


The significance of project management lies in it (LCT, 2021):

⌡ considering the big picture and setting realistic and achievable goals, budgets and deadlines;
⌡ having a clear focus and goals that align priorities and define project goals;
⌡ strategically harmonizing projects with the business strategy;

⌡ having a pro-actively managed process that strives to have employees perform the right tasks at the right time;
⌡ helping in delineating results and defining their quality standards;
⌡ reducing project costs by improving efficiency, mitigating risk and optimizing resources.

Therefore, it is of interest to look at the trends in the development of project management. In this sense, this paper presents the current trends in project management for two time periods, the first covering years 2019-2022, and the second representing the trend forecast for the period covering the years until 2030.

The paper identifies the most significant trends that will undoubtedly dominate project management in the foreseeable future, and they primarily concern artificial intelligence and automation, data analytics for project management, remote work, and the application of the distributed cloud.

This paper may be useful to:

⌡ organizations, when adopting and establishing their organizational and business strategies,
⌡ project managers, especially when planning the implementation of new projects,
⌡ analysts and theoreticians, who deal with forecasts and trends.

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# METHODOLOGICAL APPROACH TO THE ASSESSMENT OF EXPORT ACTIVITY OF WOODWORKING COMPANIES

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## *ABSTRACT*

*In order to overcome the negative impact of competitive factors of the external environment, which restrain the development of export activity, companies face the need to choose effective management solutions. These decisions concern, in particular, the system of forming management accounting, optimization of logistics costs, improvement of the monitoring system and other components of the company's export strategy. The complex nature of the mentioned processes, the significant risks of doing business abroad compared to the domestic market, create the need to create a comprehensive approach to optimizing the company's export activity.*

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# INTRODUCTION

Export activity is an important and integral component of the company's economic activity. Carrying out export operations becomes an important prerequisite for expanding sales markets, increasing production volumes and improving product quality, which, in turn, also allows creating a favorable basis for strengthening the company's competitive position in the domestic market. Currently, there is practically no industry that does not have contacts with foreign markets. Effective export activity of individual companies is a guarantee of successful perception of the exporting country by competitor countries.

For the successful functioning of the company, it is necessary to have an accurate idea of its business opportunities in the market. That is, the company's entry into the foreign market must be preceded by a thorough analysis of its export potential.

Implementation of export activity lies within the export potential, which consists in the ability of the aggregate production of a particular country, as a whole, to produce the required quantity of competitive goods for the external market. The export potential of the company, in our opinion, allows us to understand the essence of the export activity of the company as an economic category that characterizes foreign economic activity and factors influencing on it.

Any economic activity of the company influence not only at the micro level, but also affects the industry performance, territory, macro indicators, as well as the results of the activities of other companies. This is true, in particular, for the export segment of companies. On the other hand, export, like any other activity of individual company and the industry as a whole, is affected by a large number of factors.

This determines the urgency of identifying the reserves of potential growth opportunities of exporting companies, by assessing their export activity, for their effective use in the struggle for a competitive place in the world market.

# UNDERSTANDING TRANSITION

Research and identification of factors, influencing on the development of the company's export activity is relevant and widespread among researches.

A. Hodgkinson, as a result of a study of the export activity of Australian companies, claims that the development of exports is primarily influenced by such factors as partnership and cooperation, as well as the use of modern business methods, such as electronic commerce. According to the results of his research, the impact of research works on export development is less significant [1]. The significant influence of partnership and cooperation on the development of exports, especially for small companies, is noted by D. Tookey [2].

E. Akdeve says that the development of export activity is influenced by the size of the firm, experience, product quality, transport costs and proves the insignificant influence of the firm's expenses on scientific research [3]. R. G. Javalgi, S. White, and O. Lee emphasized labor factors, namely, the number of employees, the volume of sales, work experience, and the form of ownership among the factors influencing the development of the firm's export activity. The influence of these factors on the development of export activity changed significantly, according to scientists, depending on the industry in which the company operates [4].

The export activity of the company is influenced by factors - internal, which characterize the functioning of the company and can be regulated by the management, and unmanaged, external to the company, which can be considered parameters of the socio-economic environment in which the

company carries out its activities; quantitatively measurable and qualitative, which can be assessed more often with the help of expert assessment; basic and derived from them. Considering the large number of influencing factors on the development of the export activity of the company, in our opinion, methodological aspects of planning and evaluation of the implementation of export activities when the company realizes its export potential, namely when forming an export portfolio, require additional consideration.

S. Dubkov and S. Dadalko propose an economic methodology for assessing export potential based on a system of indicators characterizing the export activity of an industrial company. The initial stage of this approach is the assessment of factors characterizing the internal and external environment of an industrial company. On the basis of these factors, a system of indicators is formed, which are used for economic and mathematical calculations of the generalized indicator of the company's export potential assessment. Taking into account the fact that not all indicators involved in the analysis have the same weight, that is, influence on the characteristics of the research object, the researchers propose to introduce the weight coefficients of the indicators determined by experts [5]. Thus, the proposed methodological approach is based on a combination of mathematical calculations with the method of expert evaluations.

The methodical approach of V. Moseyko and Yu. Azmina to the evaluation of the export potential of the company is somewhat similar, because the researchers emphasize that it is through the export potential that the export activity of the business entity can best be evaluated [6]. The multifactor assessment of export potential proposed by the mentioned scientists is based on the comprehensive consideration of the influence of endogenous and exogenous factors and on the use of expert methods of analysis with the involvement of specialists.

Among the existing methodological approaches related to the study of the development of the company's export activity, the approach of T. Bondareva and A. Osadchuk [7] is interesting. The authors suggest using a generalizing indicator that can be calculated as a taxonometric coefficient of development of multidimensional objects.

The methodical approach to assessing the development of export potential of company proposed by I. Rusakov [8] is based on comparison with the best indicator. The essence of the proposed approach is to determine the elemental structure of the company's export potential and develop a set of indicators with the selection of key target indicators for a single company. S. Lukyanets, in order to evaluate the efficiency of the company's export activity, suggests using the method of comparative multidimensional analysis (the taxonomy method) to calculate the taxonomic indicator of the level of the company's export activity [9].

N. Bykova pointed out the factors of low economic efficiency of the Ukrainian export of wood and wood products [10]. On the basis of the conducted analysis, the researcher proposes a method of analyzing the export potential of companies for their grouping into promising export groups. This technique is based on the relationship of rating, matrix and integral methods. N. Nevskaya proposed a methodology for assessing the export potential of industrial companies, which takes into account both the results of the questionnaire and the quantitative assessment of the influence of factors of production and sales of products on foreign markets [11]. In her work, the researcher revealed the degree of influence of the factors of formation and realization of export potential on the basis of a questionnaire survey of managers of industrial companies.

M. Shvetsova proposed a methodical approach, which provides for the dependence of the forms and methods of export promotion on the components of the export potential of companies [12]. This approach involves the use of both economic and additional stimulating methods and appropriate forms of stimulation and levers of influence. L. Serova offers her own methodology for determining the export potential of company, based on the fact that the main goal of the process of managing the export potential of company as a subject of foreign economic activity is to develop the most effective method of production and distribution of products that optimizes, according to the variables, a certain result of functioning business entity [13].

L. Petrenko made it possible to substantiate the relationship between the function of the development of export potential and the level of the overall efficiency of the company [14]. The researcher has developed a mechanism for the development of export potential, which allows optimizing its structure and ensuring effective development of the company as a whole.

Among the methods we have considered, we can distinguish quantitative and expert methods. Quantitative export assessment methods based on the calculation and analysis of a set of indicators characterizing the export activity of the company are the simplest. In quantitative, classical units of measurement are taken as a unit of measurement. Expert methods are based on the involvement of experts and specialists and are based on a system of expert evaluations.

A significant part of the authors of the considered methical approaches proposes to carry out a study of the growth reserves of the potential opportunities of companies for the expansion and development of export activities by means of a study of their export potential.

Such state of affairs is caused by the fact that there is a fundamental absence of a single integrated representative assessment of the export activity of company; therefore it is more logical to build a multi-level system of interrelated assessments of the export activity of company.

## DATA PROCESSING

Fifty two woodworking companies were chosen as the base of the research, the accuracy of the assessment of their export activity directly depends on the availability of representative data on the functioning of companies, in particular, their export activity, as well as on the possibility of quantitative measurement and qualitative expert assessment of factors that collectively reflect the general state of the economy and the main trends of its development and influence the results of the firm's export activity. Taking such principles into account leads to the need to develop an approach that involves: evaluating the export activity of woodworking companies at different levels (meso- and micro-), selecting the most appropriate group of independent indicators for each level of export activity evaluation, and taking into account the trends and regularities of the dynamics of the woodworking industry when developing recommendations for the development of export activities at the micro level.

That is, 3 general stages of the approach to the development of the most adequate directions for the development of the export activity of woodworking companies are proposed: - a general assessment with the identification of trends characteristic of companies in the woodworking industry of the chosen region as a whole ( an assessment at the meso-level); - specific assessment of companies; - determination of directions for the development of export activity of woodworking companies based on the determination of levers of influence on the results of export activity. The general scheme characterizing the approach outlined above is shown in Figure 1.
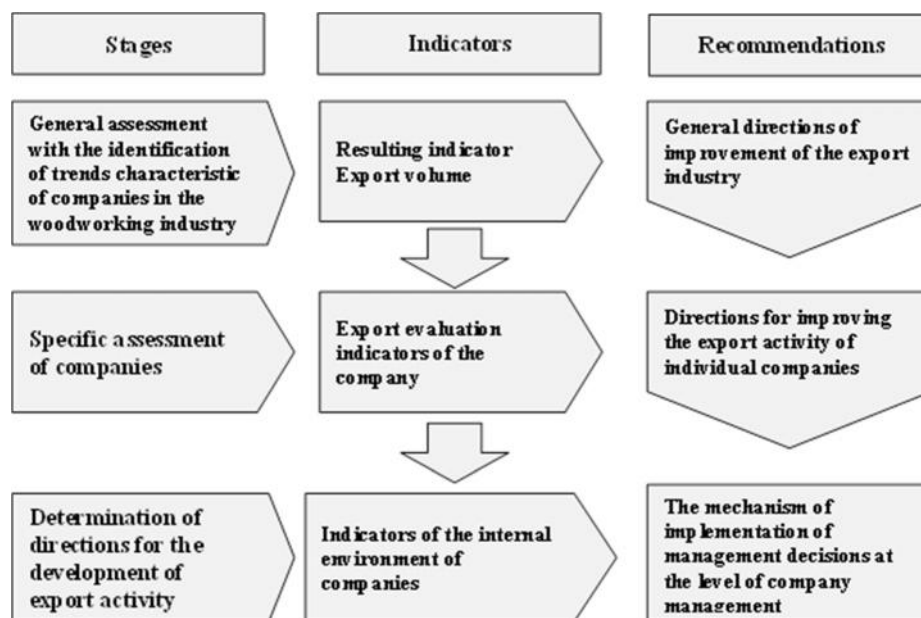
*Figure 1. Based on a two-level assessment system approach to the selection of directions for the development of export activities of woodworking companies*

Two-level system for evaluating the export activity of companies in the woodworking industry is proposed. At the first level (meso level), a general assessment of the export activity of woodworking companies in the chosen region is carried out based on the modeling of a specially selected resulting indicator due to the dependence on a group of indicators (indicators, variables) of a general nature. The implementation of this stage includes the following steps: - first step: - determination of the resulting indicator; - determination of the complex of potential indicators - independent variables that determine the resulting indicator; - determination of the type of model describing the dependence of the resulting indicator on independent variables, methods and criteria for selecting significant indicators among potential ones, taking into account the quantitative and qualitative characteristics; - second step, implementation: - selection of significant indicators; - modeling of the resulting indicator(s); - conclusions based on the obtained trends (dependencies).

We assume that all indicators from the Financial Results form can influence the resulting indicator "volume of export of products", however, even before the statistical analysis was carried out, some indicators were screened out, which in fact do not characterize the results of export activities of companies, in particular, this concerns income and expenses from equity participation and other financial income and expenses, financial results of discontinued operations and the entire block "total income". For the rest of the indicators, as well as for the indicator of the residual value of "fixed assets" from Form 1 "Balance", correlation coefficients were calculated with the resulting indicator "export volume of woodworking products".

In this way, 4 variables were selected. For clarity, the correlation of the selected 4 indicators with potential resulting indicators is summarized in Table 1.

*Table 1. Indicators of production and economic activity of chosen woodworking companies selected for the construction of economic and mathematical models*

| Indicator, UAH | Correlation with the volume of exports |
|---|---|
| The cost of fixed assets | 0,7483 |
| Labor costs | 0,9969 |
| Administrative expenses | 0,8218 |
| Selling expenses | 0,8065 |

*Source: Calculated by the authors on the basis of reporting data of chosen companies*

Conclusions and recommendations based on the results obtained at this step, due to their general nature, are addressed not only to the management of companies, but to managerial, regulatory or analytical bodies on the meso-level: sectoral or territorial. At the company level, they can be taken into account when making decisions regarding the general trend of the export component of the industry.

At the second level of assessment of the export activity of woodworking companies, the generalized indicator is detailed by outlining a number of more specific indicators characterizing the state of the export activity of single woodworking companies.

From a formal point of view, the evaluation implementation at this level is similar to the first level and involves the following steps: - the first preparatory step: - definition of the resulting indicators detailing the resulting meso-level indicator; - determination of the base of potential indicators for this level - independent indicators characterizing the influence of individual factors on the results of export activity; - determination of the type of models describing the dependence of the resulting indicators on independent indicators (variables), methods and criteria for selecting significant indicators among potential ones, taking into account the quantitative and qualitative characteristics of the latter; - establishment of connections between micro- and meso-level indicators; - second step, recommendation: - selection of significant indicators based on the database of woodworking companies; - modeling of the impact of selected variables characterizing the impact of factors on the volume of export activity of the company, on the resulting indicator; - conclusions based on the obtained trends (dependencies).

To assess the indicators of export activity at this level, separate economic and mathematical models for companies are developed, which indicate the modeling of the influence of factors on the volume of export activity of the chosen companies.

Taking into account the data of the selected parameters of the model, using the "Data Analysis" Excel-2019 package, a regression equation was constructed for 6 points (2016 2021). The coefficients for independent variables and the free term were calculated using the method of least squares. As a result, the equation took the following form:

$$y \: Х21248,49 \: Z4,79x_1 \: Г3,88x_2 \: Z4,77x_3 \: Г28,12x_4,$$

where:

$y$ - is the volume of export of woodworking products, thousand UAH;

$x_1$ – cost of fixed assets of the company, thousand UAH;

$x_2$ – labor costs, thousand UAH;

$x_3$ – administrative expenses, thousand UAH;

$x_4$ – costs for product sales, thousand UAH.

Therefore, the recommendations based on the results obtained during the modeling of export activity indicators at the micro level are more specific and are aimed at the management of single companies. The combined scheme of evaluating export activity at two levels is shown in Figure 2.
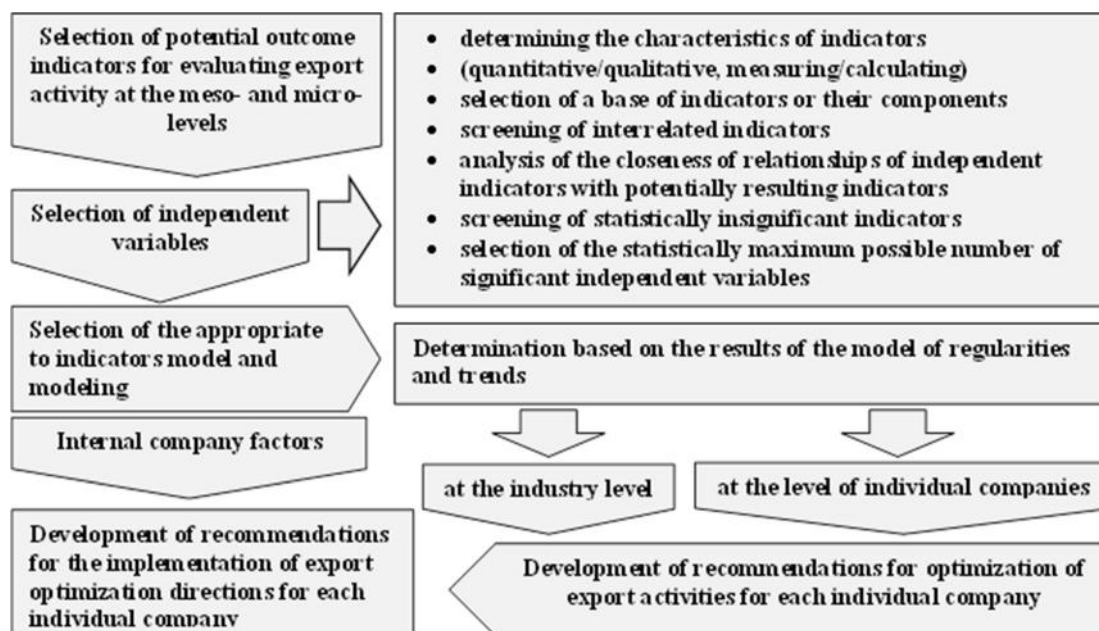


*Figure 2. A two-level system for evaluating the export activity of woodworking companies*

Internal company factors used in the last step to develop recommendations for the implementation of directions for improving the export activity of companies are selected at the lower level.

The two-level system for evaluating export activity provides information for monitoring for regional and branch authorities (at the meso level), as well as for companies management (at the micro level). In order to develop mechanisms for regulating the export activity of woodworking companies, it is necessary to analyze and evaluate the indicators that characterize the internal activity of companies, and on which the company's management has a direct influence - for which the third stage of the approach has been developed. To achieve the maximum effect, we proposed to evaluate the export activity of woodworking companies based on a combination of quantitative and qualitative evaluations. This will be ensured through the combination of the results of the expert survey and the quantitative assessment of the impact factors, which are formed based on the data of the companies.

Principles of determining the resulting indicator. Certain assumptions and principles are presented below for the effective implementation of the above-suggested approach to determining the directions of development of export activity. To evaluate the export activity of woodworking companies, taking into account their specifics, indicators of export sales volumes, export sales efficiency, export sales risk, export liabilities, and currency efficiency are usually used. It is obvious that all the indicators listed above are based on the "volume of product export" indicator. Taking into account this fact, as well as the fact that in market conditions the most sensitive indicator characterizing the export activity of any company is sales volume, it is appropriate to consider this indicator as a resulting.

In order to analyze and forecast the results of the export activity of woodworking companies, it is proposed to calculate the influence of the factors reflected through the corresponding independent variables (indicators) of the production and economic activity of the companies on the value of the resulting indicator. Given the fact that the resulting indicators of the meso-level are quite unified,

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and therefore characterize the export activity of the company to a certain extent generalized, at the micro-level a set of such indicators is introduced that detail the overall assessment, such as: efficiency of production of export products, efficiency of sales of export products, profitability of export sales, the specific weight of exports in the total volume of sales, the share of innovative products, return on capital, capital intensity, labor productivity of personnel during export, labor productivity during export. Principles of determining the base of potential indicators - independent changes that determine the resulting indicator. At the meso- and micro-levels, quantitative indicators were used as independent variables of the model, directly or indirectly related to the export activity of companies by factors affecting it, the values of which could be representatively monitored. The basis for the formation of these indicators was form Balance and form Financial results of the chosen woodworking companies.

The indicators presented in the statistical financial reports of the chosen companies characterize the initial vector of the functioning of the economic system, in this case, the company. This information is sufficient to carry out an external assessment of export activity and form recommendations of a general nature. The activity of the company is also affected by a large number of internal factors, which exist in combination with the parameters of the external economic environment, which also affect the result of the company's production activity to one degree or another. It is very difficult to take all of them into account, therefore, at this step, it is suggested to select significant parameters - to highlight the factors that have the greatest influence on the results of the export activity of a typical woodworking company and to build equations of the dependence of the company's export volume on the selected factors. For this purpose, it is proposed to use the calculation of correlation dependencies between the above-mentioned indicators.

In our opinion, for an effective assessment of the export-oriented activities of companies at the micro level, it is necessary to separate the components of the general indicator of the volume of export activities of the company, to identify the basic indicators that characterize the influence of factors on export activity in the specific conditions of the functioning of companies of a certain industry in a certain period of time, to carry out a quantitative calculation of the specified dependencies, determine the directions of influence of each of the indicators and develop recommendations already based on the conducted analysis.

The level of internal factors of companies. The results of the company's export activity are potentially influenced by various factors. They can be divided into factors of production and economic and other activities of the company - internal factors and factors of the surrounding institutional and economic environment in which the company operates - external factors.

As already mentioned, internal factors, unlike external factors, are subject to regulation, managerial influence on them can be used to improve the indicators of export activity. At the same time, it should be noted that among the analyzed factors, both internal and external, there are those whose impact cannot be quantified: either because they are qualitative in nature, or because data on their quantitative values are unavailable. Weighting coefficients of influence on the development of export activities of companies were assigned to such indicators. On the basis, in particular, of these weighting factors, insufficiently significant indicators are pointed out. Another group of indicators - those that can be measured. They are used to calculate micro-level indicators. The variables of this group, as well as the previous ones, were selected exclusively from among the internal indicators of company's activity, available from company's reports, i.e., those that can be influenced by management.

We will determine the methods and criteria for selecting significant indicators among potential ones, taking into account the quantitative and qualitative characteristics. At the meso level, these are quantitative (statistical) models, methods and selection criteria, since all indicators are measurable. A detailed study of models for evaluating the export activity of companies made it possible to determine that multivariate linear regression methods are used if the research involves the task of forecasting the results of export activity based on the available data on the activity of the company.

The problem of evaluating the export activity of companies at the meso- (and not only meso-) level is that, in general, it is not always possible to determine in advance the volumes, and sometimes even the nomenclature of products that will be exported in the current period, and therefore deterministic dependencies are possible only after the fact. At the same time, it is logical to assume that the volume and productivity of exports are influenced in one way or another by the general indicators of the company's economic activity, therefore, by establishing stochastic relationships between them and the resulting indicator - the volume of export products, it is possible not only to forecast their value (taking into account, of course, indicators of the external economic environment), but also to develop and plan management solutions for the development of export activities.

## CONCLUSION

In accordance with the research task, which consists in substantiating the approach to assessing the development of the export activity of woodworking companies taking into account their specifics in order to build more adequate forecasts of the results of their export activity, at the first stage of the development of such an approach, it is advisable to use multivariate regression methods. It is assumed that the model of the influence of the factors of the company's functioning on the volume of its export activity belongs to the class of stochastic multidimensional models (additive, multiplicative or transcendental-logarithmic). Data analysis allows us to choose the type of statistical dependence and finally specify a set of independent variables that are optimal in terms of error minimization. At the micro level, quantitative (statistical) models, methods and selection criteria are chosen, since all indicators are measurable. Since the nature of independent variables influencing the resulting indicators of the export activity assessment of woodworking companies at the micro level is similar to the nature of independent variables at the meso level, what has been said about the principles of model selection for evaluating export activity at the meso level is also true at the micro level.

In addition, most of the factors of influence on the development of export activity identified in the survey have fundamentally qualitative (non-measurable quantitative) properties, which makes it difficult to use them directly in quantitative models. It should also be noted that these indicators are divided into 2 large groups: internal for companies and external in relation to companies. Since the second group is unregulated from the point of view of company's management, we will not use it in further calculations. But the main function of intra-firm factors in the proposed approach to the assessment of export activity of companies is their use together with indicators of assessment of export activity, introduced at the micro level: the indicators show directions for optimizing the activity of the company, and internal factors, due to the established connections with these indicators, are a mechanism for implementing the specified directions.

Schematically, all internal factors are combined into groups of factors, each of which is set in a mutually unambiguous correspondence with one of the indicators for evaluating the export activity of companies. If necessary, on the basis of the calculation results of the model of increase (decrease) in the value of one or another indicator, along the chain from it through a group of factors, it is possible to determine which specific factors from the group should be regulated.

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# IMPACT OF COVID 19 CRISES ON TOURISM SEASONALITY IN SERBIA

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## ABSTRACT

The crisis caused by COVID 19 is without a doubt the most serious challenge the world has faced in its recent history. It began as a health crisis, but very quickly caused serious turbulence in all aspects of life and work and the normal functioning of economies around the world. It was the most serious global challenge almost without exception in all countries of the world in which governments took drastic measures of restrictions and lockdowns, bans on cross-border travel, and even a complete ban on work in certain sectors. According to the nature of its activity, among the most affected sectors was tourism. The pronounced growth of the tourism activity was sharply cut and record a drastic decline in all indicators, both physical and financial. Among the characteristics that are important for the effectiveness of this complex activity is seasonality.

The paper aims to measure changes in tourism seasonality in Serbia due to COVID 19 health crises. The method of triple exponential smoothing (Holt-Winters' model) is used to analyze changes that covid 19 has caused on tourism in Serbia. Other methods used for the purpose of the research are calculations of the Gini coefficient and the Seasonal indicator. These coefficients are suitable for results comparison as they are on an annual basis. Also, the measures are done on a regional level to indicate which region has a bigger impact on a national seasonality and they are structured based on the type of tourists (total, domestic and foreign). Tourist overnights are taken as a physical indicator to measure the seasonality as the number of tourists as an indicator has methodological issues and is less reliable indicator.

**Keywords:** tourism, seasonality index, Serbia, overnights, covid 19, Gini

**JEL Classification:** R10, Z39, C40

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# INTRODUCTION

Covid 19 crisis has undoubtedly caused serious turbulence almost all over the world and is the most serious challenge in recent history. It started as a global health crisis, but at the same time, it caused a financial crisis and economic decline in almost all countries of the world. Governments around the world have taken drastic measures with restrictions on movements, restrictions on the number of visitors to certain events or a complete ban on holding group events, as well as complete bans on the work of certain economic entities, closing schools and online teaching and also restrictions or periods with a complete ban on entry into some countries. Having a consequence on each country, the health crises can generate overwhelming social, economic and political effects that will cause deep and longstanding concerns (Trajkov, et al., 2022). The overall economy has suffered serious damage as a result of the bans and restrictions, but probably the most serious losses have been suffered by the global tourism industry, especially the travel and hospitality sector. As for illustration, the global economy is estimated to have contracted 4.3 per cent in 2020 (World Bank Group, 2021). International labour organization (ILO) data confirm that labour markets around the world were disrupted in 2020 on a historical record level and 255 million full–time jobs were lost (ILO, 2021). Even in the countries that have implemented less rigorous measures, economic and other business-related activities have been affected because of physical distancing and globally extended effects, such as the drastic decrease in tourism and the persistent barriers to migration (ILO, 2021).

As the world is facing an unprecedented global health, social and economic emergency with the COVID-19 pandemic, travel and tourism is among the most affected sectors with airplanes on the ground, hotels closed and travel restrictions put in place in virtually all countries around the world. Starting from March 2020, and throughout 2020 and 2021, a large number of restrictive measures and restrictions on tourist movements were in force. In November 2021 "One out of five destinations continue to have their borders completely closed as new surges of COVID-19 impact the restart of international tourism. The latest research shows that still, 98% of all destinations have some kind of travel restrictions in place" (UNWTO, 2021). According to the UNWTO Travel Restrictions Report, 46 destinations (21% of all destinations worldwide) in November 2021 still have their borders completely closed to tourists. Of these, 26 destinations have had their borders completely closed since at least the end of April 2020. A further 55 (25% of all global destinations) continue to have their borders partially closed to international tourism, and 112 destinations (52% of all destinations) require international tourists to present a PCR or antigen test upon arrival" (UNWTO, 2021). In this period, Europe and the Middle East are the regions in which destinations continue applying partial border closure above the global average. In the European context, this has to do with the fact that Schengen Member States remain partially closed to certain third countries (UNWTO, 2021). Having in mind different categories and applying destinations as of 1 November 2021, Serbia belongs to the category Testing/Quarantine applied by 112 destinations (52% of all destinations worldwide). On the other hand, taking into consideration the categorization of Clusters by the economic importance of tourism the place of Serbia is in the cluster MODERATE T-GDP >5% and   10% (80 destinations worldwide).

All the measures and restrictions imposed around the world had a serious impact on the functioning of tourism, with a drastic decline in the physical and financial performance indicators, regardless of the economic importance of tourism in a separate national economy. In addition to other serious changes and limitations caused by the restrictions, there were also changes in the seasonality of tourist movements, and hence the need for their detection and measurement, in order to propose measures to minimize the negative effects of the disturbances in seasonality. In particular, the data on tourist movements in Serbia in the period before the crisis in 2020 show that there is no pronounced seasonality, and hence no need to take measures to dynamize certain periods of the year.

The country has huge potential for health tourism - it has over 1000 cold and warm mineral water springs, plus a wealth of natural mineral gases and medicinal mud. The country also has potential for the development of different types of tourism - rural tourism, cultural tourism, old craft tourism, sports tourism, gastronomy tourism, and others (Radovi -Markovi  & Živanovi , 2019). But analyzes and measurements that have been made in this paper according to the indicators that have been used (Gini coefficient, the Seasonal indicator) show a distinct increase in seasonality throughout the country, and especially in certain regions, compared to the period before the health crisis. From there, the purpose of the analysis is to detect changes, to precisely determine the regions that have the greatest impact on the increase in seasonality (for total tourists and separately by type - domestic and foreign tourists), and all in order for such an analysis to serve as a basis for shaping some future measures of the economic and more precisely tourism policy in Serbia with the aim of overcoming the seasonality with all the restrictions on the development of tourism that arise from it.

# COVID 19 IMPACT ON GLOBAL TOURISM

The COVID-19 crisis caused an unprecedented change in the overall functioning of all economic sectors, yet the international tourism industry was among the most affected. Considering that tourism is a complex activity that includes all economic activities related to domestic or international travel, for business or personal reasons (selected types of tourism) without changing the residence of the traveler, changes in any part of social life have a great impact on its functioning and effectiveness. Tourism activity is not only an important component of GDP but also the main source of foreign exchange inflows for countries' balances of payments, offers great employment opportunities, affects the standard of living and the quality of life (both on the side of tourists and for the resident population).

Tourism in the pre-pandemic period was growing more rapidly than the world economy and was a key sector in many advanced, developing and emerging economies. The tourism industry generated millions of jobs with a high share of women (54% of workforce) and youth. International tourist arrivals in 2019 have reached 1.5 billion in the 10th consecutive year of sustained growth (Trajkov, et al., 2022). According to World Tourism Organization (UNWTO), tourism export revenues touched 1.7 trillion USD (UNWTO, 2021). Tourism was considered as 3rd largest export category after fuels and chemicals and in 2019 accounted for 7% of global trade. For some countries, it can present over 20% of their GDP (UNWTO, 2020). In mid-March 2020, the World Health Organization declared an epidemic, and by mid-April 2020, 100% of the world's destinations had imposed lockdowns and travel restrictions. It is quite clear that such a global lockdown caused an unprecedented decline in all types of tourist trips and a decline in all tourism indicators. By May 2020, flight departures had fallen by about 80 percent from a year ago, restaurant bookings by more than 90 percent, and hotel bookings by more than 70 percent. The health crisis has caused an unprecedented decline in international tourism with a record 74% drop in international tourist arrivals, leading them to the levels of nearly 30 years ago. According to UNWTO, international tourist arrivals have reached a record of 1460 million in 2019 and dropped to 381 million in 2020. The decrease of -1.1 billion arrivals in 2020 caused a 1.3 trillion USD loss in export revenues of international tourism, and the estimated loss in global GDP is over 2 trillion USD (Trajkov, et al., 2022). Requests for driving directions had fallen by more than 50 percent from their January 2020 levels (MacDonald, et al., 2020). According to the results of the mentioned research (MacDonald, et al., 2020), the results suggest that a severe six-month disruption to hospitality and personal travel sectors alone reduces average GDP growth across G-20 countries by between 2½ and 3½ percentage points, depending on the breadth of the assumed sectoral disruption. The lower estimate represents a disruption that affects only household consumption in the accommodation, food, and transport sectors. Serious disturbances are also evident in less developed countries, especially those that have tourism as a strategic sector

of their economy. The new challenge humanity has faced led to the rash drop in tourism, which on the other hand put an outsized impact on countries that rely on foreign travelers - with potentially large-scale effects on their economies' national accounts (Rebillard, 2020). According to A. Behsudi[37] (Behsudi, 2020), "Tourism-dependent economies are among those harmed the most by the pandemic. Before COVID-19, travel and tourism had become one of the most important sectors in the world economy, accounting for 10 percent of global GDP and more than 320 million jobs worldwide". The volume and importance of tourism simply reflects the comparison with the situation 70 years ago, i.e. before the mass use of passenger air transport. In 1950, at the dawn of the jet age, just 25 million people took foreign trips. By 2019, that number had reached 1.5 billion, and the travel and tourism sector had grown to almost too-big-to-fail proportions for many economies (Behsudi, 2020). The United Nations World Tourism Organization (UNWTO) states that the pandemic and related restrictive measures have put 100 million tourism jobs, many in micro, small and medium enterprises, at high risk. It is clear that the countries in which tourism is a key economic sector and has a significant share in their GDP will feel the negative impacts of the crisis for the longest and most seriously, but it is undeniable that the crisis significantly affected the functioning of tourism in all countries of the world. Taking into account the dependence and intertwining of tourism with other activities, i.e. with contact-intensive services crucial for the tourism sector, the damages are even greater and impose the need for serious cross-sectoral analyses for their assessment. Overcoming such situations cannot be expected until people again feel safe to travel en masse.

According to the data presented by UNWTO, international tourism recorded a strong rebound in the first five months of 2022, with arrivals reaching almost half (46%) the levels of the same period of 2019. International tourist arrivals (overnight visitors) more than tripled (+221%) in January-May 2022 over 2021, but remained 54% below. Nearly 250 million international trips were recorded worldwide through May 2022. This compares with the 77 million arrivals seen in the same months of 2021 (UNWTO, 2022). According to the same official source, among destinations reporting data for tourism receipts in the first five months of 2022, Serbia with +59% is on a second place in a group of those exceeding pre-pandemic levels: Republic of Moldova (+86%), Serbia (+59%), Seychelles (58%), Romania (+35%), North Macedonia (+26%), Saint-Lucia (+21%), Bosnia and Herzegovina (+20%), Albania, Pakistan (both 17%), Sudan (+16%), Türkiye (+11%), Bangladesh (+7%), El Salvador (+6%), Mexico (+3%), Croatia (+2%) and Portugal (+1%).
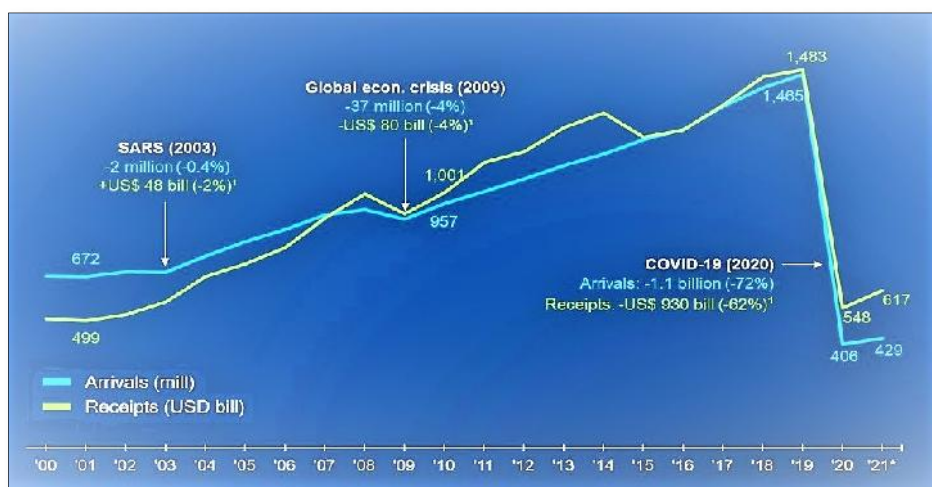


*Figure 1. International tourist arrivals and receipts, 2000 - 2021*
*Source: (UNWTO, 2022)*

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[37] IMF, A. Behsudi is on the staff of Finance & Development

International tourism experienced a 5% increase in 2021, 22 million more international tourist arrivals (overnight visitors) compared to 2020 (427 million versus 405 million). However, international arrivals were still 71% below the pre-pandemic year of 2019 (UNWTO, 2022). International tourism started to recover moderately during the second half of 2021. The gradual easing of entry restrictions in many destinations has contributed to an increase in international tourist movements, especially during the Northern Hemisphere summer period. However, the pace of recovery has remained slow and uneven due to the varying degrees of restrictions that still exist in certain destinations, as well as due to other reasons of an economic, social and psychological nature. Europe and the Americas recorded the strongest results in 2021 compared to 2020 (+19% and +17% respectively), but still both 63% below pre-pandemic levels. As far as 2022 is concerned, UNWTO's forward-looking scenarios published in May 2022 point to international arrivals reaching 55% to 70% of pre-pandemic levels in 2022 (-45% to -30% compared to 2019) depending on evolving circumstances, mostly changing travel restrictions, the evolution of the pandemic and mounting economic challenges. Scenarios by region show Europe (65% to 80% of 2019 levels) and Americas (63% to 76%) recording the best tourism results in 2022 (UNWTO, 2022). In addition to such quantitative indicators and expectations, the crisis also caused certain qualitative changes in tourist movements. While international tourism is gradually recovering, recovering domestic tourism is a core strategy for many countries. Among the measures that are applied, there is a noticeable trend of increasing the number of destinations, innovative outdoor activities, offering natural products, encouraging the accelerated development of rural tourism, etc. The changes in consumer trends in tourism that occurred under the influence of the COVID-19 crisis mostly relate to: the distance of tourist trips (closer destinations are preferred; mostly domestic destinations, destinations that are attractive, but in immediate vicinity to the place of permanent residence); searching for authenticity, increasing responsibility towards the local community and raising awareness in valuing the immediate surroundings and the touristic elements that can be found there; the numerous restrictions and requirements for distancing caused an emphasis on the importance of rural tourism and natural values and a search for exciting experiences in open space, in nature; the difficulties of visiting distant destinations and the proximity of the journeys create room for increasing the length of tourist stays without increasing the travel budget. Such changes impose the need to analyze a large number of issues related to the effectiveness of the tourist business and the need to set up a series of measures for the recovery of tourist activity. Among the issues that need to be seriously analyzed and related to tourism trends as a consequence of the health crisis, the question of changes in the seasonality of tourist movements before and after the crisis, as well as the structure of tourists (domestic and foreign) takes a special place, in order to detect which category of tourists has a greater impact on the changes that have occurred.

## TOURISM SEASONALITY, FACTORS AND DETERMINATIONS

Tourist seasonality has always been a challenge for researchers and for everyone actively involved in the tourism industry, as the uneven temporal distribution of tourist arrivals and overnights is tied to the planning and proper use of tourist facilities.

At first glance, it seems that seasonality in tourism is an easily understandable concept, but facing this phenomenon opens up a number of questions and dilemmas that complicate the process of its understanding and definition. Many tourist destinations face this phenomenon continuously and suffer serious losses due to it, yet only limited efforts are made to overcome seasonality. Considering the very complexity and multidimensionality of tourism as a whole as a social phenomenon, the complexity of understanding seasonality as a phenomenon in tourism and the difficulties in its treatment and definition are not at all surprising. One of the most important and most used definition of tourism seasonality has been given by Richard Butler, according whom

„…seasonality is a temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment, and admissions to attractions" (Cannas, 2012, p. 41). Maybe the most prominent definition of tourist seasonality was given by Hylleberg (Hylleberg, 1992) according to whom tourism seasonality is a systematic, although not necessarily regular, intra-year movement caused by changes in the weather, the calendar, and timing of decisions, directly or indirectly through the production and consumption decisions made by the agents of the economy. These decisions are influenced by the endowments, the expectations and the preferences of the agents, and the production techniques available in the economy. Bearing in mind that the initial scientific interest in seasonality in tourism dates back to the 1970s, BarOn (BarOn, 1973) as a pioneer in seasonality stated that seasonality implies an incomplete and unbalanced utilization of the means at the disposal of the economy, and this is similar to the imbalance of the business cycle, where the economy is either overheated or running under full potential at different phases of the cycle. Manning and Powers (Manning, R. E., Powers, L. A., 1984) define seasonality as the uneven distribution of use over time (peaking) becoming one of the most pervasive problems with outdoor recreation and tourism, causing inefficient resource use, loss of profit potential, strain on social and ecological carrying capacities, and administrative scheduling difficulties. As from those mentioned here, as well as from a large number of attempts to qualitatively determine seasonality in tourism, it is clear that this phenomenon can be considered a key problem for the tourism industry and a factor that causes numerous difficulties in its optimal functioning. On the one hand, periods of decline in tourist movements are the cause of dismissal of labor force, reduced facilities ROI and efficiency, reduced profitability, increased maintenance costs, high operational risk, etc., and on the contrary, periods of drastic growth in tourist movements create problems with overloading the available capacities, lack of qualified labor force, reduction in the quality of services, etc. From there, the need to make a constructive effort to reduce seasonality and take measures to reduce peaks in tourist movements clearly emerges.

In any case, it is a question of fluctuations in demand or supply in the tourism industry, caused by the temporary movement of people that creates large differences in the scale and volume of occurrences in certain periods of the year. Such changes and sometimes sharp growths and declines in tourism indicators during a one-year period create challenges (whether they are positive or negative changes) both for the economic performance of the tourist destination and the country as a whole, as well as for the natural environment, the regular life dynamics of the local population, the infrastructural load, dealing with the need to match the tourist seasonality with the seasonality of the labor force (matching the supply and demand in the labor market), etc. All of this imposes a need to monitor and study seasonality in tourism and align the measures of tourism policy holders with the aforementioned phenomenon. It must be borne in mind that seasonality does not refer to occasional and random changes and irregularities in the dynamics of tourism, but follows stable seasonal patterns that can be followed continuously and express a certain regularity of occurrence. Some of the causes that cause the seasonality defined in this way can be consistent over a long period of time, some have discrete periods of change (but still have a certain regularity that allows them to be predicted), while some are completely unpredictable (even if consider a long database of historical data). The crisis caused by Covid-19 is in the last category. The seasonal effects in tourism caused by the pandemic did not provide an opportunity to predict them and react in time. It remains to monitor and measure the effects that were caused and to propose measures to minimize the consequences and restore seasonality at least within its natural framework. Monitoring seasonality changes in general and detecting the reasons for which they occur, as well as the consequences arising from them, imposes the need to monitor large statistical series. Some authors consider that seasonal component of tourism becomes more important with its development and as tourism grows massive, seasonality comes to be more apparent (            , 1997).

In efforts to define seasonality, the factors that cause seasonality are usually included, so in analyzing this phenomenon, among the authors, factors of a natural (physical) and social

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(institutional or socio-cultural) nature are mentioned (Lee, et al., 2008) (Koži , 2013) (Secareanu & Firoiu, 2011). Natural factors refer to climate changes and natural physiognomies of tourist destination. Weather seasons and temperature differences, amount of precipitation, number of sunny days and other natural phenomena can significantly influence tourism seasonality. These natural dimensions refer more to certain forms of tourism. Seasonality caused by natural factors is higher at those tourist destinations with dominant outdoor activities, particularly if the destination is located on the peripheral parts of the Northern or Southern hemisphere that are more vulnerable on climate changes. Tourist seasonality caused by natural factors is highly predictable (Trajkov, et al., 2016). Seasonality caused by natural factors must be considered separately in relation to domestic and foreign visitors, as numerous studies show large differences between the behavior of domestic and foreign tourists, resulting from changing weather conditions. As studies shows and it is logically clear at the same time, the domestic tourism demand is more elastic to weather changes compared to the demand of foreign tourists (Agnew & Viner, 2011). Domestic tourists, especially in smaller countries, can react (and often do) to weather changes very quickly. If the weather conditions do not match their plans and expectations, they may leave the destination quickly, which causes a decrease in the number of domestic tourist arrivals. With such a change, foreign tourists cannot react like that, at least not in a short period. They plan and organize their trips for a long time, they are bound by tourist arrangements and intermediaries, and possible sudden weather changes do not give them much room for reaction. They mostly stay at the destination according to their plan regardless of the weather conditions.

Social (institutional or sociocultural) dimension of tourism seasonality is determined by written rules or traditions applicable in tourism practice, and therefore these factors have an influence on the dynamics of tourism activities (Koži , 2013). Most often, such oscillations in tourist movements occur during holidays, days off, school holidays, traditional mass events (carnivals, festivals, concerts, sports competitions, fairs, etc.) and other events that are traditionally held in certain periods of the year. About half of the population is creating their travel pattern in regard with school holidays. Due to the mass movement during school vacations the federal states of Germany and Austria staggered of the timing of school holidays over different regions, what resulted, to a certain degree, with lower concentration of tourist activities (Corluka, 2019). Institutional seasonality, unlike natural seasonality, is relatively easier to predict and manage. The decision-makers in the tourism business know in advance the periods or even the dates when, due to the already mentioned social and institutional reasons, greater tourist activity is expected. Certain differences can be caused by the variability of the dates of holding certain traditional events (congresses, meetings, fairs, sports events, etc.) or due to the variability of the dates of some state and religious holidays (Christmas, Easter, Eid...), therefore, the effects of changing dynamics in tourism activities can occur in different months when comparing monthly data from one year to another. However, these changes are evident, clearly understood and easily predictable. However, in long terms, tourism seasonality influenced by institutional factors is expected to be even more unstable. Some authors consider the aging of population as the main reason for that flux (Butler & Mao, 1997). Retired persons do not have major restrictions on their spare time and their travels are not always determined by holidays and free days during the year (Trajkov, et al., 2016). Another significant reason that makes tourism seasonality influenced by social factors unpredictable is that the way and needs of using seasonal holidays has been changed in recent years. Today, people usually split their holidays and use the free days in summer and in winter as well. For example, tourists from Northern Europe more rarely use their spare days from the holidays for summer vacations on traditional Mediterranean destinations. Their decision more often falls on visiting exotic destinations during the summer and winter centers during the winter (Nadal, et al., 2003).

Seasonality is one of the most salient and significant characteristics of tourism. Despite the wealth of research, there is a general feeling of leak of knowledge of the phenomenon. Due to the insufficient understanding, the managing possibilities to combat or mitigate tourism seasonality are reduced. A good understanding of seasonality in tourism is essential for the efficient operation of

tourism facilities and infrastructure. Further examination of tourism seasonality is need to ensure better understanding of the phenomenon in case of causes of seasonality, quantification of implications, as well as potential strategies to lower the pattern (Corluka, 2019). Although some positive effects resulting from tourist seasonality can be detected, basically the effects resulting from this phenomenon are negative. The problem of tourism seasonality is real and becomes more complex over time. A large concentration of tourist activities only in certain periods of the year does not benefit anyone and only creates problems for which it is difficult to find a sustainable solution. This imposes a need for mobilization from all involved stakeholders in order to plan and organize the continuation of the tourist season, and it would be best if there was an opportunity for that by diversifying the tourist offer, spreading it throughout the year. Anyway, tourist seasonality is certainly an interesting phenomenon that should be given serious attention in the direction of tourism development, especially in countries that realize large revenues from this activity. Even in countries where tourism is not among the priority economic activities, this phenomenon is important for the specific tourism destinations that exist in every country in the world, and in the direction of the sustainability of the tourist destination.

## *TOURISM IN SERBIA IN PRE AND POST COVID-19 PERIOD*

The analysis of tourism is done based on the analysis of the indicators that refer to this economic activity. In general, indicators can be divided into physical (non-financial) indicators and financial indicators. Financial indicators refer to tourist consumption, while physical indicators measure the movements of tourist trips (number of tourists) and tourist overnight stays (Trajkov & Biljan, 2019). They are useful in establishing diagnostics for certain changes that occur in the tourism industry, and through their analysis, useful and acceptable solutions can be found that will be generated and implemented by tourism policy makers for the challenges faced by the economic activity.

The research done in this paper is using secondary data on the physical indicators in tourism from official sources, that is, the official reports published by the Statistical Office of the Republic of Serbia. At the same time, in the models used for the purposes of the research, data on tourist overnight stays are used, not data on the number of tourists (i.e. tourist trips). The reason for using this physical indicator is that the methodology for counting the number of tourists leaves room for multiple counting of the same visitors, thus reducing the precision of input data during their further processing. A tourist is registered in each accommodation establishment in which he stays, and in such a case he can be re-registered; therefore, the statistics record the number of tourist arrivals, not the number of tourists. Overnight stay in an accommodation facility means every registered overnight stay of a person, i.e. domestic or foreign tourist (Statistical Office of Republic of Serbia, 2022).

Tourism in Serbia has been analyzed based on the data on tourist overnight stays in the period from 2000 to 2021. The analysis of the data from Table 1 and Figure 2 provides interesting insights into the tourist trends in Serbia, whereby three more characteristic periods can be distinguished for analysis according to the structure and performance of the trends in the number of tourist overnights. Thus, one period of analysis is the period before the covid crisis 2000 - 2019, which can be divided into two sub-periods 2000 - 2014 and 2015 - 2019, while the other period of analysis is the post Covid period.

### Tourism in Serbia in pre COVID – 19 period

Pre-Covid tourist overnight stays increased by 30.9% in 2019 compared to 2000. The average annual growth rate of tourist nights during this period in Serbia was 1.7% (Table 1). However, the calculations of % changes in relation to the structure of tourist overnights (domestic and foreign) showed extremely interesting results. It is characteristic of the pre-covid period that the number of nights spent by domestic tourists in 2019 is even 16.5% lower than the number of nights spent by

domestic tourists in 2000. At the same time, the number of overnight stays by foreign tourists in 2019 increased by an extremely high 830.3%, which is actually the reason for the overall growth of tourist overnight stays in Serbia in the pre-covid period. The average annual growth rate of overnight stays in Serbia before the covid period was -0.7%, while the average annual growth rate of overnight stays by foreign tourists increased by 13% (Table 1). It is these indices that explain the changes in the ratio of overnight stays by domestic and foreign tourists in the structure of total overnight stays in the pre-covid period. At the same time, the growth of the participation of overnight stays by foreign tourists from a minimum of 5.6% in 2000 up to a high of 40% in 2019 is noticeable, which can also be seen from the illustration in Figure 2.

*Table 1. Percentual changes of tourists overnights in Serbia (period: 2000 – 2021, %)*

| Year | chain index - CI* | | | Base index – BI n=2000** | | |
|---|---|---|---|---|---|---|
| | **Total** | **Domestic** | **Foreign** | **Total** | **Domestic** | **Foreign** |
| 2000 | / | / | / | 0 | 0 | 0 |
| 2001 | -6.5 | -9.1 | 37.5 | -6.5 | -9.1 | 37.5 |
| 2002 | 0.2 | -2.0 | 24.6 | -6.4 | -11.0 | 71.3 |
| 2003 | -7.2 | -8.9 | 7.2 | -13.1 | -18.9 | 83.6 |
| 2004 | -0.6 | -1.7 | 7.5 | -13.7 | -20.3 | 97.4 |
| 2005 | -2.2 | -4.9 | 16.5 | -15.6 | -24.2 | 130.1 |
| 2006 | 1.4 | 1.3 | 2.4 | -14.3 | -23.2 | 135.5 |
| 2007 | 11.2 | 4.9 | 45.3 | -4.8 | -19.4 | 242.3 |
| 2008 | 0.1 | 1.4 | -5.2 | -4.7 | -18.3 | 224.5 |
| 2009 | -7.8 | -10.8 | 5.0 | -12.1 | -27.2 | 240.8 |
| 2010 | -5.1 | -6.3 | -1.2 | -16.7 | -31.7 | 236.9 |
| 2011 | 3.6 | 0.8 | 13.1 | -13.7 | -31.2 | 281.1 |
| 2012 | -2.4 | -6.3 | 9.3 | -15.7 | -35.5 | 316.7 |
| 2013 | 1.3 | -2.3 | 10.7 | -14.7 | -37.0 | 361.2 |
| 2014 | -7.3 | -14.3 | 8.7 | -20.9 | -46.0 | 401.3 |
| 2015 | 9.3 | 8.1 | 11.5 | -13.6 | -41.6 | 459.0 |
| 2016 | 13.3 | 13.0 | 13.7 | -2.1 | -34.0 | 535.4 |
| 2017 | 10.5 | 7.4 | 15.9 | 8.2 | -29.1 | 636.5 |
| 2018 | 12.1 | 10.3 | 15.2 | 21.3 | -21.8 | 748.5 |
| 2019 | 7.9 | 6.8 | 9.6 | 30.9 | -16.5 | 830.3 |
| 2020 | -38.4 | -18.6 | -68.5 | -19.4 | -32.0 | 193.3 |
| 2021 | 31.6 | 16.1 | 92.1 | 6.1 | -21.1 | 463.6 |
| **Average annual growth rate**(2000-2019) | **1.7** | **-0.7** | **13.0** | / | / | / |

*Source: authors' calculations based on (SORS, 2022) data,*
*\*CI = TO$_n$/TO$_{n-1}$\*100-100, TO – number of tourist overnights, n - year*
*\*\*BI = TO$_n$/TO$_{n=2000}$\*100-100, TO – number of tourist overnights, n - year*

The data from Table 1 show that the total number of overnight stays in Serbia in the period 2000-2014 decreased, which can also be seen from the illustration in Figure 2. In fact, the calculated base index, where the year 2000 was taken as a base, shows that the total number of tourist overnights in 2014 decreased by as much as 21% compared to the number of overnights achieved in 2000. It is characteristic in this period that the total overnight stays usually have negative chain indexes. The average annual growth rate during this period, calculated according to the data from Table 1, is

negative and equals to -1.5%. A specific year with a positive chain index in this period is only 2007, where the growth is double-digit compared to 2006 and amounts to 11.2%.

A clearer picture of the reasons for these movements in the total number of overnights spent in Serbia in the period 2000 - 2014 can be seen if a structural analysis of the overnights spent by domestic and foreign tourists is made. The overnight stays made by domestic tourists in 2014 were as much as 46% less compared to 2000, but the number of overnight stays by foreign tourists grew by more than 400% respectively. The analysis of the chain indices in the period 2000-2014 shows that domestic overnight stays on an annual level are decreasing or are at the same level compared to the previous year, with the exception of 2007 when there is a noticeable growth compared to 2006, by less than 5%. The average annual growth rate of domestic overnight stays during this period is negative and amounts to -4.2%. However, the growth of overnight stays by foreign tourists in this period neutralizes the decline of domestic overnight stays (Figure 2). Thus, the annual growth rate of foreign overnight stays is in continuous growth, with a particularly high increase in 2007 of over 45% compared to the previous year. Double-digit annual growth of foreign overnight stays in this period has been recorded for several years, so the average annual growth rate of foreign overnight stays in this period amounts to 13%.
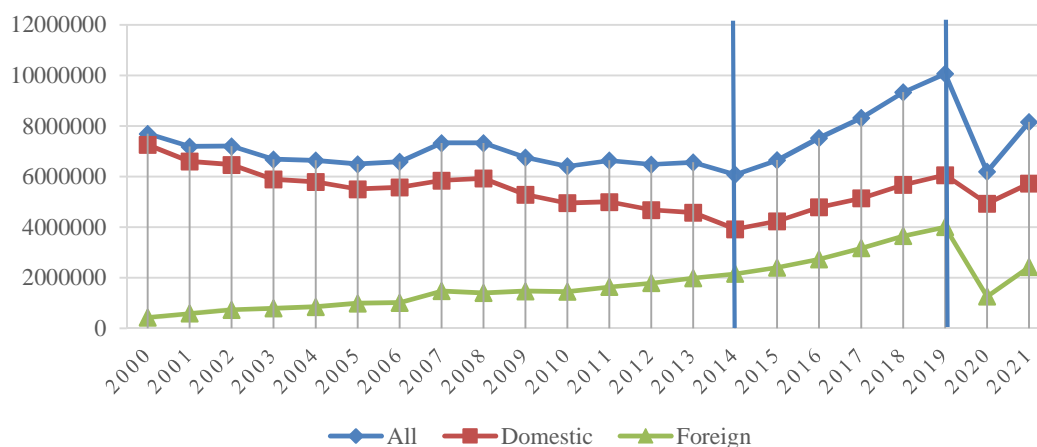


*Figure 2. Tourist overnights in Serbia (2000 – 2021)*
*Source: authors' interpretation based on (SORS, 2022)*

The period from 2015 to 2019, before the beginning of the health crisis caused by the Covid 19 pandemic, is characterized by a constant growth of tourist overnights in Serbia (Figure 2). Thus, the total number of overnight stays in Serbia in 2019 was 31% higher compared to 2000. Calculations based on the data from Table 1 show that the average annual growth rate of tourist overnight stays in the period 2015-2019 is over 10%. This period can be considered as a period of expansion of tourism in Serbia because in that period there is a continuous growth of overnight stays of both domestic and foreign tourists. The average annual growth rate of domestic tourist overnights is 9.12%, while foreign overnights grew by 13.2% on average in the before mentioned 2015-2019 period. The calculations from the data issued by (SORS, 2022) show that the total overnight stays in 2019 increased by 65.5% in 2019 compared to 2014, and this is based on the total increase of domestic and foreign overnight stays in the same period by 54.5% and 85.6% respectively.

**Tourism in post COVID – 19 period**

The health crisis caused by the Covid-19 pandemic, which resulted in a series of restrictive measures introduced by the states, caused major distortions in travel around the world. Serbia

introduced the first measures to limit the movement of people in March 2020, which strongly affected tourist flows and generated a huge decrease in tourist overnight stays in the country.

Total tourist overnights in 2020 decreased by 38.4% compared to the previous year. The overnight stays of domestic tourists decreased by 18.6%, while the overnight stays of foreign tourists decreased significantly in 2020 by 68.5% compared to 2019. Thus, overnight stays in 2020 were 19.4% below the level achieved 20 years earlier, i.e. in 2000 (Table 1).

Figure 2 shows that there is some recovery in tourism and an increase in overnight stays in 2021 compared to the previous year, but that the impact of the health crisis is still felt. Calculations show that total overnight stays in 2021 are 19% lower compared to the last year before the covid crisis, with domestic overnight stays 5.4% less and foreign overnight stays 39.4% less in 2021 compared to 2019.

## *METHODOLOGY TO DETERMINE THE IMPACT OF COVID – 19 CRISES ON TOURISM OVERNIGHTS IN SERBIA*

In order to determine the exact impact of the health crisis on the realized tourist overnight stays, it is necessary to make a projection of the expected overnight stays in the post-Covid period and compare them with the actual movements in the tourism sector. The methodology used in this paper to make such an analysis is triple exponential smoothing, that is, Holt-Winters' model (Holt, 2004) (Winters, 1960) which allows with great accuracy and small deviations to calculate the expected overnight stays in the post-covid period and compare them with the real results to determine the effects caused by the crisis.

Holt-Winters is a model of time series behavior. It is a way to model three aspects of the time series: a typical value or stationary component (average), a slope (trend) over time, and a cyclical repeating pattern (seasonality). Because the seasonal component increases with time (Figure 3), we know that we should use Holt-Winters' multiplicative seasonal smoothing model to project expected tourist overnights in Serbia in post Covid – 19 period.

Holt-Winters' multiplicative seasonal smoothing model is expressed as following (SAP SE, 2018) (Hyndman & Athanasopoulos, 2018):

(Level) $$S_t = \alpha \frac{X_t}{C_{t-L}} + (1-\alpha)(S_{t-1} + B_{t-1}) \qquad (1)$$

(Trend) $$B_t = \beta(S_t - S_{t-1}) + (1-\beta)B_{t-1} \qquad (2)$$

(Seasonal) $$S_t = \gamma \frac{X_t}{S_t} + (1-\gamma)C_{t-L} \qquad (3)$$

(Forecast for period m) $$F_{t+m} = (S_t + mB_t)C_{t-L+1((m-1)m \quad L)} \qquad (4)$$

Where,

- is data smoothing factor. The range is $0 < \ < 1$;
- is trend smoothing factor. The range is $0 < \ < 1$.
- is seasonal change smoothing factor. The range is $0 < \ < 1$.
- X is observation
- S is smoothed observation
- B is trend factor
- C is seasonal index (formula 6)
- F is the forecast at m periods ahead
- t is the index that denotes a time period

Large set of data with 240 observations was used for the model. Monthly values of total tourist overnights in Servia realized in the period January 2000 – December 2019 were taken for the purpose of the research. All calculations were made using MS Excel software and the following results for the forecasting statistics where gained:

$$= 0.25, \quad = 0.00, \quad = 0.75$$
$$\text{MASE} = 0.48, \text{SMAPE} = 0.06, \text{MAE} = 45{,}131.48, \text{RMSE} = 53{,}351.18$$

**Alpha** (base value) - the smoothing value between 0 and 1 that controls the weighting of data points. The higher the value, the more weight is given to recent data. **Beta** (trend value) - the value between 0 and 1 that determines the trend calculation. The higher the value, the more weight is given to recent trends. **Gamma** (seasonality value) - the value between 0 and 1 that controls the seasonality of the triple exponential smoothing forecast. The higher the value, the more weight is given to the recent seasonal period. The values of , and coefficients indicate that the model gives more weight on the recent seasonal period.

- MASE (mean absolute scaled error) - a measure of the forecast accuracy. It is the MAE divided by the MAE of the naive model. The naive model is one that predicts the value at time point t as the previous historical value. Scaling by this error means that you can evaluate how good the model is compared to the naive model. If the MASE is greater than 1, then the model is worse than the naive model. The low value of MASE (0.48) means that the model is better compared to the naive model.
- SMAPE (symmetric mean absolute percentage error) - a measure of accuracy based on percentage or relative errors. The calculated small value of the SMAPE = 0.06 indicates that the model has 99.9% accuracy.
- MAE (mean absolute error) - measures the average magnitude of the prediction errors, regardless of their direction.
- RMSE (root mean square error) - a measure of the differences between the predicted and observed values.

Based on the results of the forecasting statistics it can be concluded that the Holt-Winters' multiplicative seasonal smoothing model is valid and statistically significant. The forecast results, based on the specified model are given in table 2 and illustrated in figure 3.

The model used for forecasting gives us 95% confidentiality that the number of tourist overnights will be between the number of lower and upper confidence bound in the analyzed period (see Table 2).

Forecasting values for the first two months 2020 are used to make additional test of the model validity, as the Covid-19 restrictions started in March 2020. As seen from the calculations given in table 2, there are is a minor deviation of the predicted tourists overnights compared the realized overnights for the first two months of 2020. Predicted values for January 2020 deviate only 4.5% of the real values, and the deviation for February 2020 is only 0.27% (table 2, figure 4). This also confirms the model validity and we can be sure that the expected tourist overnights are with high level of accuracy.

*Table 2. Impact of Covid 19 on tourism overnights in Serbia, (Holt – Winters Model)*

| Timeline | Values - a - | Forecast - b - | Lower Confidence Bound | Upper Confidence Bound | Y* |
|---|---|---|---|---|---|
| **Dec-19** | 685811 | 685811 | 685811 | 685811 | |
| **Jan-20** | 689582 | 659910 | 579445 | 740375 | -4.50 |

| | | | | | |
|---|---|---|---|---|---|
| **Feb-20** | 729731 | 727788 | 644827 | 810749 | -0.27 |
| **Mar-20** | 344596 | 761693 | 676290 | 847096 | 54.76 |
| **Apr-20** | 41656 | 902307 | 814511 | 990103 | 95.38 |
| **May-20** | 170688 | 1101334 | 1011191 | 1191477 | 84.50 |
| **Jun-20** | 560179 | 1100061 | 1007611 | 1192510 | 49.08 |
| **Jul-20** | 737398 | 1252317 | 1157601 | 1347034 | 41.12 |
| **Aug-20** | 1080676 | 1395307 | 1298360 | 1492254 | 22.55 |
| **Sep-20** | 698108 | 979600 | 880455 | 1078746 | 28.74 |
| **Oct-20** | 528777 | 903249 | 801937 | 1004561 | 41.46 |
| **Nov-20** | 345219 | 691066 | 587617 | 794516 | 50.05 |
| **Dec-20** | 274680 | 723645 | 618085 | 829204 | 62.04 |

*Source: authors' calculations based on (SORS, 2022) data*
*\* Y= (b-a)/b\*100, a – realized tourist overnights in 2020, b – expected tourist overnights in 2020,*
*Y= % deviation of the realized tourist overnights over expected tourist overnights in Serbia*

Calculations indicate that there is 51,26% reduction of the total tourist overnights in Serbia compared to expected overnights, since the beginning of Covid-19 restrictions in 2020 until the end of 2020. Impact of the health crises on tourism in Serbia is illustrated in figure 3.
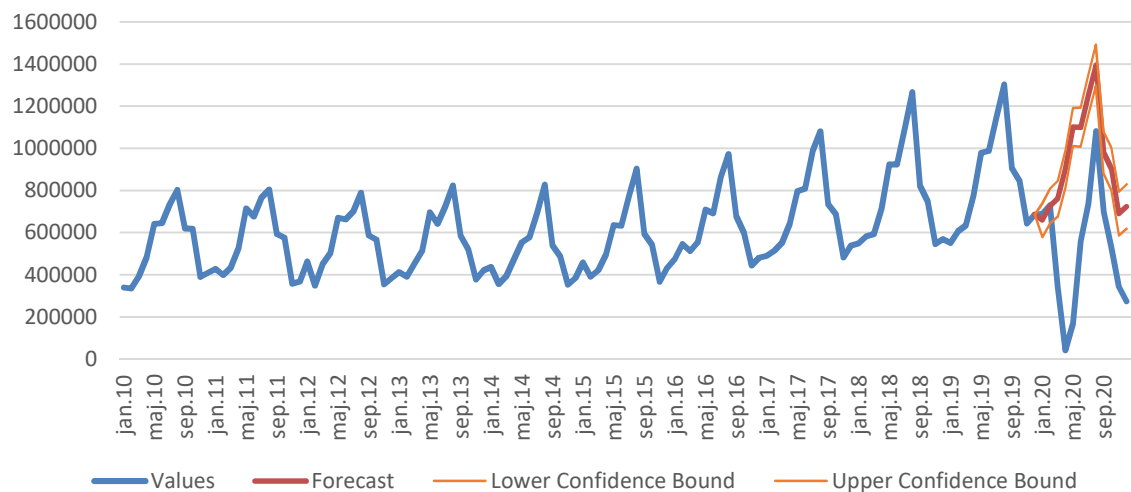


*Figure 3. Real and forecasted tourism overnights in Serbia (pre and post Covid 19 period)*
*Source: authors' interpretation and calculation based on data taken from (SORS, 2022)*

Figure 3 gives a clear look on the increased pick of seasonality generated in the post Covid-19 period. Calculation of the percentage deviation of realized overnights over expected overnights can help us to identify the which moths in 2020 caused the changes of the seasonality pick.

Figure 4 clearly shows that the highest intensity of decline in overnight stays occurs in the months outside the tourist season in Serbia. As the government restriction begun in mid-March 2020, it is likely that the highest drop of tourist overnights would be in April 2020 with 95,38% and May 2020 with 85% less overnights than expected (table 2, figure 4). Smallest deviation of realized overnights over expected overnights is calculated in August 2020 (-22.55%) and September (28.74%).
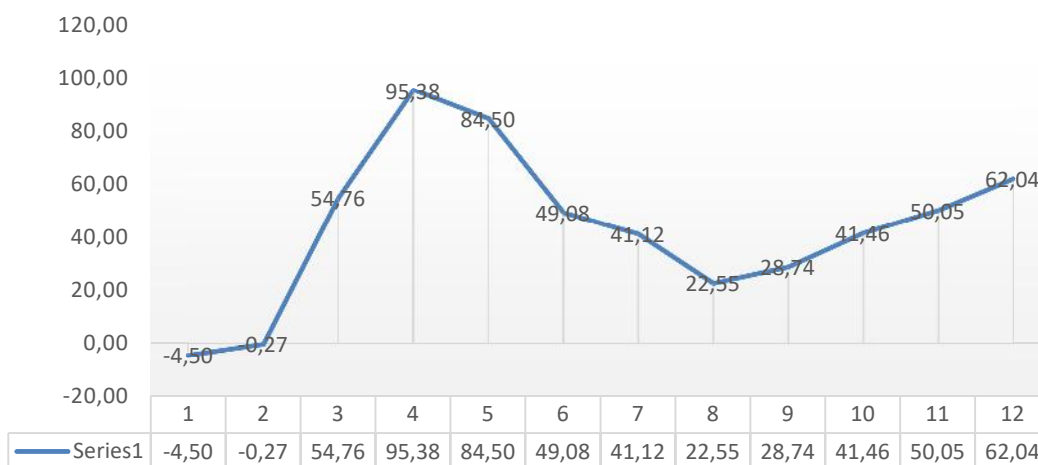
*Figure 4. Percentage deviation of realized overnights over expected overnights (post COVID, 2020)*
*Source: authors' interpretation of data from table 2*

It can be concluded that the identified increase in seasonality of tourist overnights in Serbia in post Covid-19 period is due to the increased intensity of decline in the months with a lower number of tourists, compared to the months in the summer period where the intensity of the decline in tourist turnover is lower.

**Methods to determine seasonality in pre and post Covid-19 period**

To calculate and to measure the changes in seasonality in post Covid-19 period in a way to make it possible to compare with the results in pre-Covid 19 period, several methods are used in this paper. At the beginning Descriptive statistics will be used to identify the characteristics of the seasonality phenomenon. Also, Gini coefficient and Seasonality indicator will be calculated to compare changes in tourism seasonality in both periods. For the purpose of the research, data for the number of tourist overnights in Serbia are taken for January - December 2019 as a pre Covid-19 period and April 2020 – March 2021 as a post Covid-19 period. Bearing in mind that the government restriction were distributed as of mid-March 2020 since the end of 2021, it is considered that the period between April 2020 up to March 2021 represents best post Covid-19 twelve months (one year) to analyze, just to have a clearer impact of the health crises on tourism.

**Descriptive statistics for analyzing tourism seasonality.** Methods of calculating descriptive statistics indicators are well known and contained in research methodology literature (Berenson & Levine, 1996) (                   , 2008) (              , 2003) (Newbold, et al., 2007). Calculation of descriptive statistics indicators for the purpose of the research is made by using Data analyze package in Microsoft Excel software. Data that are used for statistical calculation and analyze are taken from the official reports of State statistical office of Republic of Serbia. The calculated results are given in Table 3.

The value of the mean (μ) shows the average monthly number of tourist overnights in each period separately. Comparing the mean with the median (Md) illustrates whether there are extreme values in the analyzed phenomenon. Existence of extreme values is an indicator of seasonality. Also, high values of Standard error (Std. Err.) and Standard deviation (Std. Dev.) can confirm that there are extreme values in certain months in the number of tourist arrivals which certainly is another indicator of tourism seasonality (Trajkov, et al., 2016).

Calculation of the mean (monthly average), maximum (max.) and minimum (min.) of the population in each period point to extreme values in the number of tourist overnights in Serbia and it shows existence of seasonality. One way to see the differences and changes in seasonality of both

periods is to compare the values of the range that highlights difference between months with the lowest and months with the highest number of tourist overnights. The range in post Covid-19 period has increased on 1039020, compared to the value of the range 751651 in pre Covid -19 period. Best month in the first period is only 2.4 times higher than the worst in the same period. On the other hand, best month in the second period is 26 times the worst month in the same period. It indicates that post covid period has generated high difference between the worst and best month in the year and can be an indicator of increased seasonality. Though, it is easy to notice higher deviation from the mean, especially in the period after health crises when there are months with over 11 times less tourist overnights than monthly average in the period. It also confirms that the seasonality in post covid period is due to the high decline in certain months of the year.

*Table 3. Descriptive statistics for seasonality analyze (Serbia, Tourists overnights)*

| Indicators | Pre Covid (2019) | Post Covid (04/2020 – 03/2021) |
|---|---|---|
| Mean | 839441.6 | 481629.1 |
| Standard Error | 67536.15 | 79599.32 |
| Median | 811041 | 462055.5 |
| Mode | #N/A | #N/A |
| Standard Deviation | 233952.1 | 275740.1 |
| Sample Variance | 5.47E+10 | 7.6E+10 |
| Kurtosis | -0.35715 | 0.990664 |
| Skewness | 0.677928 | 0.60107 |
| Range | 751651 | 1039020 |
| Minimum | 551193 | 41656 |
| Maximum | 1302844 | 1080676 |
| Sum | 10073299 | 5779549 |
| Count | 12 | 12 |

*Source: authors' calculations based on (SORS, 2022) data*

High values of Standard error, Standard deviation, in each period can be also considered as additional indicator of expressive tourism seasonality. It can be also noticed that these values are higher in the second period. That also indicates increased seasonality in post Covid-19 period.

Seasonality can also be determined through calculating Kurtosis and Skewness indices which determine the shape of distribution and its deviation from normal distribution. They measure peakiness, skewness and symmetry of data distribution. These indices can confirm or deny presence of extreme values and point to if they are higher or lower than the mean. Kurtosis and Skewness allows us to determine if the tourism seasonality is long-lasting or it is on a shorter period. They are also useful for a comparative analyze of tourism seasonality on more tourists' destinations (Trajkov, et al., 2016).

Calculations refer that more of the values are on the left side of distribution, which means that extreme values are on the right side of distribution (Skewnewss> 0). What is interesting, Kurtosiss rate (>0) in post Covid-19 period denote high probability for extreme values and confirms increased number of tourist overnights in certain months of the year, unlikely the per Covid-19 period.

**Gini coefficient (G) and seasonality indicator (SI).** One of the most used scientific methods for seasonality research is Gini coefficient. It was developed by Italian statistician Corrado Gini in 1912 as a summary measure of income inequality. Gini index is the most common measure of inequality (Stats Direct, 2015) (Halpern, 2015).

The value of Gini coefficient can vary from 0 to 1. Higher values indicate higher inequality which means existence of tourism seasonality and vice versa. There are many ways to calculate Gini coefficient (G).

Base model is used for the purpose of this research (Trajkov, et al., 2016) (Koži , et al., 2013).

$$G = \frac{2}{n \sum_{i=1}^{n}(x_i - y_i)} \tag{5}$$

where:

⌡ n is the number of months
⌡ $x_i$ is the rank of the months (1/12, 2/12, 3/12, ... ,12/12)
⌡ $y_i$ is the cumulative relative frequency of tourist arrivals in rank by ascending order

Calculations of the Gini coefficient are made for total tourist overnights in Serbia. Also, just to have a clearer impact of the health crisis on tourism overnights in Serbia, additional analyse of seasonality was made for all statistical regions in the country using methods of calculations of Gini coefficient and seasonal indicator. Also, structural analyse of seasonality was made based on the type of overnights, as the calculations for seasonality were completed for foreign and domestic tourist overnights. That way, it can be determined and identified what regions have an impact on seasonality and whether domestic or foreign tourist overnights causes changes in total seasonality in Serbia.

Results of conducted research are given in table 4. As seen from the table, Gini coefficient has doubled in post Covid-19 period for the total tourist overnights in Serbia, from 0.15 up to 0.30. It is an indicator of increased seasonality but it still is on a level that cannot be considered as a distinct seasonality. Regional analyze of Gini coefficient leads to a conclusion that all statistical regions in Seriba have increased seasonality. Still, regions of Beograd and Vojvodina have Gini coefficients of 0.21 and 0.23 respectively which are lower than the total Gini coefficient of the country. The region's Gini coefficient of Shumadija and Western Serbia is slightly over the country's' Gini coefficient, which means that it doesn't have a big impact on the country's seasonality. The region of South and Eastern Serbia has a Gini coefficient close to the boundary level for seasonality (0.5) as it was calculated 0.42 (table 4).

So, it can be concluded that the health crises have an impact on increasing tourism seasonality in all statistical regions in Serbia, leading the region of South and Eastern Serbia to the highest level of seasonality in the analyzed period.

Just to have a better inside, calculations of the Gini coefficient for domestic and foreign tourists' overnights were made. The results have shown that the increased seasonality in Serbia is caused by the domestic tourist overnights, as the Gini coefficient has increased more than a double from 0.16 up to 0.34. Compared to the domestic, the Gini coefficient for the foreign tourist overnights in Serbia has a lower increasement from 0.15 up to 0.23. As expected, highest Gini coefficient has the region of South and Eastern Serbia, calculated to 0.43 for the domestic tourist overnights, which is closest to the boundary level for seasonality (table 4).

*Table 4. Seasonal indicators pre Covid 19 and post Covid 19 period (Serbia)*

| | period | Ind. | Republic of Serbia | Beograd | Vojvodina | Shumadija and Western Serbia | South and Eastern Serbia |
|---|---|---|---|---|---|---|---|
| | | | | | Regions | | |
| All | Pre Covid-19 | Gini | 0.15 | 0.12 | 0.14 | 0.16 | 0.25 |
| | | Si | 0.64 | 0.81 | 0.72 | 0.56 | 0.57 |
| | Post Covid-19 | Gini | 0.30 | 0.21 | 0.23 | 0.34 | 0.42 |
| | | Si | 0.45 | 0.57 | 0.57 | 0.42 | 0.35 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Domesti | Pre Covid-19 | Gini | 0.16 | 0.08 | 0.10 | 0.17 | 0.28 |
| | | Si | 0.62 | 0.85 | 0.83 | 0.59 | 0.55 |
| | Post Covid-19 | Gini | 0.34 | 0.14 | 0.25 | 0.36 | 0.43 |
| | | Si | 0.40 | 0.70 | 0.52 | 0.40 | 0.34 |
| Foreign | Pre Covid-19 | Gini | 0.15 | 0.13 | 0.20 | 0.21 | 0.16 |
| | | Si | 0.68 | 0.79 | 0.60 | 0.48 | 0.63 |
| | Post Covid-19 | Gini | 0.23 | 0.26 | 0.22 | 0.29 | 0.23 |
| | | Si | 0.62 | 0.50 | 0.65 | 0.54 | 0.57 |

*Source: authors' calculation*

Despite Gini coefficient (G), Seasonal indicator (SI) is used as an additional measure for tourism seasonality in each year of the analyzed period. Seasonal indicator value can vary from 1/12 to 1. Bigger SI indicates absence of fluctuation during the year i.e. seasonality in tourism and vice versa. Seasonal indicator (Sl) can be calculated as (Bigovi , 2012) (Trajkov, et al., 2016):

$$S = \frac{y_0}{y_n} \qquad (6)$$

where:

⌡ $y_0$ is the average number of tourist arrivals per year
⌡ $y_n$ is the highest number of tourist arrivals in particular year

As seen from the table, SI has decreased in post Covid-19 period for the total tourist overnights in Serbia, from 0.64 to 0.45. It is an indicator of increased seasonality. Regional analyze of SI leads to a conclusion that all statistical regions in Seriba have increased seasonality.

Still, regions of Beograd and Vojvodina have SI of 0.57 both which are higher than the total SI of the country. The region's SI of Shumadija and Western Serbia is close to the country's' SI, which means that it doesn't have a big impact on the country's seasonality. The region of South and Eastern Serbia has a SI of 0.35 which leads to a conclusion that the health crises have an impact on increasing tourism seasonality in all statistical regions in Serbia, leading the region of South and Eastern Serbia to the highest level of seasonality in the analyzed period.

Calculations of SI for domestic and foreign tourist overnights indicate that the increased seasonality in Serbia is caused by the domestic tourist overnights, as the SI has decreased from 0.62 up to 0.40 (table 4). Compared to the domestic, the SI for the foreign tourist overnights in Serbia has a minor change from 0.68 up to 0.62. As expected, lowest Gini coefficient has the region of South and Eastern Serbia, calculated to 0.34 for the domestic tourist overnights, which is an indicator of noticeable seasonality (Table 4).
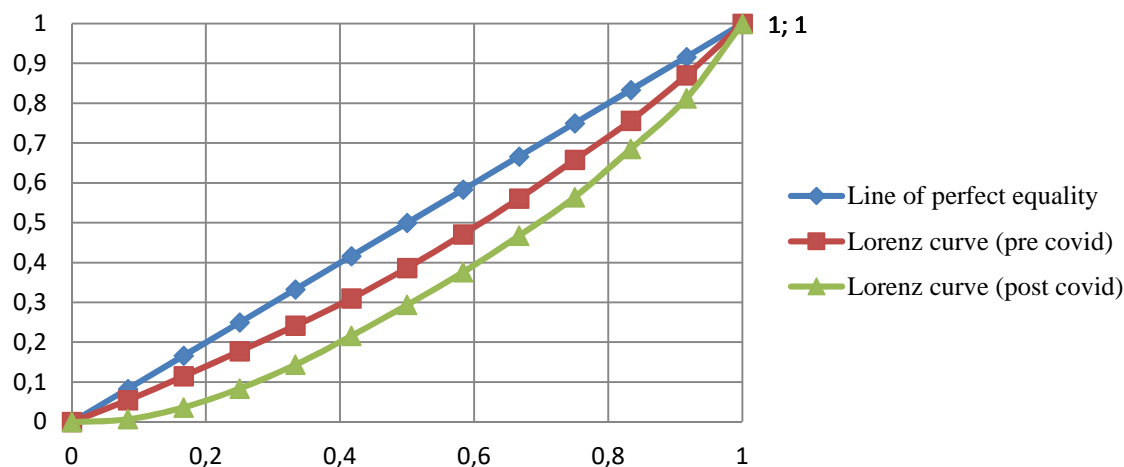
*Figure 5. Lorenze curve (Serbia, tourists overnights, pre and post covid)*
*Source: authors' illustration*

Lorenz curve (Figure 5) represents the way in which tourists' overnights is cumulatively distributed, with the quantity of from smallest to largest. The more curved the Lorenz curve, the less uniform the overnight stays of tourists between individual months of the year, and the higher the tourism seasonality (Suštar & Laškarin Aži , 2019). The Lorenz curve is illustrated in the figure 5 and it clearly indicates how the government restrictions that were introduced in the period of the health crises have a visible impact on tourism seasonality in Serbia. During the post Covid-19 period tourism seasonality has increased, especially in region of South and Eastern Serbia and it was caused mostly by the domestic tourist overnights. It is expected as the most of the restrictive measures in the period were undertaken to reduce incoming arrivals.

## *CONCLUSIONS*

The research of tourism as a social phenomenon cannot be done without an analysis of seasonality as its most prominent feature. Seasonality in tourism causes scientific and professional interest, however, recently there are not many papers that analyze tourism seasonality and mostly rely on previous findings. The treatment of this problem is primarily through empirical research, and there is a lack of quantitative models based on which appropriate indicators will be quantified and problems in tourist seasonality will be detected. It is the basis on which forecasts will be based and strategies will be proposed for managing seasonality in the tourism industry.

In this paper, several research methods were used to measure the seasonality of tourism in Serbia in the period 2000 - 2021, with special emphasis on the impact of the COVID-19 crisis on changes in tourism seasonality. Based on the processing of the official data and the quantitative models that were used, the following research results, findings and conclusions were reached:

) Calculations indicate that there is 51,26% reduction of the total tourist overnights in Serbia compared to expected overnights, since the beginning of Covid-19 restrictions in 2020 until the end of 2020.

) It can be concluded that the identified increase in seasonality of tourist overnights in Serbia in post Covid-19 period is due to the increased intensity of decline in the months with a lower number of tourists, compared to the months in the summer period where the intensity of the decline in tourist turnover is lower.

⌡ COVID -19 health crises has increased tourism seasonality in Serbia in general.

⌡ Increased seasonality is due to highly increased seasonality in South and Eastern Serbia region and the region of Shumadija and Western Serbia. These regions can be considered as regions with high tourism seasonal impact (Gini close to 0.5, and SI < 0.5).

⌡ Vojvodina region has also increased seasonality but not on significant level.

⌡ Covid 19 have a small impact on tourism seasonality in Beograd region.

⌡ Tourism seasonality in Serbia is highly generated with domestic tourist overnights in all regions, except Beograd region.

The research shows that the Covid crisis and restrictions caused a disruption of seasonality in tourism in Serbia in general, but that there are significant differences in the participation and impact of different statistical regions on the overall seasonality in the country. The results of the research can serve to detect the regions that show the greatest disturbances, for appropriate seasonality management in them and thus speeding up the process of tourism recovery from the consequences that are still being felt from the COVID-19 crisis. Also, the results of the conducted quantitative research can serve as a starting point for tourism advancement in Serbia and improving the country's tourism performance.

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# LOCAL COMMUNITY'S VIEW OF KOTA KINABALU'S CHALLENGES AS A MEDICAL TOURISM DESTINATION

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## ABSTRACT

*This study describes the challenges of the local people's understanding of the challenges faced by Kota Kinabalu in becoming a medical tourism destination. The purpose of this study includes identifying why Malaysia faces competition from neighbouring countries as a medical tourism destination. It is also to study the impact of the lack of accessibility on Sabah's tourism sector and analyse how partial medical practice restrictions can affect Sabah's potential as a health tourism destination. Moreover, the researcher will explain in greater depth the challenges faced by Kota Kinabalu. This city is the capital of Sabah, making it an important asset. In addition, this descriptive study also focuses on issues related to the development of the medical tourism sector in Sabah. The distribution of questionnaires to 384 respondents proved that locals are aware and sensitive to the challenges facing Kota Kinabalu as a medical tourism destination. Overall, this study dissects all the challenges faced and their impact on the medical tourism sector in Sabah.*

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# INTRODUCTION

Medical tourism is one of the most significant contributors to Sabah's economic grounds. Medical tourism is a situation where one travels away from his or her home country to seek medical care (Chandran et al., 2017). Kota Kinabalu, is situated northeast of Sabah. Tourism destination is a significant issue in the literature because it is a broad notion that significantly impacts tourist trip selection. In order to sustain a tourism or tourist destination, it must be developed within the guidelines of competitiveness (Díaz & Espino-Rodríguez, 2016).

# BACKGROUND

The aggressive growth of tourism these past years has made tourism the World's most prominent industry (Lin et al., 2020). Individuals who deliberately leave their typical settings to see another place are considered tourists. These people will generally engage in various activities regardless of how close or remote this setting is (Camilleri, 2018). Medical tourism as a speciality has formed from the rapid expansion of what has evolved into a business in which individuals travel considerable distances to foreign nations for medical, dental, and surgical treatment while saving money. They are vacationing simultaneously in a more traditional sense (Lajevardi, 2016).



| | The Landscape | Reflection of the industry's performance including the healthcare travel ecosystem and its players. |
| | The Unprecedented Challenge | The impact of COVID-19 and the resulting challenges to the healthcare travel industry. |
| | The Analysis | Analysis of the current scenario using SWOT, Porter's Five Forces and gaps assessment, that sets the focus for the Strategic Framework. |
| | The Momentum Ahead | The Strategic Framework with objectives and key initiatives, targets and measures to achieve the healthcare travel industry's aspiration. |
| | The Implementation | The governance to spearhead the Blueprint implementation and alignment across the healthcare travel ecosystem. |

*Figure 1. Malaysia Healthcare Travel Industry Blueprint 2021-2025*

# DEVELOPMENT OF HYPOTHESIS

*Hypothesis 1:* Local community is aware of the challenges faced by Kota Kinabalu
*Hypothesis 2:* Local community is unaware of the challenges faced by Kota Kinabalu

# METHODOLOGY, VARIABLES AND DATA

The researcher will discuss the research methodology conducted by the researcher in collecting the data. This methodology includes research procedures and research design. The researcher chose to execute a descriptive research design using the quantitative method for data collection and analysis. Therefore, the researcher perpetrated a survey by doing fieldwork. Moreover, the researcher will explain in detail how the data collected from the local community in Kota Kinabalu was analysed and processed.

## Methodology

This research used a descriptive design with a quantitative approach. To operate this research, the researcher applied several data collection methods to obtain reliable information and data. First, the researcher collected data by observing reviews and going to the research location to do fieldwork. This activity ensures that all the data gathered are reliable so that the researcher can understand the research better. Moreover, the researcher spread an online survey for the local community of Kota Kinabalu to fill. The researcher surveyed by creating a Google Form and distributed the link over commonly used social media such as Facebook, Instagram, and Litmatch. Besides, the researcher also distributed the link through messaging apps. For instance, WhatsApp and Telegram. This questionnaire was distributed to 384 respondents representing 1 million of the population.

## Planning and Data Collection Period

This research used a questionnaire to collect data from respondents regarding their demographic background and their view on the research, which was about the challenges Kota Kinabalu is facing in becoming a medical tourism destination. The questionnaire consists of 4 sections: Section A for collecting demographical data, and Section B, Section C, and Section D contain questions related to the three selected objectives of this research, one objective for each section.

## Data Analysis

The researcher analysed the data to see whether the questions asked in the survey were related. Continuously, it answered the research objectives chosen prior to the research. Finally, the researcher used Statistical Package for the Social Sciences Software (SPSS) to calculate and analyse the data. The data analysis calculates the percentage and frequency of each data gathered. It was then converted into the form of statistics and made into charts and grafts.

# EMPIRICAL RESULTS AND ANALYSIS

## Analysis
Neighbouring countries offer similar convenience as Malaysia.
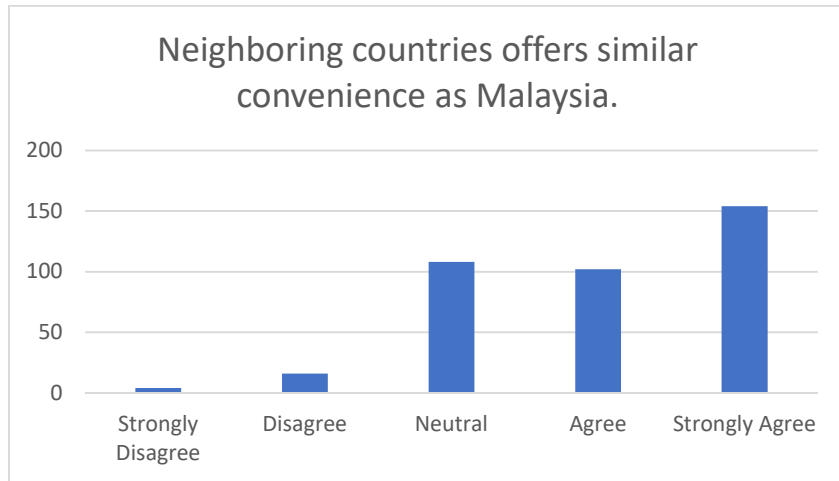
*Bar Graph 1. Neighbouring countries offer similar convenience as Malaysia*

The graph shows the frequency of the statement that neighbouring countries offer similar convenience as Malaysia. 40.1% of the respondents strongly agreed with the statement, followed by 26.6% agreeing. 28.1% felt neutral with the statement. 4.2% disagreed, and the remaining 1% strongly disagreed with it.

There will be visible competition regarding tourists' preferred destinations between neighbouring states in Malaysia.
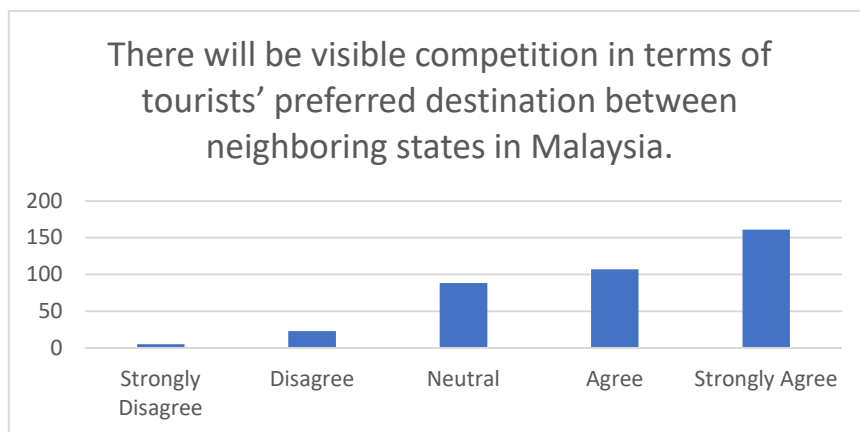


*Bar Graph 2. There will be visible competition regarding tourists' preferred destinations between neighbouring states in Malaysia.*

The graph shows the frequency of visible competition regarding tourists' preferred destinations between neighbouring states in Malaysia. 41.9% strongly agreed with the statement, followed by 27.9% agreeing. 22.9% felt neutral with the statement. 6% disagreed, and the remaining 1.3% strongly disagreed with it.

Neighbouring states in Malaysia receive good recognition as medical tourism destinations.
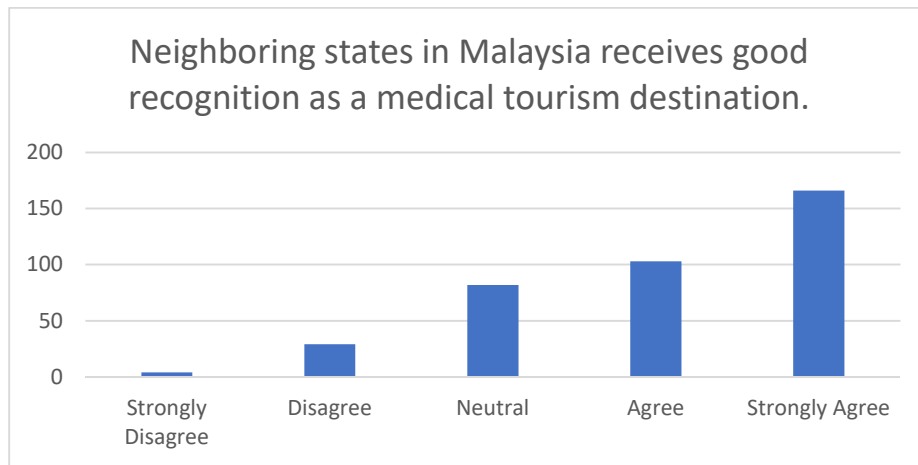
*Bar Graph 3. Neighbouring states in Malaysia receive good recognition as medical tourism destinations.*

The graph shows the frequency of neighbouring states in Malaysia receiving good recognition as medical tourism destinations. 43.2% strongly agreed with the statement, followed by 26.8% agreeing. 21.4% felt neutral with the statement. 7.6% disagreed and the remaining 1% strongly disagreed with it.

**Further Discussion from Research Findings**

Age * Neighbouring countries offer similar convenience as Malaysia. Cross-tabulation
Count

| | | Neighbouring countries offer similar convenience as Malaysia. | | |
|---|---|---|---|---|
| | | Negative Responses | Positive Responses | Total |
| Age | 16-20 | 11 | 25 | 36 |
| | 21-25 | 48 | 89 | 137 |
| | 26-30 | 20 | 33 | 53 |
| | 31-35 | 21 | 27 | 48 |
| | 36-40 | 9 | 38 | 47 |
| | 41-45 | 8 | 31 | 39 |
| | 46-50 | 8 | 8 | 16 |
| | 51-55 | 2 | 3 | 5 |
| | 56-60 | 0 | 2 | 2 |
| | 71 and above | 1 | 0 | 1 |
| Total | | 128 | 256 | 384 |

*Table 1. Cross tabulation analysis between age and neighbouring countries offers similar convenience as Malaysia.*

The table above shows the cross-tabulation analysis between age and neighbouring countries, offering similar convenience as Malaysia. 70% of the respondents from the age group 16-20 responded positively. In comparison, the rest of the 30% responded negatively to the statement that neighbouring countries offer similar convenience as Malaysia. As for the respondents from the age group 21-25 years old, 65% gave a positive response, while the other 35% gave a negative response. Next is for respondents who are 26-30 years old; 62% gave positive responses, while the other 38% did the opposite. Going on to the age group 31-35 years old, a slight majority of 56% provided positive responses, and another 44% did not. The odds were better with the respondents from the age group 36-40 years old, where as many as 80% responded positively, and only 20% responded negatively. Respondents from the age group 41-45 years old continued the positive feedback as 79% if they left positive responses, and 21% of them left

negative responses. For the age group of 46-50 years old, the positive and negative responses both have an equal percentage of 50%. The study suggests that between 51-55 years old, 60% responded positively, and the rest responded negatively with the calculation of 40%. Lastly, 100% of both age groups of 56-60 and 71 years old and above left with a positive response. This shows that it is not clear to the local community how Malaysia does not have a unique appeal as a medical tourism destination, making it appear similar to other medical tourism destinations. To enhance the situation, responsible parties can work on Malaysia's image as a medical tourism destination to show how Malaysia is different from the rest, unlike any other.

Level of Education * Medical tourists can communicate easily in neighbouring countries with their doctors due to fewer language barriers. Cross-tabulation

Count

| | | Medical tourists can communicate easily in neighbouring countries with their doctors due to fewer language barriers. | | Total |
| | | Negative Responses | Positive Responses | |
|---|---|---|---|---|
| Level of Education | UPSR | 0 | 1 | 1 |
| | PMR/PT3 | 6 | 7 | 13 |
| | SPM | 34 | 91 | 125 |
| | STPM/Matriculation/Asasi/ A Level/Diploma | 28 | 80 | 108 |
| | Degree Skill Certificate | 18 | 27 | 45 |
| | Degree | 40 | 39 | 79 |
| | Masters | 1 | 8 | 9 |
| | Doctorate | 0 | 4 | 4 |
| Total | | 127 | 257 | 384 |

*Table 2. Cross tabulation analysis between the level of education and medical tourist can communicate easily in neighbouring countries with their doctors due to less language barrier.*

The table above shows the cross-tabulation analysis between the level of education and their opinion on how medical tourists can communicate easily in neighbouring countries with their doctors due to fewer language barriers. According to the table, 100% of the UPSR and doctorate holders responded positively, agreeing with the statement. PMR holders responded, with 54% of them leaving positive responses and 46% of them leaving negative responses. Next are SPM graduates, where 73% gave positive responses and the remaining 27% gave negative responses. STPM graduates also provided a majority of positive responses, with a high 74%, and only 26% responded negatively. Moving on to Degree Skill Certificate holders, the responses were mostly positive at 60% and 40% of negative responses. As for degree holders, 49% responded with a positive response and 51% with a negative response. Finally, the respondents from the last level of education, the master's degree, consist of 89% positive responses, and only 11% responded negatively. As the majority agrees with the statement, it shows how the language barrier in Malaysia or Kota Kinabalu, Sabah is still somewhat big compared to other countries. In this issue, the hospitals or medical centres can take action by having diversity in terms of the speaking language between doctors. For instance, having multilingual doctors.

Work Status * Neighbouring countries possess advanced medical equipment. Cross-tabulation

Count

| | | Neighbouring countries possess advanced medical equipment. | | Total |
| | | Negative Responses | Positive Responses | |
|---|---|---|---|---|
| Work Status | Government | 9 | 35 | 44 |
| | Private | 26 | 98 | 124 |
| | Self-employed | 24 | 45 | 69 |
| | Student | 16 | 101 | 117 |
| | Unemployed | 4 | 26 | 30 |
| Total | | 79 | 305 | 384 |

*Table 3. Cross tabulation analysis between work status and neighbouring countries that possess advanced medical equipment.*

The table above shows the cross-tabulation analysis between the respondents' work status and neighbouring countries possessing advanced medical equipment. Of the government workers, 80% gave a positive response regarding the statement, and the remaining 20% gave a negative response. Respondents working in private sectors gave responses quite similar to the government workers, as 79% of them left positive responses, and 21% left negative responses. Of the self-employed respondent, 65% responded positively, and the other 35% responded negatively. Meanwhile, 86% of the students responded positively, agreeing that neighbouring countries possess advanced medical equipment, and 14% responded negatively. In the last work status group, 87% of the unemployed responded positively, and only a minority of 13% left negative responses. A considerable portion of the local community of Kota Kinabalu believes that Kota Kinabalu lacks up-to-date medical equipment. Responsible parties can take action by exposing how treatments are done to avoid speculations from the local community. If the statement appears to be accurate, advanced equipment should be considered to be brought into the medical tourism sector in Kota Kinabalu as it may appeal to more medical tourists to choose Kota Kinabalu as their preferred destination.

Level of Education * Highly skilled doctors are available in other countries. Cross-tabulation

Count

| | | Highly skilled doctors are available in other countries. | | Total |
| | | Negative Responses | Positive Responses | |
|---|---|---|---|---|
| Level of Education | UPSR | 0 | 1 | 1 |
| | PMR/PT3 | 4 | 9 | 13 |
| | SPM | 20 | 105 | 125 |
| | STPM/Matriculation/Asasi/A Level/Diploma | 20 | 88 | 108 |
| | Degree Skill Certificate | 11 | 34 | 45 |
| | Degree | 17 | 62 | 79 |
| | Masters | 1 | 8 | 9 |
| | Doctorate | 0 | 4 | 4 |
| Total | | 73 | 311 | 384 |

*Table 4. Cross tabulation analysis between the level of education and highly-skilled doctors available in other countries.*

The table above shows the cross-tabulation analysis between the level of education possessed by the respondents and the statement that says highly-skilled doctors are available in other countries. According to the table, 100% of the UPSR and doctorate holders responded positively, agreeing with the statement. PMR holders responded, with 69% of them leaving positive responses and 31% of them leaving negative responses. Next are SPM graduates, where 84% of them gave positive responses, and the remaining 16% gave negative responses. STPM graduates also provided a majority of positive responses, with a high 81%, and only 19% of them responded negatively.

Moving on to Degree Skill Certificate holders, the responses mainly was positive at 76% and 24% of negative responses. As for degree holders, 78% responded with positive responses and 22% with negative responses. The respondents from the last level of education, a master's degree, hold the highest percentage of positive responses, 89%, and only 11% responded negatively. Other countries having better-skilled doctors is an inconvenience for Kota Kinabalu's medical tourism sector. The hospitals in Kota Kinabalu can hire doctors with better rankings to prevent medical tourists from choosing other destinations.

Monthly salary * The variety of medical procedures in other countries is diverse. Cross-tabulation

Count

| | | The variety of medical procedures in other countries is diverse. | | Total |
| | | Negative Responses | Positive Responses | |
|---|---|---|---|---|
| Monthly Salary | RM1200 and below | 15 | 35 | 50 |
| | RM1201-RM1700 | 10 | 34 | 44 |
| | RM1701-RM2200 | 9 | 38 | 47 |
| | RM2201-RM2700 | 11 | 48 | 59 |
| | RM2701-RM3200 | 8 | 21 | 29 |
| | RM3201-RM3700 | 5 | 13 | 18 |
| | RM3701-RM4200 | 3 | 3 | 6 |
| | RM4201 and above | 1 | 8 | 9 |
| | No Income | 12 | 110 | 122 |
| Total | | 74 | 310 | 384 |

*Table 5. Cross tabulation analysis between monthly salary and the variety of medical procedures in other countries is diverse.*

The table above shows the cross-tabulation analysis between the respondents' monthly salary and the statement mentioning how various medical procedures in other countries are diverse. For people with a salary of RM1200 and below, 70% agreed that medical procedures in other countries are genuinely diverse, and 30% gave negative responses. As for respondents with a monthly salary range of RM1201-RM1700, 77% left with positive responses, and the remaining 23% responded negatively. 81% of respondents from both monthly salary ranges of RM1701-RM2200 and RM2201-RM2700 responded positively, and the remaining 19% responded negatively. The following monthly salary range is RM2701-RM3200. 73% of respondents from this monthly salary range left a positive response, and the other 27% left a negative response. As for respondents with a monthly salary range of RM3201-RM3700, the positive response was as high as 72%, and only 28% responded negatively. Moving on to the monthly salary range of RM3701-RM4200, 50% responded positively, and the other half responded negatively. Most people with a monthly salary range as high as RM4201 and above gave positive responses with a percentage of 89%, and only 11% gave a negative response. 90% of the people with no income responded positively, and the remaining 10% responded negatively. As other countries have the advantage of having more variety in medical procedures since Malaysia prohibited a few medical procedures from being done in the country, Kota Kinabalu has to come up with other elements of appeal in order to attract more medical tourists.

## DISCUSSION AND CONCLUSION

In conclusion, the researcher has researched the Local Community's View Upon The Challenges Faced by Kota Kinabalu As A Medical Tourism Destination. This research was done to identify why Malaysia faces competition from neighbouring countries as a medical tourism destination. The study of the impacts of the lack of accessibility to Sabah's medical tourism sector and how partial medical

practice restriction in Sabah affects its potential as a medical tourism destination. According to the research findings, the researcher could conclude that all the objectives were achieved through this research. This revelation proves that the local community of Kota Kinabalu is aware of the challenges Kota Kinabalu faces as a medical tourism destination.

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# FROM THE FUNCTIONAL ORGANIZATION OF THE COMPANY INTO THE CONCEPT OF AN INTEGRATED SYSTEM OF CREATION AND DELIVERY OF VALUE

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## *ABSTRACT*

*Since the seventies of the last century, in the approach to management, the possibilities of the functional organization of the company have been exhausted. New solutions are radically focused on the process system, partnership and integration of the process of creating and delivering values. At the same time, the basic strategic values that guide the organization are found in the external environment, in the market, and not in internal factors. By creating and developing the supply chain concept in the 1970s and 80s, tactical and operational response to the new strategic conditions was found. By harmonizing strategic values between companies, conditions are created implement the competitiveness strategy. Measurements in execution and feedback system can be used to make corrections and adjustments from the operational to the strategic level*

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*Keywords: company organization, competitiveness strategy, value chain, implementation, supply chain.*
*JEL Classification: M21*

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# INTRODUCTION

The basic characteristic of the modern business and social environment is the dynamism of changes. The most striking, on the one hand, is the change in consumer behavior in demand, and the dramatic increase in competitiveness on the other. The most important factors intensifying competition are at the same time, the features of the modern business environment, and they are: (Cvetkovi M, 2016) substantial internationalization (globalization) of business, focus on customer requirements and grouping of customers in ever narrower segments, information technology development, organizational flexibility, continuous innovation and thus shortening life cycle.

In the new conditions, the way of management and the way of organizing business has changed. With any company that wants success, modern business conditions inevitably lead to connecting with other companies. In order to acquire and maintain competitiveness, it is of special importance to connect companies, develop a process system and develop specific and effective forms of partnership and cooperation. The new concept of the organization, which has been intensively developed in recent decades, is the concept of the supply chain. Practice confirms that competition no longer takes place between companies, but between their supply chains and business networks.

In the modern organization of business, companies turn to their key competencies, leaving all other activities to others, while connecting with other companies and their complementary capabilities. This creates an integrated supply chain business process and improves the value of the supply chain. The organization of the supply chain as an entity has its own goals, organizational principles, performance targets and measures. The goal of the organization and operational solutions is to make everything "flow like water", to remove all obstacles to such a flow that is determined by strategic values, goals and performance.

The supply chain process system enables the most efficient connection of all phases and aspects of the process with demand and with the creation of value for consumers along the supply chain flows. In this sense, managing the performance of supply chain activities and processes is a key component of managing and implementing enterprise competitiveness strategies in the supply chain. In process organization, activities are organized around the flow of the process, regardless of functional affiliation, creating value for internal or external customers in the supply chain.

All strategic components in the business system come from the external environment and are transformed into strategic values, goals and competitiveness strategies. Strategic components are actually the requirements that a company must meet in order to operate effectively. These requirements are met by internal factors - competencies and organization and the necessary activities and processes, thus implementing the competitiveness strategy. However, strategic and operational alignment is not just the implementation of a competitiveness strategy: there is a feedback system that can reciprocally influence changes in performance at all levels, down to the competitiveness strategy itself.

Key supply chain management activities are joint planning, coordination of supply chain activities and processes and controls. The most important operational performance measures relate to product and process quality, cost reduction (through eliminating redundant activities), shortening time cycles, and flexibility according to demand. The key strategic performance is customer satisfaction.

## FUNCTIONAL ORGANIZATION AND REENGINEERING OF BUSINESS PROCESSES OF THE ENTERPRISE

In classical capitalism, in addition to the effects of economies of scale, positive effects were also achieved from acquired skills and abilities in work, which are usually illustrated by the experience curve (or learning curve) (Christopher M., 2005, p. 7). Elements of the functional organization of an enterprise or corporation are functional departments in which related skills and jobs are concentrated. In terms of management, such an organization is based on a more or less complex vertical hierarchy and top-down communication that mediates it between functional units. The boundaries of functional parts were a big problem for the organization of business processes. Theorists have called this problem as "silo" effects of functional organization.

This is no longer the case today. As early as the 1970s, practice showed that the advantages and possibilities of such an organization had been exhausted. In the conditions of frequent discontinuities, when the environmental conditions are constantly changing, such an organization has shown its limited possibilities, especially from the point of view of operability. However, with the advent of the supply chain concept, arguments have emerged that a functional organization creates even bigger problems, or creates them first, at the strategic level. "In fact, the basic principles that have traditionally guided the company must be challenged, and what is required is a shift in the basic paradigms that have underpinned industrial organizations for so long... Whilst there can be no doubting that this organizational model has served us well in the past, there are now serious questions about its appropriateness for the changed conditions that confront us today... We are now entering the era of 'network competition, where the prizes will go to those organizations that can better structure, coordinate and manage the relationships with their partners in a network committed to delivering superior value in the final marketplace." (Christopher M., 2011., p. 212, 213.)

In the new, dynamic business conditions, with the dramatic increase in competitiveness, in order to achieve the necessary speeds (from creating new products to the speed of order fulfillment) and efficiency, it was necessary to remove the boundaries between functional departments. In the new, process system, functional skills and abilities are subordinated to the performance of an integrated business process. This started a new approach in business management, it started managing the performance of activities and processes instead of the economy and productivity of functional departments. A key theoretical contribution to business process reengineering was made by Michael Hammer and James Champy (1993) through the creation of basic principles of reengineering. The key words of reengineering methodology are (Goldsby T., & Martichenko R., 2005, p. 90): fundamental, radical, dramatic and processes. Fundamentally it means to determine the undoubted purpose of activities and processes; radically - not to improve, completely change; dramatically – from the changes are expected to dramatically change the performance of costs, quality and services; processes - get the owner, manager who manages the overall integrated process.

The transformation of a company through the creation of a process system is a map of the translation of researched, current or predicted demand, into the organization of the system and operational solutions. Understanding demand and a strategic approach in managing demand is one of the key determinants of a modern organization, along with developing operational capabilities and innovation-oriented entrepreneurial management. The key principle of modern business organization is the focus on information from the market and from the outside environment. Information from the external environment defines strategic determinants and strategic focus and directs the organization, that is, information from the market reshapes the organization. This approach as a general principle creates all other principles of organization. The sub-optimality of internal goals is thus replaced by the generic external goals of the strategic focus of Strategic Business Units (SBU), related to the market, that is, all business is subordinated to external goals. At the same time, managers at all levels of the SBU take responsibility for their scope of work, but at the same time responsibility for the

affairs of others. They go beyond their narrow frameworks, starting from the strategic values and relationships with which they are necessarily acquainted, sharing the responsibility for the end result. In a process and integrated system linked by strategic values, this overlap is necessary for the process to be sustainable, effective and stable. It must not be interference in other people's affairs and interference of competencies, but support for others and the system.

However, the methodology of transformation through reengineering could give its full contribution only through the concept and system of the supply chain.

## *SUPPLY CHAIN CONCEPT*

As a key strategic measure of performance, customer satisfaction requires that the business model be built and formulated starting from the value chain - from the needs and desires of customers. In highly competitive conditions, these values can be achieved primarily through the configuration and organization of activities and resources and in an integrated and efficient operational process, through partnerships and long-term cooperation. Therefore, to formulate a business model that ensures continuous earning of money, the context of the "expanded company", that is, the supply chain, is necessary. Thus, starting from the demand and needs of customers (consumers), the processes of material transformation are connected with the suppliers' processes and the processes of value delivery with internal production processes (Radovi -Markovi et al., 2019).

The basis for creating a supply chain is the strategy of enterprise competitiveness, building and developing partnerships, and creating a common business model for a particular market. The built supply chain implies a harmonized performance system, the development of connected and synchronized processes in accordance with performance (Tajpour et al., 2020). After the strategic choice "what will we do and for what values?", the supply chain then answers the equally important question "how will we work?". The operational response to strategic needs (the first question) is the integrated supply chain system.

The development of the supply chain concept and its management concept (Supply Chain Management, SCM) took place in several phases. Between 1960 and 1970, companies began to realize the need to serve customers together. This period is characterized by joint logistics management. This integrates the supply and distribution function, in order to speed up the process and reduce operating costs, and improve other performance. Other functions, such as product development, finance and marketing, were not process-integrated.

The most agile companies in the world, in the seventies and eighties of the 20th century, clearly recognized that the optimization of business within the company is not enough to achieve business excellence and competitiveness, because it is necessary to first understand customer requirements. Also, the management of many companies realized that the involvement of suppliers is key to improving the quality of processes and product quality, and that the use of supplier resources in the right way is an important source of competitiveness. It was necessary to integrate order execution management with internal processes in the upstream supply chain into the operating system. These ideas were the basis for creating a completely new management model whose essence is harmonized, joint business planning, coordination and control. This paves the way for the integrated supply chain management. In the 1990s, SCM definitely evolved from managing the value of a physical product to managing customer and consumer service, that is, physical products and related services. Value chain management has thus been extended to the entire supply chain, from the most distant supplier to the end customer (consumer) and ancillary activities and service companies.

Martin Christopher (1992) defined the supply chain as a network of organizations involved in downstream and upstream connections and flows of processes and activities that produce products or services for the end consumer. The supply chain is a process aimed at cooperative management of

the overall business process in order to most efficiently use the resources of the distribution channel, with the aim of best satisfying consumers and thus achieving competitiveness. (Kanji G. K., &Wong A., 1999) The supply chain is jointly formed by companies and/or strategic business units, which find a long-term interest in cooperating in creating and delivering value to customers (consumers). "Partnership must be linked to strategy; defining the purpose of the partnership, defines and the willingness to change the way of cooperation with changes in the environment." (Blanchard D., 2010, p.171) It is also necessary to jointly manage information flows, to enable integrated management of the entire business process in the supply chain and business through the supply chain. The supply chain structure is very complex, so it is necessary to solve many problems in this regard. Therefore, organizational principles are essential to maintain the consistency of all aspects of the supply chain concept. In the process of transformation of materials, products and information, specific areas (segments) of the supply chain are (Hugos M. (2003, p. 171): production, stocks, locations, transport and information.

Traditionally, relationships with partners are short-term, transactional, and competitive in profit distribution. In the supply chain, customers, suppliers and distributors are partners who build a strategic relationship and who know each other's business and capabilities, who strive to harmonize plans, connect information systems and support the integration of material and information flows all the way to final consumption and from consumers upstream.

Supply chain planning and organization is primarily joint planning of the necessary activities and processes, the necessary resources and the organization itself. It is required to harmonize the target perforations of the value chain with the performance of activities and processes of the supply chain, which will enable the realization of the required performance of products and services. The joint planning of process performance and supply chain organization starts from the profile and possible volume of demand. Planning the organization and configuration of the supply chain simultaneously represents the planning of locations and their capacities, inventories and inventory locations, and information flows.

An integrated and efficient supply chain with its information and management system can establish a consistent performance system, achieve quality and service improvement, achieve reliability and delivery speed performance and manage total value delivery costs. That is why it is necessary to be aware that supply chains compete on the market, and not isolated companies.

The process of organizing business through the supply chain begins with defining the strategic focus and continues with the creation of competencies and organizational and management skills, which means generating new expertise, developing education systems and "producing" new managers for the management system. In that sense, the organization is constantly changing, "moving", in order to improve internal performance, constantly improving the offer and offering new services, in order to constantly improve the value chain. Otherwise, the business organization is stagnant in relation to the competition.

## SUPPLY CHAIN VALUE CHAIN

In a modern environment, enterprises have a mission to meet the requirements of customers and consumers, that is, strategic goals, and to create values that customers or market segments value, in a specific way, and in the current moment.

The key contribution and argumentation about the advantages of the dynamic business management model was given by the Value Chain Theory M. Porter. At the very beginning, it questioned the traditional business values based on internal factors and the management model through the control of internal factors, budgets and financial performance. First, the choice of necessary value-creating activities is chosen from the perspective of consumer value, and that is the

purpose of the business and the core of the competitiveness strategy. In addition, according to this theory, costs, as a key component of financial measures, cannot be managed directly by reducing costs (in order to achieve higher profits), but through managing activities that add or do not add value, consuming resources. That is, it is necessary to single out and abolish activities that do not bring value to consumers, and organize activities that are crucial for creating value in a way that brings the best operational performance. Costs are managed through the management of activities whose selection and configuration are the result of management decisions to create value for customers and consumers. Disaggregating the process into activities creates opportunities to better understand inputs and outputs in the process through the flow of activities, to develop intuition in creating alternatives. "Activities create the workflow and include people, raw materials, technologies, methods and space." (Rademakers T., 2012, p. 3)

With the development of the supply chain concept, value chain theory gained its full significance. Through the concept of the supply chain, value creation for customers and consumers, and management, has been extended to the entire course of value delivery. Thus, the company's profit can be seen as an output of activities and processes and undertaking various management and guidance actions related to customer requirements, supplier capabilities, and other connections and flows in the overall supply chain. By jointly managing the overall flow of the value chain, additional positive effects can be achieved for all enterprises in the supply chain.

In the concept of an integrated supply chain, internal and external customers are viewed in the same way, in order to achieve the target performance of the value chain at every step, starting from the planned performance of the end result. This means that each subsequent phase expects a certain quality from the previous phase, thus achieving synchronized rather than subsequent control. By measuring performance through the execution of operational activities and processes through the supply chain, strategic analysis, and value analysis in an integrated system, we can identify the need to change the supply chain structure, restructure or discontinue some processes, or add new ones activities. They add more value. Activities have thus become a key element of business management and organization.

## *COMPETITIVENESS STRATEGY AND ITS IMPLEMENTATION THROUGH THE SUPPLY CHAIN SYSTEM*

All strategic components come from the external environment, from the market and from customers, and are transformed into a competitive strategy and requirements that need to be met by internal factors – competencies and capabilities, required activities and processes, resources and organization. Strategic and operational harmonization, first of all, means the implementation of the competitiveness strategy through the supply chain system. However, that is not all: there is a feedback system that can reversely influence changes in performance and goals at all levels, all the way to the competitiveness strategy itself. This determined the system and model of management – constant review and adaptation to changes in the environment and the harmonization of external and internal factors.

A company's competitiveness strategy is what differentiates a company apart from other companies in the market. Based on these differences, the company builds, adapts and develops its specific supply chain and competitiveness. Implementing the competitiveness strategy through the organization and the operating system harmonizes the strategic values with the tactical and operational components (with capabilities, competencies, and operational solutions).

Through the strategy of the supply chain itself, the company translates its strategic vision, resources and necessary activities into the necessary processes and business environment, in a particular organization in accordance with the required efficiency and performance of products and

services. The process of organizing the supply chain system begins when the desired level of value delivery performance is determined. The performance system contains the performance of efficiency, effectiveness, satisfaction and performance of key competitiveness factors. The enterprise has in mind its strength and influence, limitations and opportunities and interests of partners, in order to establish real relationships with suppliers and customers, or to configure a sustainable supply chain and create realistic conditions for achieving strategic goals. The supply chain organization must have the ability to be flexible and adapt to changing environmental conditions. Certain functional tasks should be performed in those places in the chain where the greatest contribution to the overall efficiency and value creation for customers can be made. Within the supply chain, it is possible to influence processes in other companies, and some activities can be transferred to suppliers (initial assembly) or distributors (final assembly). In the supply chain, there are possibilities of a different combination of use and connection of activities and resources through a network of business processes, which enables optimal organization. The basic determinant of the organization of a business organization system is the dilemma of strategic choice: an efficient or responsive supply chain strategy, that is, a centralized or decentralized organization.

Until the first half of the 20th century, in the so-called the "industrial era", competitiveness could be ensured mainly through the management of internal factors (capacities), mass production, economies of scale and the possession of technology, knowledge and skills in a particular field. In the growing market, technical and other capabilities were important to increase production volumes in order to transfer fixed costs to a larger number of units and thus achieve strategic advantage through low costs per unit of product. Barriers to new competitors entering the most important markets were, above all, high capital investments or the possession of expensive technology.

Starting from the goals of competitiveness, the company's organization adapts to the supply chain and the target performance of the entire value delivery system. On the other hand, the supply chain organization is guided by harmonized strategic values from the competitiveness strategies of enterprises in the supply chain. It is a kind of dialectic of the specific goals of the company and the goals of the organization of the supply chain, which sometimes overcomes the different goals and interests of the company in the supply chain. However, it is particularly important to align or compromise between the objectives of the enterprises and the objectives of the supply chain entities. These are, first of all, on the one hand, the goals of the enterprise's profitability - in relation to the goals of competitiveness and market position through the supply chain. Maximizing enterprise profits in the context of the supply chain cannot be a primary or strategic goal because it is not compatible with the concept and potential of the supply chain. All the target values of the enterprise are synthesized through the primary goals of the supply chain, which eliminates opportunistic goals that can endanger the system. Such trade-offs should, in fact, bring synergies to all enterprises from working together and managing supply chain flows – competitiveness, risk control and sufficient profits for innovative activities.

All changes in the organization of business are related to the effective and efficient satisfaction of the needs and requirements of customers/consumers. It is necessary to satisfy value propositions in an efficient way with the help of the overall value delivery system, in order to achieve or maintain a competitive position. In addition to the need for continuous improvement, the need for radical changes in the organization and reengineering of business processes will be indicated if the necessary values are not achieved and if there is no satisfactory relationship with customers and consumers, resulting in continuous market loss and failure to achieve strategic goals. This connects external and internal business factors.

The business strategy of a company today is actually a strategy of competitiveness because companies are focused on the external environment and not on internal factors. Today, competitiveness factors are determined from the external environment and from the perspective of value according to the perception of the end-user or consumer. The key factors of competitiveness are determined by the requirements of demand regarding product quality, speed and reliability of

delivery, but also the availability and total cost of flows to the final consumer, which determine the pricing policy. Companies strive to develop efficiency, flexibility and operational excellence through the supply chain, in order to ensure the achievement of goals – competitiveness and effectiveness. Therefore, the task of management is to create new strategies by focusing on customer requirements, and then finding organizational forms that would best meet these performances. Competitive advantage is usually gained through lower costs, the creation of innovative products, response to all customer requirements, or a combination of these elements. The answer to demand is the offer of products and services of certain performance that are created and delivered through the supply chain.

Under competitive pressure, the organization is changing in the direction of increasing flexibility and efficiency to create a product that is maximally tailored to customer needs and deliver as quickly and cheaply as possible. This kind of flexibility can only be achieved in the supply chain context, with clear procedures for performing activities, mapping and documentation, and then through monitoring and measuring the performance of all activities and processes in the chain. Such a procedure will show, as a rule, that it is necessary to give up parts of one's short-term interests, so that, together with partners, through understanding demand and creating value for customers and consumers, much greater, synergistic effects and long-term interests can be achieved.

Competitiveness strategy defines the sources of competitiveness by recognizing the value for customers, and then by understanding the way and concept of competition in a particular market or market segment, through the organization of the business system. That is, the company's competitiveness strategy defines where and with what values it will compete, what will be done, and the supply chain strategy how it will be done. New organizational forms are realized through partnership, through the organization of the supply chain, through the provision of resources and the creation of intangible resources and capabilities, and increasingly through the development and direction of knowledge and organizational culture as an environment for operational efficiency and goals. The integration of organizational cultures of companies in the supply chain is important both at the strategic and operational level. "Culture mediates between organizational and individual knowledge and enables social interaction."(Khazaei P. S., Khanlarzadeh F., Samiei V., 2016, p, 10) The integration of organizational cultures is essentially "relative integration" (or social rapprochement), which is necessary in addition to process integration.

The issue of organizational culture in the concept of the supply chain is closely related to the issue of human resource management. With the change of strategic approach and the emergence of the supply chain management model (SCM), human resource management has become one of the most important issues. The key words are "people's involvement". This formulation means a lot of positive things for the organization, from the operational to the strategic level. In general, it is necessary for people to feel a sense of belonging and to actively participate in the development of the organization. For a modern organization, it is necessary to achieve that employees accept the strategic values of the organization on a mental and even emotional level, when their own future is connected with the future of the organization. „Employees who wish to belong to the organization (affective commitment), as opposed to those who feel they need to belong (continuous commitment), or those who feel obliged to belong (normative commitment) are willing to make efforts for the benefit of their organization. Interestingly, of the studies registering correlations between commitment and performance, most of them used measures of affective commitment."(Radosavljevi Ž., ilerdži V., Dragi M., 2017, p. 18) For the traditional corporate and pyramid organization (with mostly one-way communication), the other two approaches are undoubtedly characteristic – constant, routine commitment, and normative commitment.

A competitiveness strategy is created by an enterprise or strategic business unit of a corporation or complex enterprise. In a simple enterprise, corporate strategy and competitiveness strategy are the same document. The competitiveness strategy is created in relation to the external environment, i.e., in relation to the selected relevant company market segment, which has its own specific and recognizable and homogenized values. Its implementation is achieved through the organization of

the supply chain, through the creation of an integrated business process from the most distant suppliers to end users and consumers. An integrated and jointly coordinated supply chain should enable control of the overall flow of value creation and delivery, competitiveness and the realization of harmonized competitiveness strategies of the companies participating in the chain.

The starting point for creating a supply chain is therefore harmonized values from the competitiveness strategies of the company that will create the supply chain. The core of the company's competitiveness strategy refers to the needs and requirements of the relevant market, key performance and competitiveness factors. These needs and requirements will be answered by a competitive offer that is created through the organization and operational capabilities of the supply chain, through the competencies and capabilities that companies bring to the supply chain processes. The competitiveness strategy answers the question "what" and "why" something needs to be done. This is followed by an equally important, second question – "how to do it", and the answer to this question lies in the organization and strategy and operational solutions of the supply chain. In this sense, the leaders of the organization must be strategists and at the same time help in the implementation, and not only understand the operational solutions that will be implemented in the organization. "We need leaders who can make big promises to customers and help their organizations deliver on those promises." (Leinwand P., Rotering J., 2019., p. 206)

The organization represents the definition, configuration and purposeful definition and connection of the structure of locations, necessary activities and resources, and management systems in accordance with the goals and strategic values. One of the basic elements of the organization is the supply chain management system, which is essentially a cyclical management process.

## SUPPLY CHAIN MANAGEMENT

Supply Chain Management (SCM) contains four basic phases that are continuously or cyclically repeated (Cvetkovic M., 2020, p. 153)

- joint planning,
- measurement and control,
- analysis of measurement results, and
- performance improvements or enhancements.

Supply chain planning is usually said to be joint or collaborative. In practice, it does not have to be common, but it is necessary that it is at least harmonized. This means, before the division of operational plans, harmonization of strategic values, harmonization of performance of activities and processes, but, with a strongly integrated supply chain, business plans can also be harmonized, especially annual ones. Measurements identify unsatisfactory results and differences between the plan and the state in execution. By analyzing the measurement results and synthesizing the conclusions, decisions are made about the necessary improvements. An improvement plan is then adopted and the effectiveness of the improvement is checked.

## MEASURING THE PERFORMANCES OF ACTIVITIES AND PROCESSES

In the supply chain, in the theory and practice of business management, it is accepted that it is impossible to manage something that is not measured. By measuring performance and analyzing measurement results, both quantitative and qualitative performance, information is obtained that

enables an understanding of the existing situation and observation of differences in execution in relation to the plan, as well as potential opportunities for actions and changes in the future.

Traditional performance measures in a company are financial measures that are found in periodic reports and balance sheets. This data and information is standardly used by investors, banks, shareholders and regulators in relations with the company, but also by the management, which in various ways, reliably or less reliably, knows the background of such results. In the functional system of an isolated company, whose organization is based on the suboptimality of the functional parts, the key measure is the financial business success of the enterprise, which speaks little or insufficiently about the causes of such a result. These reports and results actually say little about the quality of the business and cannot be an indicator of the quality of the supply chain, nor can the financial results of the enterprises be simply summed up to obtain the result of the supply chain (Cvetkovic M., 2020, p. 154,)

Intangible, qualitative and operational performance and measures are essential for the supply chain. Key strategic performance measures are the level of customer (consumer) satisfaction, the level of product market participation, and other external measures.

Operational performance measures refer to measuring the performance of activities and processes: time cycles (of production, delivery, waiting time, etc.), costs, quality, and flexibility (completeness of delivery, timeliness).

A typical operational measure of the supply chain is also the performance of suppliers, such as the supplier quality index, which is the result of the ratio of all costs in the process related to the supplier, and the value (price) of purchased raw materials. The closer the result is to the unit, the better the performance of the supplier. If we have suppliers A and B who have prices of 100 dinars and 120, and the total costs are 140 dinars for supplier A, and 120 dinars for supplier B, then we will opt for supplier B, whose performance index is 1, and A supplier index is 1.4. (Novi evi B., Anti Lj., Stevanovi T., 2006, p. 36)

A series of data from operational execution, data on previously observed trends and data from the environment, as well as special research on demand, environment and organization, form the basis for a strategic analysis whose conclusions can be the basis for solving problems at all levels and eliminating numerous risks. The results of these measurements affect the assessment of operational, organizational and tactical capabilities, but can also affect strategic changes.

## *SUPPLY CHAIN FLOW MANAGEMENT MODELS AND TECHNIQUES*

The concept of process organization, unlike the functional one, leads to the integration of material and information flows, inter-organizational cooperation and synchronization of processes and activities of the enterprise with other enterprises and participants in the supply chain. In an integrated supply chain (or business network), management thus essentially takes place through the joint management of the performance of supply chain activities and processes. Through integrated supply chain management, enterprises direct and improve their business. The organization of the supply chain takes place through cooperative partnerships in which the enterprise connects its capabilities and expertise with the capabilities and competencies of other enterprises, and through the use of outsourcing. Management models, methods and techniques provide a framework for systemically addressing these issues, supporting a strategic focus and a specific concept of supply chain management.

A management model can be simply defined as the formalization of a particular reality in order to reduce complexity and with a specific management purpose (Pereira et al., 2021). The basic management purpose is to achieve a certain level of performance in order to maintain competitiveness. Such models, in addition to procedural orientations, have a virtual and abstract

component, which enables various simulations and verifications in the real world of processes and systems and flexibility. The effectiveness and efficiency of the application of the model can be determined only by measuring the performance with the help of an adequate system of measures and analyzing the measurement results. In doing so, the elements that should lead the process in the desired direction, in the direction of the target performance, are measured. The models enable the optimal interactive relations between activities and other elements of the process and between processes, and the relations between processes and systems to be perceived and realized through the organization. In this way, the best solution can be chosen in relation to the goals of model implementation (Stadtler H., & Kilger C., 2008, p. 82). The essence of the management model is to solve specific problems in a systematic way and achieve certain goals because it implies wide interactivity of elements of business processes and organization, which cannot be constantly solved by individual decisions and orders.

Managing and coordinating complex activities and complementary competencies in the supply chain is today the biggest challenge for managers, as it simultaneously provides the greatest opportunities for business optimization and improvement. In this context, it is necessary that the management of one enterprise is interested in the capabilities and competencies of other companies, and then in the possibilities of integrating the necessary activities and processes into an efficient value delivery system. Managing inter-organizational relationships and common goals is important for managing functioning, initiating and improving the performance of the supply chain process. However, the basic condition for effective organization and functioning is the exchange of information, or even better, the integration and sharing of the same information. Today's information technologies make that possible.

Process modeling is the initial condition for the successful management of an overall business process or business. If there is no model of how the process takes place, management will not be possible either. To create a business process model in the supply chain, as well as to create a management model, it is necessary to first define the strategic focus, and then have a large amount of information based on which objectively and in detail analyzes the existing and desirable situation in relation to the goals and purpose of the process. Enterprises are increasingly using modern IT software solutions to support optimization and process analysis, but also to support the operational functioning of systems and models and to automate to the possible level. This information originates from the past period, from mutual interactions, from the research of future demand and needs and refers to the characteristics and required performance of products and services to the flows and connections of activities and processes of participants in transformation processes. "When modeling a system, it is necessary to set the functional role of the process, the physical flow and the flow of information."(Hayes H., 2004, p. 3) The modeling processes mobilize all the company's knowledge about processes and business, strengthen cooperation and create processes that increase productivity and quality and create conditions for further process improvements.

In the dynamic conditions of the market and the environment, a management model is needed which will continuously and jointly manage stocks and replenishment, i.e. a model that will dictate production from market demand, instead of production dictating supply by its assessment.

Typical integrative supply chain management models are CPFR – Collaborative Planning, Forecasting, and Replenishment and Vendor-managed inventory – VMI. „CPFR is the name given to a partnership-based approach to managing the buyer/supplier interfaces across the supply chain. The idea is the development of vendor-managed inventory (VMI). VMI is a process through which the supplier rather than the customer manages the flow of product into the customer's operations." (Christopher M., 2011, p. 94) These are models that solve problems between customers and suppliers, but have a significant impact on the entire supply chain and on the level of services and responsiveness. If well implemented, these models have a major impact on flow synchronization and inventory reduction along the entire supply chain. CPFR is a more complex model and includes preliminary data, more comprehensive analyzes and joint planning and continuous exchange of data

on the current situation, while VMI is a more operational model based primarily on continuous exchanges and mutual sharing of specific and detailed information in the supply chain. In fact, CPFR is an extension of the VMI model. (Cvetkovi  M., 2016, p.214)

VMI is an operating system (model) that manages inventory in the supply chain, whereby the manufacturer (supplier), in accordance with the agreement (contract) between the buyer and the seller, takes over the supply and filling, primarily on the basis of inventory information and dynamics found in the customer. The model is suitable for shorter flows and simple supply chains. The manufacturer collects information from the retail on the needs, usually for the next week, and then, on the basis of well-established cooperation with its suppliers, promptly provides components and raw materials for the realization of the order. With the help of modern information technology, it can be possible for suppliers to have an insight into the customer's monthly plan so that components and materials or goods can be delivered without special purchase orders. The model is especially suitable for consumer products and cooperation with retail. The model is most efficient in conditions when information can be collected or exchanged daily so that the filling is done for a few days exactly with the goods that were sold or demanded by consumers. The purpose of this model is to eliminate stock-out - the lack of materials in production, as well as finished goods on the other hand, so as to fully meet short-term, realistic demand. With this model, stocks are pushed in the direction of the supplier, and the manufacturer (seller) and retailers work according to the pull system. With modern IT, the necessary information for efficient filling can be obtained on a daily basis. This model is especially useful for suppliers because they are constantly acquainted with current, live information from the market, thus gaining valuable experience and vigilance and thus manage to reduce their own stocks, but also to ensure the preservation and loyalty of consumers with the availability of their products. Suppliers should have warehouses near the manufacturer, which would be most convenient. The dilemma that exists with suppliers is the economy of frequent deliveries (according to the JIT system), but the essence of this model is the overall interest of the supply chain – to deliver products to consumers quickly and accurately without creating stocks. In that sense, various technological, technical, and operational improvements of the process within the framework of integral improvements are applied within the company to constantly realize joint plans based on this model. The model has the effect of increasing sales and revenue, reducing operating costs and working capital, and increasing the level of integration in the entire supply chain, starting with suppliers.

CPFR is a model that allows supply chain partners, in addition to sharing information and analysis, to jointly develop production and distribution plans for the future. The seller and the buyer agree or contract their cooperation, striving to achieve the best practice in certain conditions, whereby the common prediction of demand, that is, mutual exchange. This model makes it possible to determine product needs for normal business conditions, for promotional periods, but also for exceptions and changed demand levels, or changed other conditions. Participants can be two, but also several companies, which through this model agree on the way of joint planning, forecasting demand and replenishment of stocks, defining procedures and patterns of mutual cooperation in market supply, as well as cooperation for special, exceptional situations. The model created in this way primarily deals with demand and forecasting methods and demand analysis and filling procedures but does not deal specifically with the performance and integration of the operational process. An extremely simplified explanation of this model (and to avoid superficiality) is to define stock levels and deadlines with the help of information shared by companies. The model can also support more comprehensive collaboration by having companies create and share a joint or agreed business plans, but not an operational process. At the operational level, there is primarily coordination in overcoming special circumstances, promotions, or other special conditions. The model will certainly be more successful if operational (live) information from points of sale is used more often and more significantly instead of historical data or joint longer-term plans and projections when additional marketing and promotion efforts are needed to actually reduce inventory plans.

# CONCLUSION

Since the seventies of the last century, in the approach to management, the advantages and possibilities of the functional organization of the enterprise have been exhausted. New solutions are radically focused on the process system, partnership and integration of the process of creating and delivering values. In conditions of frequent discontinuities in business conditions and frequent changes in consumer behavior, it proved necessary to build more operational and flexible business systems. At the same time, the basic strategic values that guide the organization are found in the external environment, in the market, and not in internal factors. The basic strategic values that guide the organization are found in the external environment, on the market, and no longer in internal factors. By creating and developing the supply chain concept in the 1970s and 80s, a tactical and operational response to these new strategic conditions was found.

In the development of the supply chain concept, a special role was played by the Value Chain Theory, which is based on activities as the basic elements of management, restructuring and organization. On the one hand, it was possible to identify activities that add value and activities that have no purpose and should be eliminated, and on the other hand, the necessary activities were easy to organize and create effective processes and flows, i.e. to achieve their integration in accordance with desirable operational performance.

In the new conditions, the strategy of enterprise competitiveness, by defining key values, has become a guideline for activities and business initiatives at all levels, requiring control of the overall flow of value delivery. This means connecting, synchronizing and coordinating activities with other, external partners. By harmonizing strategic values between supply chain enterprises, conditions are created for creating common tactical and operational solutions, thus implementing the competitiveness strategy.

Supply chain management consists of four key phases: planning, measurement, analysis and improvement. The traditional performance measures in the company were predominantly financial and quantitative. Intangible, qualitative and operational performance and measures whose results can affect all hierarchical levels of the business organization are important for the supply chain. The harmonization of the strategic and operational level in the supply chain takes place first of all through the implementation of the company's competitiveness strategy through the organization and operating system of the supply chain. The second phase of the management cycle is the feedback system when, after analyzing the measurement results in execution, system corrections can be made for the next management cycle, from the operational to the strategic level.

Supply chain management requires both the creation, in addition to strategic business direction models, and the creation of operational management models. Characteristic models of the operating system are CPFR - Collaborative Planning, Forecasting, and Replenishment and VMI - Vendor-managed inventory.

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# PRODUCT LAUNCH STRATEGY ON THE EXAMPLE OF „ALUMINA" ZVORNIK COMPANY

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## ABSTRACT

Managing the process of development and launching a new product is one of the key marketing activities of every company whose goal is survival, growth and the best possible market positioning. Introducing new or innovating existing products is a condition and a way to ensure the future growth and development of the company. Given that today's global market is characterized by pronounced technical and technological progress, the innovation of the production program should have continuity. Companies that operate in modern market conditions must continuously research the market and find new opportunities for advancement in order to more effectively carry out their mission implemented in the development strategy. At the same time, in accordance with its business performance and strategy plan, the company should take into account all the dangers and obstacles that stand in the way of development and progress due to the numerous external and internal factors.

The goal of every market-oriented company should be its growth and development, which means long-term survival ensured through the process of innovating the production program. Companies that follow modern trends and processes and modernize their production program create a more favorable market position for themselves which enables them to make maximum use of all opportunities in the business environment leading up to a better position compared to competing companies. Such is the case of "Alumina" company from Zvornik whose one of the key strategic plans is designed to deliver new products to the market. Innovations are significant for the competitiveness of companies, especially in modern business conditions characterized by rapid changes in both demand and competition. They are important for both the economy and society as a whole, because competitive companies create jobs and generate income which leads to progress in the development of a number of other areas.

**Keywords:** new product, market, development, innovation
**JEL Classification:** M21, M31

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# *INTRODUCTION*

Changes in the world economic market are taking place at a high speed, so the issue of strengthening the competitive position of any company, including "Alumina", is of outmost importance in terms of realization of the company's development plans. By finding and launching new products, as well as by modifying the existing ones, companies tend to grow, therefore it is necessary for the company to be oriented towards either the constant delivery of new products or modifications and use of the existing ones. "The globalization of markets has changed the rules of competition. "The relaxation of trade barriers for businesses can pose a serious threat as domestic markets open up to a foreign competition. However, at the same time, the relaxation of trade barriers can represent an opportunity for companies to develop their business on the global market." ( ervida et al., 2020, p. 51)

In literature, there is no generally accepted definition of a new product, just as in practice there is no simple opinion in defining a new product. One group of authors believe that a new product is one that has not been produced in a specific country so far, but has been known worldwide. The secong group of authors believe that a new product is one that has not been known to the company in question while other companies knew of it. According to the third group of authors, a new product is one that uses some new, previously unknown raw material. Different views and interpretations indicate that defining a new product is not easy and simple. Decisions about a new product are decisions of a long-term nature, and the program for the introduction of new products should be based on the needs and demands of consumers. According to Kotler (2008, p. 430) "a product is anything that can be offered on the market to satisfy a particular want or need."

"Creating new products is a multi-functional activity. The activity of introducing new products into the production program is of such a nature that it requires a precise procedure-order of phases from the idea of a new product to its sale on the market." (Milisavljevi et al., 2012, p. 9) Authors whose main subject of research is marketing distinguish three types of innovation for identifying and defining a new product: fundamental innovation, functional innovation and adaptive innovation.

Fundamental innovations characterize a product with the highest degree of innovation, which meets previously unknown needs, requires previously unknown technology, creates new consumer habits and new markets. These products are the result of some radical discoveries that require company to do continuous research, have great costs and to take a risk.

Functional innovations define a new product that includes some new features of an already existing product, such as dimensions, way of handling, etc. This is a continuous process that improves the functional characteristics of the product.

Adaptive innovations represent a type of new product that has the lowest degree of innovation, that is, they are modifications of an already existing product (color, smell, taste, etc.).

The introduction and development of a new product is a challenge and a risk for the company. This process includes various activities aimed at successful market positioning and commercialization of the new product. Therefore, this process must be approached cautiously, with constant monitoring and market research. Verified and specific information are an essential prerequisite for decision-making at every stage of the process of development and launching new products. However, it happens that the process of launching new products is delivered spontaneously without a clear and precisely developed strategy. Information that are crucial for decision-making are unverified and not the result of a market research process.

"The subject research of this paper is important in terms of a better and more transparent understanding of the economic reality, because the current processes of restructuring companies in transition countries will necessarily require that, based on the premises of international marketing and market reality, the existing production programs be radically revised and new and more modern

ones to be developed." (Mili , 2022, str. 100) When defining the process of introducing a new product, it is necessary to segment the market and align the marketing mix instruments with the product in order to achieve successful commercialization of the new product and to achieve the planned market results.

Competitiveness at the regional, European and world level is the priority of all ambitious companies that have long-term plans based on investments in innovative processes and products. This is a kind of process in which it is necessary to look at the current situation and determine adequate strategies that would be put into practice. "By implementing the marketing strategy in the right way, the company is able to effectively and efficiently respond to the needs and wishes of consumers. Being better than competitors requires a flexible marketing strategy." (Krsti  & Beci , 2011, p. 118)

Companies are increasingly applying new technologies in their operations and business processes. "The prerequisite for the application of new technologies and digitization is that the company, as well as the national economy itself, is oriented towards the development of innovation and creativity. As a result of these activities, we have the stimulation of innovators, entrepreneurs and new businesses that bring diversity and creativity to technological innovations." (Bogeti  et al. 2021, p. 70)

# *THE ROLE OF THE PRODUCT IN THE MARKETING ACTIVITIES OF THE COMPANY*

Companies focused on their mission should base their overall activities on an offer that fits the market, economic and social requirements of modern life. The company's efforts are aimed at creating a product that meets the needs of consumers and, as such, is more competitive on the market than the products of other companies. Bearing in mind the technical and technological development, increasingly tough demand and dynamics of the competitive market, it is clear why the product has become a dynamic instrument of the company's marketing mix.

Bearing in mind modern business conditions, the importance of the product as an instrument of the marketing mix is determined by numerous factors. Technical and technological development provides greater opportunities for the development of new and adaptation of the existing products. By innovating and modifying products, companies adapt to the needs and purchasing power of current and potential new consumers. We can say that the product is a flexible instrument of sales policy given that modifications are possible and feasible in several ways, with certain investments and in a short period of time. This is especially important from the aspect of competitive position and demand. From the point of view of responsible business, what should be pointed out when innovating products is certainly the way and conditions of using resources. Nowadays, this aspect of business is gaining importance considering the measures that are implemented for a more rational use of limited material resources and environmental protection.

A product does not have its full value if it is considered in isolation from the context of its consumption and production program, because today's modern companies offer a wide range of products on the global market. That's why companies face an additional problem, which is to optimize the production program from the aspect of production costs and the aspect of the market, while keeping in mind certain criteria that will be managed. "When creating a new product development program, a balance is needed between continuous (incremental), dynamic continuous and discontinuous (radical) innovations. The company should strive to create such a program that is oriented towards continuous innovation and improvement of existing products in the production program." (Milisavljevi , 2000, p. 55)

The product, as a dynamic category, is subject to various influences. In the course of its existence, the product goes through certain stages, and one of them is obsolescence, which can be: technical, competitive and market. The company must be aware of all the challenges for survival in the market, as well as understand the production program and have certain criteria. That is why product management represents an adequately formulated product policy.

"The set of principles and criteria by which the company should be guided by in product management, and which are contained in the product policy, must be consistent and applicable in the sense that it should be qualitative as much as possible, but also quantitative so that products can be ranked according to their contribution to the company's profit." (Mili , 2020, p. 106)

By continuously finding and launching new and changing existing products, companies ensure their survival on the market. That's why the company should be focused on constantly creating new products, as well as changing the characteristics and use of the existing ones. All of this entails a certain degree of risk that must be realistically planned, based on knowledge of market conditions, demand and other factors on which the success of the company depends. The company must have certain production and market experience for it to successfully introduce a new product into the production program.

In the global market business, companies that do not develop new products and whose production program is no longer attractive for market needs face the greatest risk. Due to the ever-shorter life cycle of modern products, companies that do not follow the changes happening on the side of demand and new needs of consumers have a problem of survival and competitiveness.

However, the development of new products is also risky because investment costs have a significant risk degree that can jeopardize the company's business. Therefore, the process of introducing a new product should be analyzed and considered in relation to the relative criteria of the business policy of growth and development of the company. Every potential new product must be analyzed from the point of view of market, technological, social, production-technical and competitive factors. Grublješi , Ivi and uki (2020, p. 100) believe that "taking measures to improve the company's competitive position requires consistent and detailed classification of factors and quantification of potential."

In modern business conditions, the product represents a dynamic instrument of the competitive market. Today, the speed of technical and technological progress is accompanied by numerous innovations. Having in mind the research, analysis and problems with the introduction of a new product, all activities should be oriented towards a modern marketing approach in terms of researching the marketing environment.

Todorovi (2018, p. 64) states that "all these activities related to the research of the introduction of a new product should be approached very seriously, because failures of this kind can catastrophically threaten the economy of the company and its growth and development strategy. It is sufficient to note that some products, due to the nature of the production process, require large investments in plants, equipment and raw material stocks, and it is necessary to achieve a large volume of production and sales in order to reach the breakeven point of profitability." Market research means that it is necessary to assess the nature of the demand for each product in the assortment.

The introduction of a new product is an innovative effort that a company makes in order not to be pushed out of the market by other companies and become uncompetitive. The success of a company in generating income based on its product means how well it managed to fit in and gain a competitive advantage over other companies through its innovative activities. "Innovations represent a new approach to solving problems, which often implies incremental, revolutionary changes in the way of thinking, in products, and in processes or organizations." ( abilovski & Vukša, 2019, p. 247)

By analyzing and researching the demand market, the new product should be less sensitive to seasonal or consumers' taste variations. The best role in building awareness of a product is played by integrated marketing communications that, among other things, try to build a sense of trust and

reliability among consumers. "The starting point of the concept is a focus on consumers - their preferences, purchase patterns, media preferences and other factors - and then presenting products and services that meet their needs, through a combination of communication methods that are attractive and credible." ( ervida et al., 2020, p. 22)

## *NEW PRODUCT PLANNING*

"Today, manufacturers face great challenges, and these challenges are determined by the processes of internationalization and globalization. These phenomena influence manufacturers to look for a new approach to the product as an element of the marketing program." (Miljkovi  & Al akovi , 2013, pp. 45-46).

"The product as one of the instruments of the marketing mix is in itself of a strategic nature, and therefore has significant strategic implications for the other instruments of the marketing mix. This implies that manufacturers face certain dilemmas that have to be solved: which product to which markets, whether and what kind of product modifications are needed, what new product to introduce, what trademark to use, what king of packaging, after-sales service, etc." (Miljkovi  & Al akovi , 2013, str. 46, cited Svensson, 2001)

When planning the product, it is necessary to coordinate the characteristics of the product with the other elements that make up the marketing mix, keeping in mind the company's capabilities and compliance with market demand. It is necessary to define the objectives of the product policy, because any ambiguities can lead to conflicts between individual services that participate in product development, which can lead to the premature extinction of a new product.

Design, as an element of the production mix, has several technical-technological and market aspects. One of them certainly refers to functionality, economy, aesthetics, which increases the value of the product and its attractiveness for customers, where even the price does not have to be competitive in relation to other companies' same or similar products on the market. The design enables a greater degree of standardization and typification, it affects the reduction of breakage and the preservation of better product quality, which significantly affects the competitiveness of certain products on both domestic and international markets.

Product packaging is considered from a technical-technological and psychological-promotional aspect. The technical-technological aspect of packaging considers the issues of protection, and the psychological-promotional aspect of packaging looks at the impact on consumer preferences. Planning the promotional and psychological characteristics of packaging is complex and depends on various factors such as: type of product, distribution system, level of market development, cultural characteristics of consumers, legal regulations and others. Closely related to the packaging is the marking of the product, whose task is to provide the consumer with appropriate information in an understandable language.

A trademark or a sign enables product identification and differentiation in relation to competitors, whether by sign, letter, symbol, combination, etc. A trademark has a special significance in international marketing. A product name or trademark facilitates communication with the market and lowers business costs due to advantages in recognition and loyalty of the target clientele. The use of standardization or adaptation of products, especially in the international market, brings the greatest advantages to the company if it is used in the right way. According to Powers & Loyka (2010, p. 89) "aspects of advertising and promotion, including the nature of customer consumption, language and market segments, also play a role in the extent to which adjustments are needed. Product standardization is important because, in addition to cost reduction and simplicity, it brings recognition and image, as well as quality". The problem of protection is regulated by both international and national regulations.

Also, the product's competitiveness is affected by the product's warranty and service. The usefulness of the product itself, its functionality, easy way to maitain and use it play a significant role in the consumer's purchase decision. In the marketing system, due to the specificity of certain market segments, it is difficult to apply the principle of standardization in all markets, which is why maintenance and warranty have a complex meaning. Marinkovi & or evi (2022, p. 8) claim that "consumer loyalty represents the ultimate starting point of marketing activities, since loyal consumers have a sense of attachment to the company, a high level of future purchase intention and a willingness to spread positive interpersonal communication."

One of the important issues that arise in the product planning process is the degree of standardization or adaptation. "The standardization strategy implies the offer of an identical product with identical prices, an identical distribution system and with the support of identical promotion programs in all countries where it is performed. The other extreme would be complete localization or adaptation of all elements of the marketing program. In practice, which is quite understandable, it is difficult to realize one or the other variant in their extreme meaning." (Miljkovi & Al akovi , 2013, p. 47) The strategy of product standardization is based on the appreciation of similarities that actually exist on a global scale, and the strategy of adaptation implies marketing activities that respect the differences between individual markets.

By developing and placing a new product on the market, the company tries to create a suitable advantage for consumers in relation to the competition by creating psychological or physical differences, while taking into account the amount of investment and the expected outcome. This carries a certain risk in assessment and decision making because only successful and economically stable companies with the application of the marketing concept achieve a high degree of differentiation. "Difficulties in achieving the target profit and growth of the company condition the turning of marketing from the dominant point of view on the tangible product to the creation of superior value and the development of relations with consumers. Orientation to value implies gaining a competitive advantage by continuously researching and understanding what value represents for consumers and discovering new ways to meet their required values." (Milisavljevi , 2013, p. 299) In doing so, the life cycle of the product must not be neglected, which is closely related to the characteristics of the product itself and the market, i.e., its compliance with the needs and demands of the market.

Each product in a certain market is in one of the five stages: introduction, growth, maturity, saturation and decline.

In the first phase, all efforts are related to product quality and promotion, and in this phase the costs are significant, and the income is mostly non-existent. The second phase is the phase of growth both in terms of sales volume and income, and the biggest investments are made in the promotion. The third phase is characterized by sales growth, and also increasing pressure from the competition, as a result of which the product is adapted to the market with significant promotional investments. When the volume of sales reaches a maximum, and sales, that is, income begins to decline, the product has entered the saturation phase. The last fifth stage means that there has been a significant decline and the product tends to retire from the market.

A strategic approach means that activities in the marketing mix change and adapt, without waiting for the product to reach a critical stage. The product life cycle should be continuously observed and monitored and, depending on the phase, emphasis should be placed on consumer needs, the degree of product differentiation, changes in design, product practicality, market segmentation, purchase frequencies, as well as customer loyalty and the quality of the product itself.

"One of the problems is to determine which strategy allows the company to succeed in a changing environment. Companies are required to develop marketing processes that enable global integration, but also business at the local level." ( ervida, et al., 2020, p. 52)

From a strategic point of view, a product is successful only when it generates profit for the entire life cycle, provided that the investments made are covered first. The sustainability of a product is directly related to its contribution to the income generation, which affects the duration of the product's life cycle, while flexibility of demand directs investments in certain elements of the marketing mix. Each product that is part of the company's production program has its own portfolio and market strategy. The basic meaning of modern portfolio analysis is to achieve the highest possible income with the lowest possible risk.
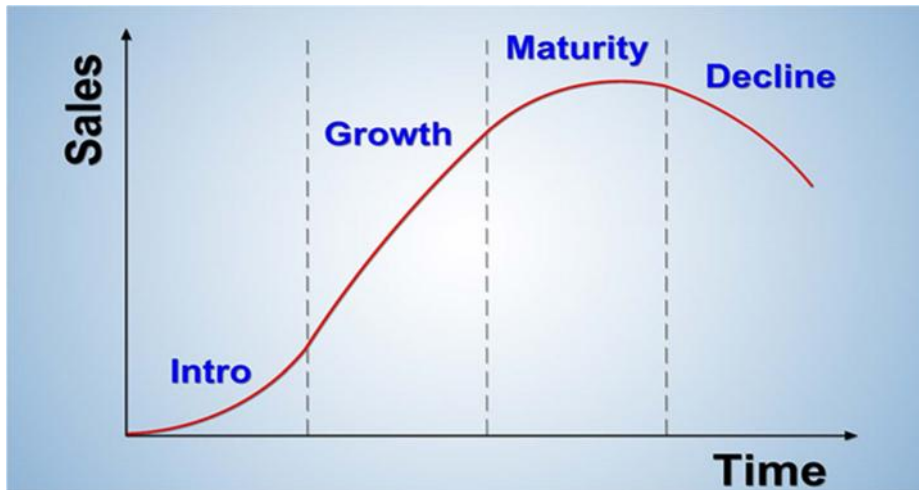


*Figure 1. Product life cycle*

*Source: Kauts, 2018, p. 19*

Changes in the world market, the purchasing power of consumers and more demanding needs and desires, the appearance of new competitive products and services on the market that essentially have the same purpose as the products and services of the company in question, require the company to accept and quickly adapt to changes if it wants to survive and be competitive. Therefore, the economic effect of the innovative phases of the production program should be aligned with new customer requirements. Technical and technological changes, rapid changes in the economy, saturation of the market with the same or similar products, increasingly demanding consumers, represent factors that have a key influence on the company in accepting the risk of innovation. Risks arising as a result of the improvement of a competitive product or certain economic changes can be minimized, and if the company has the necessary knowledge and introduces innovative changes on its own initiative.

Investment decisions involve decisions about a new product, they have a long-term plan and carry a lot of risk. This entails the creation of a strategic long-term program for the introduction of a new product with an emphasis on the product life cycle. Taking into account changes in customer requirements and in market conditions, changes in the new product may be greater than those planned. That is why these decisions have a high risk degree.

The new product should meet customers' needs in a new way and "open" new markets. "The process of developing a new product is carried out through the following stages:

1. Generating new product ideas;
2. Testing and comparing new product ideas;
3. Development and testing of the new product concept;
4. Development of a marketing strategy for new product management;

5. Assessment of the sales potential of a new product;
6. New product development;
7. Market testing;
8. Commercialization." (Šeri , 2009, p. 12)

## *MARKETING CONCEPT OF INTRODUCING A NEW PRODUCT TO THE MARKET*

Since a new product entails the possibility for a new profit, the introduction of a new product into the production program represents the most responsible, the most complex, but also the most effective area of activity. That is why this business process is given a special place and importance in the modern concept of marketing. One of the most significant and complex aspects of a company's growth is the marketing aspect of growth based on a new product. The experience of developed countries shows how important new products are for the growth of companies. Branches of industry whose orientation was toward the development of new products had the highest qualitative and quantitative growth.

It should be pointed out that the times when the key concept and idea for winning a new product came from the management of the company have irretrievably passed. That is why, until recently, the most important problem in many manufacturing companies was how to technologically master the production of a new product and in what scale to produce it. However, nowadays the key question is: What to produce? This is precisely the essence of the marketing concept and the marketing approach of introducing new products, which is a complex process and depends on a number of circumstances.

Modern production is characterized by the introduction of innovations and technological changes, the two processes that intertwine and accompany each other. The modern economy and marketing approach are based on the fact that the market is no longer the only factor that directs the movement of production. Production companies that think innovatively and deliver new products to the market are so to speak an indicator of rapid changes and the creation of new trends on the demand side.

In recent years, there is also the phenomenon that the European industry have a defensive approach to innovations, whereas the development of new products is mainly created by the influence of technology, which is why there is greater exposure to the danger of more aggressive innovations brought by the industries of Japan, China and the United States of America. In transition countries, the situation is even more unfavorable because many companies, when choosing a product strategy, decide to purchase licenses for the introduction of a new product. In doing so, they often make the decision to literally take over the marketing strategy without prior market research, without taking into account the importance and the role of benchmarking. Both theoretical and practical opinions generally agree that the modern concept of introducing a new product into production must be based on knowledge of the market, that is, the wishes and needs of consumers. That is why it is important to work on building good relations with the public, not only in the environment, but also in the wider area. "Public relations are the most important tool in the process of building respect and appreciation between the company and its environment, i.e. the target(s) of the public. This enables companies to achieve their goals more easily if they have the support of the public." ( ervida et al., 2020, p. 68)

When speaking of demand, the needs and wishes directly affect the profitability of the company and its further development. That's why every business entity should base its strategy on the production area in which it has the most opportunities to succeed. The company must know its capabilities well and focus on those areas where it has appropriate production and market experience. Decisions on the introduction of a new product are important from the investment point of view, therefore it is necessary to adopt an applicable program for the introduction of a new product that has a long-term character. The absence of a planned approach to the introduction of a new product

certainly increases the posibility of failure. Underestimating competition is one of the first mistakes, followed by the high initial price of the product as well as technical defects, which indicates that quality planning of the new product introduction program was not undertaken.

"The key questions in strategic marketing are: should the company carry out its existing operations, which products and markets are of particular importance for the survival, growth and development of the company, which new products and markets to look for and how to find those where it is possible to achieve a certain differential or competitive advantage given the company's potential. The questions must be continuously answered: which products/services and jobs should be abandoned or repositioned and how to allocate (reallocate) company resources to individual products, services and jobs." (Milisavljevi , 2013, p. 299) It is necessary to avoid literal adoption of competitors' strategy. Each product is specific in its own way and the planning of a new product should be based on the experience of others, but the strategy of competitive companies should be adapted to itself, that is, to the market and the target group of consumers. "The purpose of strategic marketing is to shape and reshape company operations and products so as to achieve the target profit and growth." (Milisavljevi , 2013, p. 299)

Companies that strive to maintain and expand their position on the market as successfully as possible must consider the needs of customers when creating plans and programs for the introduction of a new product. The complete process of introducing a new product must be synchronized with both the marketing sector and other sectors and the highest level of management. This is the only way to fully ensure the connection of the company's economic potential with the market and the needs, wishes and demands of both existing and potential customers. "Continuous learning enables finding good ways to innovate the delivered value to consumers and creates new value that is the basis for market competitive advantage." (Milisavljevi , 2013, p. 300)

There are many answers to the question of the rational procedure for introducing a new product given in the literature and business practice. Among marketing experts, there are certain differences in the presentations and interpretations of these processes, but the essence is identical. The process of introducing a new product goes through several stages: generation, sorting and analysis of ideas, then product concept development and its testing, marketing strategy development, business analysis, product development, product market testing and product commercialization.

Probably the most responsible job in the new product development process is providing good and creative ideas. "For the strategic marketing to be successfull, the mere existence of market opportunities is not enough. The company's disposition with adequate resources and abilities to take advantage of market opportunities is also very important." (Mom ilo Milisavljevi , 2013, p. 300) The company's starting points related to the process of finding ideas for a new product should be the actual state and potential of the company, with all its advantages and disadvantages, and then, based on that analysis, determine the optimal areas of research and search for ideas. With such an initial analysis, the company has a clearly defined position and the starting assumptions for the next step, searching for an idea for a new product, have been created.

Ideas for a new product can also be collected outside the company, whereby the collecting of ideas in one organized process cannot and should not be approached spontaneously.  uri  in (2005, p. 134) claims that "in an organized process of collecting, the main sources of ideas for a new product should be: consumers, scientific institutions and scientific workers, competing companies on the domestic and foreign markets, development and marketing services in the company itself, inventors and other various sources (professional literature, catalogs, magazines, fairs, exhibitions, foreign professional magazines)."

All collected ideas about a new product must go through several criteria on the basis of which the feasibility of adopting the idea is assessed, primarily from the aspect of compliance with the existing production program. "In order to be successful, a company must differentiate its offer and position itself in relation to the offer of other companies so that consumers can see what makes the difference between

its offer and the offer of its competitors. This is the basis for successfully creating a sustainable profitable position based on superior value for consumers." (Milisavljevi , 2013, p. 301)

As for the criteria that each collected idea should satisfy, the authors in the professional literature give several opinions on the evaluation of the new product idea. When the set criteria are met and the best idea for a new product is selected, a program for the introduction of the new product is created, the necessary financial resources are secured and the tasks are clearly and precisely assigned, the process of introducing a new product into production is less subjected to oscillations, i.e., its realization is easier and more efficiently implemented. In order for the entire process to be more efficient, it is necessary in the process of introducing a new product to the market to carry out research and development of the product concept, as well as to carry out its testing, in order to reduce or avoid possible negative effects.

Marketing research determines changes in the market, and based on the obtained results, the company's strategy is analyzed, through the creation and development of new products and their positioning on the market. According to Milisavljevi  (2010), marketing research aims to: connect the organization and the environment, identify opportunities and limitations of the environment, evaluate and correct planned marketing activities, monitor the performance of marketing activities and improve the understanding of the needs of consumers and the environment.

In this phase of research for a new product, it is necessary to re-evaluate the importance of the market where the new product is to be sold. The research process should be focused on those market elements that have an impact on the new product with the aim of achieving a good market position, that is, an impact on increasing market share and thus profits. This shows how important it is to develop a new product positioning strategy, which essentially indicates how the company through the marketing mix wants the target market to look at the company's offer. Through the positioning strategy, the company tries to harmonize the capabilities it has with the needs of the target market. This is where the importance of combining marketing instruments that would best suit the requirements of the chosen market comes to the fore.  ervida, Markovi  i Šuput (2022, p. 71) claim that "the goal of every company is to create good business relations with customers, which is only possible through communication channels. Companies that apply this concept of marketing business will also have benefits. By creating value for the consumers, companies in turn receive value through sales, i.e., they make profits and create long-term relationships with customers."

The process of product positioning on the market in relation to competing products has multiple significance. In modern marketing, it represents the basis for the development and evaluation of certain marketing strategies of the company. After the selected market segments, the company makes a decision about the position it wants to take in relation to those segments. The position of the product means how consumers will define the product from the point of view of certain criteria, and those criteria precisely make up the positioning strategy.

"In their business, companies are focused on different categories of interested parties and the influence of interest groups. Companies must first identify the public that has strategic importance for the company, and then build a relationship with it." ( ervida, Daši  & Radosavac 2020) The position that the new product will occupy in the minds of consumers in relation to competing products refers equally to the product or service in general or to certain types of brands of the same product. Bearing in mind that today's consumers are overwhelmed with various information about products and services that reach them through various communication channels, it becomes clear why the product positioning process is necessary and important.

When making a decision to buy a product, the consumer can evaluate each product. In order to make it easier to choose and make a purchase decision, the consumer can categorize products or services according to how they are positioned in his mind. "Each individual has unique needs and they are constantly changing. The perceived value is formed on the basis of all experiences that the consumer has during the life cycle of the product." (Mom ilo Milisavljevi , 2013, p. 305) When a company chooses a strategy, it must communicate it clearly and convincingly to consumers. It is not

enough to just create a positioning strategy; it is more important to apply it successfully in the market. It is precisely for this reason that it is important to have a serious approach to the positioning strategy, which must be adaptable to the ever-changing marketing environment. The positioning strategy should provide the greatest advantages on the chosen target market, and the planned position should be realized through the marketing mix. The assessment of product positioning is based on the perception and preferences of the consumer in relation to the competitors' products.

"Given the diversity of each market, product positioning will only be successful if it is linked to an adequate market segmentation strategy. Therefore, product positioning must be done by market segments, not for the entire market." (Mili , 2022, p. 135) Many authors and experts in this field have written about product positioning, pointing out the importance of this strategy from the aspect of the complete process when introducing a new product on an existing or a new market. The positioning of the product is taken care of during the entire product life cycle.

Before the final release for sale, it is necessary to do the final test of the new product. In this way, some important information will be obtained about the acceptance or possible obstacles to the acceptance of the new product in the market, as well as about the guidelines for additional marketing support. The process of testing a new product is carried out before the introduction of the product to the market, but also, periodically, during its life cycle.

The obtained results of market testing do not always have to be crucial for making a decision. Whether or not a product will be introduced into the production program, i.e., on the market, based on the test results; it sometimes requires re-testing, perhaps in another part of the market, before making a final decision on the new product.

Developing a marketing program for a new product includes the elaboration of detailed plans, measures and efforts to achieve certain goals and objectives of the company's market-oriented policy. "Accepting the marketing concept means that the company directs its total effort to consumer satisfaction as a way to achieve profitability." (Milisavljevi , 2013, p. 305)

It should be noted that creating a marketing program for a new product is quite a difficult and responsible job. It is a mix of marketing activities because it combines specific elements that are used to simultaneously achieve company goals and satisfy the needs and desires of target markets. New products are developed with the aim of achieving a competitive advantage, and for companies to improve their offer. That's why market research, evaluation, and analysis of the opinions and experiences of others about the wishes and needs of the market are carried out. "One of the oldest and simplest methods of forecasting the future movement of demand was based on the opinion of the Management, combined with the opinion and views of other experienced employees from the field of marketing, production and sales." (Kotler 2008, 329-330)

Hani  (2003, p. 107) claims that "the entire issue of launching a new product must be accompanied by a very comprehensive information system about consumers and the market in general so that adequate marketing actions can be taken." New product is an innovation, and that means a certain risk for the company, because a new product does not automatically mean business improvement, whereas in case of a failure, it is a loss for the entire company.

# THE PROCESS OF LAUNCHING A NEW "ALUMINA" COMPANY PRODUCT TO THE MARKET

The company "Alumina" is a respectable and well-positioned business entity in the field of alumina production and aluminosilicate chemistry. Its respectability is well expressed in the framework of the Western Balkans, but also increasingly in the European and world frameworks. "The essential commitment of the company is directed towards the application of continuous innovations, which is in line with the company's vision to better improve its competitive position in the future." (Mili , 2022, p. 4)

Rapid economic changes characterize the world market which makes the strengthening of the competitive position of "Alumina" company decisive in terms of future plans and long-term development of the company. The goal of analyzing the company's work is to get effective answers on how the competitive position of "Alumina" company can be improved in the field of development and innovation processes. In doing so, one should take into account the company's available resources, the external environment, as well as the interests of all other entities that in some way benefit from the company's operations. The company manages product development based on a defined procedure (Product development management procedure in the "Alumina" company, Zvornik, 2017).

*Receiving proposals of ideas and requirements* - The Development Director of the "Alumina" company collects or designates an expert who collects requests and ideas for the development of a new technical-technological solutions, or the improvement of an existing product from several sources: customer requests, ideas obtained throug market research, monitoring products with customers, employees' own knowledge or ideas.

*Analysis, processing and selection of ideas* - The Development Director, depending on the nature of the received ideas, appoints experts who systematize, analyze and select ideas. Then, the report on the collected ideas with analysis (in free form) is submitted for consideration by the expert team that is formed if needed. The expert team coordinates the requirements (ideas) and selects them, and then it delivers the selected material to the Development Director, on the basis of which he begins activities on the development of a new product or improvement of an existing one.

*Investment project proposal development* - The Development Director, in consultation with colleagues, defines investment project proposals, i.e., input elements needed to make a decision on justification for the selected requests (ideas). A defined and agreed proposal for an investment project is submitted for further consideration (to an authorized person). Based on the submitted proposals, the authorized person makes a decision on the justification (or unjustification) of product development in the case of a minor investment project, i.e., sends a request to the Development Director for a justification study to be prepared if it is a complex investment project.

*Feasibility studies and project selection* - The development director organizes the preparation of a justification study based on the input elements. Depending on the character, complexity of the input requirements and available personnel potential, the study is done in a company (factory) or a verified professional institution (institutes, faculties, etc.) is hired. Upon completion of the feasibility study, the expert team submits the study to the Development Director for approval, who then submits it to an authorized person. Based on the submitted documentation, the authorized person makes a decision on accepting or suspending product development. In the case of a capital investment project, the documentation is reviewed and a decision is made at the meeting of the Board of Directors of the "Alumina" company.

*Project manager and project team appointment* - In case of acceptance, the President of the Board of Directors of the company instructs the Development Director to propose the appointment of a Project Manager who will be in charge of the implementation of the entire project. If necessary,

a controller is also appointed to monitor the quality of the project. The project manager proposes members of the project team, whose appointment is made after verification by the Development Director.

*Project proposal development and verification* - The project manager prepares the project plan, which should contain the activity plan, data on the required personnel and resources, as well as the framework plan for the realization of each of the defined phases of the project. The review of the project is carried out by the Development Director or possibly an expert body that can be engaged if necessary (expert development council or development board). The purpose of the review is to verify the possibility of achieving the project's goals in relation to the planned price, deadlines and engagement of human and material resources. Upon completion of the project assignment, the Project Manager submits the given project assignment to the Development Director, who performs the analysis. After the analysis, the specified project task is either verified or possibly returned for further refinement.

*Laboratory and other testing of the set parameters* - Based on the project plan, the Project Manager organizes laboratory and other testing of the conditions for obtaining a new product (the effects of the introduction of new technical and technological improvements) and their impact on quality. When satisfactory results are obtained, which are reproducible with the same input parameters, they are then set as the basis for further steps in terms of reviewing the conceptual solution and transferring it to future process conditions.

*Conceptual solution development and its review* - The project manager, together with the project team, reviews the input elements for the technological project and gives a recommendation if needed to create a suitable conceptual solution. Upon completion, the recommendation is submitted to the Development Director, who makes a decision about the development of the conceptual design. Conceptual solution contains data on technical-technological and exploitation characteristics, preliminary budget, technical-technological and organizational elements, measures to prevent or reduce negative impacts on the environment, conceptual infrastructure solution, comparative analysis of variants of technical solutions as well as data on the amount of costs (transport, maintenance, energy, raw materials and the like).

The project manager defines the minimum quality requirements for the conceptual solution. These requirements are an integral part of the conceptual solution. The project manager reviews the conceptual design and the result is a report on the review later submitted to the Development Director for further review and verification.

*Realization, design phase* - Depending on the type of product being developed and the level of development activities, there may be one or more design phases. The project plan precisely defines all phases related to a specific project, and the implementation plan for each of them is defined by a dynamic implementation plan.

In these phases, the following are defined and finalized: technological, structural, construction and automation documentation. Drawings are made separately for each part, set or module. The material, surface quality and method of manufacturing each individual part are fully defined, as well as the method of assembling of sets, modules and complete products. Upon completion of the design phase, the designer in charge notifies the project participants by e-mail about the completion of the activity.

Through these stages, depending on the type of product, the following steps are taken: selection of the contractor, execution of the works, derived state project creation, technical inspection and obtaining a use permit.

Product review includes the analysis of all aspects of the product and process in order to create conditions for the final use of the project. Product review is carried out by the Development Director based on the project documentation, project plan and testing report. The product review record is made in free form. Depending on non-compliance, the procedure can be returned to one of the previous points. After product verification, the Development Director and the Production Director

perform the handover. Complete documentation, records and maintenance instructions are submitted to the Maintenance and Investments Director.

The efficiency evaluation of the development function and introduction of new products in the "Alumina" company can be analyzed through several stages:

⟩ Analyzing the way of working and functioning of the factory sectors in the "Alumina" company, it is evident that in previous years there has been significant progress in the direction of conquering new products and new markets. The previous production was mainly based on the metallurgical program of hydrates and aluminas, and on one type of zeolite.

⟩ The development of another type of zeolite "Zeolite 4A/MS" and its delivering into production, starting from the middle of 2013, marks a turning point in the production of aluminum hydroxide. By the end of the same year, the new product "Nonmetallurgical hydrate" was introduced.

⟩ By the end of 2014, trial and then industrial production of "White hydrates" began, with the initial market secured. At the same time, research and preparations for the production of two types of new, partially modified zeolites (Zeolite 3A /30% and Zeolite 3A/50) were being carried out. Their industrial production started during 2015, and the quality was fully acknowledged by the customers.

Based on the previous analysis, it is evident that in less than three years, "Alumina" company has introduced five new products into industrial production, with the qualities required by the market. The production plants necessary for the production of the above five products were built and put into operation by recomposing the existing and acquiring new equipment. Year after year, the company has been working on developing and building good business relations with customers. Such relationships have been acquired thanks to making good business decisions, primarily in terms of market diversification, so that in 2020, "Alumina" found itself in a position not to depend on any market area or product group.

*Table 1. Overview of new products development and launching dates (2016-2020)*

| YEAR / PRODUCT | 2016. | 2017. | 2018. | 2019. | 2020. |
|---|---|---|---|---|---|
| Zeolite 4A/MS | | | ■ | ■ | ■ |
| Non-metallurgical hydrate | | | | ■ | ■ |
| White hydrate | | | | | ■ |
| Zeolite 3A/30% | | | | | ■ |
| Zeolite 3A/50% | | | | | ■ |

*Source: Strategic plan of "Alumina" company, 2017*

By being determined to implement a clearly defined quality policy for existing and new products, "Alumina" company significantly strengthens its existing market position and creates preconditions for the future increase in the market share. In order to further stabilize the existing market, emphasis should be placed on the development of the existing products portfolios, and that way carry out greater diversification of the market and reduce the dependence of the sales volumes on one type of product or on one customer.

Keeping in mind the specifics of the global market in terms of further development in the area of new product introduction, it would be desirable to constantly work on innovating the production program, whether new or already existing, and to introduce at least one new product to the market per year. Also, it is necessary to analyze and research the economic justification of the development and introduction of new products to the market (cost-benefit analysis). With the aim of quality implementation of business processes in the area of introducing new products, it is necessary to strengthen the development sector in terms of personnel and the number and expertise of human resources.

One of the biggest challenges in the field of strategic planning of marketing activities is the development of a new product. This new product development activity is of a strategic nature because the implications of its development on the company's operations are long-term. When an organization carefully groups the market, selects its target consumers, identifies their needs and defines a market positioning strategy, it is in a better position to develop a new product. Marketing experts have a major role in the new product development process, which is reflected through research, identification and evaluation of new product ideas, with support and cooperation with other sectors. "The marketing concept also represents and enables the basis for development in today's market. Modern companies, apart from the additional services they provide to customers, have realized that it is not enough just to make it easier for customers to make a purchase decision and thus increase sales and profits, but they also have to establish solid, quality and close relationships with them." ( ervida et al., 2020, p.67)

All companies, including "Alumina" should keep in mind that products, no matter how successful they are, very often cannot maintain a high level of sales and profits and that sooner or later there will be a decline. Innovation can bring a company competitive advantage and profit, but the life cycle of the product should be also taken into account. New products appear on the market with better features, competitive prices or some other specific features attractive to consumers, and that is why it is important to constantly monitor and track the market. "Modern marketing is expected to provide the necessary information in the process of continuous communication with real and potential consumers, influence the creation of a favorable image and reputation of products and companies, and encourage consumers to take action (purchase)." ( oki  & Jovanovi , 2021, p. 175)

In all of this, we must not forget the component of a socially responsible company whose role is not negligible when it comes to competitiveness. "Society is becoming increasingly aware of the ecological aspects of life and existence, which are largely incorporated into laws and regulations, and companies must monitor and harmonize all of this if they want to keep up with the changes." ( ervida et al., 2017, p. 212)  On the other hand, it is necessary to follow standards and procedures that are not only legally defined, but are imposed on the company on a voluntary basis as a need for responsible business, whose ultimate goal is a positive long-term effect for the company and the environment.

The "Alumina" company has recognized the potential dangers for the environment, which may be caused by its production and business activities, and therefore finds it is necessary to look for solutions that are important for the environment protection. "New, modern approaches to the business environment impose new business standards and expect companies to take a higher degree of responsibility for the social community in which they operate." ( ervida i dr., 2020, str. 174)

# *CONCLUSION*

New products are important for the "Alumina" company, because they reflect on the growth of sales and profits of any company. The development of new products, without prior thorough market research, could have infathomable negative consequences for the profitability and profit potential of the company. In order to effectively research the market, it is necessary to hire experienced experts who have significant experience in monitoring market trends. Proactive action in terms of predicting future market requirements is particularly important in order to initiate on time the development and innovation processes that would lead to an improvement in the company's competitive position.

Starting from the current state, assessment and analysis of the strategic plan of the "Alumina" company, a number of key determinants can be pointed out that can have a decisive influence on the success of the company in the process of developing new products and, in connection with that, the improvement of the company's competitive position.

The development of new, innovative products should raise "Alumina" to a much higher level compared to the competition, which would directly affect the significant perspective of the future development of the company itself as well as the entire national economy. In the future, this should almost certainly mean higher company income, higher profits, as well as an increase in the number of employees and a number of other positive indirect effects on the social community, as well as on the state itself.

By efficient use of energy, "Alumina" company will have an economic benefit, and the harmful impact on the environment that leads to negative ecological changes will be reduced. It is necessary to adhere to the standard (ISO 50001) which urges the company in all sectors of activity to use energy more efficiently by means of an energy management system.

The strength of "Alumina" company is reflected in the potential of its employees. The importance and role of human resources is crucial in the planning and implementation of business processes, and it is necessary to improve these resources, which is a precondition for realization of the set overall goals. Great importance is attached to the sector that will deal with training of employees. The importance is reflected in the introduction of positions with specific knowledge for career development and management, as well as performance monitoring and evaluation. The strength and potential of the employees represent the intellectual capital of "Alumina" company.

Acquiring completely new innovative products, which would significantly strengthen the competitive position of the company in the European and global frameworks, implies large financial investments, but also the employment of new engineering personnel who are able to contribute crucially to the more respectable development of the "Alumina" company.

As part of formulating a production and business strategy, it is necessary to analyze the internal and external environment in order to develop the production strategy based on the perceived advantages, but also to be able to overcome existing weaknesses in the organization. The strategic plan of "Alumina" company provides a basis for defining the path the company should take in order to significantly strengthen its competitive position on the regional, European and world markets. It is of crucial importance to clearly communicate that strategy to all interest groups, internal and external, with precisely and clearly defined marketing activities of the company.

Without continuous improvement of the competitive position, the company "Alumina" cannot count on achieving its long-term, strategic goals. On the other hand, the strengthening of the company's competitive position and significant market share is directly related to the company's ability to effectively develop and implement innovative processes through the introduction of new products into the production program.

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# INVESTMENTS IN MARKETING COMMUNICATION AND THE EVALUATION OF THEIR FINANCIAL RETURN

*Carmine D'Arconte[44]*

## ABSTRACT

*The focus of this paper is on companies' marketing communication investments and on the fundamental importance to evaluate their financial return.*

*For this purpose, apart from a desktop research on the contributions from literature, a research based on questionnaires was carried out on a sample of entrepreneurs in order to ascertain their understanding of the topic and the approach they normally have in this regard.*

*The results show a rather critical situation because entrepreneurs do not seem to understand some important aspects of communication and they also adopt debatable criteria when they make their choices, rather often in line with inaccurate and sometimes even incorrect indications that may be found in the literature.*

*Considering the undeniable difficulties of a reliable evaluation of the financial return of investments in marketing communication, the serious consequence of all this is that this fundamental aspect is substantially neglected.*

*We then propose our suggestions on how to tackle this critical item both in the short and in the long run and finally we draw our conclusions focusing also on possible future outlooks.*

***Keyword**s: marketing communication. entrepreneurs' approach to communication. financial return of marketing investments*

***JEL Classification**: M37*

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# *INTRODUCTION*

Marketing communication is definitely something fundamental for companies but, nevertheless, it is just a part of a much larger process, namely the whole company's communication, normally indicated with the term Corporate Communication.

In fact, every company, especially in a highly competitive environment, must be constantly looking for institutional, economic and social consensus and legitimacy, because its activity is based on an on-going exchange with many social players in the context of relationships built up and managed through communication. In this regard, it is useful to divide these players into two main categories, that is the primary and the secondary ones (Pastore, 2008, page 7) as follows:

- Primary stakeholders:  the property, investors, customers, suppliers, employees, and competitors.

- Secondary stakeholders: the government and the institutions, the pressure groups or lobbies, the local communities, the public in general.

To be noted that the distinction between primary and secondary is only indicative and should not be considered neither clear nor rigid; as a general rule being in the first or in the second group is not a matter of importance and the reason stays with the proximity of every stakeholder to the core business of the company. The government, for instance, is considered a secondary stakeholder not for its importance but only because it is not directly related to the company's business.

Considering the different stakeholders we have indicated, we agree with Invernizzi (2001, page XIII) who posits that within Corporate Communication we can distinguish three different areas to which correspond three different kinds of communication, namely internal communication, public relations and marketing communication, as summarized in Table 1.

*Table 1. An outline of corporate communication and its different components.*

|  |  | Corporate Communication |  |
|---|---|---|---|
|  | Internal communication | Public relations | Marketing communication |
| Target | Personnel and collaborators | Public opinion | Present and potential customers |
| Goals | Increase motivation and cooperation | Promote the organization image and create goodwill | Support the sales. Establish and maintain lasting relationships with customers |

*Source: Invernizzi E., 2000. La comunicazione organizzativa, modelli e metodi. Milano. Giuffrè*
*The three above mentioned areas must be permanently harmonized with one another in order that the company's image may be perceived in a coherent way by all stakeholders. Last but not least, all of them have to be in line with the companies' strategic approach to the market.*

Within Marketing Communication, we have different elements or tools, namely advertising, direct marketing, internet marketing, sales promotion, personal selling and others (sales points, packaging, unconventional communication such as viral marketing, street marketing and so on). The common denominator of all of them, is the direct impact that they have on present and potential customers and, in this regard, we can identify and list the general communication goals as follows:

⎰ Acquire data about potential customers, competitors and market;
⎰ Create awareness;

⌡ Create a positive image of a product or service;

⌡ Push the target audience to trial;

⌡ Support the sales process, and make possible the sales of products or services over time;

⌡ Move upwards the demand function (Grandinetti, 2008, page 295);

⌡ Make the demand function more rigid to price increase and more elastic in case of reduction (Grandinetti, 2008, page 295);

⌡ Last, but not at all least, be an effective tool to ensure a positive financial results for companies.

Substantially communication - and especially business communication - always has definite and clear objectives and should never be made for its own sake; the main goal is convincing and persuading in order to sell something, namely the company's image, the product awareness, and finally the product itself. In fact, being able to produce products or offer services is not enough and, especially in a highly competitive environment which implies the existence of several alternatives for the consumer, companies must be able to communicate their products in the best way, in order to have an adequate amount of sales and therefore a financial return of the money they invest. Therefore, though having in mind that all aspects of corporate communication are important, we have to conclude that the primary goal is to support the sales process.

Having made these important clarifications, we will now analyze the most important criteria to implement a successful marketing communication.

## FUNDAMENTAL CRITERIA FOR A SUCCESSFUL IMPLEMENTATION OF MARKETING COMMUNICATION

The first main critical point is to understand how business communication is strictly related - or to put it better - heavily conditioned by interpersonal communication; in fact, it is too often forgotten how communication, inside and outside companies, is always among people who interact with each other; in business, we have representatives who act on companies' behalf but who, nevertheless, still are people. To master corporate communication, it's therefore fundamental to understand interpersonal communication and its basic principles.

In this regard, communication is not a simple transmission of information from a sender to a recipient but a two-way process where the recipient receives the message and sends feedback to the sender thus starting a continual circular exchange; real communication is always two-way and always involves this type of interaction.

Substantially, in case of business, companies and customers *build* the communication process together, and what is important for the final effect, is not the message which is sent but *how* it is received and perceived and what conclusions are *inferred* by present and potential customers (D'Arconte, 2016).

The logical consequence of all this is that, if we want to sell something to someone, the first step is to *listen,* to understand their needs, to analyze the context and the situation and only after all this, start speaking and acting, trying to understand continuously what our interlocutor is *inferring* and adapting our answers, as well as our communication style, according to the feedback we receive. Substantially, nowadays nothing may be more wrong than the aggressive way of sales, very much widespread until approximately the 60's, based on the idea that to positively impress customers, salesmen should speak fast and continuously, showing assertiveness and self-confidence.

This is definitely the first step but there are for sure other things to be done; in fact, companies should start *listening* to their targets *even before* promoting their products or services, investing in preliminary research in order to identify and define customers' needs and then develop tailored

products or services in line with those needs (Nikitovich, 2016). In fact, if the product or service does not satisfy customers' needs, companies may make the best communication campaigns but they won't be successful.

Apart from this, when promoting the product or service, companies should take care that all marketing activities are perfectly in line with the other elements of the marketing mix and with the relevant company's strategic approach, in order to avoid a dangerous anti-climax. It will also be essential that these marketing activities are appropriate and well-aimed at the target audience; this will regard the whole of the communication process, starting with the message, the communication channel, the activities planning and so on. As we can see in Figure 1, all aspects should be considered and harmonized in the appropriate way in an integrated whole.
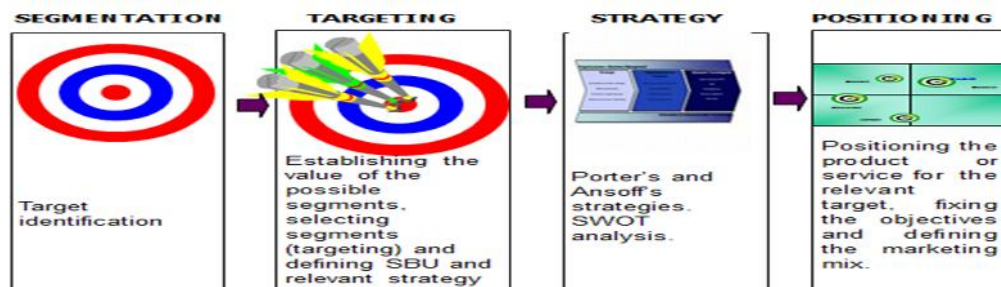


*Figure 1. Flowchart of the key and strictly interrelated steps of the Strategic Process. Adapted from Peter (2017, page 133).*

Unfortunately, it's not rare to see communication campaigns of high quality from a technical point of view - in terms of how enjoyable they are, the scenarios, the creativity, the skill of the actors and so on – that nevertheless have a serious defect, namely they are *self-referential*, meaning by this that they are conceived and implemented according to the suggestions of the company's top management and experts in communication, rather than being really aimed at the target audience, and, in such a case, communication will not generate appreciable benefits.

We have to say that, together with these professionals though self-referential campaigns, we also find a plethora of terrible, often incomprehensible marketing activities that are totally lacking in appeal, tiresomely repetitive and that, in our opinion, despite the large sums of money invested, only cause irritation if not even dissuading potential customers from buying the advertised goods.

Once again companies involved in marketing communication should take care to *listen* to the target feed-backs and repeat over time the message in an appropriate way, in order to create and increase interest toward the product and push potential customers to a *trial*.

From all that has been said we can draw a few first important conclusions:

*First conclusion*: While customers are fundamental, all stakeholders are important and therefore marketing communication must be in line with other kinds of company's communication, namely public relation and internal communication, in order to propose a coherent image among all stakeholders, outside and inside the company;

*Second conclusion*: Aggressive communication aimed at selling what we have rather than what our target needs, should be strictly banned; on the contrary, companies should listen carefully to their customers and interact with them in a cooperative way, offering real solutions to their needs;

*Third conclusion:* Marketing communication is indispensable and may be extremely useful but it must be done in the correct way, in line with the other elements of the marketing mix and the company's strategic approach and well-aimed to a specific target. Otherwise, it may become nothing more than a mere cost and, in some cases, even cause a negative boomerang in terms of image.

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Another important aspect is that communication cannot only be a matter of *talking* but – much more than that – of *practical behaviour* and, in this regard, we would like to focus on two different important aspects.

The first concerns the *promises* made in advertisements; in this situation, while it is understandable that companies tend to overrate the benefits of their products and services, it is important not to exaggerate. In fact, customers, faced with a need/wish, assess the offers made by various companies and their various *promises* to satisfy it, then, on the basis of these promises, they make their choice, which substantially becomes *an act of faith* with precise expectations.

In this regard, R. Normann (1990) coined the expression *moments of truth* which perfectly describes a highly critical point, when a customer who has put his trust in a company finds out whether the promises were true or not. His perception may go from enthusiastic satisfaction to total dissatisfaction with all the various levels in between but the critical point is that if he is satisfied, he will feel gratified by his choice, while if dissatisfied he may feel frustration as though he had been *tricked* (Confirmation, disconfirmation paradigm). These moments of truth will have a serious impact on future sales as satisfied customers will tend to buy again the company's products while dissatisfied ones will most likely try to find as soon as possible alternatives with company's competitors.

The second important aspect is the importance of *safeguarding the relationship* both by making available efficient communication channels for customers and, better still, by proactively contacting new customers to ask for their opinion, listen to any problems or inconveniences they might have, so to promptly offer real solutions.

In line with this, we can draw another important conclusion:

*Fourth conclusion*: companies must be fair with their customers when they advertise their products and services and avoid making excessive promises, demonstrating in practice – and not only with words – to be reliable, trustworthy and ready to support their customers at all times.

After this, there are also two important practical issues strictly related to how to implement marketing communication, namely what kind of specific activities to choose and how to determine the budget for marketing activities.

In this regard, we have to say that we do not have good contributions from experts, as in some texts it is indicated how companies normally:

⎰ Invest as competitors do;
⎰ Invest the available money;
⎰ Invest a percentage of sales;
⎰ Invest a fixed amount of money for every expected sale.

While we agree with the authors that this may be generally how many companies behave, the observation of such behaviours should never become an implicit recommendation to imitate them.

In fact, first of all, while it's correct and useful to observe and monitor carefully what competitors do, every marketing activity - as already stated - should be implemented according to the particular, quite often unique situation of every company, in terms of image, specific target, strategic approach and the other elements of the marketing mix.

Secondly, as for the budget, it would be absolutely unreasonable to invest as competitors do, or on the basis of the available money or of a percentage of sales; investments in advertising, according to Kotler (1997, page 622), must be done on the basis of the *objective and task method*; in this regard the author states how "this method calls upon marketers to develop their promotion budget, by defining their specific objectives, determining the tasks that must be performed to achieve these objectives, and estimating the costs of performing these tasks. The sum of these costs is the proposed promotion budget".

In 1961 Cooley (Belch, page 203) prepared a report for the Association of National Advertisers titled "Defining Advertising Goals for measured Advertising Results (DAGMAR)" and the major thesis of this model is that communication effects are the logical basis for advertising goals and objectives against which success or failure should be measured. As for the goals, the author also adds that we should start with awareness, then comprehension, then conviction and finally action, namely getting the consumer to buy the product; to be noted that while awareness, comprehension and conviction are fundamental pre-requisites to push customers to buy, we have revenues only from sales and therefore the success or failure of marketing activity should be measured on the basis of the sales that it generates.

Finally, companies should avoid relying completely on advertising agencies or on people who declare – sometimes without real foundation - to be experts in communication. In fact, first of all, nobody knows the company's situation in terms of strategy, target, products and so on, better than the company itself so that it wouldn't make sense to call an agency and tell them to take care of everything. On the contrary, companies should work in continuous strict contact with their agencies, capitalizing on their specific professional experience but also strictly monitoring and orienting their work.

In this regard, it's very useful to consider what is defined *sales response models*, as in Figures 2, 3 and 4. As Belch (2006, page 212) reports, almost all advertisers subscribe to one of the two models of the advertising sales response function: the concave-downward function (Figure 2) or the S-shaped response curve (Figure 3).
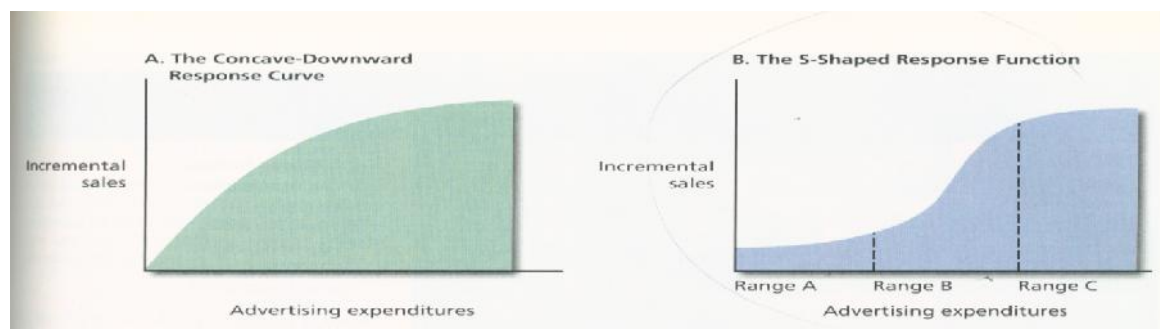


*Figure 2 The concave-downward response function*     *Figure 3. The S-shaped response function*

Both models suggest that there is a limit for sales response whatever the investment might be; to put it in clearer words investing *more* does not necessarily mean having *better* results.

The second model – which at the beginning indicate minor but maybe more realistic effects on sales - suggests very clearly how a small advertising budget is likely to have little impact on sales as we have to pass the first limit of range B to see some important results.

Even more impressive is Fiocca (2005, page 265) who, as indicated in Figure 4, depicts a worse scenario because, until A, *no effect on sales is noticeable* and only after this critical point we have results that immediately after seem to grow rapidly; on the other hand, the model confirms that once reached the peak in B, extra investments will produce lower and lower results tending quickly to zero, while costs continue to grow.
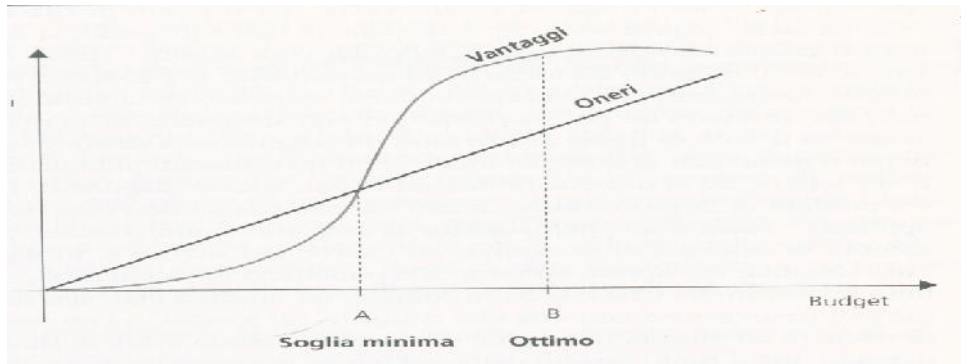
*Figure 4. Minimum and maximum communication effect on sales.*

The main problem with these models is that they are of limited use to practitioners for direct application; nevertheless, they provide managers some insight into a theoretical basis of how the budgeting process should work and let us understand something fundamental, namely how wrong it may be to spend too little and especially too much in advertising, and how companies should strive to individuate the optimum budget outlay.

In this regard, a professional and experienced advertising agency should be able to advise customers in order to obtain the best results in the two following aspects, establishing also precise objectives:

⌡ Define the optimum specific marketing activity in every case;
⌡ Define the amount of budget to invest in order to have the best results in terms of financial results

Unfortunately, advertising agencies do not seem to be very helpful in this regard; in fact, going back to the Dagmar model and as, always Belch (2006, page 207) reports, in 1969 Stewart H. Britt published a study – with the emblematic title "Are So-Called Successful Campaigns Really Successful?" – showing that "most advertising agencies did not state appropriate objectives for determining success and thus could not demonstrate whether a supposedly successful campaign was really a success. Even though these campaigns may have been doing something right, they generally did not know what it was."

One main critical point is that generally advertising agencies are excessively focused on the creativity of their campaigns; the higher the creativity, the better is for them; on the contrary, they do not seem all that interested in the effects on sales and - even though expressly requested - they tend to gloss over the issue of financial return of investments, also in order to avoid all responsibility.

They may even get annoyed by attempts to modify what they propose, lest their creativity may be spoilt; in fact, as Belch reports (2006, page 207), one main criticism addressed by advertisers to the DAGMAR model is the inhibition of creativity with its focus on a quantitative assessment of a campaign's impact.

This is an absolutely absurd paradox because companies are not supposed to spend huge amounts of money just to allow agencies to show their creativity but, on the contrary, to have positive results.

Finally, we believe to be absolutely normal that the higher the budget the better it will be for advertising agencies and, if we accept the idea that normally they are not all that interested in the return of campaigns, there is the risk that – though in all honesty – they may push companies to invest in unnecessarily expensive marketing activities.

We can then draw two other main conclusions:

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*Fifth conclusion:* in advertising, companies should carefully monitor what competitors do but never ever slavishly imitate them; on the contrary, they should try to individuate the marketing activity that provides the best financial result for their particular rather often unique situation.

*Sixth conclusion:* no diktat from agencies should be accepted and complaints about creativity inhibition should not be considered a primary issue: in all cases agencies must be followed with extreme care, letting them understand in depth the company's situation and needs, co-creating with them the best marketing initiative. Companies should also firmly require that agencies carefully focus on the issue of the return of the invested capital in advertising.

# RESEARCH ON ENTREPRENEURS' APPROACH TO COMMUNICATION

To verify the soundness of our six conclusions, we prepared a questionnaire with six statements, assigning 1 point in case of the right answer; we then carried out research on 93 entrepreneurs, in Italy and in Bulgaria; consequently, the maximum possible score could have been 93 per single questionnaire and 558 (6x93) for all questionnaires.

The results of the research are shown in Table 2, where To better evaluate the results of the research, we ranked by increasing order the total score for each statement, in order to evaluate the different "impact" of the 6 factors in determining the success of communication.

*Table 2. The results of the research per decreasing score.*

| | | Actual score | Missing Score in absolute value | Missing score in % |
|---|---|---|---|---|
| 1 | Budget to be chosen by experts | 48.8 | 44.20 | 47.53% |
| 2 | Use media as competitors do | 57.8 | 35.20 | 37.85% |
| 3 | Aggressive communication | 66.4 | 26.60 | 28.60% |
| 4 | Promotional activities are only costs | 75.6 | 17.40 | 18.71% |
| 5 | Attention to all stakeholders | 80 | 13.00 | 13.98% |
| 6 | Promises in advertising | 81 | 12.00 | 12.90% |
| | | 409.6 | 148.40 | 26.59% |

As we can see in Figure 5, we can identify three classes according to a increasing value of right answers:

⌡ The worst class, with only 52-62% of right answers, regards the practical behavior about how to implement communication activities, with a high trend to "*trust advertising experts*" and to "*imitate competitors*";

⌡ The average class, with a score of 71-81%, regards "*aggressive communication*" and "*promotional activities are only a cost*";

⌡ The best class, with a percentage of right answers of approximately 86%, is related to "*attention to stakeholders*" and "*promises in advertising*".
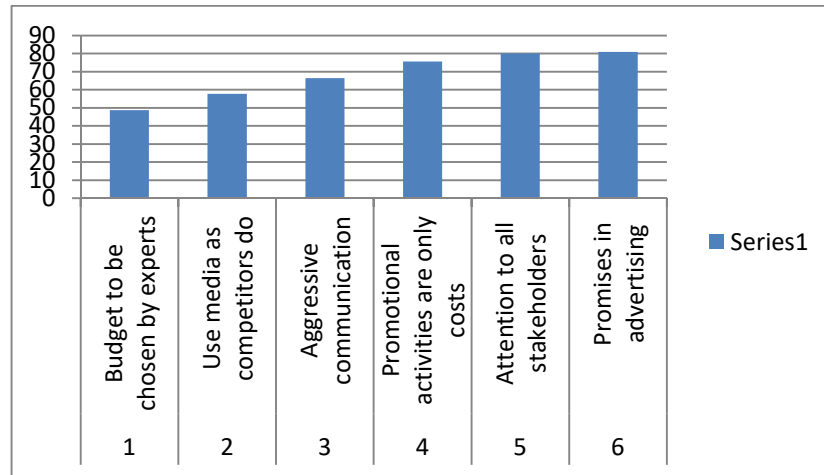
*Figure 5. Score per statement ranked by increasing order*

Beyond this, the questionnaire may also be roughly divided into two parts both regarding entrepreneurs' approach towards communication but with the first part mainly related to general and theoretical aspects while the second concerns more practical ones when carrying out marketing communication activities.

In the first part we have:

) Attention to all stakeholders. Conclusion 1
) Aggressive communication. Conclusion 2
) Promises in advertising. Conclusion 4

In the second:

) Promotional activities are only costs. Conclusion 3
) Media as competitors. Conclusion 5
) Budget as experts suggest. Conclusion 6

We, therefore, compared the results of the first part of the questionnaire with the second one as indicated in Table 3 where we can see that entrepreneurs perform rather worse in the second part.

*Table 3. The results of the research divided by the two parts of the questionnaire.*

| **First part** | Actual score | Missing Score in absolute value | Missing score in % |
|---|---|---|---|
| Aggressive communication | 66.4 | 26.60 | 28.60% |
| Attention to all stakeholders | 80 | 13.00 | 13.98% |
| Promises in advertising | 81 | 12.00 | 12.90% |
| | **227.4** | **51.60** | **18.49%** |
| **Second part** | | | |
| Budget to be chosen by experts | 48.8 | 44.20 | 47.53% |
| Use media as competitors do | 57.8 | 35.20 | 37.85% |
| Promotional activities are only costs | 75.6 | 17.40 | 18.71% |
| | **182.2** | **96.8** | **34.70%** |

Substantially, we were able to measure the level of competencies of a sample of entrepreneurs and we can say that they show a low level of competencies in regard to Communication and in particular in relation to the main topic of choosing the media and defining the overall budget.

We are aware that our research is only an explorative one as it was carried out on a non-probabilistic and also very limited sample, so that further research should be done to confirm the results we found.


# A QUANTITATIVE APPROACH TO EVALUATE THE IMPACT OF MARKETING COMMUNICATION ON COMPANIES FINANCIAL RESULTS.


We highlighted how for-profit companies when investing in marketing communication should focus carefully on *sales increase* and in our paper, this will be referred to with the expression *redemption (R),* meaning therefore the number of orders generated by the marketing activities.

In Direct Marketing (Bob Stone, 1996, page 616), the redemption corresponds to the *answers* - in absolute value or in percentage - generated by an investment in communication. The answers may be of different kinds, such as customers' statements about a topic, appointments for the sales force, number of orders – as in our case - or others.

In this regard, we have to say that measuring the redemption of advertisement, it's not at all an easy task as Belch (2006, page 191) points out, comparing this effort to the search for the Holy Grail; other authors (Collesei, 2009, page 78) categorically states that in practice this is impossible because "it supposes the precise knowledge of the sales response to communication and, beyond this, that the effects of communication can be distinguished from the other variables of the marketing mix".

Another important complication is – as Belch (2006, page 197) highlights - the so-called *carryover effect*, namely that advertising does not necessarily have an immediate impact on sales as its effects often occur over an extended period, which further complicates the scenario.

Apart from this, the effect on sales will not only depend on the quality of the marketing communication but also on the specific product being advertised (and in particular whether it matches the market demand), the income of the target, the general socioeconomic situation and so on.

Despite the evident and realistic difficulties, an attempt to make a reasonable evaluation of the redemption in advertising is *unavoidable* and, for this purpose, we believe it's the case to examine the following enlightening example of a company that sells 800 products for €1000, with a variable cost of €700, fixed costs of €200,000 and a gross operating profit of €40,000.

To increase the sales the company must choose among 3 direct marketing investments, A, B and C with different costs (€34,000, €27,000 and €25,000) and different redemption regarding the increase of present sales, namely 14%, 13% and 9% respectively. Which is the most profitable investment and why?

We can see that from A to C decrease both the costs of the three investments and the relevant redemptions and therefore it's necessary to make some detailed calculations in terms of the gross profit (Or) and profitability (Roi) as shown in Table 4.

*Table 4. The key role of redemption for evaluating investments.*

| | A | | B | | C |
|---|---|---|---|---|---|
| Order increase | 112 | | 104 | | 72 |
| Total orders | 912 | | 904 | | 872 |
| Total Revenues | 912000 | | 904000 | | 872000 |
| Fixed costs | 200000 | | 200000 | | 200000 |
| Advertising cost | 34000 | | 27000 | | 25000 |
| Total variable costs | 638400 | | 632800 | | 610400 |
| Total costs | 872400 | | 859800 | | 835400 |
| Gross profit | 39600 | | *44200* | | 36600 |
| Roi | 4.54% | | 5.14% | | 4.38% |

As we can see, the only viable investment is B as it brings in some more profit than before, namely an extra €4,200; the other two investments - apart from increasing the market share - only makes the financial situation worse and, on top of this, there is the necessity to invest more capital for the production of extra products (112 more pieces for A, and 72 for C with an extra cost of €78,400 and €50,400 respectively).

Actually, a more in-depth analysis shows that even B is not an excellent investment, because, though there is an increase in the gross profit, the ROI before the investment was 5,26% (40,000/760,000) and now it decreases - albeit slightly - to 5.14%, which indicates a less profitable use of capital.

The example demonstrates without any reasonable doubt how is not possible to overlook the fundamental aspect of redemption in investments because, without considering it, they are made blindly with the serious risk of mistakes and therefore financial damages.

In fact, we can imagine the emblematic and paradoxical situation of a marketing director who chooses investment C - which in all cases entails a sales increase - and could therefore even be praised by his company while, in reality, there is no doubt that he would have caused only a damage, investing €25,000 more, resulting in the loss of €3,400 (€40,000 - €36,600) and, evidently, nobody would ever know.

A different scenario is the case of *one marketing activity* and the effect that this may produce *on two different products*. In this situation, if out of simplicity we imagine having the same redemption in terms of orders, the final result in companies' financial results will also depend on the *contribution margin (Cm)* of the two products, namely the difference between the price and the variable cost. In fact, if we think of two products one (A) with a Cm of €500 and the second (B) with only €250, it's evident that – with the same redemption of 1000 orders in both cases - A will bring in a double benefit than B.

In a more realistic way, we must expect that in the case of two different products the same investment in marketing communication will not have the same effect as far as the redemption is concerned and this will evidently have an impact on profitability.

Substantially, as we have to consider the effect on profit rather than only on sales, the final result will change from one product to another because of the specific redemption of the investment and of the contribution margin of every product; evidently, this will further complicate the scenario.

Having clear the importance of redemption when making investments in advertising, we would like to mention a couple of remarkable attempts that have been made in order to calculate the sales variation generated by advertising.

Firstly, we will refer the Vidale and Wolf model (Lambin 2004, page 459) that may be summarized with the following formula:

$$\frac{dQ}{dt} = \beta \times Pub \times \frac{Q_{max} - Q}{Q_{max}} - \left(1 - \lambda\right) \times \left(Q\right)$$

Where:

⎰ dQ/dt = sales increase at the t time;
⎰ = marginal revenue per every Euro spent in advertising;
⎰ Pub = advertising expense;
⎰ Q = sales;
⎰ Qmax = sales saturation level;
⎰ = remaining sales rate;

Secondly, we will mention the ADBUDG model developed by Little (1970), as always reported by Lambin 2004, page 459, which may be expressed by the following formula:

$$Qdm(t) = Qdm_{min} + \left[Qdm_{max} - Qdm_{min}\right] \times \frac{Pub^{\gamma}}{k + Pub^{\gamma}}$$

Where

⎰ Qdm(t) = initial market share;
⎰ Qdmmin = minimal market share without advertisement;
⎰ Qdmmax = maximum market share in case of an intense advertisement;
⎰ Pub = advertising expense;
⎰ = sensibility coefficient of the response function;
⎰ k = constant.

As Lambin (2004, page 459) points out, these models and the relevant formulas have many limitations as they do not consider many important aspects, first of all, the price and the other elements of the marketing mix and, beyond this, it would not be easy to provide reliable values for many of the elements of the formulas. The real problem is that the phenomenon that these formulas try to describe is a very complex one, dependent on a huge amount of different variables and, therefore, they should be used with extreme care and the results should be completed with the contribution of other methods. In all cases, if we exclude large companies with expert analysts, long experience and particularly advanced data processing tools, they may be of little help for the majority of entrepreneurs.

This serious objective difficulty generally prompts entrepreneurs to neglect this fundamental aspect and to adopt for their marketing investments some rather debatable – not to say wrong – methods, such as a percentage of the sales, the available money and so on.

Their behavior is nevertheless fully understandable if we consider that an author (Fiocca, 2005, page 266) states "We must not make the mistake of measuring the effects (of advertising) on sales and therefore relate the investment to an expected result of turnover". Nevertheless, the same author, immediately after (page 267), highlights something different, namely that "another method should be to focus on *the return of the invested capital* and that this would be the most correct way" but - as he adds - in practice this is impossible and therefore the method cannot be used.

What to do in order to get out of this predicament? We firmly believe that *the return of the invested capital* is not only the best method but the only correct one, perfectly in line with the spirit of for-profit companies. What do companies obtain from investing their money in the advertisement? We really believe that the question is unavoidable.

The difficulty of the problem as well as the fundamental importance of focusing on redemption has suggested us to adopt a different approach to this complicated topic; in fact, we do not have a magic formula to predict the amount of sales but we propose a precise mathematical approach that will allow us to calculate for every marketing activity the necessary redemption to achieve some previously established goals. Substantially when deciding on marketing investments, we propose the following:

- The starting point will be to set a goal in terms of gross profit *Or (operative results)* for the marketing investment *I,* related to a particular product with a contribution margin *Cm*;
- On the basis of *Or*, *I* and *Cm*, will be calculated the redemption *R,* in terms of extra orders, that will be necessary to achieve the same goal;
- The theoretical redemption will be analyzed in line with the companies' practical experience and market standards;
- The investment will be carried out only in case the redemption appears realistic, otherwise, other kinds of investments will have to be considered;
- During the implementation, the effective redemption will be monitored systematically, according to the most suitable measuring methods;
- The systematic analysis of the results, comparing costs and financial benefits, will consolidate over time companies' experience in evaluating future marketing activities.

We believe that this approach is much better than the one which, in the face of the high difficulty of evaluating the redemption, ultimately ends up not offering any reference for an *ex ante* evaluation of the investment, with the result that often companies invest in advertising on the basis of criteria that are not logical at all.

We will now explain how to do this in practice and to simplify the scenario we will divide the study into two parts; we will first consider the particular case of investments that provide redemption in terms of orders *only once*, which we will define as a *short-term approach*; this will allow us to define some strictly quantitative basic models and formulas.

After this, we will extend the analysis to the *long-term period*

Advertisements evaluation in the short run.

First of all, we must make another distinction between:
a) investments with only a fixed amount
b) investments with fixed and variable amounts

a) Investments with only a fixed amount.

It's the case of one advertising campaign for which it is established a fixed amount of money *I*; the preliminary indispensable condition is that the gross profit generated by the investment *I*, to be indicated with *Or (operative result),* exceeds its cost, namely, it must be *Or>I*. Nevertheless, the final result in terms of profit will depend also on *Cm,* the contribution margin of the product being advertised, the higher this one, the better the result will be.

To be noted that the situation we are analyzing with redemption of orders only once, is rare but it happens in case the peculiarity of the business does not allow or makes it difficult for the customer to repeat the purchase over time. This may be the case of a promotional action carried out in a tourist village for customers to make purchases during their stay for one, two weeks at most; in this case,

the return on investment can only be the orders generated during the period of stay, then the tourists will leave and there will be no more orders.

Going now to our method, let's start remembering the break-even formula that allows us to calculate the quantity necessary to have the break-even point, when revenues equal costs, as follows:

$$Q_{be} = \frac{Fc}{\left(P - Vc\right)}$$

*Fc* stays for fixed costs, *P* for price and *Vc* for variable costs; this basic formula may be adapted for our purposes (D'Arconte, 2020, pages 55-60) as follows:

$$Q_i = \frac{\left(Fc + I\right)}{\left(P - Vc\right)} \qquad\qquad Q_{or} = \frac{\left(Fc + I + Or\right)}{\left(P - Vc\right)}$$

In the first one we have added the cost of the investment *I* in the numerator*,* so that we can calculate the sales necessary to have the break-even recovering the cost of the investment; in the second formula, we also added the gross profit *Or* (Operative result) and in this way we can calculate the sales which are necessary not only to compensate all costs, including the investment in advertising but also to have exactly this gross profit.

As an example let's consider the case of a company that launches a new product – therefore with no order in its portfolio - and that decides to make an investment in advertising  *I*, with a fixed cost of €15,000 and an expected redemption of 1500 orders. If the company has general fixed costs (Fc) for 75,000, a price (P) of €100 and a variable cost (Vc) of €70, is the investment profitable?

Making the calculations we should need at least 3000 orders [(75,000+15,000)/30)] just to have the break-even, and therefore the investment would not be profitable at all; conversely – just to remark the different impact of the same marketing activity in case of different products – were we analyzing another product with a contribution margin (Cm) of €60 instead of €30, with only 1500 orders we would have the break-even.

Another case may be a company with fixed costs (Fc) for €270,000, price (P) €100, variable cost (Vc) €70 and a gross profit (Or) of €30,000; in case the company makes a promotional investment costing €90,000 with an increase in sales of 15%, is the investment profitable?

To check, we first calculate the present volume of orders, namely 10,000 (300,000/30) and from this, it follows that thanks to the promotional action we will have 1500 more orders (+15%) with an extra contribution margin of €45,000 (1500 x 30) which is lower than the cost of the investment. Therefore, from a short-term financial perspective, the promotional action is not to be carried out as the company, from an initial profit of €30,000, would invest €90,000 more, to end up with a deficit of €15,000.

This approach may be a helpful guide when deciding to make marketing investments. In fact these should be made only in case the necessary redemption to achieve certain goals, may be considered realistic and possible to be obtained according to previous experience and reasonable marketing analysis. A wider approach to the topic may be to consider different scenarios in terms of possible redemption, an *optimistic* and a *pessimistic* one, and then work on something in-between.

We can summarize what we have seen until now in a simple formula which allows us to calculate the *increase of sales   Q* which is necessary to recover the cost of a fixed investment *I* and also to have an *increase of the gross profit,   Or:*

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$$\Delta Q = \frac{\Delta Or + I}{Cm}$$

In fact, in the case of a company selling $Q_1$ (3000) products with fixed costs Fc = €60,000, contribution margin (Cm) = €30, the financial result will be calculated as follows: $Or_1$ = CmxQ$_1$ - Fc, namely (3.000 x 30) – 60.000 = 30,000; with an investment *I* of €10,000 and with the objective not only to recover the relevant cost but also to increase the profit of Or of €20,000, what increase of sales Q will be necessary?

Using the formula, it will be (20,000+10,000)/30 = 1000, which corresponds to a rather unrealistic increase of 33,33% (1000/3000), so it might be better to look for other alternatives. To be noted that this formula provides the *extra sales* ( Q) necessary to achieve a certain *extra Or* ( Or); alternatively, we can use the formula we analyzed before

$$Q_{or} = \frac{\left(Fc + I + Or\right)}{\left(P - Vc\right)}$$

and we will have the total result (60,000+10,000+50,000)/30 = 4,000, that is 1000 extra sales to have a profit of 50,000 (30,000+20,000).

b)  Investments with a fixed and a variable part

We have analyzed investments as a fixed cost, but there are investments that also have a variable component (just think for example of direct mail, i.e. when we send personalized letters, with a fixed cost of preparation (define the target, write the text, give directions to the printing firm) and a variable cost for each letter, printing, paper, stamps, etc.).

To make the necessary calculations we worked out a particular formula (D'Arconte, 2020, page 58), in order to use the model also in this case; the fixed part of the promotional investment (*Fcp*) will be added to the general fixed costs of the company; for the variable part (*Vcp*), it will be necessary to estimate the redemption $R_1$ of the investment, namely the quantity of individual actions necessary to achieve a certain goal in terms of orders.

We must take care not to create confusion between *R*, as we saw with fixed investments, and $R_1$ in case of fixed and variable ones. *R* is the redemption in terms of the number of orders generated by *one single marketing activity with a total fixed cost*; for instance, a spot in television with a total cost of €30,000 which generates 2,000 orders. If the company does not have an initial portfolio, it can be expressed only as an absolute value; in the case of an already existing portfolio, it can also be expressed in percentage, comparing the extra orders to the existing ones (we had before 100 orders, now they are 110 so *R* is 10 or 10%).

$R_1$, on the contrary, is *the ratio between the quantity of new orders and the number of marketing actions that are necessary to obtain the same orders*; this ratio is normally expressed in percentage so that if we say that $R_1$ is 5%, it means that with 100 actions (for instance sending 100 letters) we will have 5 *results* that in our case will be 5 orders.

Now if we divide the unit variable cost, Vcp, by $R_1$, we obtain the amount of the variable cost of the investment, necessary to have 1 order; this will obviously diminish the contribution margin Cm of the product being advertised and therefore will have to be deducted from its original value to obtain $Cm_1$ as follows:

$$Cm_1 = Cm - \left(\frac{Vcp}{R_1}\right)$$

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Having said this, the break-even volume can be calculated as follows:

$$Q_{be} = \frac{(Fc + Fcp)}{\left(Cm - \dfrac{Vcp}{R_1}\right)}$$

While the sales necessary to have a certain operating result (*Or*), will be calculated adding this *Or* to the numerator as follows:

$$Q_{or} = \frac{(Fc + Fcp + Or)}{\left(Cm - \dfrac{Vcp}{R_1}\right)}$$

Consequently, in order to evaluate these investments with fixed and variable costs, it is necessary to know or at least to have a reliable estimate of $R_1$.

Let's now consider, as an example, a company with the following data:

⟩ fixed costs €350,000
⟩ variable cost of €700
⟩ price of €1000

In case the company does not yet have a portfolio of orders – as it happens when we launch a new product or service -  and decides to invest in a telemarketing action with the following characteristics:

⟩ fixed cost (Fcp) for starting the action = €5,000
⟩ variable cost for each phone call (Vcp) = €2.5
⟩ $R_1$ = 5% (i.e. it takes 100 calls to generate 5 orders).

Using the formulas, we can calculate:

⟩ the new contribution margin as follows:

$$Cm_1 = Cm - \left(\frac{Vcp}{R_1}\right)$$

Namely:

$$300 - \left(\frac{2,5}{0,05}\right) = 250$$

⟩ the orders necessary for the break-even:

$$Q_{be} = \frac{(Fc + Fcp)}{Cm_1} = \left(\frac{355,000}{250}\right) = 1,420$$

⟩ the orders for a gross profit (Or) of €50,000:

$$Q_{or} = \frac{\left(Fc + Fcp + Or\right)}{Cm_1} = \frac{\left(355{,}000 + 50{,}000\right)}{250} = 1{,}620$$

∫ the number of telephone calls to be made in the event of the break-even and in the case of an Or of €50,000, dividing the relevant numbers of orders by $R_1$:

$$\frac{1{,}420}{0.05} = 28{,}400 \qquad \frac{1{,}620}{0.05} = 32{,}400$$

As we can see, the formula allows us to make many important calculations and may be extremely useful to evaluate these kind of advertising investments.

### Advertisements evaluation in the long run

The evaluation of advertising investments, in a more correct and realistic way, should be done referring to the Average Life Time Value (ALTV) of the customers gained thanks to advertising, calculating the total value generated by them as long as they will continue to buy the products or services of the organization. In other words, if we invest €50,000, this produces extra sales with an extra profit of €20,000 and we continue to have this extra profit for 4 years, we will have a total of €80,000 and, deducting the initial investment we would have €30,000 left (actually a little less because the capital should be discounted as we will see later), and this allows us to see how an investment, absolutely unprofitable in the short period, may be perfectly profitable in the long one.

Now to make some reliable estimates, a preliminary condition will be for companies to know and monitor well the profitability of all their customers as well as the profitability of all the activities of every customer; apart from this, it seems perfectly reasonable that the more the time passes the higher the probability will be that part or all these extra sales due to advertising, may come to an end. For companies this will obviously depend on *external* factors such as market situation, competitors' new products which may replace the product, general economic situation and so on, but also on *internal* aspects and first of all on the company's *retention policy* – because, evidently, the higher the retention the better the final results will be.

To be noted that the kind of product or service in itself will also play an important role; in fact, in the case of low value products or services, with limited direct interactions with customers, companies will not have many possibilities to work on the retention and at the same time they will not be too much inclined to invest time and resources for this purpose. On the contrary, in the case of high value products and especially services, it will be easier and more natural for companies to constantly monitor and try to increase retention.

In this regard, especially in studies on CRM, Customer Relationship Management, there have been numerous attempts to focus on the critical aspect of the Customer Life Cycle, providing some interesting formulas, all of which add important aspects to be taken into consideration. Here we will refer to a recent contribution by Buttle (2022, page 135) who provides the following formula :

$$LTV = m\left(\frac{r}{1+i-r}\right)$$

LTV = customer life cycle value

m = profit generated by a customer in a certain period of time

r = retention rate

i = capital discount rate

In this simple formula, the total gross profit generated by a customer may be obtained by multiplying the profit of the first year by the factor r/(1+i-r) defined by the author as the "multiple margin" and this depends on the retention rate and on the capital discount rate.

In this regard the author also provides a way to make quick calculations as indicated in Table 5. For example, if the retention rate is 80% and the capital discount rate 12%, the multiple margin will be 2.50 which means that if the customer's profit is 100 in the first year, the life cycle value should be 250; in case of higher retention (90%) and a lower capital discount rate (10%), the multiple margins may increase and arrive to 4.5, namely 450.

The author also suggests (page 136) dividing the portfolio into groups and calculating for every one of them an average value so to have more precise indications.

*Table 5. Buttle's multiple margin in relation to retention and capital discount rate*

| Retention rate | | | | Discount | | rate | | |
|---|---|---|---|---|---|---|---|---|
| | | 10% | | 12% | | 14% | | 16% |
| 60% | | 1.2 | | 1.15 | | 1.11 | | 1.07 |
| 70% | | 1.75 | | 1.67 | | 1.59 | | 1.52 |
| 80% | | 2.67 | | 2.5 | | 2.35 | | 2.22 |
| 90% | | 4.5 | | 4.09 | | 3.75 | | 3.46 |

*Source: Buttle F. (2022) Customer Relationship Management. Franco Angeli.*

What to say about this? It's an interesting starting point but there are some important limitations. First of all, we should need a probabilistic model to estimate the permanence of customers in organizations. Secondly, we should take into account the capital invested for initially acquiring the customer, too.

As for the first point, Mattiacci (2008, page 527) provides a formula where he very wisely introduces the critical factor of the probability *(P)* that customers will remain in the organization continuing to buy its products and services; unfortunately, he does not explain how to calculate this. Regarding the initial investment, Silk (2006, page 186), proposes a similar formula but deducting from the total result the cost of the customer's acquisition.

Apart from considering all costs, the most critical aspect is to have a probabilistic model which may help to establish what can be defined *the expected permanence period* and we believe that the best thing is to refer to a well consolidated and reliable probabilistic model such as the *Gaussian* or *normal* distribution.

With such distribution it is possible to divide the whole population in 4 classes, two at the extreme right and left side of the well-known bell-shaped curve with approximately a value of 15,8 % each, and two in the center, both with a value of around 34.2%.

As well known, the normal distribution is not only a theoretical abstraction; on the contrary, it represents very well a great variety of phenomena in the most disparate fields, from physics to biology, to marketing and so on (Iacus, page 116), and this is so true that it can be said that this curve is a real *bridge* between theoretical mathematics and reality.

As a first step, considering that obviously, customers generate different levels of profit, we can divide the portfolio on the basis of 4 classes of average profit, in line with the normal distribution as indicated in Table 6:

*Table 6. The "physiological" classes of profit distribution in the portfolio.*

| Low Profit | Average low-profit | Average high Profit | High Profit |
|------------|--------------------|--------------------|-------------|
| 15.8 | 34.2 | 34.2 | 15.8 |

After this, we can also reasonably assume that customers' loss rate may have the same distribution so that we can expect in the second year to have 84.2% of the initial portfolio having lost 15.8 % of customers, 50% in the third year with a loss of 34,2%, 15,8% in the fourth year after losing another 34,2%, and finally 0 customers in the fifth year losing the last 15,8%, as indicated in Table 7.

*Table 7. The "physiological" loss of customers over the years*

|  | First year | Second year | Third year | Fourth year | Fifth year |
|---|-----------|-------------|------------|-------------|------------|
| Portfolio | 100 | 84.2 | 50 | 15.8 | 0 |
| Lost customers | 0 | 15.8 | 34.2 | 34.2 | 15.8 |

Finally, we can combine the two distributions as indicated in Table 8, where we can see that for every one of the 4 classes of profit, we have, for every year, the expected number of customers who, according to a normal distribution, should still be with the company.

*Table 8. The "physiological" classes of profit distribution in the portfolio over the years.*

|  | First year | Second year | Third year | Fourth year | Fith year |
|---|-----------|-------------|------------|-------------|-----------|
| Low profit | 15.8 | 13.30 | 7.90 | 2.50 | 0.00 |
| Average-low profit | 34.2 | 28.80 | 17.10 | 5.40 | 0.00 |
| Average high profit | 34.2 | 28.80 | 17.10 | 5.40 | 0.00 |
| High profit | 15.8 | 13.30 | 7.90 | 2.50 | 0.00 |
| Total customers | 100.00 | 84.20 | 50.00 | 15.80 | 0.00 |

We can then multiply the value of profit of every class by the number of customers still available in the different years and then add them together; for instance, if we indicate the low profit class with $Or_1$ and the relevant quantities of customers with $Q_{1.1}$, $Q_{1.2}$, $Q_{1.3}$ and $Q_{1.4}$, the total profit will be $Or_{1.t} = Or_1 (Q_{1.1} + Q_{1.2} + Q_{1.3} + Q_{1.4})$. We can repeat the same procedure for the other three classes and then add them together to have the final result as follows: $Or_t = Or_{1.t}$ $Or_{2.t}$ $Or_{3.t}$ $Or_{4.t}$

To be noted that if we add together the values of the last line of Table 8, we obtain 250, the value that represents the expected total profit over a period of 4 years and this means that the initial profit should be multiplied by the factor 2.5, in a similar way to what we have seen with Buttle's multiple margins, but having now a solid probabilistic basis.

About this amount of 250 we have to make some considerations:

⟩ first of all, this is a *residual* value, namely the total expected amount of profit after having deducted the lost profit of all the customers who should have abandoned the company in line with the normal distribution;

⟩ this final value is the natural result of a physiological distribution *without any specific intervention* but it goes without saying how well aimed retention actions, with a particular focus on the most profitable customers, may significantly improve the situation. In this case, the relevant cost of these retention actions *(Re)* should obviously be considered.

*)* from the total amount of profit, we have to deduct the initial investment *I* which made it possible to have the extra orders, as Silk (2008, page 186) suggests.

*)* finally, the relevant total amount of profit $Or_t$ should be discounted on the basis of the average cost of the capital (*i)* used for the investment, in order to compare correctly the investment at *t* time with its return at *t+n* time. As an example, if we assume an average value of 10%, the total amount of 250 will be reduced to approximately 230 as indicated in Table 9.

*Table 9. Total profit discounted on the basis of an average cost of the invested capital of 10%.*

| 100 | 84.2 | 50 | 15.8 | 250 |
|---|---|---|---|---|
| | 1.1 | 1.21 | 1.33 | |
| 100 | 76.55 | 41.32 | 11.87 | 229.74 |

Substantially, considering all the elements we mentioned, we will have the following general formula:

$$Or_t = \left[ \frac{Or_{1.t}}{(1+i)^1} + \frac{Or_{2.t}}{(1+i)^2} + \frac{Or_{3.t}}{(1+i)^3} + \frac{Or_{4.t}}{(1+i)^4} \right] - I - Re$$

It goes without saying that every company, having the necessary precise information in terms of profit, retention rate and cost of capital, may personalize this general standard model introducing values much more in line with their experience and particular specific situation which will make this approach more realistic and more effective.

We also have to highlight that while the model may be reasonably applied to the total marketing investments of a company, when evaluating a single marketing action it should be considered only as a general indication; in fact, as we can see in Table 7, in the second year there is a probability of 15.8% that an investment – which may be the investment under analysis - will generate profit only in the first year and nothing more and, in the following years, the probability of this event will be higher so that when evaluating a single marketing investment a lot of caution will be necessary.

## *CONCLUSIONS*

The analysis of the literature and the research we carried out on entrepreneurs show a critical situation regarding a real understanding of communication principles and the main criteria to follow to be successful. We can say that entrepreneurs seem particularly unprepared when choosing marketing activities and establishing a budget outlay and they also depend too much on advertising agencies that, in turn, should better focus on their customers' interests.

We also see how in the literature may be found rather debatable statements that are not helping to improve this critical situation and that, in particular, discourage entrepreneurs and push them to give up every attempt to focus on the vital aspect of redemption.

We explain the main criteria which have to be respected for successful communication and then we focus exactly on the critical aspect of evaluating the redemption of investments in advertising.

Though admitting the difficulty of the task, in the case of for-profit companies this must be regarded as a fundamental objective because all the positive effects attributed to advertisement are important but they should be considered a preliminary step to effective sales which are the only ones that generate revenues.

We also highlight how apart from sales increase, even more, important is the profit generated through advertising and, in this regard, we show how the final result also depends on the contribution margin of the product being advertised.

We then suggest a method that does not allow us to make an estimate of the redemption of advertising but that compels us to focus on it, as well as on the goals of marketing activities; in fact, having defined the relevant objectives to be obtained thanks to advertising, we provide useful innovative formulas to calculate what kind of redemption would be necessary to achieve them. We also propose a probabilistic model based on the normal distribution to allow for a reasonable evaluation of the total marketing investments in the long run.

Entrepreneurs should focus on these aspects, setting their objectives and calculating the redemption of marketing investments that are necessary to achieve these goals; were this redemption not realistic, the investment should not be done and entrepreneurs should look for more reasonable and, above all, profitable alternatives. They should also prompt advertising agencies to give their contribution in this specific regard.

We obviously expect resistance, above all from advertising agencies. Entrepreneurs, even if they will most likely agree with our theses, will also show skepticism in the face of objective difficulties. We are aware that what we propose is not an easy task but they should strive to change their approach because the alternative is to continue to invest their money blindly with a high risk of financial damages.

## *FUTURE OUTLOOKS*

What to do to improve this critical situation? First of all, we should make further research to see whether the results we obtained with a convenient and limited sample are confirmed.

In case of confirmation, we should spread more entrepreneurial culture in relation to marketing communication; if we continue to find in books incorrect or even wrong indications, we obviously go nowhere. Managers should be better prepared in this regard and handle their relationships with advertising agencies that, in turn, should better understand that the most important aspect of marketing activities is to support their customers to achieve their goals. Apart from professional and ethical reasons, advertising agencies should understand that if their customers are satisfied they will continue to require their services while, if dissatisfied, they will try to find better alternatives as soon as possible.

Secondly, we can think of making better use of the existing technologies as well as of the innovative ones, both for improving our ability to forecast sales increase following advertising campaigns and to monitor scientifically their effects.

Let's say first of all a few words about monitoring the results which seem relatively easier. Lambin (2004, page 472-475) indicated, already some time ago, four different methods, namely *direct measuring*, *market tests*, *econometric analysis* and *expert systems,* providing different options in this regard. The author – just referring to the suggestion of better usage of technology – mentions the *behavior scan method*, a tool to scientifically measure the impact of television spots; using this method already many years ago (1994), Marketing Scan - a French company specialized in product testing and marketing performance measurement (see www.marketing scan.com) - equipped the television of 3,000 families in Angers, France, with a control box and also provided an identification card for every one of them. Thanks to the control box they could send an advertisement, promoting

certain goods to a specific target in a particular area, and through the identification card, they were able to monitor the effect on sales.

In a much easier way, we would like to mention the case of many shops that provide personalized fidelity cards to their customers with names, address, email and telephone, but, as far as we know, they do not associate the card with the actual goods that customers buy, as listed in detail in the cashier's receipts. This association – taking care to respect privacy regulations - could be excellent to monitor sales after a specific promotion and measure, in this way, its redemption.

As for improving the accuracy of predicting the redemption of Marketing investments, an important contribution may come from AI, or artificial intelligence. In fact, buyers make their decisions based on the information and options available to them but they are guided by unwritten personal policies and objectives that people make at each stage of a purchasing decision.  It seems that individuals are often not fully conscious of what prompts them to behave in a particular manner so that normally the consumer's mind is normally described as a *black box*.

Parra (2007, page 133) goes a little further and highlights how in many areas we can see an evident contrast between official opinions, namely what people are ready to declare, and their effective behavior and this may be a serious problem for the effectiveness of even the best marketing research with a possible substantial bias of the results. The author adds that this discrepancy between implicit and explicit behavior, may be relatively unconscious and, in all cases, out of the rational control of an individual and he posits that AI may be used to analyze the behavior and then go back indirectly to what really has determined it.  Substantially, to know whether someone likes a song, rather than directly asking them, the idea is to refer to the number of times they listened to it, as this is implicit feedback that is much more real than their explicit opinions.

AI predictive models may be able to detect behavioral models and even foresee some decisions; Parra (2007, page 134)  mentions that models of this kind may be used even to predict when someone might be at the point to abandon a certain service with the possibility to send an offer to dissuade them.

In the near future, we can therefore expect a good contribution from AI, though at the moment may still not be easy to clearly define its role and possible applications.


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# DISCUSSION OF TIMELY CREDIT RISK MANAGEMENT IN THE FINANCIAL SECTOR: PRESENTATION OF COMPARATIVE RESEARCH RESULTS

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## ABSTRACT

In today's turbulent environment banks have to deal with big by number potential risks that can significantly to influence on their business and business results, and on It is to the banks that you risks identify and decide if they are uses of engaging in such risks night of losses which they I can to cause. Goal this one work is research influence credit cheat on credit process like and management risk on potential credit scams one banks on Serbian market, Information which are collected and processed are from realistic one's source which is considered special significance this one of work and contribution academic to the public. Presentation knowledge and certain solutions could contribute  prevention credit bank fraud and yes positively effects on bearers procedure and decision how on operative, so and on to the top management level. The results indicate to being typical profile persons which commit fraud in the Republic Serbia a man from Belgrade, about 40 years old, with working by experience longer than 10 years the code of the same employer. Furthermore, an increasing trend was observed number cases confirmed fraud (which are timely prevented) in the age pandemic of the Covid-19 virus and finally, the volume is reduced approved credit which is in favor timely management by credit by risk.

Keywords: *credit risk, banking risks, management risk, NPL, credit cheat*
JEL Classification: *G21, G32*

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# INTRODUCTION

Financially sector together with sector informational technology and telecommunications represents driving force strength of today economic and technological development (Nikolic, Vesic, & Gavrilovic, 2019, pp. 33). Development financial institution in the world, and also in ours earth, experiences expansion and with that knowledge financial sector, that is financial institution, represents a necessity for contemporary life man (Dabic, Vasiljevic, & Barjaktarovic Rakocevic, 2010, pp. 79). In contemporary business to the world, financially system is key to allocation available resources. Over financial system, savings of households is directed towards the sector companies, that is investment funds are allocated among alone companies to the most productive investments (Djuricin & Herceg-Vuksanovic, pp. 18; Momirovic & Cogoljevic, 2019, pp. 69). Banks, as part of the financial sector, represent very an important element of economic development each country (Momirovic, Simonovic, & Kostic, 2021, pp. 16). Their basic role it is mediation in between carriers and user accumulation funds (savings) (Brkovic, 2014, pp. 69).

Specificity banking mediation reflected in the download risks and in public character. Necessary qualitative provision concept banks is that she financial mediation performs taking over certain risk. Riskiness of business is essential category (Djukic, 2003, pp. 78). It is subordinate to her business like and alone organization banks. Each one uncertain fact in banking business, as and in others forms economic activities, represents risk (Milojevic, 2016, pp. 79). When talking about risks in business of banks primarily thought on classical risks (Vesic, Gavrilovic, & Petronijevic, 2019, pp. 79), as what are credit risk, risk liquidity and risk interest rate. In addition to the above risks, banks are in their business exposed more and market risk, risk foreign currency exchange rate, risk investments, risk exposure, legal risk, strategic, operational and reputation risk (Lukic & Trisic, 2015, pp. 30). Enumerated risks relativized are largely by development technology and procedure in business.

In today's turbulent environment banks have to deal with big by number potential risks that can significantly to influence on their business and business results, and on It is to the banks that you risks identify and decide if they are uses of engaging in such risks night of losses which they I can cause.

Subject of work it is research influence credit cheat on credit process like and management risk on potential credit scams one specific banks on Serbian market, while the target of work reflected in the provision information which are collected and processed from realistic one's source. Presentation knowledge and certain solutions could contribute prevention credit bank fraud and yes positively effects on bearers' procedure and decision how on operative, so and on to the top management level. Expected contribution characterized by description recognized fraudulent actions in the observed to the bank, with intending to her example establishment characteristics profile potential the perpetrator fraudulent actions and that way help mathematicians, analysts, managers and bankers in preventing future ones potential losses banks, but and to show off examples good ones practices in disclosure ways to which the potential perpetrators fraudulent actions serve in practice.

This research was designed like study case, within which are observed parameters realistic banks which operates in the Republic Serbia, but her business name won't be displayed because of sensitivity data. With the desire to do something more objective, more reliable and more systematically processed defined topic and subject research, in progress will be used general - scientific methods (comparative and statistical method) i scientific - research methods (qualitative, quantitative, descriptive analysis). Very much so important aspect research is put on method comparisons received data. Statistical processing data being done in the program package Microsoft Excel, and in statistics processed data used are methods descriptive and analytical statistics.

After introductory considerations and the literature review is followed by chapters with a description of the credit policy of banks in the Republic of Serbia and credit fraud in the banking sector. The third chapter includes a presentation of examples of credit fraud from the practice of the observed bank "A ad. Belgrade". As a result, there are concluding considerations and a presentation of the literature used.

# *LITERATURE REVIEW*

Banking is a branch of economics which deals with banking phenomena, products and jobs. Banking there is one of key role in functioning each of the state and her economy. Contemporary banking distinguish complex banking jobs, information and communication systems and international banking networks. Banks belong to financial institutions, a basic role financial institution is to mediate in between carriers and user accumulation savings. This function banks perform so what collect accumulation over of their own credit and financial instruments and perform hers guidance lending or by shopping financial instruments (Savic, 2020, pp. 26). Banks are an important element of monetary and financial system, first of all because of the fact that they participate in the creation money supply. Role banks is significant in terms of maintenance confidence in finances one economy.

The bank is financial company which, as and everyone second the company aims to realization profit, with respect principle of business embodied in their own business politics and offers own products, which they have the price (Ristanovic, 2019, pp. 69). It is special financial institution monetary and credit system which is professional engages by taking and by giving credit, te payment mediation (Zarkic Joksimovic, 2009, pp. 236).

Each one uncertain fact in banking business, as after all and in others forms economic activities, represents risk. Banks are in their business inevitable good luck with different species risk, from of which I can arising negative effects on business banks. Banks are obliged to establish comprehensive and reliable system management risks, which is included in everything business activities and which ensures that risky profile banks always be in accordance with already established tendency to take risks. In banking business, risks we can determine like probability loss, that is like reduction get, to which is coming due to effects certain uncertain of events. In this regard, one of the most important risks it is credit risk. Credit risk represents risk that claims banks cannot be realized on the due date according to theirs full accounting values. This one risk expresses permanent (due to for example bankruptcy) or temporary impossibility debtor to in the contracted deadline in full or partially fill in mine obligation (settle due debts) (Dabic, Vasiljevic, & Barjaktarovic Rakocevic, 2010, pp. 156)

Management risks implies timely identifying and elimination risks like and quickly responding to the case theirs of origin. Standardized rating system risk is simple and at the same time precious management tool  by credit risk of banks (Mijatovic, 2018, pp. 96). Risks which I can be exposed banks, according to standard international classification, divided are to:
- credit risk,
- foreign currency risk,
- interest rate risk,
- marketable risk,
- risk human factors,
- risk business,
- risk transaction,
- technological risk,
- operative risk,
- reputation risk

If observed  with aspects potential losses for the bank, credit the risk is one of the most important risks with which banks meet in their own business and that's why it's very important manage with him on the real one way.

Credit risk is defined like risk defaults obligation based on created long, that is non-payment principal and interest of sides debtor (Hull, 2010, pp. 369). He is present in all cases when bank approves credit or on behalf of the client betrays credit instrument, as which is a guarantee or letter of credit. Credit without risk does not exist. Risk simple means the possibility that the client, who takes credit or from the bank demands to issue letter of credit or guarantee in his name, won't be able to within the deadlines is due execute own obligations according to the bank based on repayments principal, payment interest and compensation. In the event that several key clients banks is not able to orderly serviced own obligations, it can to cause big losses they can incur bank into the zone insolvency (Mijatovic, 2018, pp. 153).

It matters characteristics credit risk is above all relations on impossibility his precise measurements and management, although he represents one of the most important risk, because in the conditions non-reconciliation obligation of sides debtor, bank can to become insolvent (Corovic, 2007, pp. 36). Listed arises from the fact that it is not possible in advance determine which part of the obligations debtors won't settle when they get into a situation where they can't to service the same as the situation is the code everyone the client different so that we data from previous ones periods that relate on groups clients cannot fully help.

Credit risks are expressed through credit ratings pri how are they different internal and external ratings (Djukic, 2011, pp. 66). Internal ratings each one bank products in accordance with criteria which is previous defined, external ratings are product special agency whose basic activity it is right creation rating for different issuers paper of values. However, since are these agencies directed on big banking institutions on global level, for less banks is exceptional important internally measurement rating.

## FRAUDS IN THE FINANCIAL SECTOR

Fraud consists in the designed and on purpose preparation documents, facts, information and situation to create prerequisites for someone on base the wrong one presentations fact in devised situations and circumstances, encourage him to believe in untruth and in accordance with her to behave and therefore, it suffers loss or damage (Škari  Jovanovi , 2008, pp. 47).

Association certified researcher cheat scams defines on next way: " Financial cheat it is deliberate, deliberate, incorrect assertion or omission material statement or accounting data which, observed with to others information as a whole, they state to that the reader change it or rearrange mine assessment or decision " (Rezaee & Riley, 2010, pp. 154).

Scams I can be external character, when represent malicious activities of the third faces according to certain institution, or internal of character, among which belong on purpose activities and / or miss out least one persons who is employed in that institution for the purpose acquisition personal uses (Stanisic, 2014, pp. 311). Like this forms scam for a certain institution, I can have like consequence significant material loss, I can to violate hers reputation, endanger hers reputation on market, negatively to influence on loyalty clients, and on conformity with regulation (Petkovic, 2010, pp. 56).

| **Opportunity** (opportunity) Any system weakness that enables theft. Opportunity is very often difficult to spot, but it is relatively easy to control with internal organization and procedures. | | **Ability** - Function, position, job description itself, which provide the employee with an opportunity for fraudulent activity that is not available to others. |
|---|---|---|
| **Rationalization** of the criminal behavior of fraud perpetrators. Justification of fraud. | *Diamond of Fraud* | **Pressure (motivation)** Sometimes it involves personal situations that create a need for money. it includes vices such as opiates, substance abuse, gambling or life situations themselves. |

*Figure 1. The diamond of fraud*

*Source: (Arezina, Mizdrakovic, & Knezevic, 2016, pp. 210; Wolfe & Hermanson, 2004, pp. 36)*

In banking terminology, generic term scams and unauthorized activities are usually used to describe more illegal activities and offense like what are fraud, illegal appropriation property, disrespect general Act banks, disturbance business procedure or falls system, default processing transaction, inadequate management processes and relationships with the third faces and suppliers, shops which undertakes an external party which include embezzlement, illegal appropriation property or injury legal regulations, loss or damage physical property banks, bribery, forgery and similarly (Stanisic, 2007, pp. 56). In the end understanding justification cheat was which species of sides faces which is made up, is defined as the so-called diamond scams. Diamond scams is a frame used in the target explanations standing motif behind decisions individual to commit fraud. Him they do four components which they contribute increase risks of fraud. You four components are: Opportunity, pressure, rationalization, and ability (Figure no. 1). On occasion executions scams present are everything four components of diamonds scams.

Diamond scams it helps organizations (institutions) to understand how and why it was committed fraud, so I can undertake proactive measures to solve causes cheats before what she happens and more efficiently to discover fraud if it when it happens (Wolfe & Hermanson, 2004, pp. 40).

## PHASES OF FRAUD IN THE BANKING SECTOR

When talking about financial fraud sector they exist already defined patterns behavior applicants demands and certain indicators that indicate to being alone the applicant demands potential problem (Djekic, Filipovic, & Gavrilovic, 2016, pp. 74). However, with everything larger development new one's technology, so they increase and they change and techniques which are applied on occasion attempts fraudulent actions. Everyone by day banks are in everything exposed to a greater extent new techniques which considerably they differ of technique which are previously used and which are already of sides of banks recognized like potential scams and whose pattern is

already placed in indicators on basis of which employed of banks I can recognize potentially problematic behavior.

The stages which are defined in the process management risk of fraudulent actions they are next (Albrecht et al., 2008, pp. 21):

1)  Prevention,
2)  Detection,
3)  Investigation,
4)  Rehabilitation.

Home page and the most significant phase in management risk of fraudulent actions it is phase prevention. The focus is always on prevention to get into what shorter temporal period recognized indicators on possible fraudulent action and to be timely actions and measures prevented material loss for the bank like and reputations the risk to which can to come in this one phase the most important thing is to, through sales conversation, by employee banks meet a person who submits request. In phase prevention is the easiest notice the early signals on potential fraudulent action. Only behavior faces which came to bear request can a lot to show employee banks. Faces which they have intention to on dishonest way they get money funds will behave perfectly different in relation on faces which on honest way they endure loan requests, and it will express to a great extent i physical behavior - speech bodies, impudent attitude, insisting that the process speed up etc.  Like this faces are, with only behavior, very often and uncooperative in the sense of provision necessary information or delivery documentation which is required in order to bring it decision on whether to them bank to credit
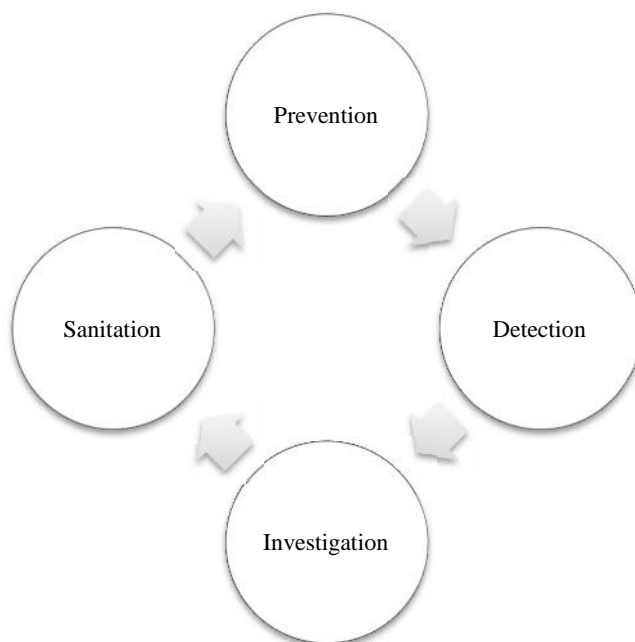


*Figure 2. Phases of fraud risk management*

*Source: Authors statement*

In phase prevention is also very important that employees' banks can recognize and indicators that indicate on the possibility that it has been delivered documentation falsified. Faces which are in financial problems often not seen by others exit from problematic situations except of taking credit

the code specific banks (or more banks) and in such situations most commonly they resort to delivery falsified documents. Most commonly they are certificates of employment, paid slips, turnover by current account other banks, invoices and Ph.D. and all in the goal showing data that is considerably they differ of realistic one's data, trying to present self-image like someone who is perfect client for some the bank. They exist and those situations in which determined faces they resort to extreme measures in falsification, namely change or making falsified personal documents (personal cards and passport). Costs that can arise in the phase prevention are a lot lower of costs that can arise in someone of the following phase - on occasion identification fraudulent actions, that is alone process investigations. The second stage implies that it is confirmed presence indicators that indicate on fraudulent action which one the applicant credit demands wants to implement, that is, that there is strong evidence that it is a fraud. The third phase, phase investigations, implies proving indicators on fraud. In this one phases are being investigated everything activities which is the applicant demands conducted, each is checked listed data, each a document that is in process applications for credit product the applicant demands delivered by. After this phase, when are everyone observed indicators risks on fraudulent action checked, a decision on lending is made depending on whether they are indicators confirmed or are eliminated. They exist situations in which the indicators risk on fraudulent actions noticed, but after detailed investigations it turns out that though it is not a word about fraud. In the last one phase, phase rehabilitation, conclusions are drawn, and improvement is suggested process in the goal prevention future one's fraudulent actions with the same form behavior. Also, in this one stage is brought and decision on how to rehabilitate damage which is already caused realized fraud.

Everything four the enumerated stages are valid, both for the process applications for credit product, in which persons (potential clients) submit requirements, so and for the process disclosures cases fraud in itself portfolio banks among by credit products that are already earlier approved and paid, and where indicators on fraudulent actions they are not observed on occasion alone process submission and approval demands. The biggest number cheat is usually detected tip employees and from that reasons are employed consider the first line of defense of embezzlement, theft and embezzlement.

According to results research which she carried out auditing company KPMG at basis of 348 current one's case financial scams in 69 countries, typical profile persons which commit fraud (KPMG, 2011):

-  For the most part male stork,
-  From 36 to 45 years age,
-  Fraud commit according to his own employer,
-  On jobs in finance sector or sector related to finance,
-  Occupies management position,
-  He is employed by the company more than 10 years,
-  It is in cooperation with others the perpetrator.

On Chart no. 2 shown are motives actions fraudulent actions that have been reached on basis research by KPMG, which included 750 perpetrators criminal actions in the period from 2013 to 2015.

| | | | |
|---|---|---|---|
| 66% | 27% | 13% | 12% |
| Personal financial benefit | Desire "Because I can" | Organizational culture | Desire to meet expectations/ cover losses |
| 12% | 11% | 10% | 5% |
| The desire to meet the planned budget / to hide losses in order to maintain the position at work | The desire to fulfill the set goals, to protect the company | Other, none of the above | Other motives (less than 5%) include: loss of self-confidence, avoidance of regulatory compliance, focus on company rating and image, difficulties in doing business |

*Chart 1. Motives of fraudulent acts committed in institutions*

*Source: KPMG (2016)*

Research different organization indicate that it is for understanding and assessment risks of fraudulent actions needed consider everything models scams and behavior the perpetrator.


# RED FLAGS OF FRAUDULENT BEHAVIOR IN ORGANIZATIONS


When talking about scams internal character, research which is in 2016 conducted by the ACFE states the following „ red flags "behavior perpetrators fraudulent actions in the organization (Chart no. 2). The most common motives perpetrators fraudulent actions are: life above of their own opportunities, financial difficulties, too great closeness with customer or client, refusal to share duties and family problems. Also, research has shown that in 92% of cases perpetrators showed one of the above characteristics, doc is in 57% of cases perpetrators showed combination more presented behavior (ACFE, 2016).

ACFE research states different red flags, depending on gender, where the code a woman prevail financial difficulties, family problems and non-use yearly rest, while with others sides the code men they state close relations with to customers and to clients and tendencies towards jobs in the zone grey economy (ACFE, 2016).
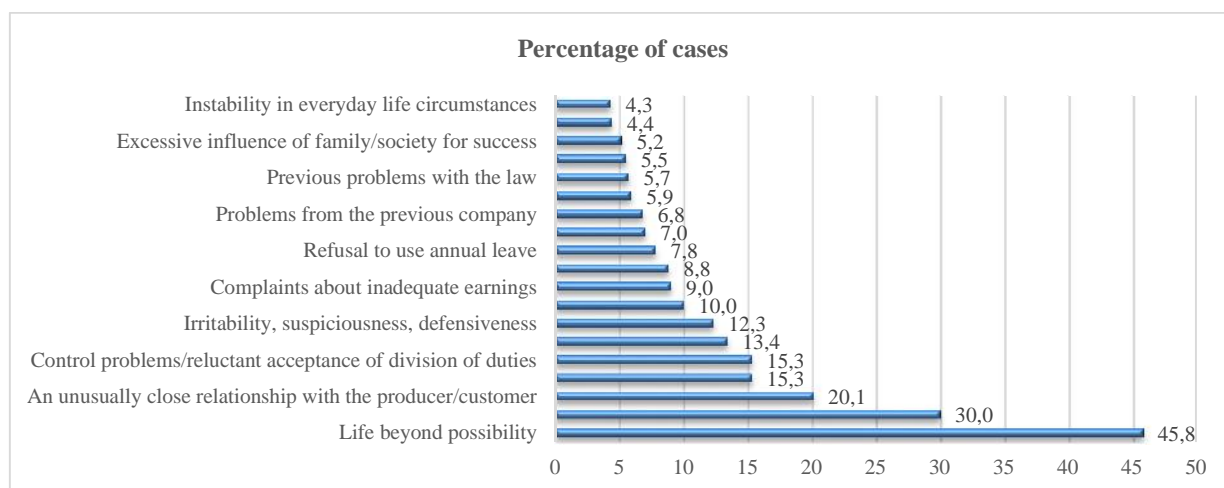
*Chart 2. Red flags of fraudulent behavior in organizations*

# CREDIT POLICY OF BANKS IN SERBIA

Basic task and essence of business of banks in Serbia, considering on tall percentage credit jobs, yes management loans, that is correctly management by credit by risk. Management by credit risk to the bank allows to cover expected losses from formed reserves, because if you would losses were tall, she would have to cover him from his own capital, and in case the amount loss overcomes capital bank, would become insolvent. In process management by credit risk one of the most important steps it is careful assessment risks and adequately determination prices risks (Beknovic, 2009, pp. 119). Key the thing is that the bank makes a good assessment credit, that is credit ability potential debtor and to set appropriate limits exposure according to once to the debtor. In addition to the circumstances which condition risk, i alone structure credit which one bank approves conditions degree hers exposure risk, and quality individual credit effects on different levels risk, and so on we come to the conclusion that they exist good, doubtful and unacceptable loans for the bank (Djukic, Bjelica, & Ristic, 2006, pp. 296).

Credit politics banks defines procedures and approval criteria credit. The process itself approval credit can be divided into four phases:

1) Submission credit demands of sides seeker credit;
2) Procedure processing credit demands;
3) Procedure of making decisions;
4) Realization decisions.

Assessment of creditworthiness risk, which certain credit request wears with itself, acceptable to the bank or not, it is done in stages processing credit demands. Phase processing credit demands represents the procedure in which it is carried out detailed checking of the applicant credit demands and departs of behavior of the applicant demands, that is, from the assessment his credit abilities, historical repayment information previous ones credit products that are recorded in the report credit bureau, checks of employment data, submitted documentation etc. The essence of the processing stage credit demands it is come to the answer whether it is certain credit request good (acceptable), doubtful or unacceptable to the bank. What is the grade? credit risks higher, means that it is credit request less acceptable to the bank. In today's time, with everything larger development new one's technology, banks are in the process approval credit quite often they meet and with the one to the

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applicants requirements that are and alone aware that they are high-risk for the bank, that is, that they do not have positive credit ability and that it will on based on that, theirs credit requirements be unacceptable to the bank. As a result, in a certain number of cases, applicants demands they reach for the fake by presenting fact in process submission loan requests. Like this fake presentation fact, either through words or procedures, through fake ones or inconsistent claims or way hiding data that are important for making decisions on implementation credit demands, we can to call I try credit scams.

Financially institutions, primarily  banks, traditionally are exposed permanent attempts fraud, since activities which these institutions conduct enable perpetrators acquisition direct financial get with minimal investments.

## *EXAMPLES OF CREDIT FRAUDS IN SERBIA - CASE STUDY " A" BANK*

In this one part of work we will to pass through analysis and examples of credit cheat which are detected in the portfolio concrete banks. Subject analysis being credit scams external character. Because of big sensitivity data about which will be words bank won't be appointed correct business by name already will be presented like bank " A". Bring out data in this work are in accordance with realistic data from of business mentioned banks in time from 2018 to 2021, that is current one's data at the time of writing of this part of the work.

As it already is said, key thing in management by credit risk is for the bank to judge well credit request, i.e. to grade well credit ability of the applicant demands and his possibilities that in the future return borrowed funds to the bank. Part of the process estimates credit demands, and by himself team and part of management by credit risk, represents and adequately management risk of fraudulent actions.

In case of the listed " A" bank being analyzed portfolio in the period from 2018 to 2021. Through analysis being displayed movement confirmed cases external cheat which are making of sides physical faces like and their influence on the bank 's portfolio. Also, it will be displayed and influence those cases in which are timely of sides employees' banks recognize indicators risks on fraudulent actions on basis of which are prevented significant material losses for the bank and on basis which he avoided also and reputations risk.

*Table 1. Number of confirmed credit fraud cases in the period 2018-2021 compared to the number of approved loans during the same period*

| Year | 2018 | in 2019 | 2020 | in 2021 |
|---|---|---|---|---|
| Number of cases of confirmed fraud | 66 | 70 | 29 | 24 |
| Number of loans placed | 21,995 | 28.122 | 20,776 | 32,599 |
| Percentages | 0.30% | 0.25% | 0.14% | 0.07% |

*Source: Authors research*

An overview is given in Table 1 change in the portfolio listed bank in a period of 4 years. What is from tables can clear see it is increased number cases confirmed credit cheat during 2018 and during 2019, Doc during 2020 and 2021 bank records a significant decline in these figures. Explanation big number cases confirmed cheat during 2018 lies in the fact that are physical persons, users' credit, found way to purposeful loans use for the purpose which it is not defined loan agreements. Concrete examples are refinancing loans. Refinancing, that is premature repayment loans, requests respect agreed procedures it certain time. The majority of banks which they do

business on territory of the Republic of Serbia like instructions for refinancing credit had are payment funds intended for refinancing on current account user credit. In this one situation, the user the loan is owed to the bank whose credit products refinances notes that they are funds paid on current account intended refinancing, to submit request for overtime repayment credit products that are refinanced in order to employees your banks could perform switching monetary funds with his liquid accounts on credit products that are repaid in full team by means. Otherwise, money will stay on liquid account user credit until unless he can't stand it request for verification repayment, that is transfer request monetary funds on credit products to be repaid team with money.

Certain number user credit he realized that banks alone cannot do it transfer with current accounts money intended refinancing on credit products that should be settled team means and that they cannot finish by themselves process refinancing that is foreseen contract. The situation was used so what are certain users credit realized that money with current accounts I can raise in more iteration on ATMs or switch money with current accounts through e -banking (or m - banking) through partial transactions on accounts which have in some other banks. This type of behavior user credit belongs to one type of credit scams, because are violated provisions loan agreement and money is, instead of for one purpose which is defined loan agreement, used in full another purpose. The result like this behavior is that they are users' credit have become double in charge - in the new one to the bank for the amount new one's obligation as approved and paid loans for refinancing and in banks whose are credit products should have paid off means intended for refinancing. In this way situations, users' credit is very quickly entered into a delay with by paying the installment which are due, because theirs monthly earnings they are not could cover amount double borrowings. More precisely, their credit ability it is not could bear in total financial load which arose like consequence practical the new one borrowing for the amount credit intended refinancing that is not used in intended purposes - became are overindebted by an amount additional obligation.

In the majority confirmed cases where are funds used in contrast with contractual clauses, users' credit were absolutely aware what they work and because of what are they doing? Goal im was that money intended refinancing take advantage on way that is in certain moment to them answered. However, in each situation they exist exceptions, so be it and among with these cases can find some the user loan that is not consciously raised money with liquid accounts already from reasons which he thought was a bank made error and thinking that their error he can use in his own purposes.

How in practice everything more often it happened that the users did not comply contracted procedure, i.e. not to submit request for overtime repayment, not acquisition status certificate rainbow etc., due to of what refinanced credit the products will not be closed (repaid), and users credit get into a situation where someone time they repay two credit simultaneously or to them they do n't repay at all, National bank of Serbia she brought a new one provision - instruction on refinancing credit the code others banks (National Bank of Serbia, 2021). By provision People's banks Serbia has this situation completely resolves from July 1, 2021. On this one-way National bank of Serbia, it worked in two direction - users she released the loan of all administrative activities which are related to himself process refinancing, she did the procedure premature repayments faster and more efficient, but at the same time it is in the ultimate to the goal encouraged competition among banks and intensified theirs fight for clients. According to this one provisions, to the user credit is enough to just once he goes to the bank the code which he found appropriate loan for refinancing and yes in that way close obligations the code previous ones of banks. All communication with by the bank whose credit products the user wants to refinance on myself takes over she bank the code which the user takes loan for refinancing. On this one way, with others parties, banks are and themselves protected of those user loan that money for refinancing they have intention to use in others purposes.

From Tables 1 are also can see that the trend is growing detected credit fraud in the portfolio of " A" bank during 2019 additionally increased in relation on previous year 2018. Increase number confirmed cases scams it is organized cheat that happened during 2019.

Organized fraud we can to define like common participation more than 3 persons in the same fraudulent schemes or criminal to the group. During 2019 bank " A " was exposed scams of sides organized groups physical faces to which, on basis fake one's information and on basis falsified employment documentation, approved and paid out considerable number credit and in that way the bank suffered more seriously financial losses. After this one case a streak started activities of sides banks in order lifting consciousness employees about the importance management risk on fraudulent actions and to herself phase prevention which is in the future years resulted reduction cases confirmed portfolio fraud listed banks (Chart no. 3).



*Chart 3. Graphic representation of the number of confirmed credit fraud cases in the period 2018-2021 compared to the number of approved loans during the same period*

*Source: Authors research*

On graph no. 3 in 2020 drastically reduced number detected cases credit fraud, but also observes and reduction in volume production, i.e., in number approved credit. Reduction on to all fields which took place in 2020 it is direct consequence pandemic caused by the Covid-19 virus. During extraordinary state, which is in the Republic Serbia lasted from March 15 to May 7, 2020, banks are, like and many other institutions, were faced with new challenges, new one's potential problems and possible losses because of influence pandemic on the economy and the economy whole countries. During this one period, due to limited movements and police hours, banks are had modified (shorter) work time and away less the face was bearable credit requests products what can be done see and on graphically display on chart 1. Number approved credit it fell from 28,122 to 20,776. Number detected portfolio fraud decreased from 70 to 29.

However, what is in 2020 very significant for the operations of " A" bank it is number cases scam that they are discovered before which is a bank approved loans and paid off monetary funds. That is, this period is the best indicator that they are adequate measures, which are undertaken after case from 2019, i reinforced control portfolio, succeeded on the real one way to access management risk on scams. In case Bank A 's focus is during 2020 absolutely placed on prevention like the most important stage in management risk on scams. An array is set new ones defense mechanisms, how through alone system banks, so and through training employees the implementation of which is started on away more often level in the relationship on the previous one year. It is set approximate profile faces which are more ready of others to commit credit fraud, in detail are described guidelines

on basis which employees would banks could what easier, faster and more effectively to see that it is a potential one fraudulent actions.

String quiet activities which are undertaken in order to prevention credit cheat resulted are in 2021 when the number prevented of cases was the largest in progress observed four years (as many as 586 cases), and no detected credit fraud in the portfolio was the lowest (24 cases). It's not possible each one the case scams prevent, but it is strong important prevent all those cases in which they exist clear indicators that faces are preparing potential fraud.

the results related analyses to 2021 emphasize how much important role in management risk have consciousness of employees about the existence, presence, of a certain risk. In case banks it is very important that employees they have awareness of existence risks from fraudulent actions, with one page and awareness of how important it is properly governing this one by type risks and on time recognize signals that occur, with other sides.

*Table 22018-2021 compared to good loans during the same period*

| Years | 2018 | in 2019 | 2020 | in 2021 |
|---|---|---|---|---|
| Number of fraud cases prevented | 337 | 467 | 323 | 586 |
| Number of loans placed | 21,995 | 28.122 | 20,776 | 32,599 |
| Percentages | 1.53% | 1.66% | 1.55% | 1.80% |

*Source: Authors research*

In Table no. 2 shows the number attempts fraudulent actions which are certain activities and timely recognition indicators risks on fraudulent actions succeeded be prevented. During 2020 in 323 cases the potential is prevented loss for the bank. What is important for 2020 it is emphasize that the majority these cases is also recognized prevented during extraordinary condition.

Pandemic which was provoked she brought with the Covid-19 virus room reduction number working places in particular economic activities which is direct meant dismissal workers, forced sick leave, compulsory rest or unpaid absences, and also and reduction earnings. Everything this is for consequence had any increased number faces which, due to crises caused pandemic, money was needed more but in some the previous one periods. Under pressure pandemic, the number increased faces which are reached for the illegal and dishonest activities earnings security credit abilities, and all in the goal getting credit and necessary of money. The majority prevented cases cheat during 2020 with she carried with her falsified employment documentation or falsified traffic by current accounts others of banks.

When talking about fraud in banking sector, it should be noted that there are certain periods of the year when are more often occurrences attempts scams. On Charts no. 3 and 4 given are graphically of all displays prevented attempts fraud in 2020 and 2021 by month.
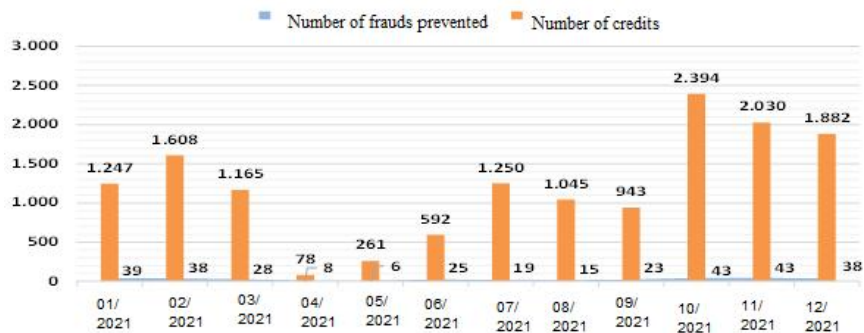
*Chart 4. Graphic representation of prevented credit fraud attempts during 2020 in relation to the number of approved loans during the same year*

*Source: Authors research*

By observation change in the portfolio of bank " A" (Chart no. 2) can be clearly seen see in what way is the pandemic caused by the Covid-19 virus influenced on business banks. In April 2020 is drastically reduced number approved loans, from 1,165 in March on only 78 in April, which is direct consequence pandemics. Number approved of loans varied from March to September due to pandemics. Since October of the month begins stabilization on field lending.

On Chart no. 2 is an illustration cases prevented attempts scams during 2021 by month, in relation on number approved loans in that period. From charts can be see that scope productions significantly increased in relation in 2020 with by reducing influence the Covid-19 pandemic, but and to be with by increasing number approved credit increased and number attempts credit fraud.

What also   from graphic display can to see, is that during 2021 concentration increase cases attempts cheat relations on summer months (July and August; 07/2021 and 08/2021 in text) as and on months on himself the end year (November and December; 11/2021 and 12/2021 in text). Like this occurrence there is explanation. In periods summer ones and winter rest, as and in periods before holidays (especially A new one year), attempts credit cheat are more frequent. To the team for months physical persons are necessary more monetary funds and some of them will, due to lack of the same, reaching for the illegal activities on basis of which will try to get loans the code of banks. Like this occurrence it is not characteristic only for 2021, it's already something what is from year after year repeats.
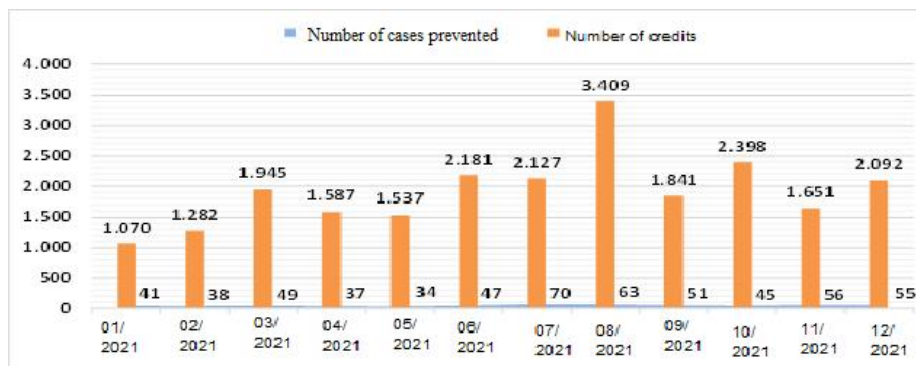


*Chart 5. Graphic representation of prevented credit fraud attempts during 2021 in relation to the number of approved loans during the same year*

*Source: Authors research*

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Except by credit by risk, adequately management risk of fraudulent actions also in a certain percentage contributes reduction loans in the total NPL potential of banks. NPL represents loans that are declared due, which are due or which are not returned accordingly with contracted by the deadline returns (Besla , 2019). NPL we can to define like loans that are problematic for banks. The concept problematic credit implies loans the code of which there was a problem in repayment one at a time or more basis. About credit is like uncollectible can to talk of that one moment when nor a part of his principal or interest they are not charged in the last 90 days, and according to the deadlines outlined on occasion approval credit.

On Chart no. 5 is an illustration shares they occupy cases confirmed credit fraud in total to the amount of NPL of bank " A" in March 2022 (03/2021 in text).  Total NPLs in March 2022 amounted to EUR 1,655,000, of which EUR 178,302 related to on loans the code which have been confirmed to be credit related scams. Percentage, share credit the code of which are detected indicators on fraud and the code which have been confirmed to be cheating happened in March 2022 was 0.108% of total of the amount of NPLs.



*Chart 6. Share of confirmed credit fraud in total NPL for the month of March 2022 - bank "A"*

*Source: Authors research*

To the number attempts credit cheat also they affect and locations on where they are located branches of banks. On graph no. 5 is shown confirmed credit cheat bank " A" u period from 2018 to 2021 by region.

Business bank "A" is divided into three regions - Belgrade region, Vojvodina region and the Central region and South of Serbia. From graphic display it can be noticed that it is the largest concentration detected credit cheat during observed four years recorded on territory Belgrade, then in the region Central and South Serbia, and yet then Vojvodina. The biggest concentration cheat there is on territory of the Belgrade region is also a consequence and the biggest concentration population in relation on the remaining one's parts of Serbia.
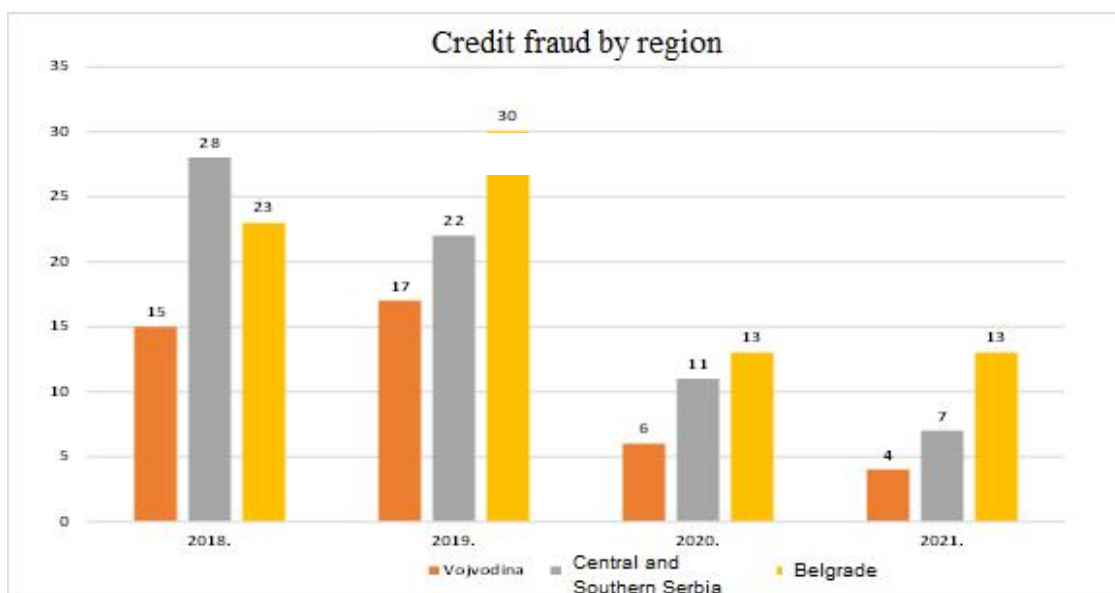
*Chart 7. Graphic representation of the number of confirmed credit frauds in the period 2018-2021 by region*

*Source: Authors research*

## CONCLUSION

As part of the credit of risk, in modern times time, with appearance new ones technique and technology, banks are exposed everything more frequent attempts financial fraud, since activities which these banks like financial institutions conduct enable perpetrators acquisition direct financial uses with minimal investments. Doing fraud faces they apply damage banks as in material so and in reputation meaning. necessary in order to banks positively business, yes credit risk. The big one number banks are difficult or never recovered of consequence which I can to cause individual cases scams - theirs reputation is permanent damaged, and in an environment in which minimization expenses often represents trump card in battle with by competition, financially losses that are usually measured in hundreds thousands euros often are insurmountable obstacle for further survival of banks. Therefore, banks are all more they turn development and implementation different mechanisms in combat against cheat

In this one work is on example bank " A", that is on example number detected credit fraud in the portfolio of "A" bank, proven to be key role in combat against fraudulent actions in banking sector there is adequately management by credit risk, correct assessment credit demands and timely identification indicators on fraudulent actions. Recognition early ones signals that indicate to that it will certain person to commit fraudulent action enable to the bank to time prevent potential fraud and in that way prevent possible loss that would realization scams caused by.

During analysis portfolio bank " A" is noticeably negative influence credit cheat on management by credit by risk. Growth fraudulent actions which they are not prevented on time it reflects negatively on business banks causing potential losses in the future. Growth number confirmed credit cheat negative affects to the bank 's portfolio contributing increase problematic credit, that is increase of the amount of NPLs.

From the other sides we have the situation in which, adequate measures and reinforced controls, big number attempts fraudulent actions quite for sure can prevent This claim is based on on to the fact that in the case of " A" bank, after undertaken adequate activities and after implementation new one's mechanisms protection, number prevented cheat drastically grew up. Everything stated confirms the fact that it is strong important that employees bank they have awareness of existence risks of fraudulent actions with one side and awareness of how important it is correctly managing this one by type risks and on time recognize signals that occur, with other sides.

Influence external factors also affects to whether it will number cheat to grow One of those factors it is crisis which was provoked pandemic of the Covid-19 virus. Consequence crises caused pandemic were a reduction number working places in particular economic activities which resulted dismissal workers, forced sick days or vacations, unpaid absences, and and by reducing earnings. As a result of all of the above negative ones change and reductions financial of income, bank " A" is noted significant increase in number cases attempts credit fraud.

The most common kind scams which are resorted to during pandemic of the Covid-19 virus is was cheat on basis falsified documentation. In the observed period " A " the bank during 2019 faced with big credit fraud which was implemented over falsified documentation. Next year trend attempts with the same Paterno continued, but application learned from 2019 and adequate measures, attempts credit cheat were brought under control in 2020.

What will quite certainly in the future be a challenge with which will be banks to face they are further changes method on which they are carried out credit scams, theirs further modification and improvement technique faces which are ready to cheat action commit, with one side and finding out of the best solutions in order to try cheat on time recognized and prevented, with others sides. Banks in everything to a greater extent its own business transfer to the Internet, improving electronically business. On this one way, in the future, banks will be everything more exposed so called cyber fraudulent actions, but what is the same so for sure yes it will try cheat on traditional way stay present in their business.

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# IMPACTS OF THE MIGRATION UPON THE AUSTRIAN POPULATION, SOCIETY, ECONOMY AND BUDGET

*Zoltán Eperjesi*[48]

## ABSTRACT

*This paper represents the impact of migration on Austria's population, national budget, labor market and education system. The continuous growth of Austria's population can be retraced exclusively upon the positive migration trend. The Austrian economy needs foreign manpowerin order to increase its output. Let us just think about the period of the COVID-19 virus pandemic, as Austria faced severe problems in special sectors, for example, the care of older people where the overwhelming majority of the workforce had a foreign origin and commuted from the neighboring countries. The Austrian service industry employs a great number of migrant people and could not be maintained without their engagement anymore. My utmost aim has been to investigate the national budget concerning the income and expenditure related to migrants and refugees. It unambiguously turned out that migrants coming from the EU 15, EU 13 countries and third countries are in favour of the Austrian economy and labour market while the refugees pose a significant burden on the national budget. It is a big challenge to integrate the refugees into a society whose outstanding goal is to establish a knowledge based economy underpinned by digitalization. The growth of proportion of pupils in the auxiliary, technical and secondary schools grew by 10% between 2010 and 2019 causing crucial discrepancies in the Austrian education system.*

***Keywords****: migration, integration, national budget, labour market, education policy*
***JEL Classification****: J11*

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# INTRODUCTION

Eighty-eight thousand-three hundred forty applications for asylum were handed in Austria in the top year 2015. This number went considerably back in the following years but began to raise again in 2021 (39.930 applications). Migration to this extent leads not only in Austria to fears within the population due to the security of workplaces and the social costs of migration. That is why the impacts of migration belong currently the most investigated topics. The impacts of migration differ from time period to time period, significant migration waves generate bigger impacts than slow migration waves.

In the first two decades of the second Austrian Republik, the refugees arrived from Hungary in 1956 and 1968 from Czechoslovakia after the revolutions against the depressive communist regimes. Around two hundred thousand refugees arrived from both countries but only 15% of these refugees settled down in Austria in the long run (Verwiebe, Fritsch, Liedl 2019 2. p). The Austrian economy was in need of labour force after the Second World War that could not be covered by the domestic workforce (Bauböck-Perchinig, 2006.) The general economic boom and rapid growth in the labor-intensive sectors went hand in hand with the emigration of Austrian employees into neighboring countries like Germany and Switzerland and the declining manpower in the rural areas. At the same time in the 50's and 60's grew the education period of young people, causing a great number of free posts in the construction and manufacturing industries and the retail sector. That was the reason why the Austrian government called manpower into the country from the 1960's according to bilateral agreements concluded with Turkey (1964) and the former Yugoslavia (1966) ((Verwiebe, Fritsch, Liedl 2019 3. p). The general basis for enabling the employment of foreign manpower was the „Raab-Olah Agreement" (Bauer, 2008). There is a special institutional parity structure of the employers' and employees' organizations (2-2 organizations (employer side: Federal Economic Chamber, Chamber of Agriculture; employee side: Chamber of Labor, Federation of Trade Unions (ÖGB)), discussing and regulating the prices and wages in the different industries, and the work circumstances within the collective agreements.   A similar procedure was used also in Germany and Belgium. 230 thousand people arrived in Austria due to these bilateral agreements until 1973 (Verwiebe et al. 2015 16. p). The oil crisis in 1973 urged the Austrian government to reduce the number of foreign manpower in Austria because a great number of workplaces had to be ceased (Bauer, 2008). In spite of the campaign for the foreign workers (Gastarbeiter), their number increased even sharply as their family members joined them as well. The professional literature describes this phenomenon as an establishment of an ethnic lower class (Hoffmann-Nowotny, 1973). The „Gastarbeiter" and their latter joining family members substantially changed the structure of the Austrian labour market. The mainly unqualified „Gastarbeiter" of the first generation used to work in poorly paid positions, so a new social layer, the class was established at the outer edge of the social structure. The political revolution in Romania against the communist regime and the war in the former Yogoslavia on the Balkan and in Chechnia in the 1990's generated the biggest migration flood after the Second World War. Most of the Yugoslavian war refugees searched for shelter and submitted asylum applications due to the geographical proximity in Austria (Bauböck, Perchinig, 2006). Austria's accession into the European Union in 1994 fostered the mobilization of manpower within the EU, a great number of Polish, Kroatien, German, Slovakian employees arrived in Austria.

A new refugee and economic migration began in 2015 after the war conflicts in Syria, Iraq, Afghanistan and Eritrea. The number of unaccompanied and infant people increased also in a rapid way, hitting almost all of the EU member-countries. Between 2015 and 2017 the most numerous refugee groups came from Syria and Afghanistan (forty-one thousand people respectively and eighteen thousand refugees from Iraq (BMI 2015 - 2017). Concerning the ratio of the number of refugees and the number of the population of the given country, Austria belongs to those countries like Germany and Sweden, which countries accepted the most refugees. The internal migration on the internal manpower market in the EU is regarded as a positive development. Although many

migrants suffer from a devaluation of their qualifications and downward occupational mobility, studies have convincingly shown that refugees' educational and professional backgrounds are important determinants for successful participation in the host labour market (Rengs-Buber-Ennser-Kohlenberger-Hoffmann-Soder-Gatterbauer-Kopf, 2017. 4.p.).

The migration processes beginning in 2015 are evaluated in a different manner by the different political parliamentary parties. The governing People's Party and its former coalition partner the right Austrian Freedom Party represent a restrictive migration policy prescribing an effective integration and compulsory local language teaching easing this aim. The Austrian Socialdemocratic Party, the liberal Neos and the current smaller coalition party, the Greens follow a more loose migration policy, that would enable for example a shorter period of time having to spend in Austria to receive citizenship. Since the former People's Party and Liberty Party (ÖVP-FPÖ) government, tensions around the topics of migration and integration do not loose, disturbing the current People's Party and Green government coalition.

We cannot speak in the case of Austria of parallel societies like in France, the United Kingdom, or Germany. Effective participation of refugees and asylum seekers in the labour market of the host society is widely considered to be a key indicator of successful and sustainable integration (Rengs 2017. 4. p)). It is also to be considered that local labour markets ofen place relatively little value on the years of schooling and work experience accumulated by immigrants prior to their arrival (Ferrer and Riddell 2008).

## *DEVELOPMENT OF AUSTRIA'S POPULATION*

The integration report is delivered on a yearly basis by the Federal Ministry for Women, Family, Youth and Integration dedicated itself to different actual topics like 2021 the COVID19 epidemic.

At the beginning of 2022, a total of 8,978,900 people were living in Austria, 46,300 more than at the beginning of 2021 (+0.5). At the beginning of this year, a total of 2.24 million people with a migration background were living in Austria. At that time 7,392,000 people living in Austria had Austrian citizenship (-9,400 compared to 2021), while 1,587,000 people had only foreign citizenship (+55,600 compared to 2021) *(Net 1: 2022, 13.p.).*

The number of citizens with a migrant background increased by 102,600, or 4.8% compared to the previous year. Among the population with a migrant background, 1.64 million persons (18.2%) were born abroad and their parents were born abroad (1st generation). Persons with a second generation migrant background (605,300 persons - 6.7%) were born in Austria but their parents were still abroad. 43% of first generation migrants arrived between 2010 and 2021, a further 20% between 2000 and 2009, while 36% have lived in Austria for more than 20 years. 39% of the Austrian population with a migrant background (1st, 2nd generation) (878,000 persons) came from an EU or EFTA Member State. 588 thousand persons came from an EU Member State in Central Eastern or South Eastern Europe. In 2021, 20.1% of the total population of Austria was born abroad. The facts show that the Austrian population grew more strongly in 2021 than in 2020 (+31,600 persons; +0.4%) *(Net 2: 2022, 13p).*

The population of Austria has increased by 7% between 2012 and 2022, to 570,800 people. Between 2011 and 2021, the total number of people with a migrant background increased by 692,300 (+44.7%).In 2021, a total of 154,200 people immigrated to Austria, of whom 139,500 were foreigners and 14,700 were Austrian citizens. As in previous years, most immigrants in 2021 came from EU Member States (83,800), with Germany (19,400), Romania (17,900) and Hungary (9,600) being the most numerous. Among third countries, Syrian and Serbian nationals were the most numerous arrivals in Austria (13,400 persons - 5,400 persons). In 2021, the balance of immigrants and

emigrants was +52,500 persons, which corresponds to an increase of 31% (+31%) compared to the previous year *(Net3: 2022. 18p)*.

Due to the positive balance of immigration and emigration, Austria's population is not only growing but also changing structurally:

- The population with a migrant background is constantly increasing.

- The number of children born in Austria to foreign nationals is higher than the number of older foreign nationals who die (positive birth balance).

- The situation is the reverse for Austrian citizens. In their case, the number of deaths exceeds the number of births.

- In general, naturalizations counteract the increase in the foreign population, but in Austria, the number of naturalizations is so low that it cannot stem the decline in the Austrian population.

In 2020, 83,600 children were born in Austria, a 1.6% decrease compared to the previous year due to the impact of the coronavirus epidemic. In 2021, despite the epidemic, 86,100 children were born, a 3% increase compared to 2020. In Austria, no specific information is available on children born in Austria to immigrants.

Due to controlled immigration, increased numbers of Ukrainian war refugees and asylum seekers, Austria's population reached nine million by March 2022. According to 2021 statistics, there were a total of 91.395 Hungarian citizens living in Austria, broken down by province as follows: Burgenland: 6.878 persons; Carinthia: 3.076 persons; Lower Austria (Niederösterreich): 13.720 persons; Upper Austria: 14.512 persons; Salzburg: 6.794 persons; Styria (Steiermark): 10.209 persons; Tirol: 7.311 persons; Vorarlberg: 2.939 persons; Vienna: 25.956 persons (Net4: 2021).

## THE AUSTRIAN CAPITAL IN THE LIGHT OF MIGRATION FIGURES

In 2019, the population of the Austrian capital was 1,897,491, of whom 1,324,657 (69.8%) had Austrian citizenship. Of the 572,834 residents of the capital without Austrian citizenship (30.2%), 13.2% came from the EU and/or the EFTA Member States, 9.9% from other European countries and 7% from third countries *(Net5: 2019)*.

Most people with a Viennese migration background came from Serbia, Turkey and Germany. The largest group is made up of people born in Serbia with 77,714 (+408 persons compared to the previous year), followed by Germans with 47,139 (+1,677), and then Turks with 45,818 (-221). Poles are in fourth place with 43,157, followed by Bosniaks and Romanians (21,869; 33,446). Foreigners born in Hungary are in eighth place with 24,066 (+1,066) *(Net6: 2019)*. Net immigration to Vienna in 2018 was 11,600. In line with the long-term trend, the number of Austrian citizens decreased by 1,500.

In terms of origin, 63% of Vienna's population, 1,208.607 citizens, are of Austrian origin, while 40.75%, 688.900 citizens, are of foreign origin. The foreign origin population can be divided into two groups, with 262.671 people coming from EU/EFTA member states and 426.213 people coming from third countries in 2019. In 2002, only 27.2% of the capital's citizens were of foreign origin. The proportion of foreign-born people aged 0 to 5 in the Austrian capital is 37.2%. The proportion of foreigners is highest in the 25-44 age group, at 50.7%. The proportion of foreigners in the 45-64 age group is 41.3%, while the proportion of foreigners in the 65+ age group is 26.7% *(Net7: 2019, 9. p)*.

The 15th district of the Austrian capital - Rudolfsheim-Fünfhaus - had the highest proportion of people with a migrant background (42,3%), followed by the 20th district of Brigittenau and the 5th district of Margareten (37,9% - 37,6%) and the 10th district of Favoriten with 42,6% *(Net8: 2019. 12. p)*. Fifth and sixth in the ranking are Ottakring and Meidling (districts 16 and 12) with 47% and 46% respectively. The districts of Hietzing and Liesing had the lowest proportions of pupils with a

migrant background (29-29%). Vienna's 10th Favoriten district had the highest proportion of pupils who do not use German as a conversational language (72.7%).

Among people with a migrant background living in Vienna, the lowest proportion of people with a primary school education is above average (24.5%). This proportion is particularly high among people of Turkish origin (50%). Second generation foreigners already show a level of education that is close to that of the national population *(Net9: 2019. 6.p.)*.

The employment rate for people with a migrant background is slightly lower at 62%, while the rate for the Austrian population is 72%. The employment rate for women of Turkish origin is the lowest at 48%, compared to 61% for women from the former Yugoslavia.

Austrian women in Vienna give birth to an average of 1.116 children, compared to 4.21 and 3.45 for Syrian and Afghan women respectively *(Net 10: 2019. 7. p)*.

Unemployment is highest among people of Syrian origin in Vienna (61.1%), followed by Afghans and Serbs with 39.4% and 34.1% respectively *(Net11: 2019. 7. p)*.

The employment rate for people with a migrant background is slightly lower at 62%, while the rate for the Austrian population is 72%. The employment rate for women of Turkish origin is the lowest at 48%, compared to 61% for women from the former Yugoslavia.

Austrian women in Vienna give birth to an average of 1.116 children, compared to 4.21 and 3.45 for Syrian and Afghan women respectively.

The number of inter-religious marriages is negligible, with 61 Austrian Catholic women married to Muslim men in 2019.

The average size of migrant households from EU and EFTA Member States is 2.1 persons, compared to 2.5 and 3.3 persons for South Slav and Turkish households *(Net12: 2019.7.p)*.

An increasing proportion of the Viennese population is excluded from political elections, as the right to vote is linked to Austrian citizenship.

EU citizens are an exception to this in some respects, being able to vote in the district elections in the capital, but are now excluded from the elections to the City Council in the same way as third-country nationals. In 2003, the Province of Vienna introduced a law at the district level allowing third-country nationals who have been legally resident and domiciled in Vienna for at least five years to vote. However, the Constitutional Court annulled the law in 2004 on the grounds that voting rights in Austria are uniformly linked to nationality at all levels. In 2019, 29.5% of Viennese citizens over 16 years of age were denied the right to vote in federal, provincial and municipal elections on the basis of their foreign nationality. This group of 473,566 people is not eligible to participate in national consultations and referendums. Since 2002, the proportion of people without the right to vote has doubled, from 15.9% to 29.5%. Although the population of the Austrian capital has increased by 189,892 since 2008, the number of people entitled to vote has decreased by 12,933. The democratic deficit in terms of electoral participation is highest for the 25-44 age group (41.8%), and 37.9% for the 20-24 age group. The highest proportions of non-national citizens who have no right to vote at all are in the districts of Rudolfsheim-Fünfhaus, Brigittenau, Favoriten and Ottakring (23.9%; 23.7%; 23.1%; 20.9%).

# THE INTEGRATION AND DIVERSITY DEPARTMENT OF THE CITY OF VIENNA

The Integration and Diversity Department was set up by the Vienna City Council in 2004 to provide a range of services for foreigners, both newcomers and those already living in the capital, in addition to its administrative tasks. The integration department employs 60 people with different qualifications and backgrounds (lawyers, social workers, political scientists, etc.) *(Net13: 2020 Wiener Melange, 89 p.).* This diversity enables it to communicate with people in 30 different languages. 60% of the staff are of foreign origin. In 1999, the Municipality of the capital created the international youth, culture and training workshop "Interface Wien", which is now a separate Municipal Corporation of the capital. The main elements of the Vienna integration concept are strengthening German language skills, training and labour market, coexistence and social participation, measurability, human rights. An orientation course is organized for immigrants arriving in the Austrian capital in 25 different languages (Albanian, Arabic, Czech, Hungarian, Chinese, Bosnian, Turkish, Ukrainian, Russian, Serbian, Slovak, Spanish, etc.). Immigrants receive a Vienna training guide and a language learning gift voucher of €300. Immigrants who are obliged to comply with the integration agreement will receive a language learning voucher of €300,- and those from the European Economic Area will receive a language learning voucher of €150,-. The gift vouchers can be used in language schools certified by the Integration Department of the capital. Between 2008 and 2020, a total of 32,000 training vouchers will be issued in the capital. In 2006, the Municipality of the capital introduced the "mum learns German" German language learning programme for foreign women with preschool and school-age children. In addition to learning German, the programme offers foreign women living in Vienna the opportunity to learn a range of skills to better support their children in school. The European Union's 2017 Fundamental Rights Report identified the German language education programme for foreign mothers in Vienna as "best practice".

On 1 January 2021, the total population of the Austrian capital was 1,920,949. Within the total population of Vienna, 41.9% are of foreign origin, which means that they are either foreign citizens or citizens born abroad who have acquired Austrian citizenship in the meantime. In Vienna, the largest foreign community is made up of Serbs with 101,597 people *(Net14: 2021)*

On 1 January 2021, a total of 25,956 people of Hungarian nationality and 31,107 people of Hungarian origin lived in the Austrian capital. This means that the persons concerned are either Hungarian citizens or Austrian citizens still born in Hungary. Of the 31,107 persons of Hungarian origin, 46% were male (14,372 persons) and 54% were female (16,735 persons). The number of Viennese citizens of Hungarian origin doubled between 2012 and 2021 (15,519 - 31,107). The number of Hungarian citizens living in Vienna increased three and a half times over the same period (7,453 - 25,956).

*Table 1. distribution of the citizens in Viennea of Hungarian origin according to districts*

| District | number of citizens | district | number of citizens |
|---|---|---|---|
| 1. Innere Stadt | 204 | 13. Hitzing | 1 196 |
| 2. Leopoldstadt | 1 704 | 14. Penzing | 1 595 |
| 3. Landstraße | 1 577 | 15. Rudolfsheim-Fünfhaus | 1 602 |
| 4. Wieden | 512 | 16. Ottakring | 1 542 |
| 5. Margareten | 968 | 17. Hernals | 826 |
| 6. Mariahilf | 541 | 18. Wahring | 794 |
| 7. Neubau | 415 | 19. Döbling | 1 329 |

| 8. Josefstadt | 378 | 20. Brigittenau | 1 322 |
|---|---|---|---|
| 9. Alsergrund | 653 | 21. Floridsdorf | 2 456 |
| 10. Favoriten | 3 597 | 22. Donaustadt | 2 497 |
| 11. Simmering | 1 545 | 23. Liesing | 1 766 |
| 12. Meidling | 2 088 | Total: | 31 107 |

*Source: Net 15: https://www.wien.gv.at/english/social/integration/facts-figures/population-migration.html Wiener Bevölkerung – Daten und Fakten zu Migration und Integration 2021. 31-32-33 p.*

11% of Viennese citizens of Hungarian origin are aged between 0-14 years. A further 10% are in the 15-24 age group. 42% of people of Hungarian origin living in the Austrian capital are aged between 25 and 44, a further 24% are aged between 45 and 64, and the remaining 12% are aged over 65.

7% of Viennese citizens of Hungarian origin were born in Austria. Another 37% have lived in Austria for at least 10 years. 24% have arrived in Austria in the last 4 years, while 32% have lived in Vienna for 5-9 years *(internal material of the integration and diversity department).*

The number of Viennese citizens of Hungarian origin doubled between 2012 and 2021 (15,519 to 31,107), while the number of Hungarian citizens living in Vienna increased three and a half times over the same period (Chart 1).

*Chart 1. Development of the number of the Hungarian community in Vienna*
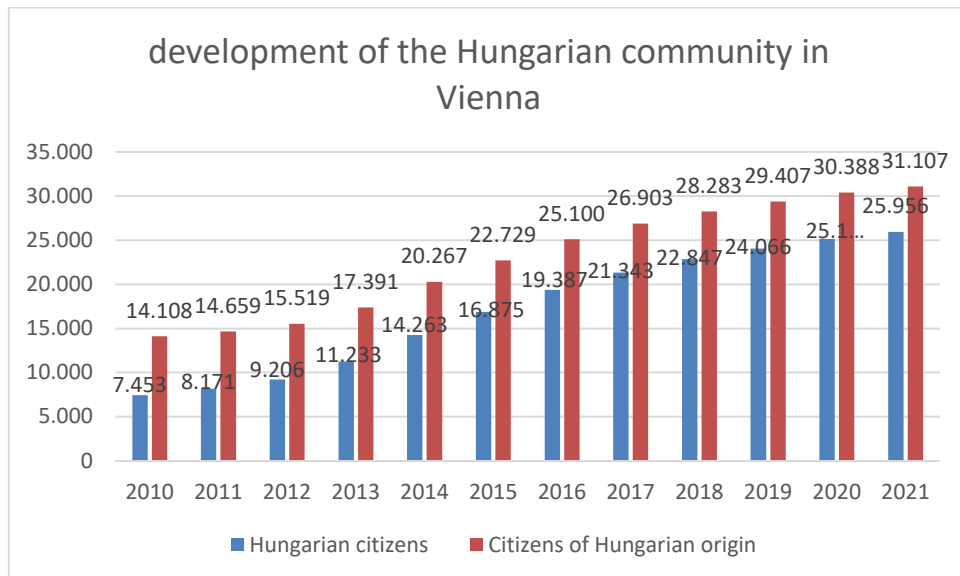


*Source: own drafting upon the internal information of the Integration and Diversity Department of the City of Vienna*

# IMPACT OF MIGRATION ON THE AUSTRIAN ECONOMY AND THE NATIONAL BUDGET

According to the Austrian Integration Fund (ÖIF) study "Fiscal and Economic Impacts of Different Forms of Migration", covering the period 2013-2018, Austria's population increased by 434,915 in the five years under review, clearly due to net immigration. In total, 178,794 immigrants came from the EU Member States, mostly from the 13 newly acceded Central and Eastern European Member States (118,607) *(Net16: 2017, 22.p)*. Among foreign immigrants, immigrants from the EU-15 have the highest level of education (48% with tertiary education), which is significantly higher than the average of 20% of Austrian citizens. In contrast, asylum seekers have a low average educational structure.

The impact of migration flows on the economy and public finances depends of above all on the degree of labour market integration. Immigrants from EU-15 and EU-13 countries and immigrants from third countries contributed a total of €9,548 million (€2,581 million; €5,785 million; €1,182 million) to Austria's budget between 2013 and 2020.

Austria's population continued to rise in 2020 by 42,289 (0.45%) to 8,901,064 people but this was almost entirely due to immigration. At the beginning of 2020, there were a total of 1,486,223 persons with foreign citizenship living in Austria, which corresponds to 16.7% of the total population. In 2019, the population of the Austrian capital was 1,897,491, of whom 1,324,657 (69.8%) had Austrian citizenship. 29.5% of Viennese citizens aged 16 and over were not entitled to vote in federal, provincial and municipal elections in 2019 on the basis of their foreign citizenship. According to 2019 statistics, there are 82,712 Hungarian citizens living in Austria.

Migration and integration have been at the forefront of Austrian domestic policy since 2015. In this report, we present the findings of a study by the Austrian Integration Fund (ÖIF) on the economic and public finance implications of different forms of migration. The study covers the period 2013-2020.

Only the immigration and emigration of Austrian citizens shows a negative balance: the number of emigrated Austrian citizens exceeded the number of returnees by 31,201. Over the five-year period, the Austrian population increased by a total of 434,915 persons, which can be attributed to net migration, broken down as follows (EU-15: 60,187 persons; EU-13: 155,699 persons; non-EU: 118,607 persons; asylum seekers: 131,623 persons). In fact, the Austrian population has increased by 489,100 persons in the period under review, which is the result of more children being born in Austria as a consequence of migration. The breakdown of the 489,100 new inhabitants is 268,500 men and 220,600 women. The higher proportion of men is due to the above-average number of male asylum seekers. The proportion of immigrants from EU-15, EU-13 and non-EU countries is roughly the same for men and women.

*Table 2. Balance of the Austrian migration and emigration between 2013 és 2018*

| Description | Austrian citizens | EU-15 | EU-13 | third countries | refugees | total |
|---|---|---|---|---|---|---|
| 2013 | -5 992 | 12 429 | 27 785 | 12 278 | 8 228 | **54 728** |
| 2014 | -5 419 | 10 152 | 37 460 | 11 667 | 18 464 | **72 324** |
| 2015 | -5 450 | 11 690 | 29 521 | 19 298 | 58 008 | **113 067** |
| 2016 | -5 044 | 9 643 | 24 480 | 22 044 | 13 553 | **64 676** |
| 2017 | -4 747 | 8 572 | 20 599 | 24 534 | 18 617 | **67 575** |
| 2018 | -4 549 | 7 701 | 15 854 | 28 786 | 14 753 | **62 545** |
| **Total:** | **-31 201** | **60 187** | **155 699** | **118 607** | **131 623** | **434 915** |

Among foreign immigrants, immigrants from the EU-15 have the highest level of education. 48% have a tertiary education, which is significantly higher than the average of 20% of Austrian citizens. The share of immigrants with tertiary education from the 13 relatively newly acceded EU countries is lower than that of citizens from the EU-15, but their level of education is still better than that of Austrian citizens. The share of third-country nationals with tertiary education is also still higher than that of Austrian nationals, with a below-average education structure only for asylum seekers.

*Table 3. Education level of the immigrants*

| discription | proportion of low educated people (%) | proportion of people with secondary education (%) | proportion of highly educated people (%) |
|---|---|---|---|
| **EU 15** | 6,2 | 45,7 | **48** |
| **EU 13** | **12** | **59,4** | **28,6** |
| third countries | 25,9 | 43,4 | 30,7 |
| Refugees | 59,2 | 23 | 17,8 |
| **Austrian population between 24 and 64 years** | 17 | 62,4 | 20,6 |
| **Austrian citizens between 24 and 64 years** | 15,1 | 64,6 | 20,3 |

*Source: Net 18*
*:https://www.integrationsfonds.at/fileadmin/content/AT/Fotos/Publikationen/Forschungsbericht/Ec oAustria_Fiskalische_Effekte_verschiedener_Migrationsformen_Web.pdf 30.p.*

The impact of migration flows on the economy and public finances depends of above all on the degree of labour market integration. From an economic perspective, migration means an increase in labour supply, employment and economic growth in general. However, in the short term, migration may limit the employment and wage growth of the domestic population.

The revenue side of the table below consists of consumption and income taxes, social security and other contributions. The expenditure side covers the costs of health, education, childcare, family support, labour market, basic social services and basic social services as needed.

*Table 4. Impact of migtation from the EU 15 and 13 countries, third countries and the refugee migration on the national budget (mill. EUR)*

| migration from EU 15 countires | Income | Expenditures | Balance | GDP % |
|---|---|---|---|---|
| 2013 | 121 | 58 | 63 | 0,02% |
| 2014 | 250 | 129 | 121 | 0,04% |
| 2015 | 398 | 204 | 194 | 0,06% |
| 2016 | 547 | 275 | 272 | 0,08% |
| 2017 | 692 | 335 | 357 | 0,10% |
| 2018 | 833 | 392 | 441 | 0,12% |

| | Income | Expenditures | Balance | GDP % |
|---|---|---|---|---|
| 2019 | 953 | 425 | 528 | 0,14% |
| **2020** | **1 042** | **437** | **605** | **0,15%** |
| **Total:** | **4 836** | **2 255** | **2 581** | **0,09%** |
| **migration from EU 13 countires** | **Income** | **Expenditures** | **Balance** | **GDP %** |
| 2013 | 259 | 84 | 175 | 0,05% |
| 2014 | 570 | 283 | 287 | 0,09% |
| 2015 | 949 | 498 | 451 | 0,13% |
| 2016 | 1 314 | 685 | 629 | 0,18% |
| 2017 | 1 657 | 850 | 807 | 0,22% |
| 2018 | 1 976 | 997 | 979 | 0,26% |
| 2019 | 2 240 | 1 087 | 1 153 | 0,30% |
| **2020** | **2 437** | **1 133** | **1 304** | **0,33%** |
| **Total:** | **11 402** | **5 617** | **5 785** | **0,20%** |
| **migration from third countires** | **Income** | **Expenditures** | **Balance** | **GDP %** |
| 2013 | 73 | 46 | 27 | 0,01% |
| 2014 | 174 | 112 | 62 | 0,02% |
| 2015 | 306 | 217 | 89 | 0,03% |
| 2016 | 470 | 367 | 103 | 0,03% |
| 2017 | 658 | 527 | 131 | 0,04% |
| 2018 | 875 | 713 | 162 | 0,04% |
| 2019 | 1 077 | 832 | 245 | 0,06% |
| 2020 | 1 227 | 864 | 363 | 0,09% |
| **Total:** | **4 860** | **3 678** | **1 182** | **0,04%** |
| **Refugees** | **Income** | **Expenditures** | **Balance** | **GDP %** |
| 2013 | 42 | 160 | -118 | -0,04% |
| 2014 | 139 | 452 | -313 | -0,09% |
| 2015 | 297 | 1 112 | -815 | -0,24% |
| **2016** | **536** | **2 138** | **-1 602** | **-0,46%** |
| **2017** | **687** | **2 335** | **-1 648** | **-0,46%** |
| 2018 | 849 | 2 454 | -1 605 | -0,43% |
| 2019 | 966 | 2 168 | -1 202 | -0,31% |
| 2020 | 1 075 | 1 881 | -806 | -0,20% |
| **Total:** | **4 591** | **12 700** | **-8 109** | **-0,28%** |

*Source: Net 19*
*https://www.integrationsfonds.at/fileadmin/content/AT/Fotos/Publikationen/Forschungsbericht/Eco Austria_Fiskalische_Effekte_verschiedener_Migrationsformen_Web.pdf 90.p.*

Looking at the summary rows of the table, it can be seen that for immigrants from the old EU Member States (EU15 - EU13) and workers from third countries, general government revenue exceeded general government expenditure in every year from 2013 to 2020 (by 46.62-49.26-24.32%).

The balance of government revenue and expenditure per EU15 workers in 2020 amounted to 0.15% of Austrian GDP. The impact of migration from the newly acceded EU13 countries on the budget is even more positive, with the surplus in budget revenue from this segment amounting to 0.3% of GDP in 2020. Migration from third countries also made a positive contribution to Austria's budget, with an expenditure-revenue balance of 0.1% of GDP. For refugees, the balance of revenue and expenditure is inversely proportional (-276%). The low level of budgetary revenue from refugees compared to expenditure is due to poor labour market integration. In this group, budget expenditure is significantly increased by the items for basic care and basic social assistance. Austrian budget expenditure on refugees in 2016-2017 amounted to 0.46% of GDP, with expenditure exceeding revenue by €1.6 billion and €1.64 billion respectively. In the last couple of years, the trend has somewhat eased.

Immigrants from EU-15 (EU-15; EU-13) countries and immigrants from third countries contributed a total of €9.548 million (€2.581 million; €5.785 million; €1.182 million) to Austria's budget between 2013 and 2020. In contrast, refugees represented an expenditure of 8,109 million to the Austrian budget. If we add up the positive budgetary balances of the EU-15, EU-13 and third-country workers (€9,584 million) and subtract the negative budgetary balance of refugees (€8,109 million) between 2013 and 2020, we obtain a positive migration budgetary balance of €1,439 million, equivalent to 0.05% of Austrian GDP.

## *SOCIAL ISSUES*

There are significant differences in the social situation of immigrants according to their country of origin. The difference in average income is greatest between Austrian nationals and third-country nationals. While the median annual income for Austrian citizens was €27,749 in 2019, the median annual income for immigrants from third countries was €19,090. The weighted median annual income for immigrants from other EU countries was €21,977 in 2019. The significant income gap is mainly due to low levels of education and employment.

Overall, the number of citizens at risk of poverty in Austria decreased in 2020. Of the 845,000 citizens at risk of poverty, 579,000 were Austrian citizens, 34,000 were foreign citizens with Austrian citizenship, 103,000 were foreign citizens and 129,000 were citizens from third countries.

More than half of those receiving social assistance were foreign nationals in 2020. 55% of those receiving social assistance were concentrated in the Austrian capital, with the remainder in the other seven provinces. In 2020, a total of 136,300 persons received social assistance in the province of Vienna, of whom 61,000 were Austrian citizens (45%), 9.6,000 were from EU and EFTA member states (7%), 43,600 persons entitled to refugee status (32%), 6,400 beneficiaries of subsidiary protection (5%) and 15,700 persons from other third countries (11%) received social assistance last year. Persons with refugee status and third-country nationals and beneficiaries of subsidiary protection accounted for 48% of the total group in the capital. Excluding Burgenland, a total of 111,900 persons in the other Austrian provinces received social assistance (54,99 Austrian citizens (49%); 8,400 EU and EFTA nationals (7%); 37,500 beneficiaries of refugee status (34%); 2,500 beneficiaries of subsidiary protection (2%); and 8,600 other third country nationals (8%) were still receiving social assistance in 2020) (Net 20: Integrationsbericht 2020, 83.p.).

# THE SOCIAL DIMENSIONS OF AUSTRIAN EDUCATION POLICY

In Austria, the educational attainment of the population aged between 25 and 64 has increased significantly between 2010 and 2019, both for women and men, as well as for immigrants from different regions. The share of foreign students in the Austrian primary and secondary education system increased from 9.50% to 16.3% in 10 years. The phenomenon of school segregation - if it is even relevant to talk about it in Austria - is related to the implementation of language remedial education. Austrian social integration policy is based on the principles of 'integration by merit' and 'support and demand'. The coronavirus epidemic is having a negative impact on refugees and immigrants in Austria (homeschooling, unemployment, increasing segregation tendencies).

# TRENDS SHOWING SIGNS OF SCHOOL SEGREGATION IN AUSTRIA

26.4% of students (294,532 students) studying in Austria do not use German as a language of everyday conversation and are therefore classified as having a migrant background. This national average varies from one province to another, with the concentration of migrants being most pronounced in large cities. 52.5% of pupils in Vienna schools do not use German as their everyday language. The proportion also varies from one district to another in the capital, with Vienna's 10th "Favoriten" district having the highest proportion of pupils with a foreign mother tongue (72.7%), compared to 25.3% in the 1st district in the city center. These young people receive language catch-up support. 25% of Afghan refugees have never attended school in their home country. For Afghan children from these backgrounds, summer German catch-up classes are offered and parents are given courses on the Austrian education system. The phenomenon of school segregation - if it is even worth talking about in Austria - is precisely in the context of the implementation of language remedial education.

Susanne Raab, the APP Integration Minister, said that integration is most difficult where parallel societies are created and the minority concerned has no connection with Austrian society. She pointed out that in the new vocational schools in Vienna's 5th Margareten district, 90% of pupils do not use German in everyday life. As regards the figures, the Austrian Statistical Office explained that these figures do not allow any conclusions to be drawn on the German language skills of pupils. They only show that pupils use another language in addition to German. The minister added that the data could be used mainly to determine how many pupils come from migrant families. Susanne Raab said it was of the utmost importance that pupils from migrant backgrounds who do not speak German at home receive adequate support to catch up. German language skills are the basis for a successful education. It is much easier to integrate the child than the parents. 25% of Afghan refugees have never attended school in their home country. For Afghan children from such backgrounds, summer catch-up German classes are held, and parents are given courses on the Austrian education system and the importance of working with teachers. The minister sees multilingualism as a definite advantage, but if a foreign student has a poor command of German, it causes serious difficulties.

**Steps taken to integrate foreign students:**

Austrian social integration policy is based on the principles of "integration by merit" and "support and demand". Integration is a societal task that encompasses education and training, German language acquisition, labour market integration, housing, health care, the use of common spaces, the enforcement of human rights and the prevention of parallel societies. Lack of integration skills and violations of the values of Austrian society will be sanctioned. Knowledge of German is the key to integration. The government's priority is to integrate immigrants into society as soon as possible through compulsory German language instruction, country-specific knowledge and various vocational training courses, in order to prevent the development of parallel societies and the spread of extremist views.

**The German language catch-up classes** are in place from the 2018/19 school year to ensure equal opportunities and better integration in the classroom. Placement in this additional education group is based on a standardized, nationwide assessment called MIKA-D, a German competence analysis. The test is taken at school enrolment. Pupils selected for remedial education study only the skills subjects (art, music and singing, physical education) with their classmates, are separated from their classmates in all other subjects and are taught in age-mixed classes, with a higher level of German language skills and German language/literature itself. This means that they lose the opportunity to develop linguistically through play with their peers of the same age, and they quickly experience social exclusion as a consequence of their performance at school. This form of segregation is opposed by 80% of teachers and the balliberal parties and has been continued by the People's Party-Liberal cabinet in government for a year and a half since the beginning of 2018, and by the current People's Party-Green government (since January 2020).

## EDUCATIONAL ATTAINMENT, DEMOGRAPHIC TRENDS AND ETHNIC COMPOSITION OF THE SCHOOL-AGE POPULATION IN AUSTRIA

In Austria, the educational attainment of the population aged between 25 and 64 increased significantly between 2010 and 2019, both for women and men, as well as for immigrants from different regions. In general, the share of tertiary educated citizens in all segments has increased significantly over the last 10 years at the expense of primary and secondary educated citizens. For men and women from third countries, their educational attainment is significantly lower than that of Austrian citizens. 36.2% of men and 44.1% of women from third countries had only primary education, compared to only 9.3% and 15.2% respectively for Austrian men and women.

*Table 5. Austrian population's educational structure between 25 and 64 years according to the*

| description | 2010 (%) | | | 2020 (%) | | |
|---|---|---|---|---|---|---|
| | elementary education | secondary education | college graduate | elementary education | secondary education | college graduate |
| Austrian men | 10,9% | 68,2% | 20,9% | 9,3% | 56,0% | 34,7% |
| **Austrian women** | **20,8%** | **62,5%** | **16,6%** | **15,2%** | **52,2%** | **32,7%** |
| foreign men | 25,1% | 52,0% | 22,9% | 22,3% | 45,9% | 31,8% |
| **foreignwomen** | **35,6%** | **43,5%** | **20,9%** | **26,4%** | **37,2%** | **36,4%** |
| EU28 men | 9,7% | 58,5% | 31,8% | 10,5% | 49,5% | 39,9% |
| **EU 28 women** | **15,6%** | **58,6%** | **25,8%** | **12,8%** | **42,9%** | **44,3%** |
| EU15 men | 5,8% | 45,7% | 48,6% | 4,7% | 41,0% | 54,3% |
| **EU 15 women** | **8,9%** | **54,1%** | **37,0%** | **5,3%** | **42,5%** | **52,2%** |
| men from third countries | 37,6% | 46,7% | 15,7% | 36,2% | 41,6% | 22,2% |
| **women from third countries** | **53,9%** | **29,6%** | **16,5%** | **44,1%** | **29,7%** | **26,2%** |

*Source: Net 21: Integrationsbericht 2020:*

*https://www.bundeskanzleramt.gv.at/service/publikationen-aus-dem-bundeskanzleramt/publikationen-zu-integration/integrationsberichte.html Integrationsbericht 2020. 49.o.*

*Table 6. Distribution of pupils living in Austria 2010-2019*

| Pupils | Austrian pupils | foreign pupils | pupils coming from EU bevor 2004 | pupils coming from EU after 2004 | pupils from former Jugoslawia | pupils of Turkish origin | Afghanistan, Iraq, Syria | other third countires | total |
|---|---|---|---|---|---|---|---|---|---|
| all schools 2019 | 83,7%, 949.737 | 16,3% 185.406 | 2,4% 27.036 | 4,6% 51.747 | 2,9% 32.388 | 1,4% 15.359 | 2,2% 25.510 | 2,9% 33.366 | 100% 1.135.143 |
| all schools 2010 | 90,5% 1.070.135 | 9,50% 112.337 | 1,4% 16.970 | 1,9% 22.755 | 2,7% 32.253 | 1,6% 18.674 | 0,2% 1.833 | 1,7% 19.872 | 100% 1.182.472 |
| primary school 2019 | 80,6% 275.818 | 19,4% 66.298 | 2,5% 8.455 | 5,8% 19.788 | 3,1% 10.653 | 1,6% 5.550 | 3% 10.161 | 3,4% 11.691 | 100% 342.116 |
| primary school 2010 | 88,9% 292.780 | 11,13% 36.660 | 1,5% 4.858 | 2,2% 7.132 | 3,1% 10.191 | 2,1% 6.765 | 0,2% 528 | 2,2% 7.186 | 100% 329.440 |
| secondary school 2019 | 81,1% 167.385 | 18,9% 39.127 | 1,7% 3.576 | 5,4% 11.119 | 3,3% 6.718 | 1,8% 3.742 | 3,1% 6.431 | 3,7% 7.541 | 100% 206.512 |
| secondary school2010 | 87,4% 189.946 | 12,6% 27.392 | 0,9% 1.870 | 2,4% 5.123 | 4% 8.761 | 2,9% 6.200 | 0,3% 546 | 2,3% 4.892 | 100% 217.338 |
| auxiliary school 2019 | 75,7% 11.075 | 24,3% 3.555 | 2,6% 382 | 5,1% 743 | 4,3% 634 | 3,2% 475 | 3,5% 515 | 5,5% 806 | 100% 14.630 |
| auxiallary school 2010 | 81,7% 10.802 | 18,30% 2.419 | 1,5% 204 | 1,7% 223 | 6,2% 819 | 5,2% 684 | 0,8% 101 | 2,9% 388 | 100% 13.221 |
| technical school 2019 | 76,7% 11.631 | 23,3% 3.528 | 1,7% 265 | 5,6% 849 | 3,8% 572 | 2,1% 311 | 5,7% 864 | 4,4% 667 | 100% 15.159 |
| technical school 2010 | 85% 16.410 | 15,04% 2.905 | 0,8% 154 | 2,2% 428 | 5,1% 990 | 3,5% 681 | 0,5% 101 | 2,9% 551 | 100% 19.315 |
| secondary high school 2019 | 88% 187.401 | 12% 25.645 | 3,1% 6.682 | 3,5% 7.490 | 1,4% 3.02 | 0,5% 1.149 | 1% 2.102 | 2,4% 5.201 | 100% 213.046 |
| secondary high school 2010 | 93,2% 188.714 | 6,83% 13.842 | 2% 4.065 | 1,9% 3.778 | 1,4% 2.753 | 0,4% 798 | 0,1% 215 | 1,1% 2.233 | 100% 202.556 |
| vocational school 2019 | 85,4% 99.104 | 14,6% 16.892 | 2,2% 2.522 | 3,1% 3.552 | 3,2% 3.723 | 1,7% 1.919 | 2,4% 2.784 | 2,1% 2.392 | 100% 115.996 |
| vocational school 2010 | 93,4% 130.980 | 6,61% 9.276 | 1,6% 2.188 | 1,1% 1.498 | 2,4% 3.371 | 1% 1.399 | 0,1% 105 | 0,5% 715 | 100% 140.256 |
| vocational high school 2019 | 82,6% 36.096 | 17,4% 7.616 | 1,9% 828 | 4% 1.768 | 3,9% 1.709 | 1,9% 826 | 3,1% 1.364 | 2,6% 1.121 | 100% 43.712 |
| vocational high school 2010 | 90,8% 46.961 | 9,19% 4.751 | 1,2% 634 | 1,9% 989 | 3,4% 1.738 | 1,4% 705 | 0,2% 91 | 1,1% 594 | 100% 51.712 |
| academic education 2019 | 89,2% 126.810 | 10,8% 15.424 | 1,7% 2.382 | 3,5% 4.948 | 2,6% 3.634 | 0,8% 1.196 | 0,6% 877 | 1,7% 2.387 | 100% 142.234 |
| academic education 2010 | **94,4% 139.232** | **5,57% 8.208** | **0,9% 1.291** | **1,6% 2.432** | **1,8% 2.622** | **0,5% 696** | **0,1% 94** | **0,7% 1.073** | **100% 147.440** |

*Source: Net 22: Integrationsbericht 2020:*
*https://www.bundeskanzleramt.gv.at/service/publikationen-aus-dem-*
*bundeskanzleramt/publikationen-zu-integration/integrationsberichte.html Integrationsbericht 2020*
*51.p.*

The share of foreign students in the Austrian primary and secondary education system has increased from 9.50% to 16.3% in 10 years. While the share of pupils of Turkish nationality has been decreasing for all school types over the last 10 years, the share of pupils of Afghan, Syrian and Iraqi origin has increased for all school types. In Austria, the educational background of parents is largely hereditary, making the situation particularly difficult for pupils with migrant backgrounds and low-skilled parents.

The table shows that the heterogeneity of students has increased for all school types over the last 10 years. The 2020 Integration Report also shows that 26.4% (294,532 pupils) of pupils in Austria do not use German as a language of everyday conversation. This figure was 17.6% in 2010. 5.5% of learners use Turkish, 6.5% use Serbian, Croatian or Bosnian, while 14.5% use another foreign language.

The fact that 26.4% of pupils do not use German most in everyday life does not in itself mean that they speak German badly.

The proportion of foreign students is most striking in the province of Vienna. Over the last 10 years, the proportion of foreign students in Vienna has risen from 17.3% to 29.5% (39,100 students - 71,400 students), an increase of 82.7%. The proportion of foreign pupils in Vienna's primary schools rose from 20.1% to 36.1% in 10 years (12,568 - 26,339).

70% of non-native German-speaking children aged 3 to 6 years in pre-school need development, a clear downward trend from 58% in 2010. In the 2018/19 school year, 33% of preschool children used a language other than German in everyday life, an increase of 8% compared to 10 years earlier. In the capital, the same proportion rose from 43.5% to 60.1%. The proportion of school pupils whose mother tongue is not German has risen from 17.6% to 26.4% in a decade. In the German capital, too, there has been a significant increase, from 41.8% to 52.2%.

The analysis of educational attainment revealed that a third of pupils from a migrant background do not reach or only partially reach the literacy and numeracy standards. However, a positive result is that the share of individual pupils with Syrian nationality has decreased from 74.2% to 37.3% in three years in 2019. Nationally, the number of individual pupils decreased from 45,300 to 38,700 in the 2018/19 school year compared to the previous year. The share of foreign students among individual students is 71.9%.

Emerging parallel societies in Austria:

Members of emerging parallel societies in Austria are characterized by lower levels of education, low female employment and higher unemployment. Social separation from the majority of society is a major obstacle to integration. Foreign-led, nationalist front organizations operating alongside mosque associations are particularly conducive to the social segregation of Muslim migrant groups. In many cases, ideological influence from abroad starts already in the mosques' children's and youth sessions, as a counter-effect to contact and integration with members of the majority society. Nationalist identity constructions help to perpetuate integration deficits. The more distinctive the migrant group's sense of identity, the more difficult it is to integrate into mainstream society. Belgium, France and the UK already have distinct parallel social structures, which are much more characteristic than those in Austria and Germany. In these countries, migrant groups live in almost complete isolation and show serious integration deficits. The clear tangible signs of this phenomenon are segregated neighborhoods and lifestyles.

As in the rest of Europe, migration and its associated phenomena are most concentrated in urbanized areas in Austria. Cities offer better job opportunities, better access to public and non-public services and easier ethnic grouping. Most migration triggers a chain reaction, i.e. kinship networks take in more and more relatives and acquaintances. Newcomers thus find it less difficult to leave their home country, as they know they are in a "home environment". The social network of migrants and their settlement in segregated neighborhoods provides an additional breeding ground for new migrants. After a certain period of time, migrants in segregated neighborhoods are already running their own shops with well-known domestic products and services (hairdressers, craftsmen). In addition, migrants visit doctors from their home countries. People with a migrant background living

in Austria have 31 m2 of living space, compared to 50 m2 for people with a non-migrant background. 66% of people with a migrant background in Austria were employed, compared to 77% of people with a non-migrant background.

The negative impact of the coronavirus epidemic on refugees and migrants:

⌡ German language skills gaps become more noticeable: citizens from migrant backgrounds are difficult to reach through traditional communication channels.
⌡ Distance learning (homeschooling) discourages children from migrant backgrounds. Summer school education has been provided for children from a migrant background and, in parallel, parenting courses have been provided for parents of the pupils concerned.
⌡ Unemployment during the pandemic also hit workers of foreign origin harder than Austrian citizens.
⌡ Segregation tendencies intensify during the pandemic. Mandatory integration-oriented German language and values courses could not be attended due to curfew restrictions, which set back the integration process.

# INTEGRATION POLICY OF THE CURRENT AUSTRIAN GOVERNMENT

The 326-page program of the new People's Party-Green government, inaugurated on 7 January 2020, includes a seven-page chapter on integration. Austria's integration policy is based on the principles of "integration by merit" and "support and demand". The government continues to support the concept of compulsory German language teaching and national values courses. For schoolgirls, the ban on wearing headscarves will be extended until the age of 14. Labour market mobility is foreseen for asylum seekers, i.e. they can work in other Länder. An action plan against racism and discrimination will be developed.

The Austrian government is committed to the strongest possible integration of its people and to peaceful coexistence. The main goal of integration is to ensure that everyone has equal rights in society. Austria is a Christian country, open to the world, with a rich cultural and religious heritage, committed to humanism and enlightenment. Austrian society is based on mutual respect and recognition, the rule of law, democracy, equality and human rights. Austrian integration policy is based on the principles of "integration by merit" and "support and demand". The Austrian state supports integration but also demands an effective contribution from its citizens. The integration process requires a strong mutual effort from both the state and the individual. Integration is a task for society as a whole, covering education and training, German language acquisition, labour market integration, housing, health care, the use of common spaces, the enforcement of human rights and the prevention of parallel societies.

An open and inclusive society is the basis for successful integration. The adaptability and integration vocation of immigrants is essential. A lack of integration skills and violations of the values of Austrian society will result in sanctions. Knowledge of German is the key to integration. Multilingualism is seen by the government as an outstanding opportunity. Austria places a strong emphasis on education and economic development, so it relies heavily on the education of its people, who put their skills at the service of themselves and the country.

Integration coordination and support measures

⌡ developing a coherent federal-level integration support strategy
⌡ Establishing effective coordination and mutual exchange of experience between the federal level, the provinces and the municipalities

- Strengthening the role of the Austrian Integration Fund as a coordinator of integration measures
- Strengthening the role of the Austrian Integration Fund as a competence and coordination centre
- Strengthening local integration and the cooperation of the Integration Fund with the provinces
- Strengthening the coordination role of the Austrian Integration Fund in the field of the acquisition of highly skilled immigrants and key workers
- Strengthening local integration: Strengthening the cooperation between the Integration Fund, the provinces, civil society and the Unemployment Centre in order to create synergies and make better use of existing expertise and networks
- Continuous evaluation of individual cooperations, projects and actions
- Organisation and coordination of value and orientation courses organised at the State level
- target group-specific integration counseling
- creation of a single database to collect information on integration measures for third-country nationals and refugees. The database will greatly help to increase the transparency of inter-agency cooperation.
- support for integration projects initiated by civil society
- providing specialised language training.

Specific integration measures for women

- Women play a multiplier role in integration, so integration measures that focus on them are particularly important.
- Effectively promoting and supporting women's integration into the labour market
- Effective promotion of women's German language learning through language courses, while at the same time effectively managing childcare
- improving women's health care, psychological counseling
- increased protection of women against domestic and other forms of violence.

Integration and training

- German language skills and training are essential for the successful integration of women.
- Promoting the completion of primary school for women
- Providing vocational training opportunities
- Providing schools with support staff to facilitate the intercultural integration of immigrant women (social workers, school psychologists)
- Comprehensive German language teaching and German catch-up classes
- values education, - Austrian national values, democracy, political education, country knowledge
- transfer of knowledge on democracy, Austrian form of government and legal system
- emphasis on equality between women and men
- Religious education
- ensuring the free development of children in schools
- Continuous evaluation and quality assurance of books used in religious education
- Supervising the quality training of Islamic religious education teachers
- evaluation and continuous training of teachers of religious education
- The main objective is to ensure that free, well-educated and enlightened people come out of the classroom
- Developing a pedagogical care concept to deal with pupils who are violent
- Greater transparency and monitoring of children in state care

) The Austrian government is committed to ensuring that girls are not forced to wear headscarves.
) Extension of the existing headscarf ban up to the age of 14
) The state has a responsibility to empower girls and women.

Labour market integration

) Labour market integration of asylum seekers is of paramount importance
) The regular job fairs organised by the Unemployment Centre are an effective way of promoting the integration of asylum seekers into the labour market
) Strengthening the role of the Unemployment Centre as a trans-regional mediator
) Particular attention should be paid to the integration of young unemployed people into the labour market
) Strengthening the vocational training of beneficiaries of refugee status to enable them to enter the labour market
) Migrants should be employed according to their professional qualifications
) Speed up naturalisation procedures.

Social inclusion

) The government's main social policy objective is to ensure peaceful coexistence.
) Strengthening voluntary work in various associations at the regional level
) Social coalition against religious, national and political extremism that hinders integration
) Strengthening social cohesion against the emergence of parallel societies and preventive social measures in the field of education
) Developing a strategy against anti-Semitism
) Developing a strategy against racism and discrimination
) Strengthening intercultural competencies in education (Net 19).

## *CONCLUSION*

We can generally acknowledge that citizens from the EU 15 countries have the best education level, around half of these employees dispose of terciary education. It means that they have an advantage over their competitors coming mainly from the newly accessed Central and Eastern European countries. The share of third-country nationals with tertiary education is also still higher than that of Austrian nationals (20%). The impact of migration flows on the economy and public finances depends of above all on the degree of labour market integration. From an economic perspective, migration means an increase in labour supply, employment and economic growth in general. However, in the short term, migration may restrict employment and wage growth of the domestic population, causing tensions within the majority of the society. It can also be confessed that the increasing population of Austria can be retraced exclusively to migration from abroad. Another outstanding issue is, that the migrants from the EU 15 and 13 countries and third countries contribute unambiguously positive to the national budget of Austria, it is undoubted a gain for the country. The refugees make up the only group, where the state expenditures exceed in a drastic way the income they earn. Severe tensions can also be identified between the federal conservative-green government level and the City of Vienna run by the Socialdemocrats and the liberal Neos party. The left wing City Council does not agree upon the rigorous migration and social policies of the federal government, using its own regulations substantially differing from the federal government ones'.

A new phenomenon in the Austrian education system is that the overwhelming majority of pupils in the classes of vocational and auxiliary schools do not speak German that may lead in the long run

to parallel societies. Segregation can also be assessed in some districts in Vienna, where the proportion of foreigners reaches more than 50%. It can also be established that the so called „Gastarbeiter" (guest workers) of the first generation have low level education and skills and make up a poorly paid segment of the society even though their integration has already been accomplished. The program of the new People's Party-Green government, inaugurated on 7 January 2020, includes a seven-page chapter on integration. Austria's integration policy is based on the principles of "integration by merit" and "support and demand". The government continues to support the concept of compulsory German language teaching and national values courses. Labor market integration is furthermore seen as the best and most effective way of social integration. There is a big question mark, how the integration of the mainly low educated refugees can be implemented in parallel with fostering the competitiveness of the country based on a knowledge society?

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# BRINSON MODELS AND INVESTMENT STYLE WEIGHTED SECTOR MUTUAL FUNDS PORTFOLIOS IN THE U.S. 2010-2021

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## ABSTRACT

*This study's objective is to gain insight into the U.S. sector mutual funds' investment performance and to determine the possible impact of the investment style.  A common approach for investment performance attribution is to deploy factor models. A potential drawback of the mentioned models is that they are solely return-based. As an alternative to factor models, asset-grouping models use additional inputs that are dynamic holdings data for portfolio and benchmark. Distinct model variations of the Brinson-Fackler and Brinson-Hood-Beebower attribution models were employed. The geometric attribution model is also utilized to offer multi-period attribution with analytical consistency. We used sector mutual funds from the Morning Star Peers database across the US sectors, over the observed period from January 2010 until December 2021, using monthly returns. Two hypothetical portfolios were created, and the allocation of the portfolio's sectors was based on the value and growth investment style. In addition, it was assumed that the portfolios would be restructured annually. The results demonstrate that smart money was unable to create value over time. At the same time, the tested portfolio partially neutralized the detrimental effect of managers' stock selection by using the growth style based on the Shiller price-to-earnings ratio in the portfolio construction and sector weights allocation. However, the negative stock selection effects within sector mutual funds were prominent and the total excess returns for both observed portfolios were negative. We demonstrated that the growth style over the studied period was favourable. However last observed year suggests that investors have started to prefer the value style and look for the stocks with more favourable achieved earnings fundamentals, opposite to expected earnings potential. Overall, the holdings-based relative portfolio attribution to the appropriate benchmarks provided deeper insight into the dynamics of alpha creation.*

*Keywords: investment style, brinson-fackler model, brinson-hood-beebower model, geometric attribution, mutual funds' performance*
*JEL Classification: G11, G12, G23*

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# *PREFACE*

Financial education has paramount importance for current and aspiring investors. The keystone is to be able to look beyond the returns. Optimizing the portfolio to fit an investor's risk and return profile according to his/her investment policy statement is not enough.

Selecting the fund based on the historical track recording is seldom the right choice. An unsophisticated investor might be tempted to take exactly that course of action. No matter does an investor make discretionary investment decisions or the portfolio is professionally managed on his/her behalf the investment performance evaluation can bridge the informational gap regarding the investment decisions benefits at each stage of the investment process.

Being able to decompose and attribute the sources of return and risk lays the foundation to find any potential style drift. Only then it is possible to spot the discrepancy between the stated investment philosophy of the mutual fund and the ways how the value is created. Moreover, using an asset-based approach it is possible to be proactive and find the potential style and other types of drifts on an ex-ante basis.

The absence or inadequate financial education of investment community stakeholders increases the risk of inefficient capital allocation. This is especially prominent when it comes to the knowledge level of professional investment managers. Since they manage high-value portfolios the consequences of the suboptimal investment decisions are proportionally higher in comparison to retail investors. The investment performance attribution models represent a feedback mechanism that can and should be deployed to enhance the investment process within mutual funds and other types of institutional investors.

Finally, the regulators need to guard the investors against any potentially misleading investment instruments in the terms of risk profile, including the exposure to the investment style and other investment characteristics. These types of discrepancies would certainly lead to a snowball effect and mirroring the discrepancies between goals set in investment policy statements and real exposure based on the portfolio holding's structure.

Due to all previously stated reasons, financial education is the necessary component of a well-functioning financial market. Investment philosophies and strategies from the funds' prospectuses cannot be taken without skepticism and more important the adequate methodology to self-examine the sources of the returns and risks.

# *INTRODUCTION*

It is quite typical to concentrate solely on the returns when attempting to analyze investment performance. The return track record can be used to generate various risk measures. They can only take into account portfolio return (like Value-at-Risk) or take into account how they compare to the benchmark (such as tracking error). They serve as the basis for presenting risk-adjusted measurements along with benchmark return information (such as information ratio).

Various regression-based multi-factor models are used to analyze institutional investors' investing performance. The most often used factors could have a macroeconomic or microeconomic dimension. Nonetheless, holdings data for both benchmarks and portfolios are frequently disregarded by researchers. Understanding the causes of investment active performance is vital to gaining a deeper degree of understanding, thus it is important to look beyond the return-based approach and integrate holdings data in the study.

This study's objective is to critically evaluate the investing performance of portfolios made up of US sector mutual funds in comparison to the S&P500 broad market index in the context of the investment style. According to the investment style, weights were applied for portfolio sector

exposure. Additionally, for each of the eleven observed years, we dissected the sector allocation and security decisions across eleven sectors using Morning Star Peers sector returns and holdings data for both value and growth investment approaches, with an annual rebalancing frequency. Moreover, the cumulative results were provided, and the multiperiod issue was handled appropriately.

We used asset-grouping attribution models to accomplish that. Separate model versions were utilized in two different arithmetic attribution models. Discussions were then followed by conclusions using the geometric attribution model to establish analytical consistency for multi-period attribution. According to the Shiller price-to-earnings ratio, it is assumed that an investor will allocate weights to US sectors and use sector mutual funds to attain that exposure. This can also be seen from the viewpoint of the fund-of-funds, whose portfolio is composed of mutual fund units.

The remaining portion of the study includes theoretical background information, data sources, the rationale for the methodology employed, presented results and discussions, and conclusions.

# *LITERATURE REVIEW*

The Capital Asset Pricing Model (CAPM), developed by Black, Jensen, and Scholes, is the most used factor model, in part due to its ease of use. Despite failing many empirical tests (Black, Jensen, & Scholes, 1972) (Fama & French, 2004).

The mentioned model uses the market premium as the sole component to explain the expected return. All investors must agree to the following assumptions, which form the basis of CAPM:

- The goal of all investors is to maximize economic benefits.
- All investors are rational and have an aversion to risk.
- All investors apply diversification that includes all types of investments.
- Every investor accepts the market price and cannot influence it.
- Everyone can borrow or place funds at a risk-free interest rate.
- Transaction costs and taxes are neglected in the model setup, and it is assumed that they do not exist.
- Instruments in which investments are made can be divided into smaller units indefinitely.
- All investors have the same expectations (homogeneous expectations).
- All investors have relevant information at the same time. (Arnold, 2005, p. 354)

The Fama-French three-factor model, an extension of the CAPM, identifies typical risk factors in stock returns. Three elements were found by the authors: the total market factor, which is the same as in the CAPM, as well as firm-size-related factors, small-minus-big (SMB), and value factor, the high-minus-low ratio of book to market value (HML). A return premium was found for stocks with a small market capitalization and stocks that can be classified as value stocks due to high book and market value ratios, according to the model's expansion (Fama & French, 1993).

The Carhart four-component model, which includes momentum as an additional factor, is another extension of the concept. For instance, a recent study used the Carhart model and the Fama-French three-factor model on the South African Stock Exchange (SASM). The study compared the model in terms of the components' capacity to account for returns in the SASM market during the course of the observation. According to the study's findings, market momentum, size factor, and value factor are among the impacts that are expected to occur at SASM, and that significantly explain the realized returns. The level of return volatility was also higher in stock portfolios with low market capitalization and high book-to-market ratios (Carhart, 1997) (Boamah, 2015).

The Fama-French five-factor model is one of the most well-known examples of a multifactor model. The three-factor Fama-French model is enlarged by the addition of two components in the

five-factor model: robust-minus-poor profitability (RMV) and conservative-minus-aggressive investment (CMA). Extensions to the model predict that firms with higher levels of profitability and cautious investing policy will have greater stock return premiums (Fama & French, 2015).

In the following analysis, Fama and French demonstrated that high average returns linked with a low market beta, stock buybacks, and low stock return volatility, and vice versa, are favorable exposure to RMV and CMA (stock returns that act like profitable corporations that invest conservatively) (Fama & French, 2016).

The Fama-French five-factor model's use in global markets was examined in the study that came after. The average stock returns for North America, Europe, and the Asia-Pacific area are found to be inversely correlated with investments and to rise with the ratio of book to market value and profitability. This is consistent with the initial findings of earlier research. Contrarily, the model's primary flaw, which is shared with earlier research by Fama and French, is that it fails to adequately account for the low average returns of small stocks, which behave like the returns of aggressively investing, low-profit firms (Fama & French, 2017).

In the research that was published, Foye investigated whether the extended Fama-Fench five-factor model, as opposed to the three-factor model, might provide a more comprehensive explanation of stock returns in the context of a developing economy. With regard to the study's 18 emerging markets, three separate geographic areas were covered. The results demonstrate that throughout Eastern Europe and Latin America, the five-factor model regularly beats the three-factor model. However, Asian markets do not exhibit the profitability factor in the predicted manner, and the five-factor model does not offer a better explanation of return on the stock market (Foye, 2018).

The five-factor specification is superior to the three-factor specification, according to a study by Dutta that reached a similar conclusion. According to the data, if the book-to-market ratio's value factor is removed from the five-factor model, the other four factors have a nearly identical prospect of explaining the return (Dutta, 2019).

Mollaahmetoglu evaluated the Fama-French five-factor model's application to the Istanbul and German stock exchanges in one of the most recent studies to be released. The results indicate that there is insufficient data to support a thorough explanation of the five-factor model. The author contends that for stock returns listed on the Istanbul Stock Exchange, a four-factor model would be preferable. He also came to the conclusion that lowering the model factor would better reflect German stocks (Mollaahmeto lu, 2021).

The five-factor Fama-French model was found to be insufficient during the Covid-19 outbreak, according to Horváth and Wang. The 2008 financial crisis was used as a benchmark because that is when the model substantially lost its capacity to explain returns using a coefficient of determination (Horváth & Wang, 2021).

A novel method for return analysis of multifactor investment strategies was developed by Abergel and Heckel. The average estimate of the asset returns on the factors used to construct the portfolio's approximate returns is what distinguishes this methodology. Along with the natural and intuitive breakdown of the performance of the portfolio as the sum of factor contributions, it also illustrates the nonlinear terms of the interaction between the variables that lead to the development of the investment portfolio. This research also provides examples of multifactor capital strategies in practice (Abergel & Heckel, 2021).

In one of the most recent research projects, the Fama-French five-factor model was utilized to perform the regression at the individual level for 64 studied mutual funds as well as the regression of the portfolio returns composed out of the mutual funds with the specified investment theme. Using monthly data, the analysis spans the period from January 2010 through December 2021. The results indicate that there is no evidence of potential style drift and that the components from the initial three-factor models are consistent with expectations. The operational profit factor also demonstrates the anticipated causal relationship. Although it may come as a surprise given the stated value

approach, the exposure linked to the investing factor is slightly negative. The portfolio's investment performance attribution analysis revealed how the factors affected the returns on the portfolio and revealed a statistically significant underperformance. Market premium, portfolio tilt toward stocks of companies with the highest operational profit, small-capitalization, and aggressive investing philosophy are all positive contributions to investment performance, in the order of importance shown. Lastly, because the value-style tilt was unpopular, it had a detrimental impact on performance (Korenak & Stakic, 2022).

Asset-based models, or a method based on the portfolio structure and investment benchmark, offer an alternative to attribution based only on returns. This strategy needs information on the portfolio's and the investment benchmark's initial period's structure in addition to returns. As opposed to factor models, this strategy is not solely reliant on returns. Asset-based strategies can be transaction- and portfolio-based, with data on the portfolio structure being updated at periodic intervals. A transaction-based strategy is recommended over a structure-based approach to preventing unexplained residuals, which are particularly common in portfolios that employ high-turnover techniques and whose underlying exposures exhibit significant volatility (Spaulding, 2018).

Spaulding carried out an empirical comparison of transactions-based and portfolio-based investment attribution. The former could be less precise, particularly if a lower frequency is employed. Additionally, if the observed portfolio's turnover is significant, it may produce an unexpected residual. The author discovers that residuals from analysis based on portfolio structure can be substantial and are not always connected with turnover, as one might anticipate (Spaulding, 2018).

The Brinson models, such as the Brinson-Fackler and Brinson-Hood-Beebover models, are the most popular models under the portfolio structure method. Standard vocabulary and interpretation have slightly changed as a result of the adoption of these models. The terms Brinson and Fahler's market selection, the influence of asset allocations (segments), and selection effect and interaction effect are now nearly universally acknowledged (the term used by Brinson and Fahler was cross-product) (Brinson & Fachler, 1985) (Brinson, Hood, & Beebower, 1986).

The two most significant return attribution models, the Brinson-Hood-Beebover model, and the Brinson-Fachler model use the concept of return attribution as a methodology, according to a study by Vashisht and Gupta. Additionally, the study takes into account frequency effects when performing imputations over numerous periods in addition to the various methods for imputing returns, such as arithmetic or geometric techniques (Vashisht & Gupta, 2014).

Peng examined active investment funds in China using a portfolio structure technique. According to his research, the regression model, the Fama-French three-factor model he used for comparison, and the model based on portfolio structure are positively correlated. He discovered that the majority of Chinese investment funds could produce a favorable stock selection effect over the examined period. However, because it is impossible to forecast policy changes, most funds do not offer an asset allocation benefit (Peng, 2020).

It's interesting to note that when it comes to the interaction effect, Spaulding, Campisi, and Bacon see it as a direct result of the combined effect of allocation and selection, in contrast to the original authors who described the interaction effect (cross-product) as a residual value. The final two writers proposed that since the interaction impact is not a fundamental component of the investment decision-making process, it should be included in the selection effect (Spaulding, 2003/2004) (Campisi, 2004) (Bacon C. R., 2008).

When it comes to multi-periods, the arithmetic calculation is less advantageous than geometric computing. The compounding effect over time is not taken into account when calculating returns for multiple periods. Different methods have been applied to link returns more effectively in order to solve this issue. Carino proposed them first, and Menchero, Frongello, Bonafede, and others added

to the list of answers (Carino, 1999) (Menchero, 2000) (Frongello, 2002) (Bonafede, Foresti, & Matheos, 2002).

Reztsov offers a comprehensive comparison of the geometric and arithmetic methods. This research also provides an order-independent linking technique (Reztsov, 2011). The combined impacts of total allocation and selection can be used to determine the geometric additional return for the whole observed time without using residuals. Geometric attribution is preferred for multi-period data (Bacon C. , 2002).

Pettengill et al. examined the success of the investment styles of investment funds from 1979 to 2012 when it comes to investment style. In comparison to the growth style of investment funds, their findings favor the value style. They have demonstrated that value funds outperform growth funds, particularly in terms of longer-term realized returns and lower realized risk (Pettengill, Chang, & Hueng, 2014).

The sum of their geometric values throughout the entire period cannot adequately account for the effects of allocation, selection, and interaction for particular segments. Weber refers to them as semi-geometric models because of this (Weber, 2018).

Since the results of individual allocation and selection can be connected over time, Menchero offered a model that could be seen as entirely geometric (Menchero, 2000). Ankrim and Hensel were the first to modify the standard Brinson models for multi-currency attribution, followed by Karnosky and Singer (Ankrim & Hensel, 1992) (Karnosky & Singer, 1994).

The performance of the equally weighted sector portfolio of Fidelity mutual funds in comparison to the broad market index S&P 500 for the period of 2011 to 2020 was examined using the Brinson-Fackler and Brinson-Hood-Beebower attribution models, encompassing several model variants. In order to ensure analytical consistency for multi-period attribution, the geometric attribution model was also employed. According to our research, the overall allocation and selection impacts are detrimental during the observed period. The impacts, though, vary quite a bit within and within sectors. Overall, the allocation effect was adverse for the sectors that experienced rapid development over the past ten years due to the evenly weighted sectors in the portfolio. Additionally, even before management costs and tax burden, the "smart money" did not generate value in comparison to the benchmark (Korenak & Stakic, 2021).

Korenak and Stakic used this group of models in one of the most recent research projects to attribute the investment performance of portfolios formed from sector mutual funds and weighted by value and growth investment strategies (Korenak & Stakic, 2021).

## *DATA AND METHODOLOGY*

From 2011 to 2021, the following inputs were used in the calculations: portfolio sector weights ($w_i$), portfolio sector returns ($R_i$), benchmark sector weights ($W_i$), and benchmark sector returns ($B_i$). It is assumed that the portfolio would be restructured annually. The allocation of the portfolio's sectors is based on the value and growth investment style.

Based on historical price-to-earnings ratios that have been modified in accordance with Professor Shiller, the difference between value and growth investment styles is determined. This means that for each of the observed instances, the ten-year average wage was applied. S&P Global and the Morning Star database of investment funds were used to gather the data. We used total sectoral returns.

The Morning Star mutual funds database (accessed through Morning Star Direct data investment analysis platform) was used to derive the returns of the manager sector peers' groupings. They cover all 11 sectors that are classified by Global Industry Classification Standard (GICS): Information

Technology, Health Care, Financials, Consumer Discretionary, Communication Services, Industrials, Consumer Staples, Energy, Utilities, Real Estate, and Materials.

Since the observed time is more than ten years, the S&P500 index's component sectors have changed. On September 16, 2016, the Real Estate sector and the Financial sector were divided. As a result, starting in early 2017, the portfolio has a Real Estate sector allocation to be comparable to the S&P500 benchmark. After September 20, 2018, the Telecommunications sector was renamed the Communications sector to include some acts from other sectors. The second-mentioned name of the sector was consistently used throughout the presentation of the data.

We employed two separate hypothetical portfolios composed of sector mutual funds. Value Weighted Peers Sector Mutual Funds Portfolio is the first portfolio. Whereas, as the name implies, the allocation of sector weights was based on sectors with relatively low Shiller price-to-earnings ratios. In this case, we used the managers' average returns for the specified sectors from the complete Morning Star mutual fund database.

Portfolio sector weights were assigned proportional to sectors with relatively higher Shiller price-to-earnings ratios and were used to implement the growth strategy for the Growth Weighted Morning Star Peers Sector Mutual Funds portfolio. Two Brinson models as well as the geometric method are used in research for asset-grouping models used for performance attribution.

The first one is the Brinson-Hood-Beebower model, which determines the overall allocation effect in the manner stated below (Brinson, Hood, & Beebower, 1986).

Benchmark return (B) is the weighted sum of the individual segment returns.

$$B = \sum W_i B_i \tag{1}$$

Semi-benchmark return ($B_s$) is a hybrid measure, that uses portfolio weights and benchmark segment returns.

$$B_s = \sum w_i B_i \tag{2}$$

Allocation effect for the individual segment ($A_i$):

$$A_i = (w_i - W_i) B_i \tag{3}$$

The total allocation effect can be expressed as:

$$B_s - B = \sum w_i B_i - \sum W_i B_i = \sum (w_i - W_i) B_i = \sum A_i \tag{4}$$

It illustrates the value gained or lost as a result of the portfolio's segment weights differing from those of the benchmark. The allocation effect will be favorable as long as the portfolio has an overweight in the sector where the benchmark has produced successful performance. Furthermore, we must consider the selection effect, which is determined in the manner shown below, when choosing shares within the sector.

In addition to the previously used benchmark return (B), another hybrid metric needs to be used, and that is the semi-portfolio return ($R_s$). It uses the benchmark sector weights and portfolio sector returns.

$$R_s = \sum W_i R_i \tag{5}$$

Selection effect for the individual sector ($S_i$):

$$S_i = W_i (R_i - B_i) \tag{6}$$

When it comes to the total selection effect, it is expressed as follows:

$$R_s - B = \sum W_i R_i \ - \ \sum W_i B_i = \sum W_i(R_i - B_i) = \sum S_i \tag{7}$$

It represents the value that is added/lost by having different securities weights in the portfolio segment than the securities weights in the benchmark segment.

This version of the model has a residual when compared to the total excess return. The residual can be explained by the interaction effect, and when included it fully explains the excess return. The excess return can be obtained in the following way.

$$B_s - B + R_s - B + R - R_s - B_s + B = R - B \tag{8}$$

We applied two distinct Brinson-Fachler models (Brinson & Fachler, 1985).

Allocation in both versions is the same. However, it is different than in the Brinson-Hood-Beebower model because it takes into account not only individual sector benchmark return but also total benchmark return.

$$B_s - B = \sum(w_i - W_i)(B_i - B) = \sum A_i \tag{9}$$

On another hand, the election effect can be shown in two different versions (with and without the interaction effect). The version with the self-standing interaction effect is presented below.

Pure selection is expressed as:

$$R_s - B = \sum W_i (R_i - B_i) \tag{10}$$

The interaction effect is the following:

$$R - R_s - B_s + B = \sum(w_i - W_i)(R_i - B_i) \tag{11}$$

Version with the combined selection and interaction effects.

In this version of the model, the selection is expressed as follows:

$$R - B_s = \sum w_i(R_i - B_i) = \sum S_i \tag{12}$$

To summarize, Brinson-Hood-Beebower and Brinson-Fachler models' attribution results difference is due to the individual segment allocation effect. However, the total allocation effect results are the same. The selection effect is the same based on these two models and is presented in that manner.

In addition, we used the geometric attribution approach, where (Carino, 1999):

Individual sector geometric allocation effect is the following:

$$A_i^G = (w_i - W_i) \left(\frac{(1+B_i)}{(1+B)} - 1\right) \tag{13}$$

Total geometric allocation effect is:

$$A^G = \frac{(1+B_s)}{(1+B)} - 1 = \sum A_i^G \tag{14}$$

Individual sector geometric selection effect is:

$$S_i^G = w_i \left(\frac{(1+R_i)}{(1+B_i)} - 1\right) \frac{(1+B_i)}{(1+B_s)} \tag{15}$$

Total geometric selection effect is:

$$S^G = \frac{(1+R)}{(1+B_S)} - 1 = \sum S_i^G \tag{16}$$

Lastly, geometric excess return is expressed as:

$$R_e^G = \frac{(1+R)}{(1+B)} - 1 \tag{17}$$

Important property, for the multi-period attribution of the geometric approach, is the following:

$$R_e^G = (1+S^G)(1+A^G) - 1 = \frac{(1+R)}{(1+B)} - 1 \tag{18}$$

## *RESULTS AND DISCUSSION*

In this section we present the results of research obtained using models based on assets, that is, on the structure of the portfolio and investment benchmark. The research included the average returns of sector investment funds, across all eleven sectors in the US. The results of the effects of sector allocations, the effects of selection within the sector, the effects of interaction, and excess returns on an arithmetic and geometric basis are presented based on the use of the following models for attributing investment performance - Brinson-Fachler and Brinson-Hood-Beebower models, as well as the geometric approach, which was used for multiple periods.

First, an answer was offered to the question of whether the fund's investment managers created or lost value for their investors by making tactical decisions, i.e. selecting stocks within a given sector compared to adequate investment benchmarks, namely sector returns within the S&P500 index. The results of investment decisions reflected through the selection effect are presented for average returns based on sector investment funds from Morning Star sector peer groups. In this way, the answer to the question, which is often asked in a colloquial form, is offered: "How smart is smart money?". After the results of selection effects for Morning Star comparison groups, other results are presented for both formed portfolios, based on investment style.

The investment skills of the manager, who manages sector funds, can be seen through the effects of selection. It is important to note that selection effects are the same regardless of which type of Brinson model is used to attribute investment performance. The applied type of Brinson's model makes a difference only in certain situations related to individual allocation effects, which will be discussed after the selection effect (Figure 1).

This is the reason why we only show the selection effect based on the return track record and not based on the applied attribution models. By analyzing the sector investment funds of the Morning Star database during the observed years, it can be seen that the majority of sector mutual funds had lower returns compared to the average returns of stocks for the given sector. This shows that managers, on average, have not been able to outperform their respective sector investment benchmarks.

The cumulative combined selection effect for the entire eleven-year period is negative. However, relative performance against sectoral investment benchmarks is quite heterogeneous within sectors. The results indicate that there is a certain level of sustainability of excess returns of mutual funds for certain sectors. The majority of sector mutual funds in the Morning Star database show negative excess returns, except for 2020 when there were almost universally positive incremental returns within the sector. On the other side 2021 portrays the exact opposite situation, where the sector mutual funds universally delivered negative excess returns.
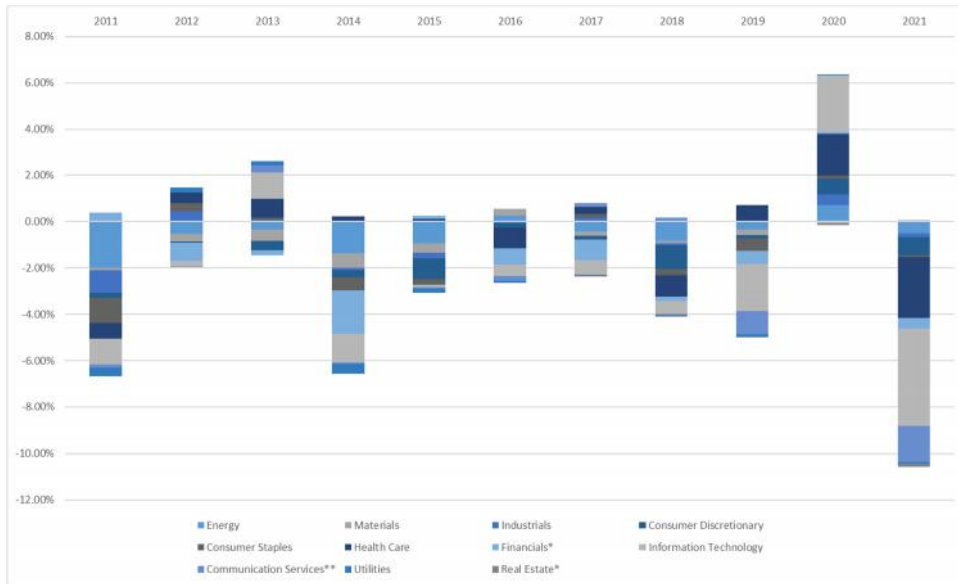
*Figure 1. Combined Selection Effect - Morning Star Peers Sector Mutual Funds Portfolio*

*Source: Authors*

Below are presented the attribution results for the value-weighted portfolio of sector investment funds from the Morning Star sector peer groups. Based on the presented, it can be seen that the mentioned portfolio achieved lower returns compared to the investment benchmark based on the S&P500 sector returns during eight out of eleven years, which can be determined based on excess returns (Figure 2).

A significant reason for these kinds of results lies in the sector allocation based on the value investment style and on this basis the higher weights are assigned to the sector with a lower price relative to average earnings. The effect of sector allocation is positive for two periods, while the effect of stock selection is also positive only for two years. It can be noticed that the value investment style was not prevalent during most of the observed period. Negative additional returns achieved by sector managers of investment funds produced even more negative results. As a result, there are only two years of positive total incremental return for the value-weighted portfolio of sector mutual funds from the Morning Star Sector Peer Groups.
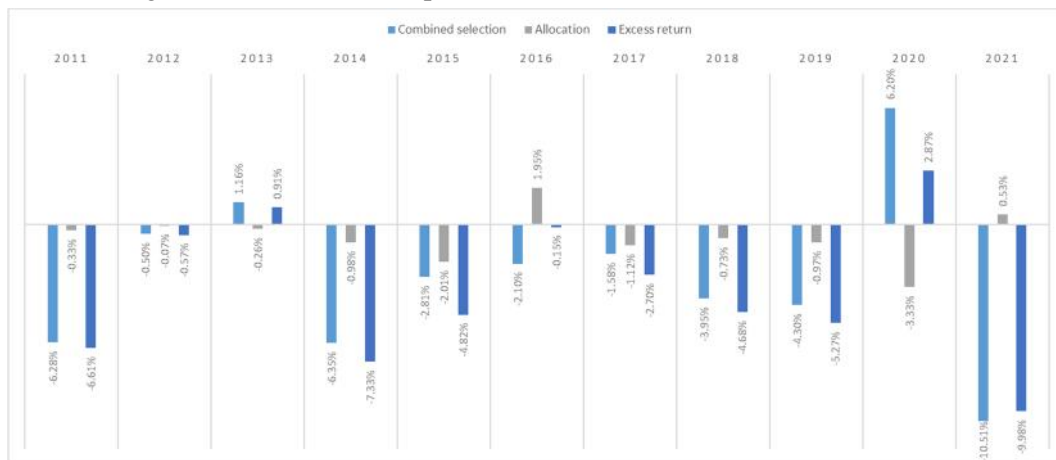
*Figure 2. Value Weighted Morning Star Peers Sector Mutual Funds Total Portfolio Allocation and Selection Annual Effects – Arithmetic Approach*

*Source: Authors*

Below are presented the results of arithmetic models for attribution for all eleven sectors during the observed eleven years. It can be stated that the Information Technology sector significantly contributed to the highest negative annual return. Namely, the effect of allocation to the Information Technology sector has been negative for years. The reason lies in the fact that based on the value style of investing for the annually rebalanced portfolio, smaller and smaller weights were assigned to the mentioned sector because Shiller's price-to-earnings ratio for the Information Technology sector was increasing. At the same time, the Information Technology sector is recording high returns.

Sector mutual fund managers from Morning Star's sector benchmark groups fail to make better tactical decisions in picking the stocks themselves. In certain sectors, it is more prominent. On the other hand, based on the value style and relatively high returns in the Energy and Finance sectors during the last observed year, positive allocation effects were achieved (Table 1).

*Table 1. Arithmetic attribution based on Brinson-Fachler and Brinson-Hood-Beebower models – Value Weighted Morning Star Peers Sector Mutual Funds Total Portfolio vs. S&P500 sector indices*

| Year | | | Energy | Materials | Industrials | Consumer Discretionary | Consumer Staples | Health Care | Financials* | Information Technology | Communication Services** | Utilities | Real Estate* | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | Portfolio | Weight (wi) | 5.91% | 2.56% | 10.19% | 7.69% | 8.25% | 13.57% | 17.55% | 21.33% | 7.95% | 3.22% | 1.79% | 100.00% |
| | | Return (Ri) | 44.81% | 29.56% | 19.69% | 17.66% | 16.22% | 6.88% | 32.33% | 15.09% | 8.48% | 15.52% | 38.73% | 19.80% |
| | | Contribution | 3.16% | 0.70% | 2.15% | 2.15% | 1.43% | 3.54% | 6.15% | 7.40% | 2.23% | 0.57% | 0.83% | 30.31% |
| | Benchmark | Weight (Wi) | 2.28% | 2.63% | 8.40% | 12.72% | 6.51% | 13.46% | 10.44% | 27.61% | 10.77% | 2.76% | 2.42% | 100.00% |
| | | Return (Bi) | 53.43% | 27.34% | 21.12% | 28.01% | 17.32% | 26.13% | 35.04% | 34.71% | 28.01% | 17.67% | 46.20% | 29.78% |
| | | Contribution | 1.22% | 0.72% | 1.77% | 3.56% | 1.13% | 3.52% | 3.66% | 9.58% | 3.02% | 0.49% | 1.12% | 29.78% |
| | Variance | Weight | 3.63% | -0.07% | 1.79% | -5.03% | 1.74% | 0.10% | 7.11% | -6.28% | -2.82% | 0.46% | -0.63% | 0.00% |
| | | Return | -8.62% | 2.22% | -1.43% | -10.35% | -1.10% | -19.25% | -2.71% | -19.62% | -19.53% | -2.15% | -7.47% | -9.98% |
| | | Contribution | 1.94% | -0.02% | 0.38% | -1.41% | 0.30% | 0.03% | 2.49% | -2.18% | -0.79% | 0.08% | -0.29% | 0.53% |
| | Selection | Pure selection | -0.20% | 0.06% | -0.12% | 1.32% | -0.07% | 3.59% | -0.28% | 5.42% | 2.10% | -0.06% | -0.18% | -11.28% |
| | | Interaction | -0.31% | 0.00% | -0.03% | 0.52% | -0.02% | -0.02% | -0.19% | 1.23% | 0.55% | -0.01% | 0.05% | 1.77% |
| | | Combined selection | -0.51% | 0.06% | -0.15% | 1.80% | -0.09% | 3.61% | -0.48% | 4.19% | 2.55% | -0.07% | -0.13% | -10.51% |
| | BF Allocation | Allocation (BF) | 1.27% | -0.01% | 0.05% | -0.48% | -0.02% | 0.01% | 1.18% | -1.02% | -0.27% | 0.00% | -0.18% | 0.53% |
| | | Total effect (BF) | 0.76% | 0.05% | -0.10% | 1.28% | -0.11% | 3.60% | 0.71% | 3.21% | 2.82% | -0.07% | -0.31% | 9.98% |
| | BHB Allocation | Allocation (BHB) | 1.94% | -0.02% | 0.38% | 1.41% | 0.30% | 0.03% | 2.49% | 2.18% | -1.79% | 0.08% | -0.29% | 0.53% |
| | | Total effect (BHB) | 1.43% | 0.04% | 0.23% | 1.21% | 0.21% | 2.58% | 2.02% | -4.36% | 1.34% | 0.01% | -0.01% | 9.98% |
| 2020 | Portfolio | Weight (wi) | 7.79% | 2.56% | 9.97% | 9.54% | 8.28% | 12.73% | 17.14% | 20.28% | 7.09% | 3.00% | 1.62% | 100.00% |
| | | Return (Ri) | -24.54% | 16.37% | 15.74% | 40.47% | 12.22% | 27.63% | -1.15% | 55.91% | 23.92% | 0.89% | -4.49% | 21.26% |
| | | Contribution | -1.91% | 0.42% | 1.57% | 3.86% | 1.01% | 3.52% | -0.20% | 11.34% | 1.70% | 0.03% | -0.07% | 21.26% |
| | Benchmark | Weight (Wi) | 4.35% | 2.65% | 9.05% | 9.75% | 7.20% | 14.20% | 12.95% | 23.20% | 10.39% | 3.32% | 2.93% | 100.00% |
| | | Return (Bi) | -33.68% | 20.73% | 11.06% | 33.30% | 10.75% | 13.45% | -1.69% | 43.89% | 23.61% | 0.48% | -2.17% | 18.39% |
| | | Contribution | -1.46% | 0.55% | 1.00% | 3.25% | 0.77% | 1.91% | -0.22% | 10.18% | 2.45% | 0.02% | -0.06% | 18.39% |
| | Variance | Weight | 3.44% | -0.09% | 0.92% | -0.21% | 1.08% | -1.47% | 4.19% | -2.91% | -3.30% | -0.33% | -1.31% | 0.00% |
| | | Return | 9.14% | -4.36% | 4.68% | 7.17% | 1.47% | 14.18% | 0.54% | 12.02% | 0.31% | 0.41% | -2.32% | 2.87% |
| | | Contribution | -0.45% | -0.13% | 0.57% | 0.61% | 0.24% | 1.61% | 0.02% | 1.16% | -0.76% | 0.01% | -0.01% | 2.87% |
| | Selection | Pure selection | 0.40% | -0.12% | 0.42% | 0.70% | 0.11% | 2.01% | 0.07% | 2.79% | 0.03% | 0.01% | -0.07% | 6.36% |
| | | Interaction | 0.31% | 0.00% | 0.04% | -0.02% | 0.02% | -0.21% | 0.02% | -0.35% | -0.01% | 0.00% | 0.03% | -0.16% |
| | | Combined selection | 0.71% | -0.11% | 0.47% | 0.68% | 0.12% | 1.80% | 0.09% | 2.44% | 0.02% | 0.01% | -0.04% | 6.20% |
| | BF Allocation | Allocation (BF) | 1.79% | 0.00% | -0.07% | -0.03% | -0.08% | 0.07% | -0.84% | -1.74% | -0.17% | 0.06% | 0.27% | -1.33% |
| | | Total effect (BF) | 1.08% | -0.11% | 0.40% | 0.65% | 0.04% | 1.88% | -0.75% | 1.70% | -0.15% | 0.07% | 0.23% | 2.87% |
| | BHB Allocation | Allocation (BHB) | 1.16% | -0.02% | 0.10% | -0.07% | 0.12% | -0.20% | -0.07% | 1.28% | -0.78% | 0.00% | 0.03% | -1.33% |
| | | Total effect (BHB) | -0.45% | -0.13% | 0.57% | 0.61% | 0.24% | 1.61% | 0.02% | 1.16% | -0.76% | 0.01% | -0.01% | 2.87% |
| 2019 | Portfolio | Weight (wi) | 7.81% | 2.26% | 10.25% | 8.92% | 9.30% | 13.00% | 15.60% | 15.87% | 12.09% | 3.29% | 1.62% | 100.00% |
| | | Return (Ri) | 7.25% | 14.95% | 29.33% | 26.45% | 21.72% | 26.23% | 28.39% | 37.49% | 24.50% | 22.87% | 27.28% | 26.23% |
| | | Contribution | 0.57% | 0.34% | 3.01% | 2.36% | 2.02% | 3.41% | 4.43% | 5.95% | 2.96% | 0.75% | 0.44% | 26.23% |
| | Benchmark | Weight (Wi) | 5.32% | 2.73% | 9.20% | 9.94% | 7.41% | 15.54% | 13.31% | 20.12% | 10.12% | 3.34% | 2.96% | 100.00% |
| | | Return (Bi) | 11.81% | 24.58% | 29.37% | 27.94% | 27.61% | 20.82% | 32.13% | 50.29% | 32.69% | 26.35% | 29.01% | 31.51% |
| | | Contribution | 0.63% | 0.67% | 2.70% | 2.78% | 2.05% | 3.24% | 4.28% | 10.12% | 3.31% | 0.88% | 0.86% | 31.51% |
| | Variance | Weight | 2.50% | -0.48% | 1.05% | -1.03% | 1.89% | -2.54% | 2.29% | -4.25% | 1.97% | -0.05% | -1.34% | 0.00% |
| | | Return | -4.56% | -9.63% | -0.04% | -1.49% | -5.89% | 5.41% | -3.74% | -12.80% | -8.19% | -3.48% | -1.73% | -5.27% |
| | | Contribution | -0.06% | -0.33% | 0.30% | -0.42% | -0.03% | 0.17% | 0.15% | -4.17% | -0.35% | -0.13% | -0.42% | -5.27% |
| | Selection | Pure selection | -0.24% | -0.26% | 0.00% | -0.15% | -0.44% | 0.84% | -0.50% | 2.58% | -0.83% | -0.12% | -0.05% | 4.32% |
| | | Interaction | -0.11% | 0.05% | 0.00% | 0.02% | -0.11% | -0.14% | -0.09% | 0.54% | -0.16% | 0.00% | 0.02% | 0.02% |
| | | Combined selection | -0.36% | -0.22% | 0.00% | -0.13% | -0.55% | 0.70% | -0.58% | 2.03% | -0.99% | -0.11% | -0.03% | 4.30% |
| | BF Allocation | Allocation (BF) | -0.49% | 0.03% | -0.02% | 0.04% | -0.07% | 0.27% | 0.01% | 0.80% | 0.02% | 0.00% | 0.03% | 0.97% |
| | | Total effect (BF) | -0.85% | -0.18% | -0.03% | -0.10% | -0.62% | 0.98% | -0.57% | 2.83% | -0.97% | -0.11% | 0.01% | -5.27% |
| | BHB Allocation | Allocation (BHB) | 0.30% | -0.12% | 0.31% | -0.29% | 0.52% | -0.53% | 0.73% | 2.14% | 0.64% | -0.01% | -0.39% | -0.97% |
| | | Total effect (BHB) | -0.06% | -0.33% | 0.30% | -0.42% | -0.03% | 0.17% | 0.15% | -5.17% | -0.35% | -0.13% | -0.42% | -5.27% |
| 2018 | Portfolio | Weight (wi) | 8.92% | 2.49% | 10.89% | 11.92% | 10.12% | 13.65% | 15.58% | 19.31% | 1.96% | 3.44% | 1.73% | 100.00% |
| | | Return (Ri) | -27.27% | -19.01% | -14.26% | -7.78% | -10.92% | -0.40% | -14.21% | -3.21% | -4.38% | 2.76% | -5.97% | -9.47% |
| | | Contribution | -2.43% | -0.47% | -1.55% | -0.93% | -1.11% | -0.05% | -2.21% | -0.62% | -0.09% | 0.09% | -0.10% | -9.47% |
| | Benchmark | Weight (Wi) | 6.07% | 3.00% | 10.26% | 12.20% | 8.20% | 13.84% | 14.78% | 23.76% | 2.06% | 2.93% | 2.89% | 100.00% |
| | | Return (Bi) | -18.10% | -14.70% | -13.29% | 0.83% | -8.38% | 6.47% | -13.03% | -0.29% | -12.53% | 4.11% | -2.22% | -4.79% |
| | | Contribution | -1.10% | -0.44% | -1.36% | 0.10% | -0.69% | 0.90% | -1.93% | -0.07% | -0.26% | 0.12% | -0.06% | -4.79% |
| | Variance | Weight | 2.84% | -0.51% | 0.63% | -0.28% | 1.92% | -0.18% | 0.79% | -4.45% | -0.11% | 0.50% | -1.17% | 0.00% |
| | | Return | -9.17% | -4.31% | -0.97% | -8.61% | -2.54% | -6.87% | -1.18% | -2.92% | 8.15% | -1.35% | -3.75% | -4.68% |
| | | Contribution | -1.33% | -0.03% | -0.19% | -1.03% | -0.42% | -0.95% | -0.29% | -0.55% | 0.17% | -0.03% | -0.04% | -4.68% |
| | Selection | Pure selection | -0.56% | -0.13% | -0.10% | 1.05% | -0.21% | 0.95% | -0.17% | 0.69% | 0.17% | -0.04% | -0.11% | 3.84% |
| | | Interaction | -0.26% | 0.02% | 0.01% | 0.02% | -0.05% | 0.01% | -0.01% | 0.13% | -0.01% | -0.01% | 0.04% | -0.11% |
| | | Combined selection | -0.82% | -0.11% | -0.11% | 1.03% | -0.26% | 0.94% | -0.18% | 0.56% | 0.16% | -0.05% | -0.06% | 3.95% |
| | BF Allocation | Allocation (BF) | -0.38% | 0.05% | -0.05% | -0.02% | -0.07% | -0.02% | -0.07% | -0.20% | 0.01% | 0.04% | -0.03% | -0.73% |
| | | Total effect (BF) | -1.20% | -0.06% | -0.16% | 1.04% | -0.33% | 0.96% | -0.25% | 0.76% | 0.17% | 0.00% | -0.09% | -4.68% |
| | BHB Allocation | Allocation (BHB) | -0.51% | 0.07% | -0.08% | 0.00% | -0.16% | -0.01% | -0.10% | 0.01% | 0.01% | 0.04% | 0.03% | -0.73% |
| | | Total effect (BHB) | -1.33% | -0.03% | -0.19% | 1.03% | -0.42% | 0.95% | -0.29% | 0.55% | 0.17% | -0.03% | -0.04% | -4.68% |
| 2017 | Portfolio | Weight (wi) | 10.96% | 2.82% | 11.00% | 11.07% | 10.10% | 12.63% | 16.34% | 17.81% | 2.12% | 3.49% | 1.48% | 100.00% |
| | | Return (Ri) | -4.84% | 16.61% | 22.52% | 21.49% | 15.21% | 24.31% | 16.72% | 35.35% | 7.27% | 11.83% | 6.22% | 19.12% |
| | | Contribution | -0.53% | 0.47% | 2.48% | 2.38% | 1.57% | 3.07% | 2.73% | 6.30% | 0.15% | 0.41% | 0.09% | 19.12% |
| | Benchmark | Weight (Wi) | 7.56% | 2.84% | 10.27% | 12.03% | 9.37% | 13.63% | 14.81% | 20.77% | 2.66% | 3.17% | 2.89% | 100.00% |
| | | Return (Bi) | -1.01% | 23.84% | 21.03% | 22.98% | 13.49% | 22.08% | 22.18% | 38.83% | -1.25% | 12.11% | 10.85% | 21.81% |
| | | Contribution | -0.08% | 0.68% | 2.16% | 2.77% | 1.26% | 3.01% | 3.28% | 8.06% | -0.03% | 0.38% | 0.31% | 21.81% |
| | Variance | Weight | 3.40% | -0.02% | 0.73% | -0.97% | 0.93% | -1.00% | 1.53% | -2.96% | -0.54% | 0.31% | -1.41% | 0.00% |
| | | Return | -3.83% | -7.23% | 1.49% | -1.49% | 1.72% | 2.23% | -5.46% | -3.48% | 8.52% | -0.28% | -4.63% | -2.70% |
| | | Contribution | -0.45% | -0.21% | 0.32% | -0.39% | 0.30% | 0.06% | -0.55% | -1.77% | 0.19% | 0.03% | -0.22% | -2.70% |
| | Selection | Pure selection | -0.29% | -0.21% | 0.15% | -0.18% | 0.16% | 0.30% | -0.81% | -0.72% | 0.23% | -0.01% | -0.13% | 1.50% |
| | | Interaction | -0.13% | 0.00% | 0.01% | 0.01% | 0.02% | -0.02% | -0.08% | 0.10% | -0.05% | 0.00% | 0.07% | -0.07% |
| | | Combined selection | -0.42% | -0.20% | 0.16% | -0.16% | 0.18% | 0.28% | -0.89% | -0.62% | 0.18% | -0.01% | -0.07% | 1.58% |
| | BF Allocation | Allocation (BF) | -0.78% | 0.00% | -0.01% | -0.01% | -0.08% | 0.00% | 0.01% | -0.50% | 0.13% | -0.03% | 0.15% | -1.12% |
| | | Total effect (BF) | -1.20% | -0.20% | 0.16% | -0.18% | 0.10% | 0.28% | -0.89% | -1.12% | 0.31% | -0.04% | 0.09% | -2.70% |
| | BHB Allocation | Allocation (BHB) | -0.03% | -0.01% | 0.15% | -0.22% | 0.12% | -0.22% | 0.34% | 1.15% | 0.01% | 0.04% | -0.21% | -1.12% |
| | | Total effect (BHB) | -0.45% | -0.21% | 0.32% | -0.39% | 0.30% | 0.06% | -0.55% | -1.77% | 0.19% | 0.03% | -0.22% | -2.70% |
| 2016 | Portfolio | Weight (wi) | 13.94% | 2.86% | 10.36% | 10.95% | 9.98% | 11.46% | 18.69% | 16.44% | 1.85% | 3.47% | 0.00% | 100.00% |
| | | Return (Ri) | 29.22% | 26.69% | 18.05% | 4.47% | 5.32% | -10.60% | 19.09% | 10.84% | 12.59% | 13.75% | 0.00% | 12.57% |
| | | Contribution | 4.07% | 0.76% | 1.87% | 0.49% | 0.53% | -1.22% | 3.57% | 0.23% | 0.48% | 1.78% | 0.00% | 12.57% |
| | Benchmark | Weight (Wi) | 6.50% | 2.76% | 10.05% | 12.89% | 10.06% | 15.16% | 16.47% | 20.69% | 2.43% | 2.99% | 0.00% | 100.00% |
| | | Return (Bi) | 27.36% | 16.69% | 18.86% | 6.03% | 5.38% | -2.69% | 22.80% | 13.85% | 23.49% | 16.29% | 0.00% | 12.72% |
| | | Contribution | 1.78% | 0.46% | 1.90% | 0.78% | 0.54% | -0.41% | 3.75% | 2.87% | 0.57% | 0.49% | 0.00% | 12.72% |
| | Variance | Weight | 7.44% | 0.10% | 0.31% | -1.95% | -0.08% | -3.69% | 2.22% | -4.25% | -0.57% | 0.49% | 0.00% | 0.00% |
| | | Return | 1.86% | 10.00% | -0.81% | -1.56% | -0.06% | -7.91% | -3.71% | -3.01% | -10.90% | -2.54% | 0.00% | -0.15% |
| | | Contribution | 2.30% | 0.30% | -0.03% | -0.29% | -0.01% | -0.81% | -0.19% | -1.08% | -0.34% | -0.01% | 0.00% | -0.15% |
| | Selection | Pure selection | 0.12% | 0.28% | -0.08% | -0.20% | -0.01% | -1.20% | -0.61% | -0.62% | -0.26% | -0.08% | 0.00% | 2.66% |
| | | Interaction | 0.14% | 0.01% | 0.00% | 0.03% | 0.00% | 0.29% | -0.08% | 0.13% | 0.06% | -0.01% | 0.00% | 0.56% |
| | | Combined selection | 0.26% | 0.29% | -0.08% | -0.17% | -0.01% | -0.91% | -0.69% | -0.49% | -0.20% | -0.09% | 0.00% | 2.10% |
| | BF Allocation | Allocation (BF) | 1.09% | 0.00% | 0.02% | 0.13% | 0.01% | 0.57% | 0.22% | -0.05% | -0.06% | 0.02% | 0.00% | 2.95% |
| | | Total effect (BF) | 1.35% | 0.29% | -0.07% | -0.04% | 0.00% | -0.34% | -0.47% | -0.54% | -0.26% | -0.07% | 0.00% | -0.15% |
| | BHB Allocation | Allocation (BHB) | 2.04% | 0.02% | 0.06% | -0.12% | 0.00% | 0.10% | 0.51% | -0.59% | -0.13% | 0.08% | 0.00% | 2.95% |
| | | Total effect (BHB) | 2.30% | 0.30% | -0.03% | -0.29% | -0.01% | -0.81% | -0.19% | -1.08% | -0.34% | -0.01% | 0.00% | -0.15% |

| Year | Category | Metric | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | Portfolio | Weight (wi) | 15.08% | 2.93% | 10.54% | 10.24% | 10.48% | 11.23% | 18.28% | 15.83% | 1.98% | 3.40% | 0.00% | 100.00% |
| | | Return (Ri) | -27.39% | -22.16% | -4.71% | 1.38% | 4.15% | 8.05% | -0.87% | 5.21% | 0.80% | -9.86% | 0.00% | -3.45% |
| | | Contribution | -4.13% | -0.65% | -0.50% | 0.14% | 0.43% | 0.90% | -0.16% | 0.82% | 0.02% | -0.34% | 0.00% | -3.45% |
| | Benchmark | Weight (Wi) | 8.44% | 3.17% | 10.41% | 12.13% | 9.80% | 14.21% | 16.65% | 19.66% | 2.28% | 3.24% | 0.00% | 100.00% |
| | | Return (Bi) | -21.12% | -8.38% | -2.53% | 10.11% | 6.60% | 6.89% | -1.53% | 5.92% | 3.40% | -4.85% | 0.00% | 1.37% |
| | | Contribution | -1.78% | -0.27% | -0.26% | 1.23% | 0.65% | 0.98% | -0.25% | 1.16% | 0.08% | -0.16% | 0.00% | 1.37% |
| | Variance | Weight | 6.64% | -0.24% | 0.12% | -1.89% | 0.68% | -2.99% | 1.63% | -3.82% | -0.30% | 0.16% | 0.00% | 0.00% |
| | | Return | -6.27% | -13.78% | -2.18% | -8.73% | -2.45% | 1.16% | 0.66% | -0.71% | -2.60% | -5.01% | 0.00% | -4.82% |
| | | Contribution | -2.35% | -0.38% | -0.23% | -1.09% | -0.21% | -0.08% | 0.10% | -0.34% | -0.06% | -0.18% | 0.00% | -4.82% |
| | Selection | Pure selection | -1.53% | -0.44% | -0.23% | -1.06% | -0.24% | 0.16% | 0.11% | -0.14% | -0.06% | -0.16% | 0.00% | -3.58% |
| | | Interaction | -0.42% | 0.03% | 0.00% | 0.16% | -0.02% | -0.03% | 0.01% | 0.03% | 0.01% | -0.01% | 0.00% | -0.23% |
| | | Combined selection | -1.95% | -0.40% | -0.23% | -0.89% | -0.26% | 0.13% | 0.12% | -0.11% | -0.05% | -0.17% | 0.00% | -3.81% |
| | BF Allocation | Allocation (BF) | -0.49% | 0.02% | 0.00% | -0.17% | 0.04% | -0.16% | -0.05% | -0.17% | -0.01% | -0.01% | 0.00% | -2.01% |
| | | Total effect (BF) | -2.44% | -0.38% | -0.23% | -1.06% | -0.22% | -0.03% | 0.07% | -0.29% | -0.06% | -0.18% | 0.00% | -4.82% |
| | BHB Allocation | Allocation (BHB) | -0.40% | 0.02% | 0.00% | -0.19% | 0.04% | -0.21% | -0.02% | -0.23% | -0.01% | -0.01% | 0.00% | -2.01% |
| | | Total effect (BHB) | -2.35% | -0.38% | -0.23% | -1.09% | -0.21% | -0.08% | 0.10% | -0.34% | -0.06% | -0.18% | 0.00% | -4.82% |
| 2014 | Portfolio | Weight (wi) | 15.45% | 3.16% | 10.71% | 8.11% | 10.38% | 11.76% | 18.01% | 16.72% | 2.03% | 3.67% | 0.00% | 100.00% |
| | | Return (Ri) | -16.65% | -12.48% | 8.61% | 6.28% | 10.41% | 27.25% | 4.90% | 12.55% | 0.69% | 17.08% | 0.00% | 6.37% |
| | | Contribution | -2.57% | -0.39% | 0.92% | 0.51% | 1.08% | 3.20% | 0.88% | 2.10% | 0.01% | 0.63% | 0.00% | 6.37% |
| | Benchmark | Weight (Wi) | 10.28% | 3.50% | 10.94% | 12.54% | 9.76% | 12.95% | 16.18% | 18.63% | 2.30% | 2.92% | 0.00% | 100.00% |
| | | Return (Bi) | -7.78% | 6.91% | 9.83% | 9.68% | 15.98% | 25.34% | 15.20% | 20.12% | 2.99% | 28.98% | 0.00% | 13.70% |
| | | Contribution | -0.80% | 0.24% | 1.08% | 1.21% | 1.56% | 3.28% | 2.46% | 3.75% | 0.07% | 0.85% | 0.00% | 13.70% |
| | Variance | Weight | 5.17% | -0.34% | -0.23% | -4.43% | 0.62% | -1.20% | 1.83% | -1.91% | -0.27% | 0.75% | 0.00% | 0.00% |
| | | Return | -8.87% | -19.39% | -1.22% | -3.40% | -5.57% | 1.91% | -10.30% | -7.57% | -2.30% | -11.90% | 0.00% | -7.33% |
| | | Contribution | -1.77% | -0.64% | -0.15% | -0.70% | -0.48% | -0.08% | -1.58% | -1.65% | -0.05% | -0.22% | 0.00% | -7.33% |
| | Selection | Pure selection | -1.91% | -0.68% | -0.13% | -0.43% | -0.54% | 0.25% | -1.67% | -1.41% | -0.05% | -0.35% | 0.00% | -6.92% |
| | | Interaction | -0.46% | 0.06% | 0.00% | 0.15% | -0.03% | -0.02% | -0.19% | 0.14% | 0.01% | -0.09% | 0.00% | -0.42% |
| | | Combined selection | -2.37% | -0.61% | -0.13% | -0.28% | -0.58% | 0.22% | -1.86% | -1.27% | -0.05% | -0.44% | 0.00% | -7.35% |
| | BF Allocation | Allocation (BF) | -1.11% | 0.02% | 0.01% | 0.18% | 0.01% | -0.14% | 0.03% | -0.12% | 0.03% | 0.11% | 0.00% | -1.98% |
| | | Total effect (BF) | -1.48% | -0.59% | -0.12% | -0.10% | -0.56% | 0.09% | -1.83% | -1.39% | -0.02% | -0.32% | 0.00% | -7.33% |
| | BHB Allocation | Allocation (BHB) | -1.40% | -0.02% | -0.02% | -0.43% | 0.10% | -0.30% | 0.28% | -0.38% | -0.01% | 0.22% | 0.00% | -1.98% |
| | | Total effect (BHB) | -1.77% | -0.64% | -0.15% | -0.70% | -0.48% | -0.08% | -1.58% | -1.65% | -0.05% | -0.22% | 0.00% | -7.33% |
| 2013 | Portfolio | Weight (wi) | 14.90% | 3.03% | 11.19% | 6.78% | 10.61% | 12.10% | 19.57% | 16.01% | 2.08% | 3.73% | 0.00% | 100.00% |
| | | Return (Ri) | 22.85% | 8.75% | 41.36% | 37.14% | 27.11% | 48.17% | 34.57% | 35.45% | 26.34% | 18.37% | 0.00% | 33.19% |
| | | Contribution | 3.41% | 0.27% | 4.63% | 2.52% | 2.88% | 5.83% | 6.77% | 5.68% | 0.55% | 0.69% | 0.00% | 33.19% |
| | Benchmark | Weight (Wi) | 10.99% | 3.62% | 10.12% | 11.50% | 10.61% | 12.01% | 15.61% | 19.04% | 3.06% | 3.43% | 0.00% | 100.00% |
| | | Return (Bi) | 25.07% | 25.60% | 40.68% | 43.08% | 26.14% | 41.46% | 35.63% | 28.43% | 11.47% | 13.21% | 0.00% | 32.29% |
| | | Contribution | 2.75% | 0.93% | 4.12% | 4.95% | 2.77% | 4.98% | 5.56% | 5.41% | 0.35% | 0.45% | 0.00% | 32.29% |
| | Variance | Weight | 3.92% | -0.59% | 1.06% | -4.72% | 0.00% | 0.09% | 3.96% | -3.03% | -0.98% | 0.30% | 0.00% | 0.00% |
| | | Return | -2.22% | -16.85% | 0.68% | -5.94% | 0.97% | 6.71% | -1.06% | 7.02% | 14.87% | 5.16% | 0.00% | 0.91% |
| | | Contribution | 0.65% | -0.66% | 0.51% | -2.43% | 0.10% | 0.85% | 1.20% | 0.26% | 0.20% | 0.23% | 0.00% | 0.91% |
| | Selection | Pure selection | -0.24% | -0.61% | 0.07% | -0.68% | 0.10% | 0.81% | -0.17% | 1.34% | 0.45% | 0.18% | 0.00% | 1.24% |
| | | Interaction | -0.09% | 0.10% | 0.01% | 0.28% | 0.00% | 0.01% | -0.04% | -0.21% | -0.15% | 0.02% | 0.00% | -0.08% |
| | | Combined selection | -0.33% | -0.51% | 0.08% | -0.40% | 0.10% | 0.81% | -0.21% | 1.12% | 0.31% | 0.19% | 0.00% | 1.16% |
| | BF Allocation | Allocation (BF) | -0.28% | 0.04% | 0.09% | -0.51% | 0.00% | 0.01% | 0.13% | 0.12% | 0.20% | -0.06% | 0.00% | -0.26% |
| | | Total effect (BF) | -0.61% | -0.47% | 0.17% | -0.91% | 0.10% | 0.82% | -0.08% | 1.24% | 0.51% | 0.14% | 0.00% | 0.91% |
| | BHB Allocation | Allocation (BHB) | 0.98% | -0.15% | 0.43% | -2.03% | 0.00% | 0.04% | 1.41% | -0.86% | -0.11% | 0.04% | 0.00% | -0.26% |
| | | Total effect (BHB) | 0.65% | -0.66% | 0.51% | -2.43% | 0.10% | 0.85% | 1.20% | 0.26% | 0.20% | 0.23% | 0.00% | 0.91% |
| 2012 | Portfolio | Weight (wi) | 15.52% | 3.07% | 12.31% | 4.85% | 11.83% | 12.71% | 19.35% | 13.94% | 2.31% | 4.11% | 0.00% | 100.00% |
| | | Return (Ri) | 1.21% | 4.34% | 18.96% | 22.64% | 13.65% | 21.55% | 24.77% | 13.08% | 16.71% | 6.90% | 0.00% | 15.39% |
| | | Contribution | 0.19% | 0.13% | 2.33% | 1.10% | 1.62% | 2.74% | 4.79% | 1.82% | 0.39% | 0.28% | 0.00% | 15.39% |
| | Benchmark | Weight (Wi) | 12.27% | 3.50% | 10.69% | 10.67% | 11.54% | 11.85% | 13.43% | 19.02% | 3.17% | 3.87% | 0.00% | 100.00% |
| | | Return (Bi) | 4.61% | 14.97% | 15.35% | 23.93% | 10.76% | 17.89% | 28.82% | 14.82% | 18.31% | 1.29% | 0.00% | 15.96% |
| | | Contribution | 0.57% | 0.52% | 1.64% | 2.55% | 1.24% | 2.12% | 3.87% | 2.82% | 0.58% | 0.05% | 0.00% | 15.96% |
| | Variance | Weight | 3.25% | -0.43% | 1.62% | -5.82% | 0.30% | 0.86% | 5.92% | -5.08% | -0.86% | 0.24% | 0.00% | 0.00% |
| | | Return | -3.40% | -10.63% | 3.61% | -1.29% | 2.89% | 3.66% | -4.05% | -1.74% | -1.60% | 5.61% | 0.00% | -0.57% |
| | | Contribution | -0.38% | -0.39% | 0.69% | -1.46% | 0.37% | 0.62% | 0.92% | -1.00% | -0.19% | 0.23% | 0.00% | -0.57% |
| | Selection | Pure selection | -0.42% | -0.37% | 0.39% | -0.14% | 0.33% | 0.43% | -0.54% | -0.33% | -0.05% | 0.22% | 0.00% | -0.48% |
| | | Interaction | -0.11% | 0.05% | 0.06% | 0.08% | 0.01% | 0.03% | -0.24% | 0.09% | 0.01% | 0.01% | 0.00% | -0.01% |
| | | Combined selection | -0.53% | -0.33% | 0.44% | -0.06% | 0.34% | 0.47% | -0.78% | -0.24% | -0.04% | 0.23% | 0.00% | -0.50% |
| | BF Allocation | Allocation (BF) | -0.37% | 0.00% | -0.01% | -0.46% | -0.02% | 0.02% | 0.76% | 0.06% | -0.02% | -0.04% | 0.00% | -0.07% |
| | | Total effect (BF) | -0.90% | -0.32% | 0.43% | -0.53% | 0.33% | 0.48% | -0.02% | -0.18% | -0.06% | 0.19% | 0.00% | -0.57% |
| | BHB Allocation | Allocation (BHB) | 0.15% | -0.07% | 0.25% | -0.39% | 0.03% | 0.15% | 1.71% | -0.75% | -0.16% | 0.00% | 0.00% | -0.07% |
| | | Total effect (BHB) | -0.38% | -0.39% | 0.69% | -0.46% | 0.37% | 0.62% | 0.92% | -1.00% | -0.19% | 0.23% | 0.00% | -0.57% |
| 2011 | Portfolio | Weight (wi) | 16.25% | 2.68% | 12.69% | 4.37% | 12.37% | 13.39% | 20.48% | 11.06% | 2.52% | 4.18% | 0.00% | 100.00% |
| | | Return (Ri) | -7.54% | -13.97% | -8.29% | 1.58% | 5.05% | 7.66% | -15.12% | -7.62% | 1.83% | 10.58% | 0.00% | -4.38% |
| | | Contribution | -1.22% | -0.37% | -1.05% | 0.07% | 0.62% | 1.03% | -3.10% | -0.84% | 0.05% | 0.44% | 0.00% | -4.38% |
| | Benchmark | Weight (Wi) | 12.03% | 3.74% | 10.95% | 10.63% | 10.63% | 10.91% | 16.06% | 18.65% | 3.11% | 3.30% | 0.00% | 100.00% |
| | | Return (Bi) | 4.72% | -9.75% | -0.59% | 6.13% | 13.99% | 12.73% | -17.06% | 2.41% | 6.27% | 19.91% | 0.00% | 2.23% |
| | | Contribution | 0.57% | -0.36% | -0.06% | 0.65% | 1.49% | 1.39% | -2.74% | 0.45% | 0.19% | 0.66% | 0.00% | 2.23% |
| | Variance | Weight | 4.22% | -1.06% | 1.74% | -6.26% | 1.74% | 2.49% | 4.42% | -7.58% | -0.59% | 0.88% | 0.00% | 0.00% |
| | | Return | -12.26% | -4.22% | -7.70% | -4.55% | -8.94% | -5.07% | 1.94% | -10.03% | -4.44% | -9.33% | 0.00% | -6.61% |
| | | Contribution | -1.79% | -0.01% | -0.99% | -0.58% | -0.86% | -0.36% | -0.36% | -1.29% | -0.15% | -0.21% | 0.00% | -6.61% |
| | Selection | Pure selection | -1.48% | -0.16% | -0.84% | -0.48% | -1.95% | -0.55% | 0.31% | -1.87% | -0.14% | -0.31% | 0.00% | -6.47% |
| | | Interaction | -0.52% | 0.04% | -0.13% | 0.28% | -0.16% | -0.13% | 0.09% | 0.76% | 0.03% | -0.08% | 0.00% | 0.19% |
| | | Combined selection | -1.99% | -0.11% | -0.98% | -0.20% | -1.11% | -0.68% | 0.40% | -1.11% | -0.11% | -0.39% | 0.00% | -6.28% |
| | BF Allocation | Allocation (BF) | 0.11% | 0.13% | -0.05% | -0.24% | 0.20% | 0.26% | -1.85% | -0.01% | -0.02% | 0.16% | 0.00% | -0.33% |
| | | Total effect (BF) | -1.89% | 0.01% | -1.03% | -0.44% | -0.90% | -0.42% | -1.46% | -1.12% | -0.14% | -0.23% | 0.00% | -6.61% |
| | BHB Allocation | Allocation (BHB) | 0.20% | 0.10% | -0.01% | -0.38% | 0.24% | 0.32% | -0.75% | -0.18% | -0.04% | 0.18% | 0.00% | -0.33% |
| | | Total effect (BHB) | -1.79% | -0.01% | -0.99% | -0.58% | -0.86% | -0.36% | -0.36% | -1.29% | -0.15% | -0.21% | 0.00% | -6.61% |

*Source: Authors*

The arithmetic approach to attribution is insufficient for multi-period attribution as observed for a cumulative eleven-year period. The geometric methodology leaves no residuals and is independent of order because arithmetic effects cannot be connected directly and can only be used by deploying various types of algorithms. Considering the aforementioned, this method is favored. Additionally, it is not possible to geometrically add additional returns for individual annual periods to gain additional returns for the entire eleven-year period.

The overall geometric return and the annual geometric additional returns are displayed below. To derive the geometric return for eleven years, however, the directly linked annual geometric excess returns would be incorrect, as evidenced by the difference in relation to the black horizontal line (Figure 3).

The geometric attribution findings for the eleven years are provided (Table 2). The geometric total excess return is negative, and it is -29.64 percent. It is obtained as a geometric excess return

between the portfolio's geometric multi-period return and the investment benchmark's geometric multi-period return.
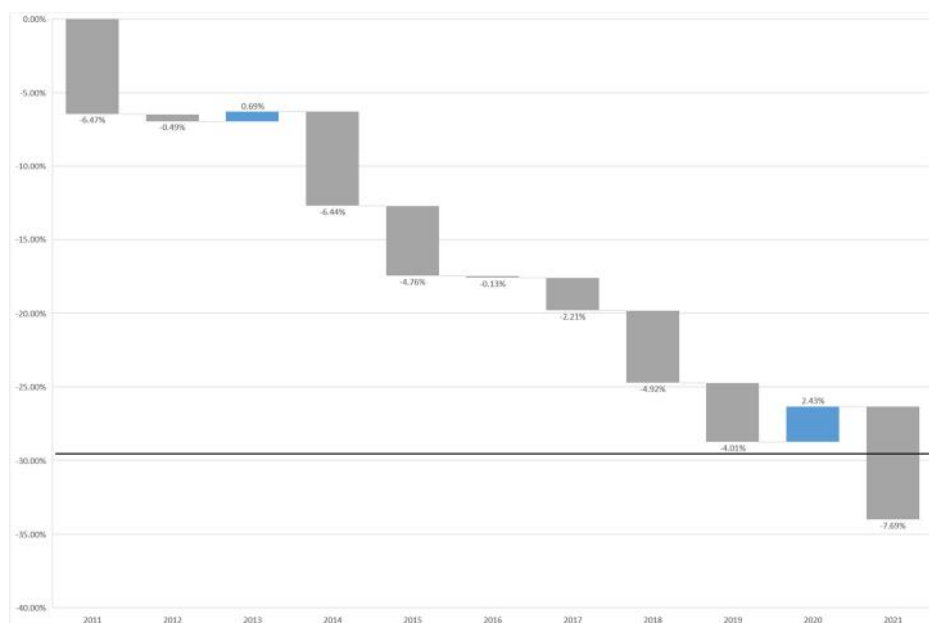


*Figure 3. Excess Returns - Value Weighted Morning Star Peers Sector Mutual Funds Total Portfolio*

*Source: Authors*

*Table 2. Geometric attribution based on adjusted Brinson-Fachler model – Value Weighted Morning Star Peers Sector Mutual Funds Total Portfolio vs. S&P500 sector indices*

| Year | Geometric effect | Energy | Materials | Industrials | Consumer Discretion | Consumer Staples | Health Care | Financials* | Information | Communication | Utilities | Real Estate* | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | Geometric selection | -0.39% | 0.04% | -0.11% | -0.61% | -0.07% | -2.00% | -0.37% | -3.21% | -1.19% | -0.05% | -0.10% | -8.07% |
| | Geometric allocation | 0.66% | 0.00% | -0.12% | 0.07% | -0.17% | 0.00% | 0.29% | -0.24% | 0.04% | -0.04% | -0.08% | 0.41% |
| | Total geometric effect | 0.27% | 0.04% | -0.23% | -0.54% | -0.24% | -2.01% | -0.08% | -3.45% | -1.15% | -0.10% | -0.18% | -7.66% |
| 2020 | Geometric selection | 0.62% | -0.10% | 0.41% | 0.59% | 0.11% | 1.57% | 0.08% | 2.12% | 0.02% | 0.01% | -0.03% | 5.39% |
| | Geometric allocation | -1.51% | 0.00% | -0.06% | -0.03% | -0.07% | 0.06% | -0.71% | -0.63% | -0.15% | 0.05% | 0.23% | -2.82% |
| | Total geometric effect | -0.90% | -0.10% | 0.35% | 0.57% | 0.04% | 1.63% | -0.63% | 1.49% | -0.13% | 0.06% | 0.19% | 2.58% |
| 2019 | Geometric selection | -0.27% | -0.17% | 0.00% | -0.10% | -0.42% | 0.54% | -0.45% | -1.56% | -0.76% | -0.09% | -0.02% | -3.30% |
| | Geometric allocation | -0.37% | 0.03% | -0.02% | 0.03% | -0.06% | 0.21% | 0.01% | -0.61% | 0.02% | 0.00% | 0.03% | -0.74% |
| | Total geometric effect | -0.65% | -0.14% | -0.02% | -0.07% | -0.48% | 0.75% | -0.44% | -2.16% | -0.74% | -0.09% | 0.00% | -4.03% |
| 2018 | Geometric selection | -0.87% | -0.11% | -0.11% | -1.09% | -0.27% | -0.99% | -0.19% | -0.60% | 0.17% | -0.05% | -0.07% | -4.18% |
| | Geometric allocation | -0.40% | 0.05% | -0.06% | -0.02% | -0.07% | -0.02% | -0.07% | -0.21% | 0.01% | 0.05% | -0.03% | -0.77% |
| | Total geometric effect | -1.26% | -0.06% | -0.17% | -1.10% | -0.34% | -1.01% | -0.26% | -0.81% | 0.18% | 0.00% | -0.10% | -4.95% |
| 2017 | Geometric selection | -0.35% | -0.17% | 0.14% | -0.14% | 0.15% | 0.23% | -0.74% | -0.51% | 0.15% | -0.01% | -0.06% | -1.31% |
| | Geometric allocation | -0.64% | 0.00% | 0.00% | -0.01% | -0.06% | 0.00% | 0.00% | -0.41% | 0.10% | -0.02% | 0.13% | -0.92% |
| | Total geometric effect | -0.99% | -0.17% | 0.13% | -0.15% | 0.08% | 0.23% | -0.73% | -0.93% | 0.25% | -0.03% | 0.07% | -2.23% |
| 2016 | Geometric selection | 0.23% | 0.25% | -0.07% | -0.15% | -0.01% | -0.79% | -0.60% | -0.43% | -0.18% | -0.08% | 0.00% | -1.83% |
| | Geometric allocation | 0.97% | 0.00% | 0.02% | 0.12% | 0.01% | 0.50% | 0.20% | -0.04% | -0.05% | 0.02% | 0.00% | 1.73% |
| | Total geometric effect | 1.19% | 0.25% | -0.06% | -0.03% | 0.00% | -0.29% | -0.41% | -0.47% | -0.23% | -0.06% | 0.00% | -0.10% |
| 2015 | Geometric selection | -0.95% | -0.41% | -0.23% | -0.90% | -0.26% | 0.13% | 0.12% | -0.11% | -0.05% | -0.17% | 0.00% | -2.83% |
| | Geometric allocation | -1.47% | 0.02% | 0.00% | -0.16% | 0.04% | -0.16% | -0.05% | -0.17% | -0.01% | -0.01% | 0.00% | -1.98% |
| | Total geometric effect | -2.43% | -0.38% | -0.24% | -1.06% | -0.22% | -0.03% | 0.07% | -0.28% | -0.06% | -0.18% | 0.00% | -4.81% |
| 2014 | Geometric selection | -1.22% | -0.54% | -0.12% | -0.24% | -0.51% | 0.20% | -1.65% | -1.12% | -0.04% | -0.39% | 0.00% | -5.63% |
| | Geometric allocation | -0.98% | 0.02% | 0.01% | 0.16% | 0.01% | -0.12% | 0.02% | -0.11% | 0.03% | 0.10% | 0.00% | -0.86% |
| | Total geometric effect | -2.19% | -0.52% | -0.11% | -0.09% | -0.50% | 0.08% | -1.62% | -1.23% | -0.02% | -0.29% | 0.00% | -6.49% |
| 2013 | Geometric selection | -0.25% | -0.39% | 0.06% | -0.31% | 0.08% | 0.61% | -0.16% | 0.85% | 0.23% | 0.15% | 0.00% | 0.88% |
| | Geometric allocation | -0.21% | 0.03% | 0.07% | -0.38% | 0.00% | 0.01% | 0.10% | 0.09% | 0.15% | -0.04% | 0.00% | -0.20% |
| | Total geometric effect | -0.46% | -0.36% | 0.13% | -0.69% | 0.08% | 0.62% | -0.06% | 0.94% | 0.39% | 0.10% | 0.00% | 0.69% |
| 2012 | Geometric selection | -0.46% | -0.28% | 0.38% | -0.05% | 0.30% | 0.40% | -0.68% | -0.21% | -0.03% | 0.20% | 0.00% | -0.43% |
| | Geometric allocation | -0.32% | 0.00% | -0.01% | -0.40% | -0.01% | 0.01% | 0.66% | 0.05% | -0.02% | -0.03% | 0.00% | -0.06% |
| | Total geometric effect | -0.77% | -0.28% | 0.37% | -0.45% | 0.28% | 0.42% | -0.02% | -0.16% | -0.05% | 0.17% | 0.00% | -0.49% |
| 2011 | Geometric selection | -1.95% | -0.11% | -0.96% | -0.20% | -1.09% | -0.67% | 0.39% | -1.09% | -0.11% | -0.38% | 0.00% | -6.16% |
| | Geometric allocation | 0.10% | 0.12% | -0.05% | -0.24% | 0.20% | 0.26% | -0.83% | -0.01% | -0.02% | 0.15% | 0.00% | -0.32% |
| | Total geometric effect | -1.85% | 0.01% | -1.01% | -0.43% | -0.89% | -0.41% | -0.44% | -1.10% | -0.13% | -0.23% | 0.00% | -6.49% |

*Source: Authors*

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An alternative way to obtain the total excess geometric return for multiple periods is based on the calculation of the total multi-period effect. Since the geometric attribution leaves no residual, the results must be equal, as can be seen (Table 3).

The geometric effect of sector attribution for the eleven years is negative, as a result of assigning lower weights to sectors that had a high Shiller price-earnings ratio and higher weights to those sectors that had a lower-than-average S&P500 Shiller price-to-earnings ratio. The effects of allocation and selection are geometrically linked, and the result is consistent with the previously calculated eleven-year excess return.

*Table 33. Value Weighted Morning Star Peers Sector Mutual Funds Total Portfolio - Multiperiod Geometric Attribution (2010-2021)*

| | |
|---|---|
| Portfolio compound return | 235.95% |
| Benchmark compound return | 377.45% |
| Total excess return | -29.64% |
| Allocation effect compound | -6.41% |
| Combined selection effect compound | -24.82% |
| Total effect | -29.64% |

*Source: Authors*

The following investment performance attribution results presented refer to a growth-weighted portfolio of sector mutual funds from the Morning Star peer groups. The effect of sector allocation is drastically different, this time, compared to the one achieved by using a strategy based on a value investment style. By assigning higher portfolio weights to sectors with high Shiller price-to-earnings ratios, positive sector allocation effects were realized for all but one year. However, this did not result in positive annual excess returns in most cases. The reason is that the stock selection effect of the growth-weighted portfolio of sector investment funds from the Morning Star sector peer groups is strong enough to cancel out the positive effect of allocation based on the growth investment style. The conclusion is that only three of the eleven observed years result in a positive excess return (Figure 4).



*Figure 4. Growth Weighted Morning Star Peers Sector Mutual Funds Total Portfolio Allocation and Selection Annual Effects – Arithmetic Approach*

*Source: Authors*

Even though the allocation effect was positive, insufficiently good tactical decisions resulted in a negative effect of selection, which led to the total negative excess return (Figure 5).
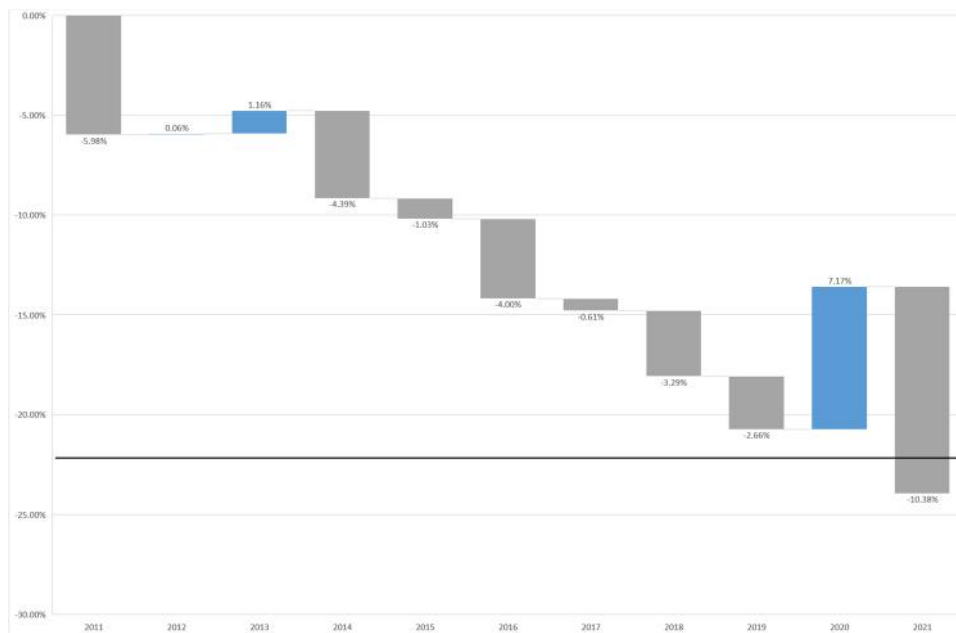


*Figure 8. Excess Returns - Growth Weighted Morning Star Peers Sector Mutual Funds Total Portfolio*

*Source: Authors*

Below are presented the results of geometric attribution at the sector level. The annual effects of allocation and selection were used to combine the eleven observed years to obtain the total effects of allocation and selection. As a result of the growth style of rebalanced portfolios on an annual basis, an overall positive allocation effect was achieved. The significant presence of negative selection effects within sector mutual funds from the Morning Star comparison group resulted in a significant negative excess return relative to the adequate benchmark (Table 4).

For a total period of eleven years, a geometric approach was once again deployed. Based on the results, it can be seen that the portfolio achieved a total return of 270.89%, while the investment benchmark at the same time achieved a return of 377.45%, which led to a total negative excess return of -22.32% (Table 5).

*Table 4. Geometric attribution based on adjusted Brinson-Fachler model – Growth Weighted Morning Star Peers Sector Mutual Funds Total Portfolio vs. S&P500 sector indices*

| Year | Geometric effect | Energy | Materials | Industrials | Consumer Discretiona | Consumer Staples | Health Care | Financials* | Information | Communication | Utilities | Real Estate* | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | Geometric selection | -0.05% | 0.04% | -0.07% | -1.49% | -0.04% | -1.76% | -0.12% | -4.81% | -1.96% | -0.03% | -0.17% | -10.46% |
| | Geometric allocation | -0.27% | 0.00% | 0.15% | -0.08% | 0.19% | 0.04% | -0.20% | 0.16% | -0.03% | 0.06% | 0.06% | 0.08% |
| | Total geometric effect | -0.32% | 0.05% | 0.08% | -1.58% | 0.15% | -1.72% | -0.31% | -4.65% | -1.99% | 0.03% | -0.10% | -10.38% |
| 2020 | Geometric selection | 0.17% | -0.09% | 0.30% | 0.56% | 0.07% | 1.76% | 0.04% | 2.50% | 0.04% | 0.01% | -0.10% | 5.26% |
| | Geometric allocation | 0.91% | 0.00% | 0.08% | -0.04% | 0.08% | -0.03% | 0.63% | 0.39% | 0.18% | -0.02% | -0.36% | 1.81% |
| | Total geometric effect | 1.08% | -0.10% | 0.38% | 0.52% | 0.16% | 1.73% | 0.67% | 2.89% | 0.21% | -0.01% | -0.46% | 7.07% |
| 2019 | Geometric selection | -0.12% | -0.23% | 0.00% | -0.12% | -0.25% | 0.72% | -0.31% | -2.35% | -0.50% | -0.08% | -0.07% | -3.31% |
| | Geometric allocation | 0.28% | -0.02% | 0.02% | -0.02% | 0.05% | -0.18% | -0.01% | 0.60% | -0.02% | 0.00% | -0.04% | 0.67% |
| | Total geometric effect | 0.16% | -0.25% | 0.02% | -0.14% | -0.20% | 0.55% | -0.32% | -1.75% | -0.52% | -0.08% | -0.11% | -2.63% |
| 2018 | Geometric selection | -0.38% | -0.16% | -0.09% | -1.09% | -0.17% | -0.97% | -0.17% | -0.86% | 0.18% | -0.03% | -0.18% | -3.93% |
| | Geometric allocation | 0.29% | -0.05% | 0.08% | -0.01% | 0.07% | -0.03% | 0.10% | 0.21% | 0.00% | -0.05% | 0.05% | 0.66% |
| | Total geometric effect | -0.09% | -0.21% | -0.01% | -1.09% | -0.10% | -1.00% | -0.06% | -0.65% | 0.18% | -0.08% | -0.13% | -3.27% |
| 2017 | Geometric selection | -0.16% | -0.16% | 0.11% | -0.15% | 0.12% | 0.26% | -0.58% | -0.66% | 0.22% | -0.01% | -0.21% | -1.22% |
| | Geometric allocation | 0.47% | 0.00% | 0.01% | 0.01% | 0.08% | 0.00% | -0.01% | 0.37% | -0.11% | 0.03% | -0.23% | 0.62% |
| | Total geometric effect | 0.32% | -0.16% | 0.12% | -0.15% | 0.19% | 0.26% | -0.58% | -0.30% | 0.12% | 0.02% | -0.44% | -0.60% |
| 2016 | Geometric selection | 0.05% | 0.22% | -0.07% | -0.20% | -0.01% | -1.33% | -0.45% | -0.66% | -0.29% | -0.05% | 0.00% | -2.78% |
| | Geometric allocation | -0.48% | -0.01% | -0.05% | -0.08% | 0.04% | -0.49% | -0.26% | 0.04% | 0.05% | -0.02% | 0.00% | -1.25% |
| | Total geometric effect | -0.43% | 0.21% | -0.12% | -0.27% | 0.03% | -1.81% | -0.71% | -0.62% | -0.24% | -0.07% | 0.00% | -4.03% |
| 2015 | Geometric selection | -0.27% | -0.44% | -0.21% | -1.16% | -0.21% | 0.19% | 0.09% | -0.16% | -0.06% | -0.14% | 0.00% | -2.37% |
| | Geometric allocation | 0.88% | -0.01% | 0.02% | 0.13% | -0.06% | 0.16% | 0.06% | 0.16% | 0.00% | 0.02% | 0.00% | 1.37% |
| | Total geometric effect | 0.60% | -0.45% | -0.18% | -1.03% | -0.26% | 0.35% | 0.16% | 0.00% | -0.06% | -0.12% | 0.00% | -1.00% |
| 2014 | Geometric selection | -0.51% | -0.63% | -0.11% | -0.55% | -0.43% | 0.23% | -1.25% | -1.31% | -0.05% | -0.23% | 0.00% | -4.84% |
| | Geometric allocation | 0.71% | -0.01% | 0.01% | -0.21% | -0.02% | 0.07% | -0.03% | 0.07% | -0.02% | -0.09% | 0.00% | 0.47% |
| | Total geometric effect | 0.20% | -0.64% | -0.10% | -0.76% | -0.45% | 0.29% | -1.28% | -1.25% | -0.07% | -0.33% | 0.00% | -4.37% |
| 2013 | Geometric selection | -0.13% | -0.52% | 0.04% | -0.82% | 0.07% | 0.57% | -0.09% | 1.13% | 0.47% | 0.12% | 0.00% | 0.84% |
| | Geometric allocation | 0.18% | -0.02% | -0.10% | 0.56% | 0.03% | -0.06% | -0.10% | -0.07% | -0.19% | 0.07% | 0.00% | 0.31% |
| | Total geometric effect | 0.06% | -0.54% | -0.05% | -0.26% | 0.10% | 0.51% | -0.19% | 1.06% | 0.29% | 0.18% | 0.00% | 1.16% |
| 2012 | Geometric selection | -0.25% | -0.33% | 0.26% | -0.23% | 0.25% | 0.31% | -0.29% | -0.35% | -0.05% | 0.16% | 0.00% | -0.53% |
| | Geometric allocation | 0.35% | 0.00% | 0.01% | 0.71% | 0.07% | -0.03% | -0.57% | -0.04% | 0.01% | 0.08% | 0.00% | 0.59% |
| | Total geometric effect | 0.10% | -0.33% | 0.27% | 0.48% | 0.32% | 0.28% | -0.86% | -0.39% | -0.04% | 0.23% | 0.00% | 0.07% |
| 2011 | Geometric selection | -0.90% | -0.18% | -0.60% | -0.97% | -0.67% | -0.37% | 0.20% | -2.60% | -0.14% | -0.20% | 0.00% | -6.44% |
| | Geometric allocation | -0.11% | -0.08% | 0.08% | 0.43% | -0.33% | -0.35% | 1.02% | 0.01% | 0.01% | -0.19% | 0.00% | 0.49% |
| | Total geometric effect | -1.01% | -0.26% | -0.52% | -0.54% | -1.01% | -0.72% | 1.22% | -2.59% | -0.13% | -0.39% | 0.00% | -5.95% |

*Source: Authors*

*Table 5. Growth Weighted Morning Star Peers Sector Mutual Funds Total Portfolio - Multiperiod Geometric Attribution (2010-2021)*

| | |
|---|---|
| Portfolio compound return | 270.89% |
| Benchmark compound return | 377.45% |
| Total excess return | -22.32% |
| Allocation effect compound | 5.95% |
| Combined selection effect compound | -26.68% |
| Total effect | -22.32% |

*Source: Authors*

Compared to the results of the Value Weighted Morning Star Peers Portfolio it can be noticed that the sector allocation effect is positive, and it is 5.95% (for the Growth Weighted Morning Star Peers Portfolio it is -6.41%). This difference is solely due to sector weightings based on the growth versus value investment style.

# *CONCLUSION*

Based on the analysis and interpretation of the presented results we can draw multiple conclusions. The first pertains to the prevailing investment style over the observed period. The investment style based on Shiller's price-to-earnings ratio shows that the growth style was in favor of the most observed years and total period. However, the value style managed to outperform the growth style in the last year and that might suggest that investors started to look for robust value fundamentals multiples rather than expected earnings growth in the long run as was the case previously. Consecutively assigning portfolio sector weights as per growth style proportionally to

the value of Shiller's price-to-earnings ratio resulted in positive sector allocation. This is true for most of the individual years, as well as for the whole observed period.

The selection effect in the research represents the ability of sector mutual funds managers to beat the appropriate benchmarks. The results across the sectors through the observed years show that the mutual funds from different sectors tend to outperform and underperform the benchmarks in the same years. These findings suggest that mutual funds also have exposure to other investment characteristics, such as size or a different set of investment multiples. The results demonstrate that smart money was unable to create value over time. At the same time, the tested portfolio partially neutralized the detrimental effect of managers' stock selection by using the growth style based on the investment style in the portfolio construction and sector weights allocation.

In general, the holdings-based relative portfolio attribution to the appropriate benchmarks provided deeper insight into the dynamics of alpha creation. Finally, a geometric approach was deployed for the multiperiod attribution that provided methodological precision without residuals. That was a prerequisite to conduct an effective performance evaluation.

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# IS THE REAL ESTATE BUBBLE ABOUT TO BURST? ANALYSIS OF THE REAL ESTATE MARKET IN THE REPUBLIC OF SERBIA

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## ABSTRACT

An episode of the creation and bursting of a speculative bubble refers to a situation when the price of an asset begins to rise rapidly without any fundamental reason and most often results in a devastating deflation of financial assets and a recession. Economic booms and busts are closely related to real estate price fluctuations. The bursting of a speculative bubble in the real estate market has been shown to have more severe consequences compared to the collapse of some other assets. The real estate market is specific. The supply in the real estate market is quite rigid because the process required to complete the construction work cannot be significantly accelerated. Also, the real estate market is not dominated by professional investors, but by households that rarely make transactions, and make their decisions based on modest, and often incomplete, even incorrect information. This is why the real estate market is particularly vulnerable to forming and collapsing speculative bubbles. The demand for real estate in the Republic of Serbia has been steadily increasing since 2016. Expansive monetary policy, uncertainty, fear of inflation and the lack of alternative forms of investment only further fueled the demand, which led to a significant increase in prices. The question arises whether this kind of price growth is sustainable or whether it is inevitable that the speculative bubble will burst. The subject and goal of the research are focused on the investigation of speculative bubbles in the real estate market in the Republic of Serbia. The results of the research will provide participants in the real estate market and holders of economic policies with valuable information in order to prevent speculative bubbles or mitigate their growth and thereby prevent the emergence of a crisis.

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# INTRODUCTION

A period of crisis occurs suddenly and with great destructive power, unlike a period of growth when such a sudden turn is not observed. Previous economic crises have had long-lasting effects on output levels around the world. Recessions leave a lasting negative impact on the level of economic growth (Ball, 2014]. In addition to the economy, financial crises also leave significant emotional consequences such as fear, despair, and hopelessness.

The real estate market is directly related to macroeconomic and financial stability. Economic booms and busts are closely related to real estate price fluctuations, primarily due to the size of this market segment. The interaction of the real estate market with the financial and real sector is reflected through the creation of various financial instruments of the real estate market, the use of the real estate as collateral and the impact of real estate prices on savings and consumption. Developments and trends in the real estate market need to be closely monitored because they greatly affect financial stability. The real estate sector has often played an important role in the global economy, creating and bursting financial sector bubbles and the emergence of financial crises.

Real estate has unique characteristics because it can be seen both as an investment and as a consumable good. An important characteristic of the real estate market is the size of the market. Furthermore, a large part of household loans is made up of housing loans, which also usually make up a large part of the financial sector's activity. Financial leverage is also very important. The debt limits of the population through housing loans are higher than other asset classes. In addition, the real estate market is not "reserved" only for households and construction companies, but also for companies in other sectors [Cerutti et alia, 2017]. Also, a very significant feature of the real estate market is that a residential mortgage is the most common form of collateral when it comes to bank loans. Therefore, the fall in real estate prices can significantly threaten the stability of banks because it leads to a significant increase in outstanding loans.

The subject of research is speculative bubbles in the real estate market of the Republic of Serbia. The aim of the research is to define the determinants and causes of speculative bubbles in the real estate market. An attempt was made to answer two important questions: Is there a bubble in the real estate market in the Republic of Serbia? And, are high housing prices and high housing costs sustainable in the long term? The results of the research bring valuable information to participants in the real estate market, as well as economic policy creators, in order to prevent speculative bubbles or mitigate their growth and thereby prevent the emergence of a crisis. However, the limitations of the research are reflected in the fact that although the existence of a speculative bubble has been confirmed, possible economic policy measures for sealing them have not been tested. Future research could be directed towards investigating the effectiveness of certain measures, primarily monetary policy measures, to suppress the emergence of speculative bubbles on the real estate market.

Quarterly data of the real estate market in Serbia, price index, rent index and price to rent index, were analyzed in the period Q1 2002 - Q4 2021. The methodology used includes the generalized supremum augmented Dickey - Fuller (GSADF) methodology.

Further, the Granger causality test was used to examine the hypothesis of spillover of speculative bubbles on the local real estate market from the city center to the periphery. Quarterly data for Belgrade and Belgrade municipalities in the period Q1 2007 - Q4 2019 were used.

Also, a comparative method was used to compare the state of the real estate market in the Republic of Serbia with the situation in the countries of its most important trading partners.

After more than ten years after the financial crisis, the global real estate market has fully recovered. In recent years, real estate prices have risen significantly in many countries. That is why there are more and more warnings about a new price bubble. The danger of new bubbles in real estate markets is real because the regulation of the financial market has not developed as much as expected

and as promised after the financial crisis of 2007-2008. Also, low interest rates significantly contribute to housing bubbles and the expansion of the mortgage market (Machaj, 2016).

However, the high inflation rates recorded worldwide in the previous 2 years caused by the expansionary monetary policy in the previous period, the energy crisis and the disruption in the supply chains due to the war in Ukraine, forced the central banks to make a turn in the monetary policy. The "cheap money" trend is over, interest rates are rising and monetary policy is tightening. These events can also be the trigger for bursting the speculative bubble in the real estate market.

The rest of the article is structured as follows: in the second section, a brief overview of the literature on the origin and consequences of the formation of speculative bubbles in the real estate market is given. In the third section, the authors define the research sample and methodology. The fourth section includes the performance of empirical assessments and the results and discussion are presented, while the fifth section concludes the paper and provides guidelines for further research.

# *LITERATURE REVIEW*

Business cycles represent fluctuations in aggregate economic activity. Cyclical fluctuations of the economy represent the biggest obstacle to achieving macroeconomic goals: low unemployment rate, low and stable inflation rate, the balance of payments and state budget, improvement of citizens' living standards, general macroeconomic stability.

Mitchell (1927) defined the business cycle as the fluctuation of aggregate economic activity. The potential product is conditioned by the available economic capacities, inputs and technological development. Therefore, business cycles (Picture 1) represent the fluctuation of real around the potential gross domestic product. The consensus of a large number of economists is that the economic cycle consists of short-term fluctuations in economic activity around the long-term trend of economic growth (Sharp et alia, 2000).

Economic cycles do not occur partially in certain sectors or economic variables, but episodes of expansion or contraction occur simultaneously in many economic activities.

The duration of the business cycle can vary from a few months or a couple of years to even over a decade. Forecasting economic trends in the future require monitoring and extensive analysis of a large number of economic indicators. Given that economic fluctuations are characterized by irregularity, it is not easy to predict them with great precision. That is why economists pay special attention and importance to turn points that indicate a change in the direction of aggregate economic activity.
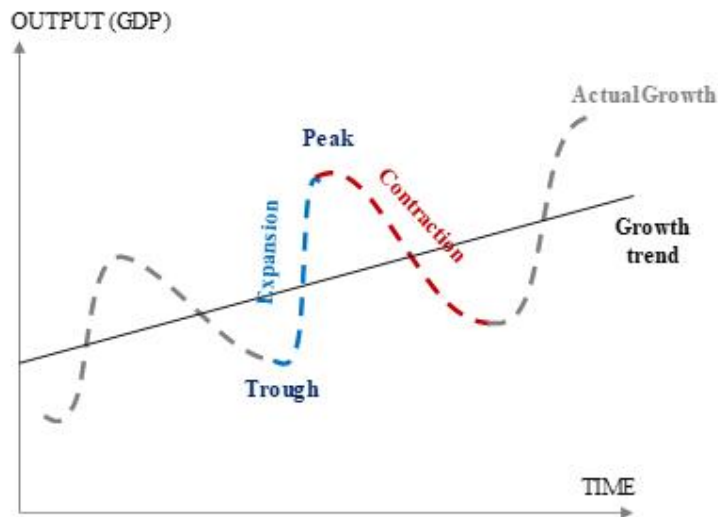
*Figure 1. Business cycle*

*Source: Luvsannyam and Batmunkh, 2018*

Business cycles consist of four phases. The bottom (trough) of the cycle represents the end of the contraction, followed by the recovery phase and the beginning of the expansion. The end of the expansion period and the beginning of a new contraction represents the peak of the cycle. A peak and a trough are actually the highest and lowest levels of an episode of a business cycle. The growth trend represents the average, i.e. normal growth trend of aggregate economic activity, while the dotted lines show fluctuations in real economic activity.

If we look at the economy at its lowest point, there will first be a period of recovery characterized by rapid growth and improvement of all economic indicators. The next phase is the phase of expansion, i.e. prosperity, in which there is a significant growth in aggregate demand, growth in productivity and production, which leads to an increase in employment, and investments also increase. Banks lend large amounts of capital at relatively low interest rates. It is extremely important, however, that this kind of growth be sustainable in the long term, that is, that the growth of aggregate demand and the price level be accompanied by growth in the physical volume of production. The period of expansion is characterized by an increase in economic activity that brings the economy even to a level above the long-term growth trend. Given that the long-term trend represents an economy at the level of full employment if the actual output has become greater than potential, inflationary pressures arise. After reaching the highest point of expansion, i.e. the peak, economic activity begins to slow down. A period in which aggregate economic activity declines is called a contraction or recession, while a strong recession becomes a depression. A recession is a period in which the economy is consistently below its potential level. During the recession period, economic activity decreased. People are cutting back on spending, so sales are also falling, causing firms to lay off workers, produce less and postpone their investment plans for more favorable periods. Workers, therefore, earn less, which implies that consumption decreases even more, which further leads to a significant decrease in business income. The economy enters a phase of depression and then descends to the lowest point where the decline in real GDP stops and then recovery begins. (Pavlovi , 2009).

A financial crisis typically occurs after a long period of prosperity. The outbreak of a financial crisis is usually preceded by the bursting of a bubble of a certain asset class and is defined by a sudden drop in the prices of financial assets. A sharp decline in the value of financial assets causes a sharp deterioration in the balance sheet positions of financial institutions, which leads to a general loss of confidence, increased demand for liquidity and attempts to reduce indebtedness. These factors

lead to problems of liquidity and solvency of banks and other financial institutions. Negative financial effects result in a decrease in economic activity, which is described as a recession or depression (Stanford, 1999).

An asset bubble is defined as an asset that is traded at a price higher than its fundamental value (Barlevy, 2018). The value of an asset is derived from the returns that the asset is expected to generate over its lifetime. A speculative bubble can be defined as a situation in which temporarily high prices are maintained mainly due to the greed of investors, and not due to a reliable assessment of the real value of the property. Speculative bubbles occur when investors invest irrationally, just because they expect prices to rise further. A speculative bubble is formed when the price of an asset exceeds its intrinsic, fundamental value. This situation can arise when investors buy an asset at a price above its fundamental value, expecting to be able to sell it later at a higher price, because rising prices, even only subconsciously, creates an urge to expect even higher price increases. A vicious circle develops; as a particular asset becomes more and more attractive to people, the prices increase more and more. At some point the market becomes saturated and when the price is no longer expected to rise, the bubble ends and bursts, demand falls and the market crashes.

The devastating effects throughout the history of identified bubbles are well known. It takes a long time for countries, companies and individuals affected by a crisis episode to recover. The devastating effect of the bursting of the real estate bubble has been shown to have more severe consequences compared to the collapse of some other types of assets. The bursting of the stock market bubble causes less damage than the real estate market crash (Kansu, 2011). The sudden drop in real estate prices will affect the collapse of the financial system, which will also be reflected in the real sector (Afsar and Dogan, 2018). The case of the 2007-2008 global recession testifies to that.

A central element of the 2008 global financial crisis was the US housing bubble. The logic of bubble growth is very simple. People who have significantly increased their wealth with an extraordinary run-up in stock prices have spent commensurate with their increased wealth. This led to a consumption boom in the late 90s, with a reduced disposable income savings rate that fell from close to 5.0% in the middle of the decade to just over 2% by 2000 (Baker, 2008). Shiller (2010) constructed a series of data beginning in 1895, which showed that real house prices were essentially unchanged for 100 years, until 1995. The period of expansion contributed to a flare-up in consumption, and increased wealth led people to buy either larger or additional properties. This increase in demand had the effect of creating a bubble in the real estate market, because in the short term the supply of housing is relatively fixed, and therefore a sudden increase in demand first leads to an increase in prices. When real estate prices began to rise above fundamental value, the financial industry adopted more sophisticated financial innovations to support their growth. The initial spark to the prevalence of the global financial crisis was created in the mortgage segment of the high-risk housing loan market. Without much control, loans were massively granted to persons who had no credit history, as well as to parties with higher credit risk. Cheap loans intensified the demand for real estate even more, which led to further price growth. In the period from 1997 to 2006, real estate prices in the USA increased by 124%. The rise in real estate prices was also supported by the expansionary monetary policy of the central bank system. However, that was only the beginning of the problem. Banks have already securitized risky mortgage loans, that is, turned them into mortgage-backed securities, and then resold them to speculative investors who were chasing quick profits. When the inflated prices could no longer be supported, mass panic sales of real estate began. People realized that they owed more than their homes were worth, and mortgage payments effectively became unaffordable. Banks faced the problem of bad mortgages and even when they were able to sell them, they recorded a net loss on their balance sheets. By the end of 2007, real property prices fell by more than 15 percent from their peak, and by more than 30 percent at the beginning of 2008 (Filipovi , 2010). Already at the beginning of 2008, the crisis spread from the real estate market to the securities market.

According to many authors, the most significant determinants of real estate prices are real GDP per capita, interest rates, credit availability, population, real construction cost, real disposable income, average number of household members and financial deepening (Stepanyan et alia, 2010). Long-term factors include fundamentals such as demographics, household income and the tax regime (Meen, 2011), while viewed in the short term, real estate price fluctuations are mostly influenced by the institutional structure of the financing system and mortgage lending conditions, credit availability and interest rates (Whitehead and Williams , 2011). Many of these factors can change significantly with economic trends, especially in developing countries and transition economies.

In the literature, claims can be found that real estate markets are more prone to the formation of bubbles than securities markets because these markets are dominated by unsophisticated households, the possibility of "short selling" is quite limited, and arbitrage is often extremely expensive. Also, it is noticeable and documented that movements on the real estate market are not independent of what happens on the stock exchanges (Scherbina and Schlusche, 2014).

The real estate market bubble is fueled by the speculative expectations of business entities that real estate prices will continue to rise in the future, as a result of which they borrow to buy and then sell real estate in order to make a profit. A speculative bubble usually occurs during a period of economic prosperity and expansion and mostly occurs in highly developed urban areas (Li et alia, 2021).

An interesting psychological phenomenon in the real estate market is represented by attitudes about what rational expectations entail. For example, home buyers typically believe that there is minimal risk involved in real estate investing. They also assume that buying property will always be a good investment option, despite the high costs. Case and Shiller (2003) show a strong perception by property owners that future capital gains will far exceed current expenditures. These authors report the naivety of property owners in understanding the real estate market. Specialist agencies tell us what others have paid for homes recently, but not whether these prices are justified by cash flow. This approach is widespread and used by most participants in the real estate market and is actually the reason why market prices can deviate significantly from fundamental values.

However, as Siegel and Thaler (1997) note, return on property investment means return over the long term. Thus, they imply that real estate prices will eventually return to median property values, rather than rising indefinitely.

Also, at the beginning of the 21st century, the real estate market became increasingly attractive to managers of investment funds, and real estate became an indispensable part of the portfolio of these funds, as part of the strategy of diversification and risk management. In addition, the securitization of mortgage loans has significantly increased the liquidity of this market (Wang and Zhu, 2018).

Sheehan (2021), observing the real estate market of the United States, believes that, at least for now, we are not in a speculative bubble, but in a fundamentals-driven real estate market boom. The rise in real estate prices is explained by record high demand, low supply and low interest rates.

On the contrary, a group of authors (Ahmet et alia, 2021) presented strong evidence of the presence of speculative bubbles in the period from 2001-2019 in the American real estate market. They observed a strong phenomenon of speculative tendencies in the period after the global financial crisis despite a series of regulatory measures taken.

# *METHODOLOGY*

As the value of an asset is derived from the returns it pays, the price at which that asset should be traded is the discounted value of the returns (dividends, rents) that it should produce in the future and that is what constitutes its fundamental value. If prices do not reflect anticipated returns, the explanation for the price deviation is speculation.

Right-sided unit root tests have been shown to be promising for revealing the exuberance of economic and financial activities, and therefore the generalized supremum augmented Dickey – Fuller (GSADF) methodology was chosen. The GSADF methodology used in the research includes a new bubble detection strategy developed by Phillips, Wu and Yu (PWY, 2011) and Phillips, Shi and Yu (PSY, 2015). This strategy is based on recursive and rolling ADF unit root tests that allow us to detect bubbles in the data series, as well as the period of their appearance. In this test, the null hypothesis is the existence of a unit root, and the alternative hypothesis is a mild explosive process.

The rejection of the null hypothesis is significant evidence of the existence of multiple episodes of speculative bubbles. PWY and PSY show that the use of recursive and rolling tests results in higher bubble detection power compared to standard full-sample tests (Roganovic and Vidicki, 2020).

The market price of an asset at time t (Pt) consists of a fundamental value (Ft) and a bubble component (Bt):

$$Pt = Ft + Bt. \qquad (1)$$

The bubble component is a sub-martingale process, i.e. a stochastic process for which future values in a given sequence are conditionally expected to be greater than or equal to the current value.

$$Et(Bt + 1) = \frac{1}{p} Bt, \qquad (2)$$

where "p" is the discount factor and $1/p > 1$. The bubble process is explosive, with an autoregressive coefficient of 1/p. In the absence of a bubble, the degree of asset price volatility is controlled by the character of the dividend (rent) series and unobservable factors embedded in the fundamental component of the "Ft" market. Therefore, empirical evidence of explosive behavior in asset price raids (prices adjusted for rent or dividend) can be used to infer the existence of bubbles (Greenaway-McGrevy i Phillips, 2016).

Quarterly data of the real estate market in Serbia, price index, rent index and price to rent index, were analyzed in the period Q1 2002 - Q4 2021. Using the software add-in in the EViews program (Caspi, 2017), test statistics were calculated, corresponding critical values and p values were simulated through the Monte Carlo simulation method. The results are presented tabularly and graphically.

Finally, many studies show that real estate price growth moves diffusely from the city center to the peripheries (Teng et alia, 2017). This hypothesis was investigated in the real estate market of the Republic of Serbia using the Granger causality test. The Granger causality test is a bivariate test. Two variables, X and Y, are observed, and the test examines whether X Granger causes Y and vice versa.

Granger (1969) devised a method to answer the question of whether "x" causes "y", that is, to see how much of current "y" can be explained by past values of "y", and then to see that whether adding lagged values of "x" can improve the explanation. "Y" is said to be Granger caused by "x" if

"x" helps predict, or equivalently if the coefficients on the lagged values of "x" are statistically significant. The null hypothesis is that "x" does not Granger cause "y" in the first regression and that "y" does not Granger cause "x" in the second regression (EViews, 2020).

For calculation quarterly data for Belgrade and Belgrade municipalities in the period Q1 2007 - Q4 2019 were used.

## *DISCUSSION OF RESULTS*

Analyzing the real estate market in the Republic of Serbia, we can conclude that the demand for real estate in Serbia is constantly increasing. Since 2016, the sale and purchase of apartments has increased by 35%, and 21% of apartments were purchased on credit (PKS, 2019). In the period from 2013 to 2019, the debt based on housing loans increased by 24%, from 330 to 410 billion RSD.

According to the report of the Association of Serbian Banks (2019), loans make up 94% of the population's total indebtedness for services. At the end of 2018, the share of household debt in GDP in Serbia was 22%. Housing loans make up 42% of the total household debt for bank loans.

The number of users of housing loans in Serbia is 113,683 (May 2019), and the average amount of housing loans is 3.5 million RSD ( 30,000 EUR), which is about 65 average net monthly salaries (2019).

Although the COVID-19 pandemic in early 2020 caused property markets to experience an unprecedented spike in risk and uncertainty around the world, the real estate market in many global cities appears to be immune to the negative effects (Cheung et alia, 2021).

In the third quarter of 2021, the number of sales in the Republic of Serbia increased by 4.5% compared to the third quarter of 2020, and 32.8% compared to the third quarter of 2018. The number of real estate sales is shown in Figure 2.
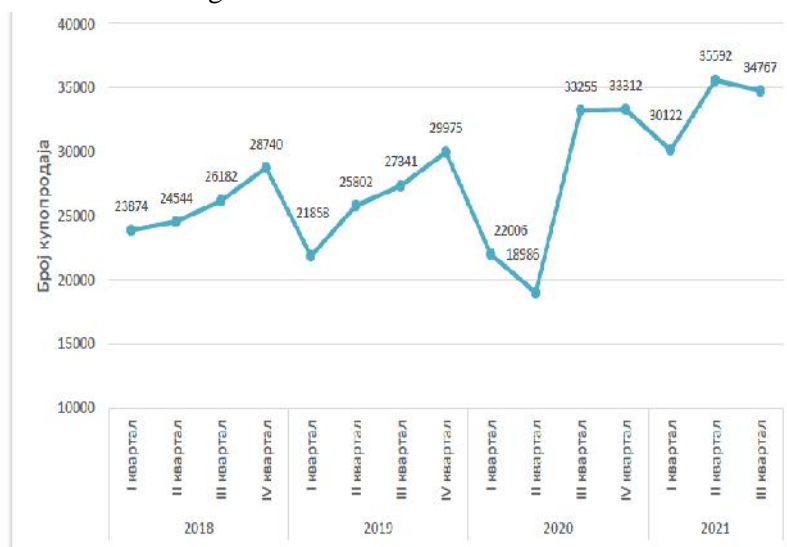


*Figure 2. Number of real estate sales*

*Source: Republic of Serbia, Republic Geodetic Institute, 2021*

The total number of issued building permits in the period January - April 2022 is higher by 22.2% compared to the same period of the previous year. (Statistical Office of the Republic of Serbia, 2022).

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Malovi  et al (2021) investigated the real estate market in the period preceding the outbreak of the pandemic with the aim of determining whether real estate prices were overvalued, i.e. whether and when speculative bubbles began to form and whether there were signs of their bursting. They conclude that the period of the COVID-19 pandemic, that is, the period of isolation and shutdown of global activity, apparently did not cause the bursting of previously formed real estate market bubbles.

Moreover, in several developing countries characterized by underdeveloped financial markets, the pandemic, paradoxically, may have strengthened real estate prices to some extent, and even accelerated the development of speculative bubbles in this market. In addition, in less developed economies such as Serbia, where the capital market is underdeveloped and where average incomes are relatively low, remittances and external demand could probably have had a huge impact on real estate price growth. In fact, much of the remittances end up being invested in real estate due to the diaspora's intention to provide housing for their families left behind, as well as the lack of other investment opportunities in developing countries. This could at least to some extent explain the fact that a large percentage of real estate sold in Serbia is paid for in cash.

Figure 3 shows remittances received as a % of gross domestic product in selected developed and developing countries.
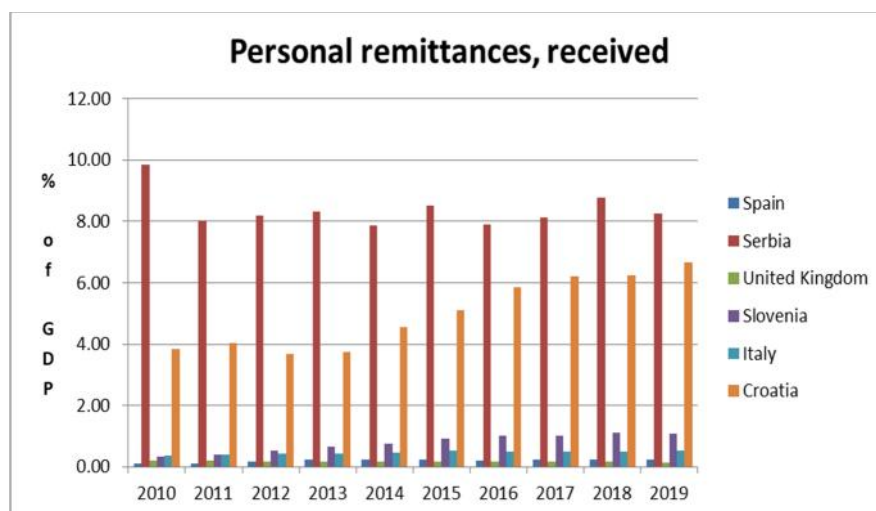


*Figure 3. Inbound remittances*

*Source: Malovi  et alia (2021)*

Based on the data from Figure 3, we see that there is a much greater interdependence of inflows from abroad in developing countries, while the percentage of remittances in the total gross domestic product of developed countries is insignificant.

According to collected data from sales contracts on the real estate market of the Republic of Serbia, in the third quarter of 2021, 14% of real estate was paid with credit and 86% with cash. Apartments in the Republic of Serbia are 32% paid with credit, and 68% with cash. (Figure 4)
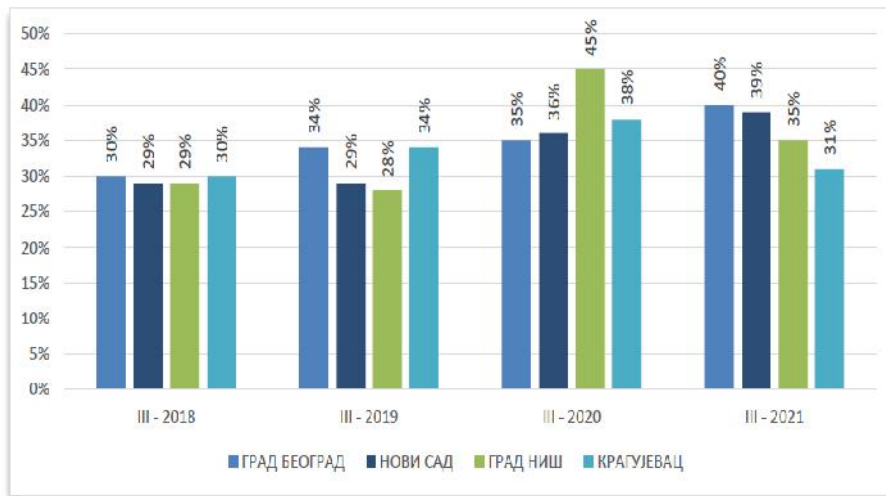
*Figure 4. Percentage of apartments paid from loans*

*Source: Republic of Serbia, Republic Geodetic Institute, 2021*

Detecting bubbles in the real estate market involves analysis using the real estate price index and the rent price index. (Figure 5)
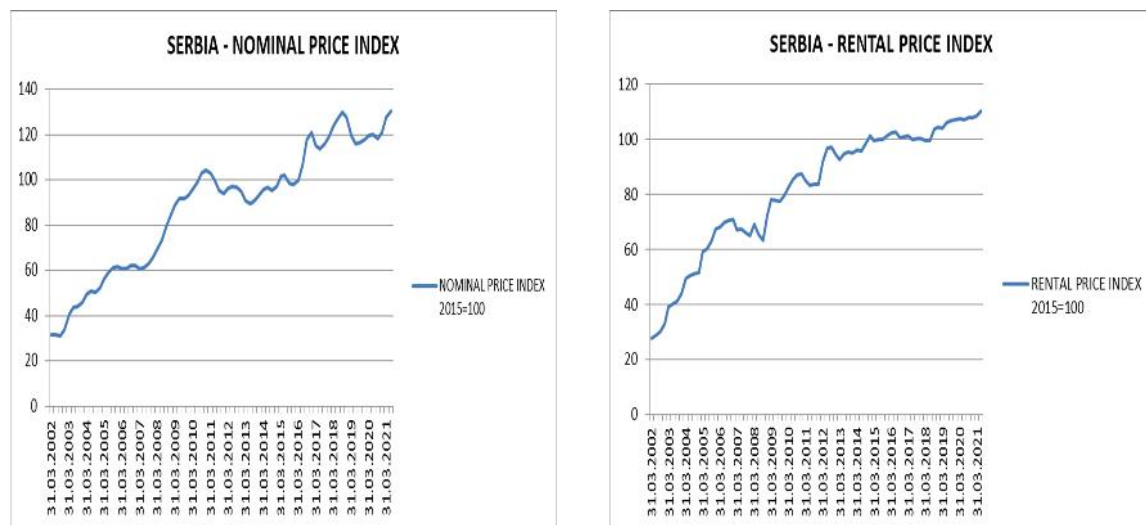


*Figure 5. Nominal price index and Rental price index*

*Soruce: Authors*

The price and rent indices record consistently high levels. Although rent prices are still somewhat managing to keep pace with real estate price growth, this growth is not sustainable in the long term. Rents represent the return on investment in real estate and it is not realistic to expect that the anticipated future return will be constantly increasing.

In addition, the housing stock (supply) increases year by year, and the number of inhabitants in major cities is constant (at the level of the whole country it is decreasing), therefore, the demand for rent cannot absorb the long-term growth of rent. In the period 2002–2021, the number of inhabitants of the Republic

of Serbia is continuously decreased. At the regional level, only the Belgrade region recorded an increase in the number of inhabitants until 2020, only for that trend to change in 2021 (the number of inhabitants decreased by 3.4‰ compared to 2020). (Republican Institute of Statistics, 2022).

In support of this thesis is the fact that real estate is increasingly viewed only as a safe haven for preserving value, and not as an investment that gives a return through rent. In a situation where a lot of real estate does not generate income (rent), but only "stands empty", even price stagnation for a long period can lead to the bursting of a price bubble.

Testing the real estate market for the presence of speculative bubbles was carried out using the GSADF methodology. The results are shown in Figure 6.
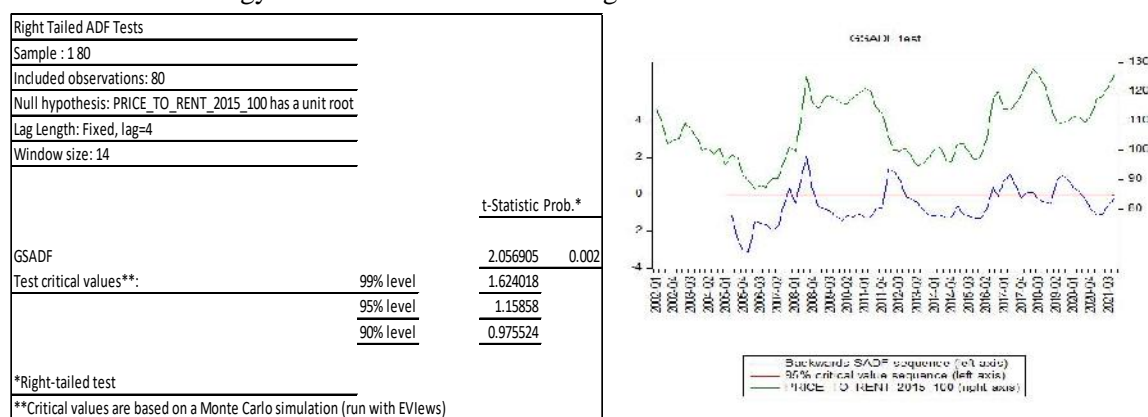


| Right Tailed ADF Tests | | | |
|---|---|---|---|
| Sample : 1 80 | | | |
| Included observations: 80 | | | |
| Null hypothesis: PRICE_TO_RENT_2015_100 has a unit root | | | |
| Lag Length: Fixed, lag=4 | | | |
| Window size: 14 | | | |
| | | t-Statistic | Prob.* |
| GSADF | | 2.056905 | 0.002 |
| Test critical values**: | 99% level | 1.624018 | |
| | 95% level | 1.15858 | |
| | 90% level | 0.975524 | |
| *Right-tailed test | | | |
| **Critical values are based on a Monte Carlo simulation (run with EVIews) | | | |

*Figure 6. GSADF results Serbia*

*Source: Authors*

As the obtained value of the t-statistic is greater than the critical values for all confidence intervals, and the p value tends to zero, it is concluded that there is strong evidence against H0 and in favor of HA. Bubble periods on the chart can be read at times when the BSADF sequence (shown in blue) is above the critical value sequence (shown in red).

Several episodes of speculative bubbles were detected in the real estate market in Serbia: 2007Q4 – 2009Q1; 2012Q1 – 2013Q1; 2016Q3 – 2017Q4; 2018Q4 – 2020Q3.

In order to examine the diffusion of prices from the center to the periphery, data for the city of Belgrade and Belgrade municipalities were analyzed. The graph (Figure 7) shows the movement of real estate prices per square meter in Belgrade.
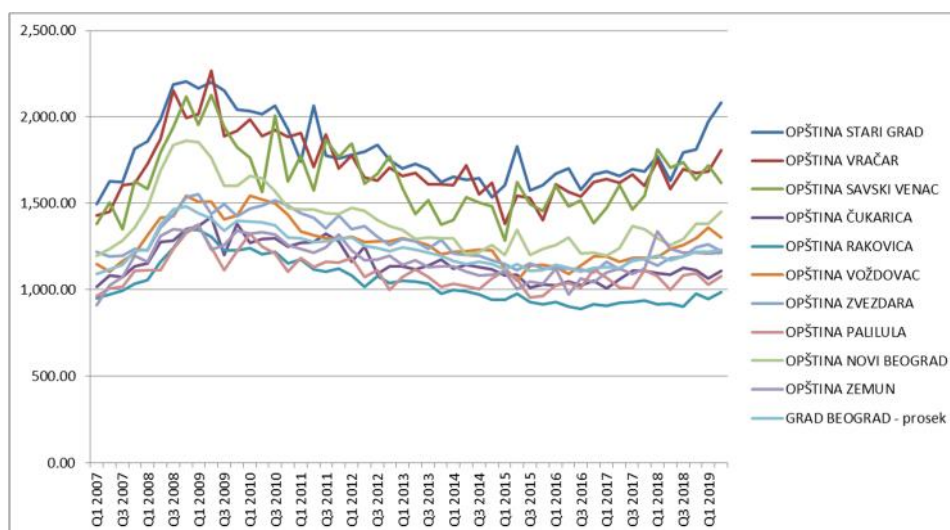
*Figure 7: Real estate prices in Belgrade*

*Soruce: Roganovic, 2022*

The result of the price diffusion test from the center to the periphery is presented in table 1:

*Table 1. Granger causality of center and periphery property prices*

| Pairwise Granger Causality Tests | | | |
|---|---|---|---|
| Sample: 1 50 | | | |
| Lags: 2 | | | |
| | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| | | | |
| BEOGRAD___PERIFERIJA does not Granger Cause BEOGRAD___CENTAR | 48 | 0.6708 | 0.5166 |
| BEOGRAD___CENTAR does not Granger Cause BEOGRAD___PERIFERIJA | | 15.1054 | 1.00E-05 |

*Soruce: Authors*

Since in the first case the p value is greater than 0.05, there is no evidence against the null hypothesis. It can be concluded that the prices of the periphery do not affect the prices in the center. However, in the second case the p value tends to zero which means that there is strong evidence against H0. It is concluded that prices in the center significantly affect prices in the periphery. The causality between the underlying prices in the two areas only works in one direction: changes in the Granger city center cause changes in the periphery. This implies that housing in the city center is prohibitively expensive for many consumers, and therefore people are forced to move to the suburbs to secure housing.

In order to compare the affordability of apartments in Serbia and selected countries of Serbia's trading partners, the ratio between real estate prices and average annual net incomes was calculated. The following table (Table 2) shows how much the average employee earns per square meter of apartment for a period of one year.

*Table 2. Average annual salary in square meters of the apartment*

| Country/Period | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|
| Italy | 5.96 | 6.33 | 6.62 | 6.62 | 6.70 | 6.79 | 6.86 | 7.06 |
| Spain | 6.25 | 6.26 | 6.24 | 5.96 | 5.65 | 5.36 | 5.16 | 4.85 |
| United Kingdom | 3.47 | 3.40 | 3.66 | 3.12 | 2.90 | 2.86 | 2.96 | 2.99 |
| Serbia | 3.64 | 3.37 | 3.14 | 2.88 | 2.91 | 2.82 | 3.44 | 3.39 |
| Croatia | 4.52 | 4.57 | 4.92 | 5.01 | 5.07 | 5.02 | 4.74 | 4.51 |
| Slovenia | 4.10 | 4.45 | 4.45 | 4.36 | 4.13 | 3.88 | 3.74 | 3.78 |
| Austria | 11.61 | 11.40 | 11.08 | 10.96 | 10.57 | 10.28 | 9.92 | 9.42 |
| Czech Republic | 3.77 | 3.56 | 3.56 | 3.48 | 3.40 | 3.42 | 3.34 | 3.03 |
| France | 2.87 | 2.96 | 3.06 | 3.02 | 2.95 | 2.93 | 2.88 | 2.68 |
| Hungary | 4.45 | 4.27 | 3.91 | 3.67 | 3.68 | 3.44 | 3.22 | 3.12 |
| Poland | 4.08 | 4.32 | 4.41 | 4.29 | 4.47 | 4.52 | 4.44 | 4.08 |
| Turkey | 33.52 | 28.60 | 26.82 | 25.56 | 20.61 | 16.27 | 17.54 | 13.28 |
| USA | 3.62 | 3.54 | 4.10 | 3.95 | 3.73 | 3.58 | 3.69 | 3.65 |
| Germany | 4.38 | 4.34 | 4.24 | 4.02 | 3.85 | 3.73 | 3.65 | 3.36 |

*Sorce: Roganovic, 2022*

Based on the data presented, we can see that the most affordable apartments are in Turkey and Austria, but it should be noted that in Turkey, the trend of real estate price growth, which has not been accompanied by an increase in net income, is noticeable. The most unaffordable apartments in relation to the average income are in France, Great Britain, Serbia, the Czech Republic and Hungary.

Considering the dynamics of real estate price growth in the Republic of Serbia, there is growing concern that overvaluation could occur in the real estate market or that this is already a reality. Two sources of risk that influenced price growth are dominant. Risk arising from the phase of low interest rates and risk caused by speculative investment behavior. The goal of the expansionary monetary policy in the previous period was to stimulate additional investments and thus strengthen aggregate demand. Real estate prices are closely related to interest rates. Low interest rates have fueled the demand for real estate even more, which in turn raises the price due to short-term supply rigidity. The constant lowering of interest rates kept the real estate market overheated. Low interest rates, uncertainty, fear of high inflation, the underdevelopment of the financial market and the absence of alternative sources of financing synergistically led to a significant increase in real estate prices. In combination with the psychological factor, i.e. the naive belief that real estate prices can only rise, a speculative bubble was created.

However, at the beginning of 2022, due to significant inflationary pressures, there will be a turn in monetary policy and central banks will aggressively raise interest rates. Figure 8 shows the change of interest rates on mortgage loans in the United States.

*Figure 8. 30-Year Fixed Rate Mortgage Average in the United States*

*Soruce: Freddi Mac, 2022*

This may be an indication that the real estate market has reached its peak and that in the coming period we can expect the blowing of the speculative bubble.

## *CONCLUSIONS*

The real estate market is very specific. The offer on the real estate market is quite rigid, most often due to the lack (relative scarcity) of construction land and the time required to complete construction. Therefore, the formation of a speculative bubble cannot significantly contribute to higher productivity and supply that would absorb excessive demand in the short term and thus neutralize the bubble component in the price. Also, home buyers typically believe that there is minimal risk involved in real estate investing. They assume that buying property will always be a good investment option, despite the high costs. The real estate market is dominated by households - amateurs, who rarely make transactions, and make their decisions based on modest and often incomplete information and with little or no experience in assessing the basic value of the real estate they are buying or selling. Instead of assessing intrinsic value, the almost universal yardstick and benchmark in the real estate market is the recent sale price of nearby properties with similar characteristics. Also, a large part of household loans are home loans, which also usually make up a large part of the financial sector's activity. Due to these specificities, real estate markets are more prone to the formation of speculative bubbles than securities markets, because these markets are dominated by unsophisticated households. A residential mortgage is the most common form of pledge when it comes to bank loans. Falling real estate prices can significantly threaten the stability of banks because it leads to a significant increase in outstanding loans.

On the real estate market of the Republic of Serbia, we read multiple episodes of speculative bubbles. Real estate prices are continuously overheated, and apartments in relation to average incomes are among the most unaffordable in Europe. Also, the expansion of the speculative bubble from the center to the periphery is evident. Considering that there is a perennial problem of depopulation in Serbia, it is not realistic to expect that a continuous increase in the rent price is sustainable. Since the rent in fact represents the return on the investment in real estate, when it can no longer keep up with the rise in real estate prices, it is inevitable that the falling price must come.

It is evident that speculative bubbles in the real estate market have a disproportionately negative impact on the poorer strata of society. The primary function of apartments and houses should be to

satisfy the basic human need for security, and for this reason economic policy makers should pay much more attention to preventing the development of speculative bubbles in the real estate market.

Developing countries in particular should focus on increasing the supply of affordable housing, given the economic and social benefits. This would prevent the risks that the speculative bubble of the real estate market carries and stimulate economic growth.

Future research can focus on the further development of models for the detection of speculative bubbles in the real estate market at the stage of their development, transmission mechanisms of speculative bubbles and determinants of real estate price growth. Also, the subject of further research can be a set of economic policy measures that would mitigate the development of speculative bubbles and thereby prevent the negative consequences that bubble bursting brings with it.

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# BRICS COUNTRIES

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## ABSTRACT

The aim of this paper is to point out the importance of the BRICS countries on the development of the world economy. The paper should show whether the economic development of the BRICS countries has led to an increase in their individual economic growth and secondly, whether there has been an increase in their share in the world economy, measured by the size of gross domestic product (GDP). Many analysts are of the opinion that the economic and political significance of this group will increase in the future, so that these countries will overtake today's most developed countries in the West and thus become the new world superpowers. Therefore, one of the goals of this analysis would be to determine and consider the validity of such claims.

The paper analyzes the economic development and geopolitical significance of the BRICS countries as a group in the world economy and international relations. In particular, the financial institutions of the BRICS countries, which are gradually influencing the changes in the international financial architecture, will be presented.

**Keywords:** *BRICS countries, world economy, economic growth, world superpower*
**JEL Classification:**   *18, P25, Q19, R59*

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# THE SIGNIFICANCE OF THE BRICS COUNTRIES

The growing economic importance of the BRICS countries is one of the main forces shaping the global economy. This increase was manifested through stronger trade and financial ties with the rest of the world, including sub-Saharan Africa (SSA). Several existing studies on the relationship between the SAA and some BRICS countries, particularly China, analyze policy constraints and challenges or potential gains and losses associated with increased trade flows between the two trade groups, some authors assess the characteristics of increased bilateral trade ties between China and Africa. and find winners across Africa as exporters of natural resources.

All indicators show that BRICS has survived for over ten years. In the past, the BRICS has suffered pressure from public opinion, but it has also faced a number of serious political, economic and social problems from member states: Brazil has experienced a major political reconstruction, a deep economic recession and frequent social upheavals. Russia has continued its political and economic "struggle" with the Western world. All of this makes the prospects for economic recovery more complex. China's economic restructuring is facing downward pressure, with GDP growth falling to its lowest level in 25 years. South Africa's economy is slowing and becoming blurred. India's economic data was exclusively eye-catching, but the outside world received it with reservations because of its "false" portrayal.

The BRICS has issued "green bonds" among member states for the first time, and they are issued for the first time in the currencies of member states. BRICS contingency reserve arrangements have been put in place to effectively improve the global financial security network.

In the previous period, the BRICS countries proactively made efforts and had good results in the global governance phase, with the persistent efforts of the BRICS countries, the IMF reform, which was postponed for almost six years, was finally launched and the voting of developing countries increased are up 6%. For global and regional issues, BRICS countries constructively participate in various traditional and non-traditional security dialogues and consultations and provide different ideas from developed countries and solve various hot and difficult problems. In reforming the international order and improving the governance mechanism, the BRICS countries have contributed to joint efforts to strengthen the international institutional power of developing countries. With the momentum of the BRICS countries, the Global Governance System has been unprecedentedly strengthened in terms of its representation, equality, efficiency.

The BRICS is an example of multipolarity and how countries with different cultures can come together for joint projects in favor of peace, multilateralism and international law, emphasizing that convergence cultivated without compromising the plurality of views should strengthen the actions of four countries in different instances in international forums.

The basic hypothesis in this research: If the economic growth and development of the BRICS countries continues to develop at the same pace as in 2018, they will become the leading economic powers in the world.

Auxiliary hypotheses can be defined as:

The importance of the BRICS countries will grow in the future, both in the field of international trade and in the field of international investments, ie. capital movements.

If the development of BRICS financial institutions continues, it will change the overall financial architecture of the world.

The research will use basic analytical and synthetic methods of cognition and research, but the focus will be on analysis, induction, deduction, comparison, concretization, generalization.

# BASIC ECONOMIC CHARACTERISTICS OF THE BRICS COUNTRIES

When we talk about Brazil, Russia, India, China and the Republic of South Africa, it is clear to everyone that they individually represent important actors on the international scene. However, it is necessary to look at their overall potential as a bloc in order to see their real significance on the world stage as a group.

The importance of the BRICS is reflected primarily in its economic strength. Brazil, Russia, India, China and South Africa represent the world's largest non-OECD economies, each with an annual GDP (PPP) of over one billion US dollars (the country's GDP at purchasing power parity exchange rate (PPP) is the sum of all goods and services produced in the country at prices prevailing in the United States in that year. This is a measure that most economists prefer when looking at per capita well-being and when comparing living conditions or resource use between countries). According to the IMF forecasts, the GDP of these countries will be constantly growing in the coming period. (Aliu, 2012, p. 34) The total GDP of the BRICS countries in 2017 amounted to over 40.5 trillion USD. Given the steady growth projected by the IMF, which can be traced in more detail in the attached table, the BRICS GDP is projected to climb to a fascinating $ 50 trillion over the next four years.

*Table 1. GDP (PPP) in billions of USD*

|  | 2012 | 2013 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Brazil | 2.394 | 2.416 | 3.314 | 3.195 | 3.219 |
| China | 12.610 | 13.390 | 20.300 | 21.140 | 23.120 |
| India | 4.761 | 4.990 | 8.265 | 8.721 | 9.447 |
| Russia | 2.555 | 2.553 | 3.938 | 3.751 | 4.000 |
| South African | 592 | 596 | 750 | 739 | 757 |
| BRIKS | 22.912 | 23.945 | 36.567 | 37.546 | 40.543 |
| World | 84.970 | 87.250 | 118.900 | 119.300 | 127.000 |
| BRICS share in the world (%) | 27% | 27% | 31% | 31% | 32% |

*Source:          , https://www.indexmundi.com/world/economy_profile.html (15.02.2022)*

When we compare the total GDP of the BRICS countries with the world GDP, we see that these countries now make up one third of the world GDP, with a significant tendency of growth, so it is predicted that in the next period it will exceed 35% of the world GDP.
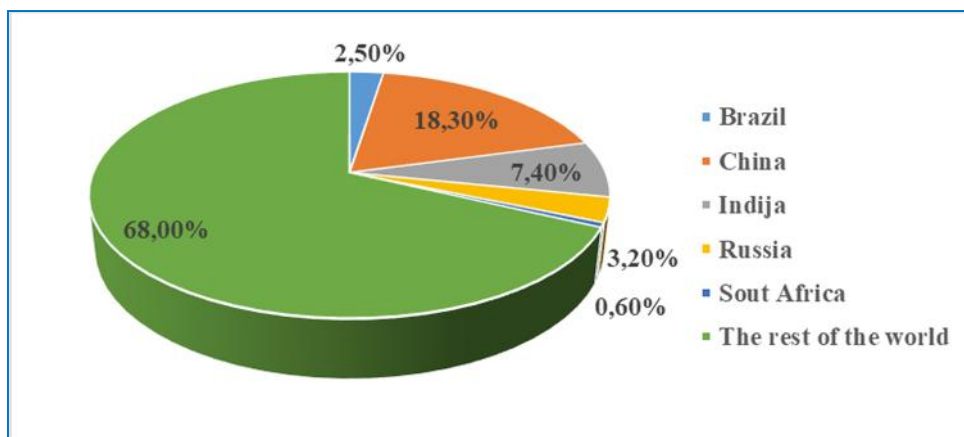
*Graph 1. Share of GDP of BRICS countries in the total GDP of the world in 2017*

*Source: https://www.indexmundi.com/world/economy_profile.html (15.02.2022)*

On the other hand, if we compare the GDP per capita (PPP) parameter (GDP based on purchasing power parity divided by population from July 1 of the same year), we can see large differences between countries. It ranges from Russia, which in 2017 has $ 27,900 per capita income per year, to India, which has only about $ 7,200. If we analyze 2017, we see that this huge gap will be difficult to bridge and that it is estimated that it will remain at almost the same level, even with a slight increase in the difference. Russia's per capita income is almost three times higher than the income in India, and that will not change significantly in the coming years, because a similar growth trend is observed in both countries in the coming period.

*Table 2. Annual GDP per capita (PPP) of BRICS countries in USD*

|  | 2010 | 2011 | 2012 | 2013 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Brazil | 10.800 | 11.900 | 12.100 | 12.100 | 15.500 | 15.500 |
| China | 7.600 | 8.500 | 9.300 | 9.800 | 14.600 | 16.600 |
| India | 3.500 | 3.700 | 3.900 | 4.000 | 6.700 | 7.200 |
| Russia | 15.900 | 17.000 | 18.000 | 18.100 | 26.100 | 27.900 |
| Sout Africa | 10.700 | 11.100 | 11.600 | 11.500 | 13.500 | 13.400 |

*Source: https://www.indexmundi.com/world/economy_profile.html (15.02.2022)*

Such large differences are primarily a consequence of the huge number of inhabitants of China as the most populous country in the world and India, which according to the UN data is predicted to overtake China by 2020, taking over the throne of the world's population.

Brazil and Russia are also populous countries that rank significantly 5th and 9th in the world in terms of population (although Russia until recently was ranked 7th in terms of population).

*Table 3. Ranking of countries by population*

| Number | Country | Population in 000 |
|--------|---------|-------------------|
| 1 | China | 1.379.303 |
| 2 | India | 1.281.936 |
| 3 | USA | 314.311 |
| 4 | Indonesia | 244.468 |
| 5 | Brazil | 207.353 |
| 6 | Pakistan | 178.910 |
| 7 | Nigeria | 164.752 |
| 8 | Bangladesh | 150.039 |
| 9 | Russia | 142.258 |
| 10 | Japan | 127.611 |
| 11 | Sout Africa | 54.842 |

*Source: https://www.indexmundi.com/world/demographics_profile.html  (15.02.2022)*

Today, these countries together make up over 40% of the world's population, slowly approaching the figure of 3 billion inhabitants.
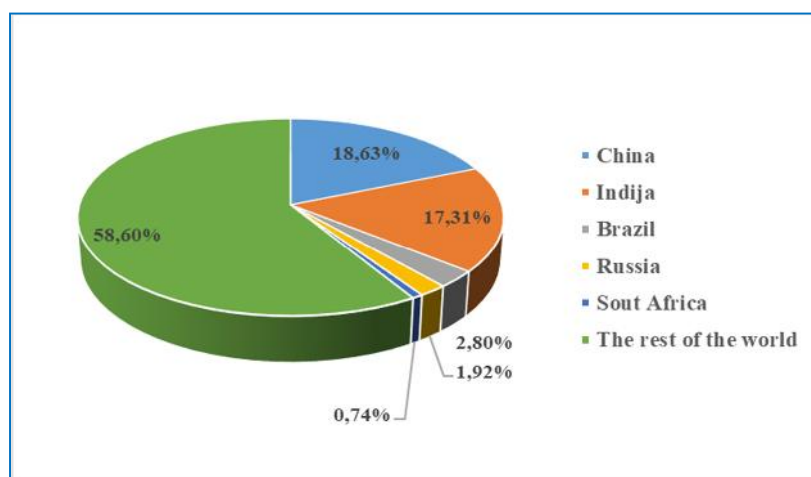


*Graph 2. The share of the BRICS population in the world population*

*Source: https://www.indexmundi.com/world/demographics_profile.html  (15.02.2022)*

India, China and Brazil have a comparative advantage of a large percentage of the young population compared to Western Europe and the United States, although the percentage of employees in the labor market is approximately at the same level. This situation should not change significantly until 2050, although the demographic distributions in the BRICS countries are gradually becoming more and more similar to those in Western Europe.

*Table 4. Demographic profile of BRICS countries*

| | Brazil | China | India | Russia | Sout Africa | World |
|---|---|---|---|---|---|---|
| Population in the millions | 207,3 | 1.379,3 | 1.281,9 | 142,3 | 54,8 | 7.405,1 |
| Average age - years | 32,0 | 37,4 | 27,9 | 39,6 | 27,1 | 30,4 |
| Growth rate in% | 0,73 | 0,41 | 1,17 | -0,08 | 0,99 | 1,06 |
| Urbanization in% | 86,2 | 57,9 | 33,5 | 74,2 | 65,8 | 54,9 |
| Total male / female population | 0,97 | 1,06 | 1,08 | 0,86 | 0,98 | 1,02 |
| Population per km$^2$ | 24,3 | 143,7 | 390,0 | 8,3 | 45,0 | 14,5 |

*Source: https://www.indexmundi.com/world/demographics_profile.html (15.02.2022)*

Also, the group criticizes the use of the US dollar as a global reserve currency, which is a big problem for China, which keeps a large part of its reserves in that currency. China and Brazil are now working on a bilateral agreement to allow their countries' trade to be done in local currency, without using the US dollar. On the other hand, about half of Russia's reserves are in euros.

All BRICS countries have a huge increase in the inflow of foreign direct investments, primarily due to the opening of these economies to the world and favorable policies of the governments of these countries. These investments give the cumulative value in dollars of all investments in the home country made directly by residents - primarily companies - of other countries at the end of the specified time period. Direct investments exclude investments through the purchase of shares. When we talk about the accumulation of capital, it was at an extremely high level in China and India. In China, the high level of investment was accompanied by an even higher level of savings, which in China is a real economic puzzle, given the low per capita income, although this is probably due to the Chinese mentality that favors the collective over the individual. Russia's level of savings was also at a high level, while for Brazil it is ranked rather poorly by this indicator, with below 20% of GDP, which makes it extremely economically vulnerable. (Armijo, 2007, p. 241)

*Table 5. Balance of foreign direct investments of BRICS countries in billion USD*

| | 2010 | | 2011 | | 2012 | | 2013 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | at home | abroad. | at home | abroad. | at home | abroad. | at home | abroad. | at home | abroad. | at home | abroad. |
| Brazil | 349 | 131 | 435 | 120 | 609 | 182 | 663 | 180 | 753 | 295 | 829 | 327 |
| China | 574 | 289 | 782 | 322 | 1.344 | 502 | - | 541 | 1.458 | 1.317 | 1.514 | 1.342 |
| India | 191 | 89 | 230 | 110 | 229 | 118 | 310 | 120 | 453 | 149 | 368 | 156 |
| Russia | 397 | 207 | 543 | 409 | 503 | 413 | 553 | 439 | 348 | 359 | 480 | 443 |
| Sout Africa | 83 | 53 | 159 | 90 | 140 | 78 | 143 | 88 | 128 | 168 | 139 | 176 |
| BRIKS | 1.594 | 769 | 2.149 | 1.051 | 2.825 | 1.293 | 1.669 | 1.368 | 3.140 | 2.288 | 3.330 | 2.444 |
| World | 17.550 | 18.200 | 19.380 | 20.630 | 21.890 | 23.110 | 24.700 | 25.200 | 28.060 | 29.560 | 33.600 | 34.730 |
| BRICS share in the world (%) | 9% | 4% | 11% | 5% | 13% | 6% | 7% | 5% | 11% | 8% | 10% | 7% |

*Source: https://www.indexmundi.com/world/economy_profile.html (15.02.2022)*

All countries are rich in huge natural resources, which is logical considering the huge geographical area they occupy. Natural resources include minerals, oil, hydropower and other land resources of commercial importance, such as rare earth elements. In general, products only appear if they make a significant contribution to the economy or are likely to do so in the future.

According to this criterion, Russia ranks first, China third or fourth, Brazil fifth, and India seventh on the world stage, making together about a quarter of the world's landmass.

All BRICS countries have very different energy profiles. When we look at the entire energy potential of the BRICS, we can conclude that on this issue the countries can be divided into two blocs: Russia and Brazil as strong energy potentials, and China and India, whose power is not represented in this form.

*Table 6. Ranking of countries by area*

| Number | Country | Surface area |
|--------|---------|--------------|
| 1 | Russia | 17.098.242 |
| 2 | Canada | 9.976.140 |
| 3 | USA | 9.629.091 |
| 4 | China | 9.596.960 |
| 5 | Brazil | 8.515.770 |
| 6 | Australija | 7.686.850 |
| 7 | Indija | 3.287.263 |
| 8 | Argentina | 2.766.890 |
| 9 | Sout Africa | 1.219.090 |

*Source: https://www.indexmundi.com/world/#Geography (15.02.2022)*

Russia is a very significant exporter of energy, with an estimated 12% of world crude oil production and 16% of natural gas production. However, Russia is also facing huge energy challenges, but in this case in the direction of adequate management of these energy sources. (Federal state statistics of Russia, 2015, p. 132)

Brazil is relatively rich in energy resources. It gets as much as 59.2% of its energy from hydropower potentials, although, on the other hand, it imports oil and natural gas. It is also the world's largest producer of sugar and ethanol with a great comparative advantage in the production of biofuels. (Ivanovi , 2009, p. 92)

Although China currently has a low share of energy imports in total energy consumption, it shows great concern about its future energy needs. This also significantly affects the foreign policy pursued by the Government of the People's Republic of China, which seeks leases for natural resources and concludes long-term energy supply agreements from Sudan and Venezuela. (Centar for China in WE, 2017, p. 155)

*Table 7. Overview of energy production in BRICS countries*

| | Brazil | China | Indija | Russia | Sout Africa | Word |
|---|---|---|---|---|---|---|
| Electricity production (billion kWh) | 577 | 6.142 | 1.218 | 1.062 | 235 | 23.000 |
| Electricity - installed production capacity million kW | 156 | 1.646 | 309 | 264 | 47 | 6.301 |
| Electricity - from fossil fuels of total installed capacity% | 25,4 | 64,0 | 71,5 | 70,2 | 86,7 | 64,2 |
| Electricity - from nuclear fuels from the total installed capacity% | 1,2 | 2,0 | 1,6 | 9,7 | 3,9 | 6,8 |
| Electricity - from hydropower from the total instal. power% | 59,2 | 20,2 | 14,4 | 19,0 | 1,4 | 18,4 |
| Electricity - from other renewable sources of total installed capacity% | 16,0 | 13,7 | 14,6 | 0,6 | 7,1 | 10,5 |
| Oil - production of thousands of barrels / day | 2.515 | 3.981 | 735 | 10.550 | 2 | 81.800 |
| Natural gas production - billion m3 | 20,4 | 138,4 | 31,2 | 598,6 | 1,1 | 3.544,0 |
| Carbon dioxide emissions from energy consumption: million Mt. | 535 | 9.135 | 1.887 | 1.756 | 482 | 33.130 |

*Source: https://www.indexmundi.com/world/energy_profile.html (15.02.2022)*

India is the most energy vulnerable among all BRICS countries, because it lacks huge reserves of fossil fuels, as well as land and water resources. At the same time, India has the lowest electricity consumption among the BRICS countries in relation to the size of its population, and thus the lowest demand for it, which is a somewhat mitigating circumstance, but it is likely that this situation will change with further economic growth.

An issue that is closely related to this energy issue is also the issue of renewable resources and the environment, which is increasingly on the agenda of the international scene. Brazil represents the lungs of the world with its vast Amazon rainforest, although logging and deforestation are also present there, which the Brazilian government is trying to suppress with its action plan. Unlike other BRICS countries, Russia is a signatory to the Kyoto agreement, and therefore limited by many environmental obligations that these other countries do not have. Indian production, like Chinese, is quite "dirty" and inefficient. In 2017 alone, China emitted as much as 9.1 billion tons of CO2, or 27.5% of the total amount in the world, and on this list of shame they were just below the leading United States, and Russia is not behind it as the third and India as the fourth.

Although they have in common that they are all federal states (primarily because of their huge area), their state system and internal policies differ significantly. They consist of two democracies, Brazil as presidential and India as parliamentary, then Russia as one authoritarian regime (although officially declared a democracy) and China as "halfway houses" with a liberal economy and a communist political regime.

*Table 8. Overview of the type of government and legal system in the BRICS countries*

|  | Type of government | Legal system |
|---|---|---|
| Brazil | federal presidential republic | civil rights; note - a new law on civil law was adopted in 2002, replacing the 1916 code |
| China | communist party at the head of state | civil law under the influence of the Soviet and continental European civil law system; legislation retains the power to interpret statutes; |
| Indija | semi-presidential federation | common law system based on the English model; separate personal laws apply to Muslims, Christians and Hindus; judicial review of legislative acts |
| Russia | semi-presidential federation | civil law system; judicial review of legislative acts |
| Sout Africa | parliamentary republic | mixed legal system of Roman-Dutch civil law, English common law and common law |

*Source: https://www.indexmundi.com/world/government_profile.html (15.02.2022)*

Through the BRICS, all countries, acting together as a bloc, attract much more public attention than they would individually do and have a better chance of defying the old world order and shaping it in a way that suits them better, following their strategic goals. Brazil is trying to increase its diplomatic influence on the entire Latin American continent; In a way, Russia sees the BRICS as an opportunity to show the United States that "not all roads lead to Washington", while India has been unsuccessfully lobbying for years to get a permanent seat in the UN Security Council.

Each of these countries is one of the giants of the new multipolar world order. There is no officially proclaimed leader of the group, but many appoint China for that position. However, we could say that each of these countries represents the leader of the group in some aspect, so we could declare China an economic leader, Russia military, Brazil ecological, and India service, and soon demographic. (Babi , 2007, p. 87)

Analyzing each of these countries separately in the following chapters, we will present the most important details and reversals from their economic history and the advantages and disadvantages of these countries in different segments, such as economic, political, demographic, environmental, cultural, etc.

## STATUS AND PROSPECTS OF BRICS DEVELOPMENT IN THE WORLD ECONOMY

Jim O'Neill, on behalf of Goldman Sachs, in addition to composing the sonorous acronym BRIC, did something even more significant - he predicted the growth of these economies, which were the ones most responsible for a significant number of foreign investments in these countries. In his work "Dreaming with BRICS: The Path to 2050", which he published in collaboration with his colleagues in 2003, O'Neill presented shocking theses, the most important of which are that by 2039 the BRIC

group could economically surpass the scope economies of the world's top six economies (USA, Japan, UK, Germany, France and Italy) and that the list of the world's top 10 economies will look completely different in 2050, leaving only the US and Japan among the top six.

Before the onset of the World Economic Crisis, which significantly changed the appearance of the world economy, it was predicted that the Brazilian economy would overtake Italy by 2025, France by 2031, and Great Britain and Germany by 2036. Russia was expected to overtake Italy in 2018. France in 2024, Great Britain in 2027 and finally Germany in 2028, and that the biggest problem of its faster growth will be the decline of the Russian population. For India, on the other hand, it was expected that its growth would remain above 5% until 2050, that it would overtake Japan by 2032 and that it would achieve an increase in GDP per capita as much as 35 times, despite huge population growth and becoming officially the most populous. countries of the world. For China, its growth was expected to fall to about 5% in the second decade of the 21st century, while later in the mid-2040s it would fall to only 3.5%, so China, thanks to large investments and a huge workforce, would still become the world's largest economy. but only in 2041. Table 9 shows the GDP growth forecast for the BRICS countries at the beginning of the 21st century.

*Table 9. GDP growth according to Goldman Sachs forecasts at the beginning of the 21st century*

|  | GDP (billion USD) | | | GDP per capita (USD) | | | GDP growth in % | | |
|---|---|---|---|---|---|---|---|---|---|
|  | 2010 | 2025 | 2050 | 2010 | 2025 | 2050 | 2010 | 2025 | 2050 |
| Brazil | 668 | 1695 | 6074 | 3417 | 7781 | 26592 | 4.2 | 3.8 | 3.4 |
| Russia | 847 | 2246 | 5870 | 5948 | 16652 | 49646 | 4.1 | 3.6 | 2.1 |
| Indija | 929 | 3174 | 27803 | 804 | 2331 | 17366 | 6.1 | 5.8 | 5.1 |
| China | 2998 | 10213 | 44453 | 2233 | 7051 | 31357 | 6.6 | 4.2 | 2.7 |

*Source: Jain, S. (2006), Proceedings: Emerging Economies and the Transformation of International Business, p. 58.*

However, when the global financial crisis reached the world stage and left a big mark on the world's largest economies, the forecasts for the future of the BRICS were significantly revised in their favor. These countries withstood the global crisis surprisingly well and recovered quickly (except for Russia, which was the only one significantly affected by the crisis). Their banking systems remained intact, and their economies continued to grow at an even faster rate.

After the crisis, O'Neill stated that the long-term projections of Goldman Sachs really have a chance to be realized, even faster than originally predicted. Specifically, after the crisis, Goldman Sachs predicted that China would overtake the US economy as early as 2027 and become the world's leading economy (instead of 2041, according to initial forecasts) and that the BRICS countries are on track to reach the economic size of the world's six economy until 2032, even seven years earlier than predicted before the crisis.

Since the beginning of the World Economic Crisis, as much as 45% of world economic growth has come from the BRICS countries, which is a significant shift compared to 24% in the first years of the 21st century, before the crisis began. According to Goldman Sachs, these economies will account for almost half of the total world capital market by 2050, and also predicts that these countries will absorb more than 70% of world car sales this decade, which only China is expected to make up even 42% of this increase. (Hawksworth & Cooksaon, 2009, p. 171)

However, Russia, as already mentioned, is a big problem after the crisis, because it was the only BRICS country to have a significant economic decline during this period, so much so that some investors are increasingly advocating that Russia be excluded from this group. However, O'Neill

does not want to jeopardize the relations between Goldman Sachs and Moscow, although he himself admitted that Russia was "disappointed", but that it will justify its status as a BRICS country in the coming years and regain its growth.

## *FUTURE CHALLENGES OF THE BRICS*

The question is how the BRICS countries will cope in the future and whether they will be able to respond to all the challenges they will face (both as a group and individually).

This group has great potential, primarily due to the individual advantages of individual countries, which are based on the strong growth potential of the economy as a consequence of different circumstances in individual countries. However, they all have one thing in common - a huge, young and largely highly educated population, which will be the carrier of the economy in the challenging years to come. The main challenge in the coming years will certainly be the continuation of economic growth, because it is generally known in economic history that every growth then has stagnation and later its decline. (Bailes, 2010, p. 57)

Although these countries share a number of common characteristics (if we ignore South Africa), there are also significant differences between them in the individual biggest challenges, which we talked about when we analyzed the economies of individual countries. Thus, the biggest challenge for Brazil in the coming period will be to keep economic discipline in order to keep finances intact, so as not to get into the situation in which Argentina found itself at the turn of the new millennium, when the great financial crisis hit, while Russia will face the biggest challenge. reduce economic dependence on oil and gas exports and tackle high levels of corruption. India will face the problem of huge population growth, the need for greater market opening, improved education and infrastructure, and China will have to deal more with environmental problems and reduce inequalities among the population. For South Africa, perhaps the biggest challenge will be to justify its place in this group, given that it differs significantly in most economic indicators from other countries.

In addition to these individual challenges, the main challenge is whether these countries can act as a single bloc, putting common rather than individual interests at the forefront, despite large individual differences. Sometimes it seems that they compete with each other equally, and sometimes even more than they do with developed countries in Europe or the United States. (Benassy et al., 2005, p. 230)

First, politically, these countries are divided into two contrasting subgroups: one authoritarian (which includes Russia and China) and the other democratic (consisting of the remaining three states, if we ignore the problem of caste division in India). Russia, India and China are nuclear powers, while Brazil is constitutionally obliged not to produce nuclear weapons, and South Africa has never shown any tendency towards nuclear weapons. China and Russia have permanent seats on the UN Security Council, while they oppose (especially China) India and Brazil getting their chair, because that would jeopardize their personal status and conflict with their personal interests, especially in the China-India relationship. They did not even manage to agree on the problem in Syria, because Russia and China twice vetoed a resolution against the Assad regime, while Brazil, India and South Africa either voted for or abstained.

Deep in friction and controversy, the group has a major problem taking any significant action toward achieving its primary goal: reforming Western-dominated international financial institutions. They could not even agree to appoint a non-European representative to the position of the new IMF leader in 2011, and they did not support the candidate who would replace Robert Zoellick at the head of the World Bank.

In political terms, India, China and Russia are competitors for power in Asia. Russia is worried about China's proximity and its influence in Siberia, and India is worried about the Chinese invasion

of the Indian Ocean as well as the border disputes in the Himalayas. China and India have a long-standing territorial problem and are nuclear-armed rivals. Their rivalry dates back to 1962, when China seized part of Kashmir, which India claimed was illegally ceded by Pakistan, which has already been discussed in the chapter on India. India's great geopolitical fear is that China wants to "suffocate" the so-called country. "A string of pearls" - Pakistan, India's longtime territorial rival, Nepal, where China supports the Maoist opposition and Sri Lanka, where it finances reconstruction projects started after the civil war. Although their trade is growing rapidly, India often complains that China has not done enough to open its market more to Indian firms, and India has been trying for years to limit the number of skilled labor from China.

As for the economy itself, they generate their growth in different and often mutually competitive ways. Thus, for example, Brazil and Russia are large energy producers, who benefit a lot from high energy prices, while India is a large consumer of energy and high prices do not suit it at all. In addition, with the exception of China, the BRICS countries have really limited trade ties with each other. Chinese currency manipulation harms Brazilian and Indian producers. It certainly has the largest and most powerful economy in the BRICS, which makes it the natural leader of the group and that creates complicated dynamics. (Davidov, 2008, p. 56)

In addition, these countries have cooperation through other organizational forms besides the BRICS. India, Brazil and South Africa already use their IBSA trilateral agreement to coordinate positions on the most important diplomatic and international issues, while Russia and China are members of the Shanghai Cooperation Organization (SCO), within which India is an observer.

And while the BRICS countries are individually strengthening and striving to solve the problems that shake them, new challengers are appearing on the world stage. Thus, there are criticisms that the group left out several countries with exceptional potential in the future, such as Indonesia, Turkey, Mexico, Argentina, Vietnam. While South Africa was not yet included in this group, many, like Stevens, resented the complete absence of the African continent in a group that represents a new global view of the future of the world economy that is a contrasting alternative to Western economies. (International Monetary Fund, 2017, p. 67)

On the other hand, some resent the presence of Russia in this group, which has emerged much more difficult from the World Economic Crisis. It remains strong in all indicators related to resources and natural potential, but in many indicators, it differs significantly from other BRICS countries. First of all, demographically, Russia has by far the smallest number of inhabitants among these countries, and it is even, unlike the others, in the tendency of further decline, while the level of education is significantly higher than the others. After the crisis, O'Neill himself explicitly emphasized that Russia should remain in this group, but that it should address the reduction of the economy's dependence on oil exports as soon as possible, and dedicate itself to better corporate governance and focus its policy on raising productivity.

According to estimates, Japan will remain far below the leading economies in the future, even below Brazil and approximately Russia and Mexico. Similar is expected for Germany, Great Britain and France.

Although O'Neill is now being attacked for promoting the rest of Russia in the group, we must not forget that when O'Neill coined the term BRICS, he was most resented for including Brazil in this group, instead of Mexico. Today, few critics have any objections to Brazil's participation, and they even include it in alternative groups such as TIMBI, which consists of Turkey, India, Mexico, Brazil and Indonesia. Jack A. Goldstone, a professor of public policy at George Mason University, believes that these countries are a better grouping option because they share significantly more common characteristics, and above all favorable demographic indicators, a growing economy. developed entrepreneurial cultures, and, in addition, all are proclaimed democracies (unlike the two subgroups of democratic and authoritarian BRICS countries). On chart no. 8 shows the projected economic growth of the TIMBI countries compared to the G6 group, which shows extremely favorable future results.

There were also analysts who only proposed enlargements of the existing BRICS group by simply adding more countries to the group, but Goldman Sachs rejected these expansions, arguing that the proposed countries did not have the demographic and economic potential to match the BRICS countries. As already mentioned, O'Neill and Goldman Sachs even opposed the idea of including South Africa in this group due to the much weaker economy compared to other BRICS countries and much weaker demographic indicators and potential, but the decision to join it was made. independently of the Goldman Sachs, by the BRICS states, which could arbitrarily decide on these matters.

However, Goldman Sachs also coined the N-11 group (Next Eleven Nations), which includes Mexico, Indonesia and South Korea (which are most often mentioned as potential members of the group), then Turkey and Vietnam (which are usually next on the list). ), but also Bangladesh, Egypt, Iran, Nigeria, Pakistan and the Philippines. Maybe some of these countries will become the next member of the BRICS group under the new acronym in the coming period.

Despite all these criticisms, the fact that the leaders of these countries have decided to meet regularly at summits and act as a bloc overcomes all mistrust and accusations that these countries are not ready to cooperate. However, the future importance of the BRICS will depend on whether China can expand its BRICS influence through its diplomatic efforts and whether the countries will ever be able to put their particular interests in the background, while emphasizing mutual cooperation and reconciliation in the first place. international peace.

In January 2011, Jim O'Neill nominated Turkey, Indonesia, Mexico and South Korea to join the BRICS group and form the so-called Growth markets. This marks the beginning of a potentially new chapter in the long history of labeling. However, it still has not come to life as the BRICS as a symbol of the future global order.

The new geopolitical tensions caused by the war in Ukraine could also affect the economic alliance of the BRICS countries. Brazil, India, China and South Africa will have to take a stand on Russia.

About three billion people live in the BRICS countries, the alliance of Brazil, Russia, India, China and the Republic of South Africa. It is a huge economic space and political power. After the Russian attack on Ukraine, the other four countries are of particular importance in the context of the global reorganization of economic dependencies and political partnerships. They are suppliers of raw materials and trade partners, and their political stance can have a decisive influence on the conflict.

For example, there is a possibility that the alliance could help Russia through loans. Currently, the remaining four states are holding back and there is still no effective political coordination among them to respond to US and EU sanctions against Russia.

## *CONCLUSION*

The acronym BRICS, in the form of a kind of geopolitical and geoeconomic puzzle, has been provoking enthusiasm and much criticism for its controversy since its inception. Although it formally came to life in 2001, the first significant gatherings of these countries began only five years later at the level of foreign ministers, and only in 2009 did it grow into the heads of governments and states, of which five have been held so far. However, common institutions have not yet been established, although the importance of the summit is growing, attracting a lot of attention from the world public and drawing attention to the fundamental problems of today's world order. Nevertheless, it seems that the establishment of the New Development Bank with the establishment of the Business Council and the Development Assistance Fund will bring the appropriate institutionalization, but it remains to be seen how these will continue to develop.

The first projections of Goldman Sachs predict a bright future for this group and the prestige of the six most developed economies in the world by 2039, and that by 2050 the BRIC (excluding South Africa) will make up four of the world's top six economies. However, the realization of the projections is increasingly uncertain as the future is predicted, which was confirmed by the revisions in favor of the BRICS after the last economic crisis. Based on these estimates, China should overtake the United States as the leading economic power by 2027, while the overtaking of today's six largest economies should happen in 2032 (seven years earlier than the first predictions). If these predictions really came true, the changes could be as significant as the Industrial Revolution of the eighteenth century.

Some analysts believe that the economic growth of these countries will not follow the planned path, primarily due to the fundamental problems that each of these countries faces, which will accompany them in the future. In addition to individuals, these countries also face significant collective problems, primarily with the challenge of acting as a single bloc and putting common interests in the forefront of individual ones, as well as leaving aside mutual disagreements.

It remains to be seen how they will face all the challenges of the 21st century. On the other hand, this century will also have to prepare for the changes that BRICS will bring as a new economic challenger that has all the chances to completely turn the world economy in the coming period.

Conducted research on the theory and practice of the impact of the BRICS countries on the world economy, led to the following scientific findings:

The basic hypothesis was confirmed, as a mental assumption about the outcome of the solution of the scientific research problem - If the economic growth and development of the BRICS countries continues to develop at the same pace as until 2018, they will become the world's leading economic powers.

By analyzing all indicators for the development of BRICS countries, we can conclude that a special hypothesis has been confirmed: The importance of BRICS countries will grow in the future, both in the field of international trade and in the field of international investments, ie. capital movements.

In the previous period, the BRICS countries proactively made efforts and had good results in the phase of global management of world problems. BRICS countries constructively participate in various traditional and non-traditional security dialogues and consultations and provide different ideas from developed countries and solve various hot and difficult problems. All this leads us to the conclusion that another special hypothesis has been confirmed: If the development of BRICS financial institutions continues, it will affect the change of the overall financial architecture of the world.


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# ADVOCACY IN CRIMINAL PROCEDURE THROUGH HISTORICAL REVIEW OF THE LAW ON LEGAL REPRESENTATIVES IN SERBIA 1862

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## ABSTRACT

The indisputable need to provide legal assistance has resulted in the presence of lawyers in the world's legal systems for almost 2000 years. The roots of this profession trace back to ancient Roman law, so the foundation takes its early start. Development throughout history shaped today's advocacy as an independent profession helping legally ignorant parties and representing them in criminal court proceedings and state authorities. The aim of the article is to show the lawyer's important role throughout history, through the presentation of the Law on Legal Representatives in Serbia in 1862. For these reasons, the article presents the provisions of the first law on lawyers in Serbia, which referred to the role of legal aid providers, legal representatives, in the period from the beginning of the second reign of Mihailo Obrenovi , as the founder of the same. This article is using the historical method, method of analysis and definition. These methods are used with the purpose of analyzing this law and emphasizing the importance of the education of first lawyers, so-called legal representatives in that historical period. The result of the article is the confirmation of the existence and significant role of defenders in concrete proceedings. The criminal proceeding is in the scope of his article where the defenders of the defendant and private prosecutors were taking action for legally ignorant parties and the legal order in general. Concerning the specific historical period when Serbia was not internationally recognized, this law had specific characteristics for that time. Public Attorneys in criminal cases were not having the role of helping the legal ignorant parties.

**Key words**: law on legal representatives, law, criminal procedure, legal profession, lawyer, legal representative

**JEL Classification:** K0, K1, K14

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# INTRODUCTION

Legal representation of parties in proceedings before the court (advocacy), in a civilized and democratic society, is of great importance for the legal order of every country. The more organized the society, the greater the need for the application of legal norms in criminal court proceedings and other proceedings, and therefore the greater the need for the existence of educated, specialized and experienced representatives who would represent the interests of the parties in the best possible way in the realization and protection their rights before the court. The importance of providing legal services led to the need for the legal regulation of legal representation, and the article presents the Law on Legal Representation in Serbia in 1862 and gives an overview of the beginning of the creation of this independent activity in the Roman period. A comparative analysis, comparison of Law on Legal Representatives in Serbia 1862 and the current, contemporary Law on the Advocacy and the Law on the Bar Examination in today's Republic of Serbia is also carried out as part of the work, so the comparison of these laws with the mention historical legal act is presented in the article.

# METHODS AND GOALS

By applying the historical method, methods of analysis and definition, i.e. the analytical method, the article presents the first law on legal representatives in Serbia, its provisions on what was considered representation, what conditions had to be fulfilled for dealing with representation, the rights and obligations of the legal representatives, in one historical period, the period of the beginning of the second reign of Mihailo Obrenovi , the founder of the first Law on Legal Representatives 1862, today called lawyers. The provisions of the Law on Legal Representatives 1862 and the contemporary Law on Advocacy in today's Republic of Serbia were compared using the comparative method. It is precisely by referring to the historical facts and provisions of the Law on Legal Representatives 1862 that the authors set as the goal of the article, a presentation in order to confirm the significant role of the provider of legal services for individuals as well as their importance for the legal order of a country, of Serbia in this article.

# RESULTS

Almost more than two millennia of the existence of the legal profession, advocacy has proven that it is one of the few professions that have remained completely unchanged in its fundamentals, and whose main goal is to provide legal assistance.  throughout history, the indisputable existence and significant role of defenders in criminal proceedings and the legal order in general the lawyers, confirm the significant role of providers of legal aid and advocacy.

# LEGAL REPRESENTATION IN ROMAN LAW

Bearing in mind the development of the entire Roman law and all the stages it went through, it cannot be said that the representation of parties in court proceedings, as it exists today, was characteristic of the Romans at the beginning of their historical development. Roman law never knew the institution of representation, as it exists today in contemporary law, i.e. that one person acts in the procedure in the name and on behalf of another person, so that his actions obligate the party in

the dispute and that the judgment both in fact and formally-legally acts only on the represented person, and not on the representative. For a long time, the rule of *nemo alieno nomine lege agere potest* prevailed among the Romans, which meant that each party in the proceedings before the court had to participate alone, personally, and undertake all the actions in the proceedings. In addition, the beginning of the representation of the parties before the court resulted from the expansion of the scope of the Roman contract of mandate (*mandatum*), and the fact that the Romans had a characteristic manner of strongly developed legal awareness and logic. (Jovanovi & Atanasovska Cvetkovi , 2022, pp. 519). Therefore, the contract of the mandate was considered a consensual contract that laid the basis for representation, and its appearance is due to social reasons, i.e. it is due to the social concept of need and use in everyday Roman life. (Atanasovska, 2016, pp. 60)

Historically, the legal profession, went through the most different phases and periods in the Roman Empire itself, starting with the Roman rules adopted by the Roman emperors, which favoured and developed its existence, through rules which had negative and harmful consequences for the legal profession. Despite all of this, the legal profession still survived, changed and adapted to the socio-economic conditions that existed during the entire Roman rein. After the final fall of the Roman Empire in 476 and its division into the Eastern and Western Roman Empire (Atanasovska Cvetkovi , 2021a, pp.24) the legal profession remained and maintained in the East Roman Empire, today known as Byzantine Empire (the use of the term Byzantium began in16th century). On the other side, advocacy in the Western Roman Empire followed the fate of total decadence and the non-existence of the profession as such, bearing in mind the historical fact that the territory of the Western Roman Empire was ruled by the Germans, based on their order in society. They had their own customary law, in which, advocacy had no place at all. As for the Eastern Roman Empire, the legal profession still existed, since the Roman Empire had its own legal system and laws. (Nikoli , 1997, pp. 190-240)

# *A HISTORICAL OVERVIEW OF SERBIA IN THE PERIOD FROM 1830 TO 1918*

Bearing in mind that this article refers to a specific historical period, a characteristic period for Serbs, we focus the analysis on the period of major socio-economic changes from 1830 to 1918. In this period, in order for Serbia to provide itself with a stable and sustainable legal system, radical changes took place, both in the government itself and in the adoption of the necessary legal regulations.

The beginnings of the radical changes are linked to the year 1830 and Hatišerif, which finally changed the relations between Turkey and Serbia. Thus, with Hatišherif, the mixed Turkish-Serbian administration was terminated, and Serbia received the right to an independent administration, an independent judiciary and an independent tax system. These changes in the legal system of Serbia greatly favoured Prince Miloš Obrenovi , who used them in the direction of his enrichment, on the one hand, and imposing himself as an absolutist, on the other. From that absolutist attitude was born the need to adopt a constitution that would be valid on the territory of Serbia at that time, and whose primary goal would be to limit the power of the rulers. In order for having a complete picture of the concrete historical period, we must also mention that, at that time, the circumstances were such that the dissatisfaction of the Serbian people was expressed through constant riots. Namely, the Miletine Rebellion of 1835 caused and resulted in the adoption of the Sretenji Constitution. Also, we must mention that in this historical period, starting with the Constitution of Sretenj, Serbia is characterized by the period of adoption of several Constitutions. From 1835 to 1903, the following constitutions were adopted in Serbia:

1. the Sretenj Constitution from 1835,

2. the Turkish Constitution from 1838,

3. the Deputy Constitution – "Namesni ki" from 1869,

4. the Constitution from 1888 and

5. the Granted (*octroi*) April Constitution from 1901.

Bearing in mind that this Constitution (Sretenji Constitution) was characterized by free-spiritedness, it was not approved by Obrenovi , nor Turkey, nor by Russia, although those two countries did not have their own constitutions in this period. This free-thinking constitution did not find approval from the other great powers of the time either, because represented a threat to the state arrangements of the time, and the characteristic - was also too libertarian. Here we must mention one important explanatory historical factor: the Constitution of Sretenj was adopted under the strong influence of the French Revolution and this was the main reason for the repulsion of all other great European powers. The fact that those countries, every single one, were empires, contributes to the great repulsion of the very mention of the word revolution. And further, the Constitution of Sretenj, therefore, had a more symbolic meaning with a short duration that caused, than the non-application of that Constitution in practice. Thus, two years later, the new Constitution, the so-called "Turkish Constitution", was adopted in 1938. and entered into force in 1839. This constitution marks the end of the reign of Miloš Obrenovi , who subsequently abdicated.

As much as the "Turkish constitution" (Stojanovi , 2001, pp. 238-240) is considered a step backward, bearing in mind the previous, free-thinking and libertarian constitution (the Constitution of Sretenj), in terms of the courts and the organization of the judiciary, it is given great importance, because it regulates the judicial power as well as the organization of the courts themselves. The aforementioned constitution established three types of courts (Art. 30, Constitution of 1838. - Turkish constitution) (Savez advokatske komore, pp. 147-196):

1.  "Court of conciliation" (the conciliation court was formed in the villages with the following composition: the village elder and two members, with jurisdiction - in civil matters up to 100 grosh, and in criminal matters up to 3 days of imprisonment or 10 strokes – Art. 31. Constitution of 1838. - Turkish Constitution),

2.  "Court of first instance" (the court of the first instance is established in each of the 17 districts. Tried in a council of one president and three members - Art. 33. Constitution of 1838. - Turkish Constitution) and

3.  "Appellate court" (The Court of Appeal tried in the second instance in a council constituted of the president and four members – Art. 37. Constitution of 1838. - Turkish Constitution). (Radojevi , 2010, pp .411-426)

And yet, as much as one could talk about a good judicial organization and a large number of laws that prescribed legal rules, it was not enough for the successful performance of the judicial function. Namely, the very structure of the population had a huge influence on this situation, bearing in mind that the largest part was the rural population, which, at that time, was not yet literate, and which made up the vast majority. The lack of specialized legal personnel who could bring all these changes to the fore had a major impact on the overall situation. Therefore, the lack of educated legal personnel, as well as the appearance of a large number of disputes, the legal system at that time could not handle the extent expected of it. We conclude that, as in that era and today, "investing in education is profitable in the long term because it is massive, accessible, humanistic and founded on a scientific basis. If this is not the case, there is a clear correlation - the lack of real education leads to dissatisfaction, non-realization of human rights, crime, violence" (Jovanovi  & Jovanovi , 2018a, pp. 864) and the impossibility of providing adequate legal assistance. The adaptation of the legal system to modern conditions, in addition to the modernization of education, leads to the process of designing and implementing an efficient electronic justice system that includes the participation of all actors in the process, among them, lawyers. (Jovanovi , & Jovanovi , 2018b, pp. 93) We conclude

that the need for an adequate process of education of lawyers, future lawyers and their adaptation to the needs of the individual, society and the legal order dates back to ancient times, only that it is gaining broader perspectives and more complex tasks.

On the other hand, this lack of literate people, as well as the appearance of a large number of disputes that were conducted due to debts and inheritance, at the same time, imposed the need for legal representation (advocacy) in order to protect the rights of citizens, bearing in mind the aforementioned composition of the clergy and its weakness due to the fact that the largest number of that population was illiterate.

It is an interesting fact that, at first, legal affairs were performed by clerks, court scribes, teachers, that is, anyone who was even a little literate. The participation of clerks in proceedings before the courts, in the capacity of representatives of the parties, to a large extent, caused doubts about the integrity of performing these tasks. Perhaps the issue here is not the honour of performing these affairs by officials, as much as it could be said that the goal was to avoid a conflict of interest. If someone is a court clerk, it is obvious that the scope of his service can easily exceed the boundaries of the court where he works, and the clerks also participated in the realization of the rights of the population as part of their regular activities. In order to eliminate this doubt, the motivated lawmaker on October 21, 1834. issued a Regulation prohibiting civil servants from representing themselves before the court. The goal of the Regulation was achieved: the number of those who could act before the courts was limited. The negative consequence of this Regulation was the appearance of a vacuum, because people of dubious morals and literacy appeared, with a dishonourable past, who acted before the courts and charged large monetary rewards for their work. These were merchants, mostly failed ones, who were characterized by unscrupulousness, tendency to fraud and "slyness". The legislator was looking for an answer to this anarchy that was happening in the courts, and considering that the officials, especially the older and retired ones, had a reputation as good and honest people and that their moral criteria were at a high level, he enacted on June 20, 1846. of the Regulation which allowed the work of retired civil servants to represent in court. (Savez advokatske komore, pp. 147-196)

This whole series of events and a set of circumstances, including the need for citizens to turn to the court seeking justice and the need for representation, which is the subject of this article, contributed to the adoption of the Law on Legal Representatives. The first and real law on lawyers, lawyers in Serbia was adopted on February 28, 1862. Due to the importance of this law for the development of the legal profession in Serbia, the article analyses and presents the rights and obligations of legal representatives.

## LAW ON LEGAL REPRESENTATIVES FROM 1862 IN SERBIA

The first law, which regulated representation in detail as a specialized legal activity in then Serbia, was the Law on Legal Representatives, passed on February 28, 1862, and entered into force on May 1, 1862. The law was adopted by Prince Mihailo Obrenovi and the Council. The National Assembly did not have the authority to adopt this Law (Art. 13, Constitution of 1838 - Turkish Constitution). The law itself was composed of 5 chapters, which included the conditions under which legal representation could be practiced, the conditions and methods of taking the bar exam, the rights and obligations of lawyers, the issue of disciplinary responsibility and provisions related to the termination of the right of representation.

Along with the Law, at the same time, the Introductory Rules on legal representatives were adopted, in which it was determined, in an unambiguous manner, that the law "enters into life" on May, 1 the current year 1862 (Art. 1. Introductory Rules on Legal Representatives). By the same Regulation, all those who were engaged in legal representation work until then are allowed to work for a period of one more year after the entry into force of this Law, with the condition that after the

expiration of the one-year period, they must acquire the right to representation before the court. If they do not meet the condition and deadline, then they lose the right to be a lawyer and the right to represent a party in court (Art. 2. Introductory Rules on Legal Representatives, Law on Legal Representatives 1862). Prince Mihailo allowed this and gave a deadline and conditions because he was aware of the shortcomings faced by the judiciary, the law, and the population: a large number of illiterate people, a lack of legally educated staff, as well as a lack of literate people who would meet all the requirements of the new Law. In a certain sense, if it can be said that way, the Law itself was progressive in the context of the permission to extend the work of lawyers, and only with the consent and permission of the Ministry of Justice (Art. 3. Introductory Rules on Legal Representatives). The progressiveness of modern education in Serbia, with the aim of educating and creating highly educated staff, through e-learning, distance learning, although often used all over the world, and only in 18 higher education institutions in the Republic of Serbia that are accredited with at least one study program for learning at a distance (Mili evi i dr., 2021) it also refers to the education of lawyers who, through further education and legal training, meet the requirements for admission to the bar.

This Law, The Law on Legal Representatives 1862, apart from the Introductory Rules, is accompanied by another specificity: Mihailo Obrenovi gives his explanation of why he undertook to pass the Law. Some of the reasons mentioned were: the necessity to bring order to the lawyers, an enviable number of lawsuits, incompetence, ignorance and inability to be properly conducted before the "land courts". We are of the opinion that the arrangement of this mess, at that time, was more than necessary.

## *CONDITIONS UNDER WHICH LEGAL REPRESENTATION CAN BE OBTAINED*

Basic conditions had to be met in order to obtain legal representation under which someone would be engaged in legal representation, which was translated by the government into the Law itself, concrete in its first chapter. If we compare the conditions from the Law on Legal Representatives 1862 then and today's conditions stipulated by the current, contemporary Law on Advocacy in the Republic of Serbia (Official Gazette of the RS, 2012), we can find an interesting fact: the same conditions still apply today, with the fact that they are formulated and supplemented differently. It is about the conditions specified in Article 2 of the Law on Legal Representatives 1862. According to this article, the right to practice law can be obtained by a person:

1. who is a "Serbian citizen",

2. who has met the age requirement and

3. who must be of good and honest conduct.

This article also imposes a requirement for completing legal studies but also passing the bar exam (Art. 3. Law on Legal Representatives 1862).

According to the provisions of Article 6 of the current Law on Advocacy in the Republic of Serbia, the requirement is that the lawyer:

1. is an adult,

2. worthy,

3. Serbian citizen,

4. who has passed the bar exam in the Republic of Serbia.

In accordance with the Law on Legal Representatives 1862, care was also taken of who could not represent, that is, who could not obtain the right to be legal representatives. Thus, it is clearly stated that if someone is under bankruptcy or guardianship, he cannot be a legal representative. In the same sense, the advocate cannot be a person who has been convicted of "punishable bankruptcy". Convicted persons who committed a crime or attempted one, at that time, could not be legal representatives. In 1862, when it came to the conditions that said who could not be a legal representative, advocate the legislator also considered persons who were "convicted or under investigation". Therefore, these persons could not be legal representatives either, because it was against the morals of the same person. From everything that has been said so far, it could be concluded that, at that time, care was really taken to ensure that the lawyer, advocate was an honourable person of unquestionable morals, and above all, legally literate and educated. According to the current Law on Advocacy in the Republic of Serbia, one of the conditions for practicing law is not to have been convicted of a criminal offense that would make the lawyer untrustworthy to practice law. Today, the lawmaker determines eligibility in Article 6, paragraph 2 of the Law on Advocacy: "a candidate whose life and work, in accordance with generally accepted moral norms and code, can be concluded that he will not conscientiously practice law, is considered untrustworthy for practicing law and protect her reputation".

When we talk about a person with legal education, in that historical period, the first chapter is historically interesting from another position taken by the lawmaker. Namely, although the Law imposes that after the completion of legal studies, which had to be completed regularly, the candidate for legal representative had to pass the lawyer's exam (bar exam), the exceptions are those that make that specificity. Therefore, the Law allowed that persons who have completed legal studies and "in addition to this, practiced with „a worldly legal" representative for at least three years" or "served for at least two years at the state courts or at the Ministry of Justice" (this exclusion was valid only if the person reached the title of Chief or Secretary) do not take the bar exam in order to become a legal representative (Art. 2. Law on Legal Representatives 1862). This chapter of the Law also points out another exception: if a person considers himself capable of working in the legal profession and, at the same time, has not completed regular legal studies, he would be allowed to engage in practice only if he passed the bar exam in the then existing civil and criminal laws, as well as "craft baking" for three years with a legal representative or two years with the "authority". On the basis of all that has been said, it could be concluded that the right to engage in legal representation is not revoked for older clerks who were, in today's language, "careerists", who were clerks for a long period of time and who knew the legal rules of that era. Current Law on Advocacy in the Republic of Serbia does not recognize the work of lawyers, lawyers who have not graduated from law school and sets another condition: at least three years must have passed since the final decision on the rejection of the request for entry in the list of lawyers of any of the bar associations within the Bar Association of Serbia if the candidate was previously submitted a request that was rejected.

## *ON PASSING THE BAR EXAM AND ON THE APPOINTMENT OF A LEGAL REPRESENTATIVES*

By carefully analysing the provisions of the Law on Legal Representatives 1862 in the second chapter - On taking the bar exam and on the appointment of legal representatives, one can get the impression that the lawmaker had a tendency to choose the best candidates for legal representatives through the selection that was made possible by passing the bar exam and placing them in certain positions so that they would be placed in places where such personnel were in short supply. In this regard, the lawmaker assigned to the then Ministry of Justice the powers and authorities related to the examination itself, registration in the list of lawyers, as well as the appointment of legal

representatives in places where there was a shortage of personnel, i.e. management of personnel policy. Even today, the conditions and method of taking the exam are provided by the Law on taking the bar exam before a board within the Ministry of Justice.

If a person requested the right to practice law, especially on his own initiative, he had to send a request to the Ministry of Justice and provide the appropriate documentation described in Article 2. Thus, a certificate of completed legal studies, that he is of legal age, that he is a "Serbian citizen", that he is of good and honest governance (Art. 2. Law on Legal Representatives 1862). Current positive legal provisions foresee the conditions of submitting an application for passing the bar exam.

After the Application or registration at the announced competition, a committee would be formed which was obliged to examine the candidates (Art. 9 and 10 of the Law on Legal Representatives 1862). The board was made up of members of both High Courts and had a president, vice-president, and foreman (one member, appointed by the Ministry of Justice from among the personnel of both Courts). In doing so, the Ministry took care that the supervisor is not related to the candidate taking the exam. Certainly, if a connection was established between the applicant and the foreman, the Ministry would appoint another person. When taking the exam, the board took into account the candidate's knowledge of the law, whether the candidate passed the written and oral part of the exam well, and the board had the authority to disqualify an insufficiently prepared candidate or a candidate who did not excel in knowledge, and to influence on the candidate to better prepare for the exam (Art. 12. of the Law on Legal Representatives 1862). Within the jurisdiction of the Board, there was also the authority to decide whether the candidate passed the exam with success and by majority vote and was obliged to submit a report to the Ministry of Justice about the successfully completed exam (Art. 14. Law on Legal Representatives 1862). According to the provisions of the current Law on taking the bar exam, the exam is taken before the examination board formed by the Minister of Justice, and the written and oral parts are public. In doing so, the board evaluates the candidate's success with the grade:

1. "excellent",

2. "good" and

3. "unsatisfactory".

In accordance with this Law, a candidate who fails the exam successfully three times could not take the exam again and could never practice law.

In accordance with the Law on Legal Representatives 1862 before becoming a legal representative, taking an oath was necessary. This oath was confirmed by the decision for entering the list of legal representatives. These competencies were under the competence of the Ministry of Justice. After that, the Ministry of Justice was obliged to register the lawyer, to publish his name and surname to "all regional courts" and in official newspapers, so that the person would be officially known as a lawyer and could practice law (Art. 15. Law on Legal Representatives 1862). Furthermore, based on Article 17. of this Law, the Ministry of Justice appointed a legal representative, rightfully so, in the place where the legal representative himself wanted. Therefore, a legal representative, who was settled in a certain place in order to practice law, was obliged to contact the Ministry of Justice in order to get permission to work. These provisions are provided by the positive, current Law on Advocacy in the Republic of Serbia. The difference between the mentioned laws lies in the fact that the Law on Legal Representatives stipulates that in the event that there is a lack of legal representation staff in a certain place, the Ministry would, regardless of the desire of the legal representative for a specific place to work and live, refer and appoint the same in the place where there was a need for such staff (Art. 18. of the Law on Legal Representatives 1862). This condition is not in accordance with current positive legislation in the Republic of Serbia and possibly would be in conflict with the constitutional right of free choice of work.

The lawmaker also took into account what would happen if the legal representative was not assigned to the desired position and what if he refused to be assigned in a place in Serbia where the staff was needed (a lack of legal representatives). Thus, the Law expressly states that if the legal representative did not go to the place where he was assigned within three months, from the day he received the decree, the Ministry of Justice would act in accordance with its competencies. Namely, if the legal representative does not go to the place of assignation within three months, counting from the day he received the decree, the Ministry of Justice can appoint another candidate, another legal representative for that position. The one who refused the assignation, will not be able to work anywhere in Serbia until all the positions intended for legal representatives are filled (Art.19. Law on Legal Representatives 1862). From this article of the Law, it could be said that the lawmaker tried to compensate for the illiteracy and indolence that prevailed in court proceedings, by bringing new literate and educated personnel to those positions. On the other hand, with this article, the lawmaker wanted to initially suppress possible disobedience of human rights defenders and thus, restore order in the judiciary and help the illiterate village man in achieving justice and fairness before the courts.

The current Law on Bar Examination in Republic of Serbia states that the Bar exam can be taken by a person who has graduated from the Faculty of Law and who, after graduating from the Faculty of Law, has gained two years of work experience in the legal profession in a court, public prosecutor's office, public attorney's office and advocacy, or three years of work experience in the work of the legal profession in authority for offences, another state body, a body of territorial autonomy and local self-government, or four years of work experience in the legal profession in a company, institution or other organization (Art. 2. Law on Bar Examination). The Bar Exam is constituted of two parts: exam in writing and oral examination. In the written part of the exam, practical tasks from criminal and civil law are solved. Oral examination includes several different exams from different law fields. When the bar exam is passed with success, a certificate is being issued (Art. 27. Law on Bar Examination).

## ABOUT THE RIGHTS AND OBLIGATIONS OF A LEGAL REPRESENTATIVE

Chapter three of the Law on Legal Representatives 1862 is more extensive than the first two chapters of the law. Namely, this chapter contains all the rights and duties of a legal representative, starting with the determination of the way of work, through the power of attorney and the reward to the legal representative for the work performed.

The lawmaker ordered the legal representative to perform all assigned tasks in a spirit of diligence, attentiveness and conscientiousness, keeping the secret of the entrusted work (Art. 22. Law on Legal Representatives 1862). According to the law, the legal representative, advocate had to pay attention to the basis of the claim, how to prove the said basis, pay attention to disputed details related to the essence of the dispute, whether there is more than one party in the dispute, whether the party may be a person under guardianship (Art. 23 and 24. Law on Legal Representatives 1862). In this sense, the legal representative acted on the basis of a power of attorney after considering all the issues related to the initiation of litigation, in accordance with the Law (Art. 30. Law on Legal Representatives 1862).

From the legal provisions, it can be established that this chapter of the Law is dedicated to the power of attorney, mandate which was the authorization for the legal representative to act in the name and on behalf of the one who gave it to him – the principal. Here, we must state that mandate, or better said, contract of mandate (power of attorney) was in detail elaborated in the Serbian Civil Code 1844. Chapter XXII with the title "On mandate and executive authority" and articles 609 – 631 are dedicated to the mandate in Serbia then. (Atanasovska Cvetkovi , 2021b, pp. 23-32) Therefore, the

lawyer, legal representative should have decided to receive the power of attorney. The contract of the mandate had to include a deputy legal representative (deputy attorney), and the principal had to, in accordance with this Law, extend the power of attorney to his successors as well (Art. 29. Law on Legal Representatives 1862). Once a general or special mandate (power of attorney) was given, the legal representative was obliged to submit to the court the original or, as the Law says, an "authentic copy". Thus, the lawyer, legal representative had the obligation to submit a mandate (power of attorney) every time he acted before the "land courts". Contemporary regulations, nowadays, related to criminal proceedings also provide the obligation, the duty of the defender lawyer to submit a mandate (power of attorney) to the authority of the procedure without delay.

As for the rights and obligations of the legal representative, he was obliged to comply with the court procedure, i.e. the rules that defined the judicial procedure He was not allowed to "twist the law" and "wrap up the truth" (Art. 32. Law on Legal Representatives), as well as speaking empty and superfluous words that would burden the procedure itself while achieving nothing. The law expressly stated that the legal representative, while conducting the proceedings, was not allowed to insult the litigants, as well as neither the court nor the judge (Art. 33. Law on Legal Representatives).

Certainly, the legal representative had the right, given by Law, to cancel the power of attorney once received. Article 35. of this Law states that the legal representative must have a valid reason to do so and that he was "obliged to communicate his intention to the party in question through the court". From this article, we can come to the conclusion that even at that time, the litigant was taken into account in court proceedings and was protected. Therefore, if the legal representative cancels the received power of attorney, the litigant must not remain legally unprotected. The legal representative continued to take care of the litigant, as necessary until the new legal representative "took over the case". Bearing in mind that the power of attorney also named a deputy legal representative, if the legal representative was not able to attend the hearing in person, in such cases, he had the right to send his deputy, certainly with a valid power of attorney, where the person replacing him would be specified (Art. 36. Law on Legal Representatives 1862).

When we talk about the rights that belonged to the legal representatives, in accordance with the aforementioned Law, at that time, we must state that both the reward and reimbursement of expenses for the legal representative were prescribed. But we have to keep in mind the fact that the legal representative could represent the party in the dispute even without a reward or reimbursement of expenses. Namely, if the party was poor, could not pay the award and expenses and, at the same time, proved such a state, based on the court decision, the legal representative would represent that party in court free of charge. (Art. 41. Law on Legal Representatives 1862)

As far as legal norms are concerned, the Law clearly proclaimed that the legal representatives were obliged to keep an accurate account if he charged the reimbursement from the principal in advance in order to settle his expenses that would be incurred during the conduct of court proceedings (Art. 38. Law on Legal Representatives 1862). But, when it comes to the reward, the Law decisively states that the reward could be agreed up to a maximum of 15% of the value of the disputed item when the value of the item does not exceed the amount of 1,000 grosh, i. e. 10% above that value. The Law also decisively states that the legal representative could not agree to be given one of the cases in the name of a reward, nor could he buy out litigation. The reward paid to the legal representative is included in the costs of the dispute with the authority to direct this part according to the criteria of the Law. Based on the Articles devoted to the reward, it could be said that the lawmaker, in a certain sense, allowed the honourable reward, but also limited the excessive and unauthorized enrichment of legal representatives.

The lawyer of the defendant's rights and obligations are provided by positive, contemporary legislation in the provisions of the Criminal Procedure Act. (Official Gazette of RS, 2021) Code of Criminal Procedure the right of the defense attorney to conduct a confidential conversation with the arrested or the detained person, before his hearing; familiarizes himself with the content of the criminal act, the report of the investigation and the findings and opinion of the expert, and in general

considers the files and examines the items that serve as evidence and takes all the actions that can be taken by the defendant lawyer, provided that they are taken in favour of the accused. It goes without saying that the undertaken actions must be in accordance with the law. The law stipulated the obligations of the defense attorney to provide professional, conscientious and timely assistance to the accused in the– a legally ignorant party.

If the accused declares to the procedural authority that he refuses the *ex officio* assigned lawyer and wants to defend himself, the *ex officio* lawyer is obliged to:

1. be familiar with the content of evidentiary actions and content during the main trial;

2. give the defendant explanations and advice in writing, if the accused refuses to talk to him;

3. attend to the actions in the procedure and deliver the final statement, if the defendant does not expressly oppose it;

4. at the defendant's request or with his express consent, declare a regular legal remedy and take other actions in the procedure (Art. 72. Criminal Procedure Code of Republic of Serbia)

Also, the current Law on Advocacy in Republic of Serbia imposes several rights and obligations of today, contemporary lawyers. Above all, a lawyer has the right to practice law throughout the territory of the Republic of Serbia. He, also, has the right to practice law on the territory of a foreign country, in accordance with confirmed international agreements and regulations of that country on the right to work for foreign lawyers (Art. 16. Law on Advocacy). He freely decides whether to accept the provision of legal assistance, except in cases provided for by law. A lawyer may not refuse to provide legal assistance if he is appointed by the court, other state authority or bar association as a representative or defender in accordance with the law, unless there are reasons provided by law for which he is obliged to refuse representation (Art. 18. Law on Advocacy). He has the right to a reward and reimbursement of expenses for his work, in accordance with the tariff adopted by the Bar Association of Serbia. The amount of the reward for the lawyer's work is determined depending on the type of procedure, the action taken, the value of the dispute or the amount of the threatened penalty. The amount of the award for *ex officio* defense is determined by an act issued by the minister responsible for judicial affairs (Art. 23. Law on Advocacy).

According to the Article 15 of the Law, the lawyer has the obligations of: actual and permanent practice of the law, to provide legal assistance professionally and conscientiously, in accordance with the law, the statute of the bar association and the code, to keep the lawyer's secret and to preserve the reputation of the legal profession in his professional work and in his private life, which is accessible to the public. A lawyer is obliged to constantly acquire and improve the knowledge and skills necessary for the professional, independent, independent, effective and ethical performance of the legal profession, in accordance with the professional development program adopted by the Bar Association of Serbia. He who has a legal trainee is obliged to provide him with suitable conditions for work and training in accordance with the purpose of the trainee practice, to implement the training plan and program and to supervise his work and professional development (Art. 17. Law on Advocacy). A lawyer is obliged to refuse to provide legal assistance: if he represented the opposite party in the same legal matter, if he was a law trainee in a law office where the opposite party is represented or was represented in the same legal matter, if he is or was a member of a joint law office or law partnership, in which the opposing party is represented or has been represented in the same legal matter, if in the same legal matter he acted as a holder of a judicial function or an official in a state body, a body of territorial autonomy or a body of a local self-government unit if the interests of the party requesting legal assistance are in conflict with his interests or the interests of his close relatives, friends, associates or other parties, which is prescribed by the statute of the bar association and the code and in other cases determined by the law, the statute of the bar association and the code (Art. 19. Law on Advocacy). When we talk about keeping the lawyer's secret, we have to bear in mind that a lawyer is obliged, in accordance with the statute of the bar association and the code, to

keep as a professional secret and to ensure that the persons employed in his law office also do so, everything entrusted to him by the client or his authorized representative or that is in the case in which provides legal assistance otherwise learned or obtained, in preparation, during and after termination of representation. The obligation to keep the lawyer's secret is not limited in time. The manner of keeping the lawyer's secret and the procedure related to the lawyer's secret are regulated by the statute of the bar association and the code (Art. 20. Law on Advocacy).

As a lawyer's obligations, we have to mention that a lawyer must not engage in activities and professions that are incompatible with the reputation and independence of the legal profession. He cannot have another registered independent profession, nor has a right to establish an employment relationship except in a law partnership, to be a statutory representative, a director or chairman of the board of directors in a legal entity, a member or chairman of the executive board of a bank, a representative of state capital, a procurator or a person who has an established prohibition of competition (Art. 21. Law on Advocacy).

The contemporary Law on Advocacy in Republic of Serbia, also, imposes a prohibition – a prohibition of advertising. According to Article 24, advertising of lawyers, joint law offices and law partnerships is prohibited.

## ON DISCIPLINARY SANCTIONS AGAINST LEGAL REPRESENTATIVES

Articles 43 - 61 of the Fourth chapter are devoted to disciplinary punishments in the Law on Legal Representatives 1862. Through the articles of the Law, it can be established that the legal representatives were responsible for violations of the relationship that arise between them and the principal. The lawmaker, if the provisions of the Law are carefully read, divided these violations into two types: „minor offenses" and „major offenses".

For „minor offenses "the lawmaker provided for the following punishments: warning, reprimand, or fine. The fine for a minor step, at that time, was in the amount of 10 thalers, and it was collected for the benefit of the state treasury. In the same sense, for a minor performance, the loss of all or part of the reward that was foreseen.

For „major offenses", the following punishments were provided: a fine of 20 thalers, a temporary one-year ban on the right of representation and the final loss of the right of representation. A temporary one-year ban on the right of representation and the final loss of the right of representation could be imposed in precisely defined cases.

The procedure for imposing a disciplinary punishment was carried out in two levels: the first instance court (which sentenced legal representatives ex officio or at the request of a litigant) and the Grand Court for Criminal Offenses which dealt with appeals. The lawmaker allowed the Grand Court to judge in the first instance and to be the final court only in two cases: when it imposed penalties of deprivation of the right of representation for one year and when it imposed penalties of deprivation of the right of representation "forever".

The legislator also made sure that the legal representative "only out of malice or mischief" is not subject to disciplinary proceedings. Therefore, the lawmaker prescribed, in the Law, that if a lawsuit is filed against a legal representative "out of malice and mischief", then the plaintiff would be fined up to 20 thalers or imprisoned for up to 20 days (Art. 56. Law on Legal Representatives).

From these articles, it can be concluded that the lawmaker largely took into account the rights of the legal representatives in the procedure itself, because the legal representative was allowed to appeal, and all the time during the procedure to participate in the context of being able to testify on the proposed evidence and allegations, as and that he can view the files from the proceedings against him.

The current Law on Advocacy in Republic of Serbia, also prescribes disciplinary sanctions against the lawyers in our country. The following disciplinary measures may be imposed on a lawyer for violating the lawyer's duties and damaging the reputation of the legal profession:    warning, fine or deletion from the list of lawyers (Art. 77. Law on Advocacy). For minor offences of the lawyer's duties and the reputation of the legal profession, a warning or a fine may be issued. The amount of the fine for a minor violation of the duty and reputation of the legal profession cannot be less than ten times the amount of the lowest award prescribed by the tariff, nor higher than thirty times the amount of the lowest award prescribed by the tariff applicable on the day the disciplinary measure is imposed. For major offences of the duty of a lawyer and the reputation of the legal profession, a fine or removal from the list of lawyers may be imposed. The amount of the fine for a serious violation of the duty and reputation of the legal profession cannot be less than thirty times the amount of the lowest reward for the work of a lawyer nor greater than sixty times the amount of the lowest reward, prescribed by the tariff applicable on the day the disciplinary measure is imposed.

We can mention that the contemporary advocacy, according to the Law on Advocacy recognizes the deletion from the list of lawyers as disciplinary sanction. This sanction can be imposed for a period of six months until the permanent loss of the right to practice law (Art. 77. Law on Advocacy). The Statute of the Bar Association of Serbia establishes minor offences of duty and the reputation of the legal profession for which a fine can be imposed, more serious violations of duty for which the measure of deletion from the list of lawyers can be imposed and the conditions under which the imposed penalty can be conditioned. Legally valid disciplinary measures are entered in the record of disciplinary measures, and a copy of the decision is placed in the file of the lawyer who was declared responsible in the disciplinary procedure.

The disciplinary procedure i.e. initiating and conducting disciplinary proceedings has its limitations. The statute of limitations for initiating disciplinary proceedings begins after six months have passed since the knowledge of the committed violation, and in any case, after two years have passed since the violation was committed. For conducting disciplinary proceedings begins after one year has passed since the initiation of the proceedings. The statute of limitations is interrupted by any procedural action taken for the purpose of conducting disciplinary proceedings. The statute of limitations is also interrupted when the lawyer commits an equally serious or more serious breach of duty during the period of limitation and meets the legal profession. With each interruption, the statute of limitations begins to run again. The statute of limitations for conducting disciplinary proceedings occurs in any case when two years have passed since the initiation of disciplinary proceedings. The statute of limitations for initiating and conducting disciplinary proceedings for a violation that has the characteristics of a criminal offense begins when the time specified for the statute of limitations for criminal prosecution expires (Art. 78. Law on Advocacy).

## *ABOUT HOW THE RIGHT OF LEGAL REPRESENTATION ENDS*

The last, Fifth chapter of the Law on Legal representatives 1862 includes only two articles, Articles 62 and 63.

In Article 62, the ways of terminating the right of representation are exhaustively enumerated. Therefore, the right of legal representation ends: when the legal representative himself resigns; when a legal representative accepts any public title or undertakes "any other public action in his name"; when the legal representative ceases to be a Serbian citizen or better said he has not had a Serbian citizenship; and when the legal representative is convicted "for punishable bankruptcy, for ordinary (non-political) crime or for self-interest, committed the crime or serious crime that offends public morality".

The last article of this Law indicates precisely that, if the right of legal representation ceases in one of the mentioned ways, then the Ministry of Justice was obliged to announce it to "all land courts", as well as to announce the termination in the official newspaper.

Contemporary law in Republic of Serbia, the current Criminal Procedure Code in Article 79 clearly states the reasons for ending the rights and obligations of the defendant's lawyer. So, the lawmaker gives a couple of reasons:

1. revocation or termination of power of attorney,

2. dismissal.

Contemporary times and modern advocacy are reflected in today Law on advocacy. The current Law on Advocacy in Republic of Serbia, in article 39 prescribes another way to determine the right of practicing law, but only temporary. A lawyer has the right to temporarily suspend the right to practice law: due to professional training or other justified reasons, while the reasons persist, during temporary absence due to illness, maternity leave, child care leave and other health reasons, for the election of a deputy, deputy or committee member, during the parliamentary or committee mandate. The only obligation that lawyer has, according to the same article is no later than 30 days before the start of exercising the rights referred to professional training and within 30 days from the occurrence of the temporary prevention referred to illness, maternity leave, child care leave or election of a deputy to submit to the Bar association an explained request with appropriate evidence and data on the beginning and duration of the temporary cessation of work. The contemporary Law, also states that a lawyer temporarily ceases the right to practice law in the case of election, appointment or appointment to a public position that requires the establishment of an employment relationship with an organ of the Republic of Serbia, autonomous provinces or local self-government units (Art. 40. Law on Advocacy).

We can point out to the fact that the Law on Advocacy clearly states the reasons of ending the right of practicing law. The ending of right of practicing law is irrevocable with deletion from the list of lawyers in our state. In this manner, the Article 83 prescribes this reasons: at a personal request, from the day specified in the request, and in the event that the request for deletion from the list of lawyers does not specify the date of termination of the right to practice law or a day preceding the day of submission of the request is specified - from the date of the decision on deletion from the list of lawyers, in case of death or declaration of death - on the day of death or declaration of death, in case of complete or partial deprivation of business capacity - from the date of finality of the decision of the competent court,  in the event of a disciplinary measure of deletion from the directory of lawyers - from the date of finality of the decision on deletion from the directory, in the event of a security measure prohibiting practicing law in criminal proceedings - from the date of finality of the judgment of the competent court, in the case of a conviction for a criminal offense that makes him unfit to practice law - from the date of finality of the judgment of the competent court, in the case of a conviction for a criminal offense to an unconditional prison sentence for a period longer than six months - from the day of starting to serve the sentence, about which the competent bar association is informed by the court competent for the execution of criminal sanctions, in case he does not engage in legal practice continuously for more than six months - from the date of the final decision on deletion from the directory, in the case of establishing an employment relationship outside the legal profession, entering the register of entrepreneurs, acquiring the status of a statutory representative, being appointed as a director or chairman of the board of directors in a legal entity, being elected or appointed as a member or chairman of the executive board of a bank, being appointed as a representative of state capital or as a procurator. - from the date of establishment of the employment relationship, registration in the register, appointment or election, in case he does not conclude a professional liability insurance contract - from the date of the final decision on deletion from the directory, and in the event that a lawyer registered in register A and register B of the directory of lawyers ceases to be a lawyer or is prohibited from working in the home country - from the date of the decision of the competent body of the home country.

## CONCLUSION

Taking into account the historical circumstances that preceded the adoption of the Law on Legal Representatives in 1862, it can be said that it is a modern law that was valid for that historical period. What can be specially acknowledged to Mihail Obrenovi , and that is, that this law finally put an end to lay representation, which had gained momentum to a large extent before the aforementioned law was passed. In the same way, Mihailo Obrenovi , with this law, eradicated illiterate representatives, semi-literate clerks and scribes, imposed the completion of law schools and the passing of the bar exam, he established a new profession in a new territory, a profession that was supposed to radiate dignity and honour, and above all, to spread legal knowledge. With his vision and the establishment of new principles, such as the principle that legal representation cannot be combined with any other public profession, as new rules, he gave even more weight and meaning to the new Law on Legal Representatives. This law also emphasized the importance of the education of lawyers who are legal representatives.

Although this law was repealed a few years later, specifically in 1865, when the new Law on Legal Representatives was passed, it was still, as history will show, a solid foundation for the construction of advocacy as a modern legal profession without which no modern society can imagine. Numerous provisions of this law have been transposed with slightly different and expanded wording into modern, contemporary laws in today's Republic of Serbia: The Law on Advocacy, the Law on Bar Examination and laws related to the regulation of criminal proceedings.

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