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THE FUTURE OF ROBOTIC VEHICLES WITH THE CONTRADICTIONS OF PROCESS IN THE GREEN AGENDA AND PRODUCTION OF DIFFERENT POWER SOURCES¹

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Abstract:¹ *The use of different types of cars produces paradoxes when externalities such as environmental damage are taken into account. Using an empirical method, we have attempted to analyze the contradictions within the green agenda. The proposed techniques do not have to be implemented during the study phase. The article attempts to examine current global patterns in order to identify future alternatives for replacing old infrastructure. In an era of rapid technological growth, the automotive manufacturing sector is undergoing significant changes. This transformation involves replacing outdated infrastructure with sophisticated software and energy-saving components. Although the changes represent exciting solutions, they also pose significant obstacles, especially in achieving environmental sustainability goals. The integration of automation, artificial intelligence, and modern manufacturing technologies may result in a lower demand for workers in conventional industries. The complexity of the process refers to the transformation of sustainable methods, especially in the production of batteries for electric vehicles. We used empirical research in the field of sustainable energy management, circular economy and urban planning projects to reduce energy demands. By collecting and analyzing real-world information, we hope to provide evidence-based insights into the effectiveness of different methods and*

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policies. In ensuring a resilient and sustainable future for transport, EU regulation is key in combining environmental care with economic viability. Our research shows a historic change in the transport sector, with autonomous cars playing a key role in designing future mobility options.

Keywords: robotic vehicles, green agenda, car manufacturing sector, artificial intelligence, advanced production technology approaches, power sources

INTRODUCTION

In this paper, we contribute to the analytical examination of sustainable transportation infrastructure, green agenda initiatives, and the transition to electric car adoption. Through our investigation, we identified the emergence of new energy sources, including lithium and sodium batteries. The future of autonomous cars lies at the intersection of technological progress and the complexity inherent in pursuing environmental sustainability as outlined in the Green Agenda. While the development and adoption of autonomous vehicles offer significant opportunities for revolutionary effects on transportation, the inherent inconsistencies must be carefully considered within a broad framework for environmental initiatives [10, 11].

Autonomous and electric vehicles can enhance traffic flow and have the potential to alter transportation networks by enhancing efficiency, safety, and accessibility, reducing accidents triggered by human error as well as contributing to a more efficient, environmentally friendly network. Improvements in rechargeable and hybrid technologies for self-driving vehicles align with the Green Agenda's goal of reducing greenhouse gas emissions while relying on existing energy sources [9]. However, tensions emerge as we examine the environmental effects and broader dimensions of sustainability. The development and deployment of robotic vehicles require resource-intensive operations that contribute to carbon footprints and e-waste. The development of improved sensors, batteries, and computer systems raises questions about environmental impact, resource exploitation, and acceptable end-of-life disposal techniques. In addition, the power sources that drive these robotic vehicles are crucial.

While electric and hybrid technologies are inherently cleaner, the environmental benefits depend on the sustainability of the electricity grid. The overall impact on the green agenda can be reduced if electricity is obtained from renewable sources. Furthermore, integrating autonomous vehicles may encourage increased vehicle use, potentially leading to greater energy consumption and environmental stress. Unless carefully managed and integrated into a broader sustainable transport strategy, the proliferation of robotic vehicles could exacerbate urban sprawl, congestion, and resource depletion [1, 12].

In navigating the future of robotic vehicles within the green agenda, a holistic approach is imperative. This includes not only advancing the technology itself, but also addressing the environmental impact of the entire life cycle, promoting sustainable manufacturing practices, optimizing energy sources, and encouraging smart urban planning to mitigate potential adverse effects. The future trajectory of robotic vehicles can be aligned with the green agenda through conscientious development, strategic policies, and a commitment to environmental responsibility [13, 18].

The modern vehicle manufacturing industry relies more and more on environmentally friendly technologies that are in line with the green agenda. In light of these developments, rechargeable batteries installed in vehicle systems are becoming increasingly widespread. Lithium, the third lightest alkali metal in the periodic table of elements, is used to create tiny, energy-dense batteries used in electric vehicles (EVs) and smartphones. The modernization of electric vehicles and the use of smartphones are closely linked to the adoption of lithium-ion batteries. Systems that serve to collect and display energy from renewable

sources at the grid level ignore the size of the battery. This also applies to heavy vehicles such as ships and trucks. The properties of sodium indicate similarities with lithium, but are larger and heavier. Due to its characteristics, sodium batteries are often larger and heavier than others of the same energy capacity. In terms of energy density, they approach the values of earlier lithium-ion batteries, from a decade ago. Their capacities do not yet allow powering electric vehicles that are used for long distances, but they can be used for shorter distances and daily city driving.

Recent advances demonstrate the greater competitiveness of the sodium battery over certain lithium-ion batteries, particularly those using lithium-iron-phosphate (LFP) cathodes. LFP batteries are cheaper on the market, but have a lower energy density than other lithium-ion technologies. Sodium-ion batteries, with their distinctive characteristics, offer the potential for more cost-effective usage, paving the way for more affordable autonomous vehicles (AVs) with longer driving ranges on a single charge. The challenge with sodium-based batteries is that they are not yet capable of being fully replaced. However, with their advantages of lower costs and high energy density for specialized applications, these advanced solutions are poised to hold a prominent position in the evolving battery markets.

The dynamics of substitution with new solutions, such as renewable energy sources that meet the specific needs of the vehicle industry, are influenced by: controlling financial costs, solving infrastructure challenges in different operating environments, imposing industrial regulations by governments and adapting innovations for different applications. Anticipating and adapting to changes in the automotive industry sectors present economic, logistical and regulatory challenges. The continued efforts of the automotive industry to maintain a gradual transition to the adoption of technologies based on renewable energy sources emphasize the upcoming time of improvement of commercial transportation and supporting infrastructure.

The paper is organized into the following sections: Literature Review, Contributions and Novelty, Materials and Methods, Use of robotic platforms and vehicles, The road to sustainable mobility and green goals, Barriers in realizing the green agenda route, Negative aspects in the transformation processes of vehicle production, Results, Discussion, and Conclusion.

1. LITERATURE REVIEW

This paper goes beyond technical and technological analysis to investigate the impact of smart vehicles on traffic safety, explore human behavior in response to the adoption of new transportation technologies, and examine the development of critical infrastructure projects, including transportation networks, as well as their associated environmental effects. Our research addressed issues related to public opinion acceptance, legislative frameworks, and ethical dilemmas surrounding the implementation of robotic vehicles in real-world scenarios. Through the study of the material, we identified valuable insights into the methodology, applications, and future perspectives of the industrial technological aspects related to smart vehicles. By synthesizing informative sources and analyzing both the positive and negative effects, as well as the limitations highlighted in the literature, we have developed a framework for future innovative research in the dynamic industrial sector, specifically focused on modeling robotic vehicles for widespread use.

1.1. MODELING AND SIMULATION OF AUTOMATED AND ROBOTIC SYSTEMS

The authors of the study [7] recommend modeling, simulation research, and development of automated and robotic vehicle systems, including component development, virtual prototype testing, and scenario evaluation. Automated and robotic vehicles have been produced using a development process based on prototype models and will assist in the future development of this research subject.

Authors study [25] outlines five characteristics of a vision of robotic Internet-connected

things (IoRT) occupying and functioning in public spaces ranging from streets, parks to retail centers. The research highlights skepticism towards the concept of drones and robotic accompaniment of people in public areas. Through the concepts of building an environment or spaces ideal for the function of robots, we went to the regulation of robotic things in public spaces.

1.2. NEW ENERGY VEHICLES (NEV)

Nowadays, the most industrially advanced countries, such as Germany, the United States, and China, are gradually adopting new energy vehicles (NEVs), particularly electric vehicles, due to their environmental benefits. An important development [24], which is reshaping the foundation of future transportation, introduces a new strategic approach focused on autonomous robot cars. This approach is based on a robot operating system (ROS), similar to that used in electric cars, and is gradually being integrated into commercial vehicle programs. Researchers in the study [31] cover the look of the possibilities in manual control of a robotic vehicle that contains a transmitter on a hand glove. The receiver is mounted on the motor drive of the vehicle together with the PIC microcontroller and its accompanying IC driver. Through the aforementioned research, it is possible to better understand the characteristics and necessary components for the needs of the development processes of robotic technology. The primary motivations for the development of robotic machines stem from their ability to carry out a wide range of both invasive and non-invasive tasks. One such mission is reviewed in this paper covering the lunar robotic prototype MIRA3D. The authors [17] describe the processes of cooperative creation of a test development environment. Other authors [34] analyze new approaches to cooperative control, which refers to the techniques of multifaceted remote control by humans as operators. Human operators usually function in an unstructured environment, which represents the complete automation of

a system that includes a vehicle and a robotic manipulator.

2. CONTRIBUTIONS AND NOVELTY

In this work, certain contributions have been made in the analysis of sustainable innovative traffic, the green agenda and state efforts for substitution with electric vehicles. The positive aspects of vehicle electrification and alternative technologies of lithium and sodium batteries are reviewed.

In accordance with the above, we can highlight the following contributions that were made during the research:

- 1) Highlighting sustainable mobility and the goals of the green agenda. Based on global efforts to preserve the environment, combat climate change and achieve sustainability goals, we talked about the importance of applying information technology (IT) to the automotive industry, strengthening energy efficiency, replacing standard with low-carbon transport systems, and reducing exhaust gas emissions.
- 2) Government strategies for the implementation of electric vehicles. In the paper, we considered the impact of state strategies on the substitution of electric vehicles, giving importance to efforts in the form of regulatory frameworks and accelerated procedures for the adoption of new technologies. Emphasis is placed on proactive management and the necessity of political initiatives to promote new directions. Financial incentives, favorable loans, investment in supporting infrastructure and regulatory mandates were launched.
- 3) Electrification of vehicles. Developing the discourse helps us to properly understand the new directions of development, but also the barriers that are imposed in the achievement of the set goals. While exploring the benefits of electrification, such as higher energy efficiency and lower emissions, we also deal with the issues of different battery technologies and the necessary infrastructure. From an economic, technological and

regulatory point of view, the paper provides an insight into the barriers and opportunities for vehicle electrification.

- 4) Study of alternative battery technologies. The characteristics of lithium-ion batteries as well as alternatives such as sodium batteries are analyzed. New possibilities and solutions for battery technologies are proposed. Contributed to ongoing research and development efforts to improve the performance and sustainability of electric vehicles.

Overall, a contribution was made to the further analysis of sustainable mobility in the transport and energy sector, the efforts of governments to create future strategic frameworks for the implementation of electric transport vehicles and alternative necessary battery technologies for their implementation in reality.

3. MATERIALS AND METHODS

In the research, we used the empirical method as a methodological way to thoroughly collect and evaluate data from real circumstances, which required the sublimation of information. In this way, we tried to answer the given research questions and objectives. Use content from a period frame that includes 2020-2024. The empirical method was used to verify our claims based on existing evidence from which we drew a detailed analysis of hypotheses and made relevant conclusions. During the research process, we tried to systematically collect data by measuring, analyzing and experimenting. Furthermore, we used appropriate qualitative and quantitative methodological approaches on the basis of which we carefully evaluated the data.

We conducted research using scientific databases such as Taylor & Francis, McKinsey & Company, Geotab, Springer Link, Appinventiv, The iNews Network, and others. During the scientific research, more than 50 different sources were considered, with 39 being chosen in the final selection.

The subjectivity of picking an appropriate source was used as a criterion for selecting articles during the research process. Further

selection was based on the relationship between research questions, keywords, specialist opinions, beginning points, strategies, and a variety of other statements important to our study.

The research's initial hypotheses were founded on the opinion that the green agenda and electrification have a favorable global impact.

Relying on the empirical method in the research, we drew well-founded conclusions and established confirmed theses in connection with the phenomenon we examined. With the strategy, we increased the credibility and reliability of our claims. By committing to fact-based research, we believe that we have contributed relevant facts to the wider scientific population.

3.1. SELECTION CRITERIA

The necessary search and selection time involved peer-reviewed academic papers and specialized literature, in order to frame a series of thoughts and perspectives on future technological trends. Finding a list of relevant references supplemented relevant material that was not identified during the initial search for key elements. Furthermore, we used the screening method with the aim of assessing the fulfillment of the study framework.

We applied pre-defined criteria and after reviewing them, we included topic relevance, geographic scope, study methodology, quality of evidence, publication date. Based on the established criteria, we selected the works for additional analysis and evaluation. The extracted data were used to collect related data from each selected publication such as techniques, theoretical frameworks and main findings.

A selection of scientific material has been synthesized and analyzed to find possible gaps in the current context of knowledge within this research area. The collected knowledge should provide insight into the thematic content and further guidelines were given for the research work through which a further selection process of material related to the green agenda, electric vehicles and power sources was carried out. This was followed by a methodological

synthesis approach based on keywords and research questions.

3.2 KEYWORDS

The selection processes were realized based on affiliation and connection in areas that include the following: sustainable mobility, green goals, electric vehicles, state regulatory strategy for the implementation of smart vehicles, electrification, alternative battery technologies. In accordance with the above, the key words were derived and used:

- 1) Sustainable mobility
- 2) Green goals
- 3) Electric vehicles
- 4) State strategy
- 5) Electrification
- 6) Alternative battery technologies
- 7) Sodium batteries
- 8) Environmental sustainability
- 9) Policy implementation
- 10) Transportation innovation

3.3. QUESTIONS

Through the form of research questions, we defined the method of data sublimation, analysis and interpretation of the collected knowledge. The focus was on trying to get answers to the previously asked questions in the attachment. In this way, we ensured the research direction and made a contribution within the domain of the autonomous industry. Contributions can be presented as a supplement to existing knowledge and a basis for future researchers without previous knowledge in this field.

- 1) What is the complete process of vehicle substitution with renewable energy sources reserved for the next period of industrial vehicle development?
- 2) What is the financial aspect of the started route of the green agenda sustainable in the future?
- 3) What is the global world in error because of the initiated process of cancellation of fossil fuels, considering that a large financial

support is allocated for the preservation of these ideas?

4. USE OF ROBOTIC PLATFORMS AND VEHICLES

In order to insert robotic platforms into the research process, it was necessary to analyse in more detail the material related to innovative technologies in the dynamic environment of the vehicle industrial sector. By studying industrial reports on the use of robotic vehicles in different sectors such as agriculture, logistics and transport, synthesizing a lot of different opinions and findings, we came to an understanding of new circumstances.

The framework of the analysis looked at the characteristics of smart vehicles during their efficient execution of orders, data collection in a real time interval and autonomous navigation on different terrains. The improvement of sensors, machine learning algorithms, artificial intelligence (AI) and characteristics of robotic vehicles (perception of decision-making) has been observed. Artificial intelligence in the form of robotic platforms has the characteristics of durability, repeatability, and efficiency. The created robotic system like Cozmo is a commercial, widely available robot that can be used to analyse the interaction of humans and artificial intelligence in a wide range of environments, including households of physical users [6].

Formed robotic systems are systematized into different modules that are connected to the Design Education Platform. Design and technology specification education requirements are associated with specific research demonstrating in-house creation of these platforms. Sublimations are knowledge about robotic systems from the mentioned architecture and used as references [21]. The majority of the findings highlight the use of the modularity principle in the design of instructional robotic systems built on the Arduino Uno platform. They consider analogies of the weather station and the search robot [35]. The application of robotic systems improves the robotic software that is tied to the hardware platform that drives the robotic system. By studying

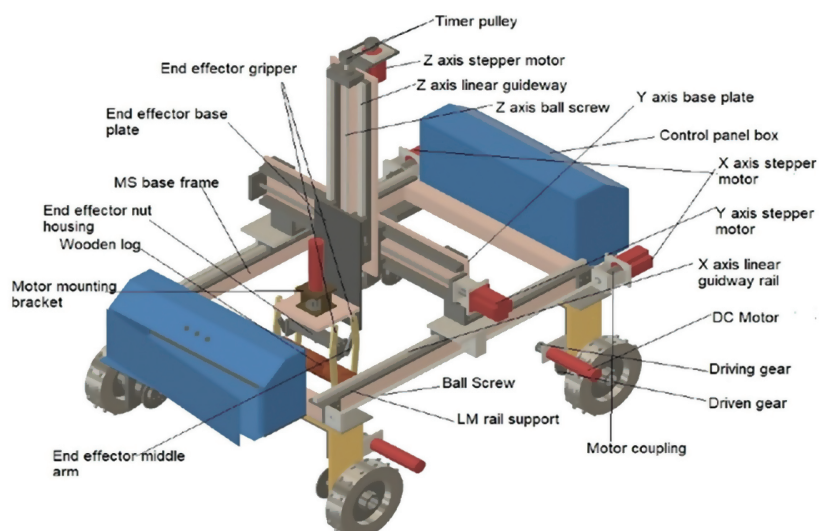


Figure 1. Schematic concept of the mobile manipulator. Source: [23].

the model that analyzes the architecture of the robotic elements on the target platform, RoboSmi determines their hardware configuration and provides software libraries for each component and thus their control [36].

In order to meet all the requirements, a more complex dynamic and kinematic analysis related to complex agricultural applications and robot design is necessary. Analytical insight gives a more complex picture of the movement and behavior of the robot, providing optimization where Figure 1 is the author's conceptual diagram [23] and it shows the visually proposed mechanism. It includes kinematics, dynamics and mechanical properties that provide the necessary information about the characteristics of the robot. The analysis method served to generate kinematic solutions for the proposed design. The tendency of human manipulation to create the future direction of movement (trajectory) of an autonomous vehicle generally cannot be recognized by artificial intelligence. Various authors analyze disabled people during their use of autonomous vehicles, explaining their automatic braking or deceleration.

The integrative approach of information and communication technology to the transport infrastructure as a whole will ensure greater safety and efficiency in traffic. The solution is robotic platforms that are cheap and provide partial testing of original platforms, elements

and various vehicle management techniques. Automated parking systems use a robotic platform that transports each vehicle to one of several positions in a specially designed building. The machine learning classification method is coupled with Thompson's Algorithm for Efficient Multiobjective Optimization (TSEMO) to optimize continuous and discrete outputs in parallel. Most studies are semi-automated, with robotic platforms powered by machine learning algorithms [5].

5. THE ROAD TO SUSTAINABLE MOBILITY AND GREEN GOALS

Vehicles with intelligent software and rechargeable sodium batteries represent promising solutions for important aspects of the green agenda. By increasing energy efficiency and optimizing the given driving path, there is the potential of significantly reducing emissions and promoting environmentally friendly practices. The increasing implementation of intelligent vehicles unites new directions into common transport models that correlate with the goals of the green wave. This is confirmed by the possibilities of fewer vehicles on the roads and the improvement of safety measures with the accompanying infrastructure. However, there are barriers in the way of an environmentally friendly future perspective of transport in general. By considering the origin of energy sources, the technical characteristics

of sustainable industrial production and the adequate installation of the necessary infra-structural traffic, the burning questions of the existence of new directions are analyzed. Adequate answers will confirm the positive impact on the environment of intelligent vehicles with sodium batteries [26].

The implementation of smart vehicles affected the economic aspect, transforming the way of doing business and redefining the established paradigm. A long-term reduction of the financial costs of investment in components and greater efficiency in the industrial production of vehicles has been made possible. Companies can turn to autonomous technology when optimizing vehicle fleet control, reducing fuel consumption and operating costs. By promoting simpler logistics and transport procedures, productivity, efficiency and financial savings are increased. The increasing presence of robotic vehicles in global markets opens new opportunities for innovation, economic growth and is in trend with the green agenda. Considering that industrial sectors are adapting to the possibilities of autonomous mobility, new forms of entrepreneurship and jobs are emerging. A new business environment is gradually being created in accordance with sustainable ecology, the improvement of specialized hardware and software components,



Figure 2. Sustainable, low carbon transport and mobility and the 2030 Agenda. Source: [33].

as well as the provision of support and accompanying maintenance services. New industrial directions follow ecological goals, reduce the depletion of non-renewable resources, reducing the potential risks of climate change. Companies are adapting to legal and economic regulations, reducing greenhouse gas emissions and dependence on fossil fuels. With a proactive approach, companies are protected from possible financial obligations that may arise from non-compliance

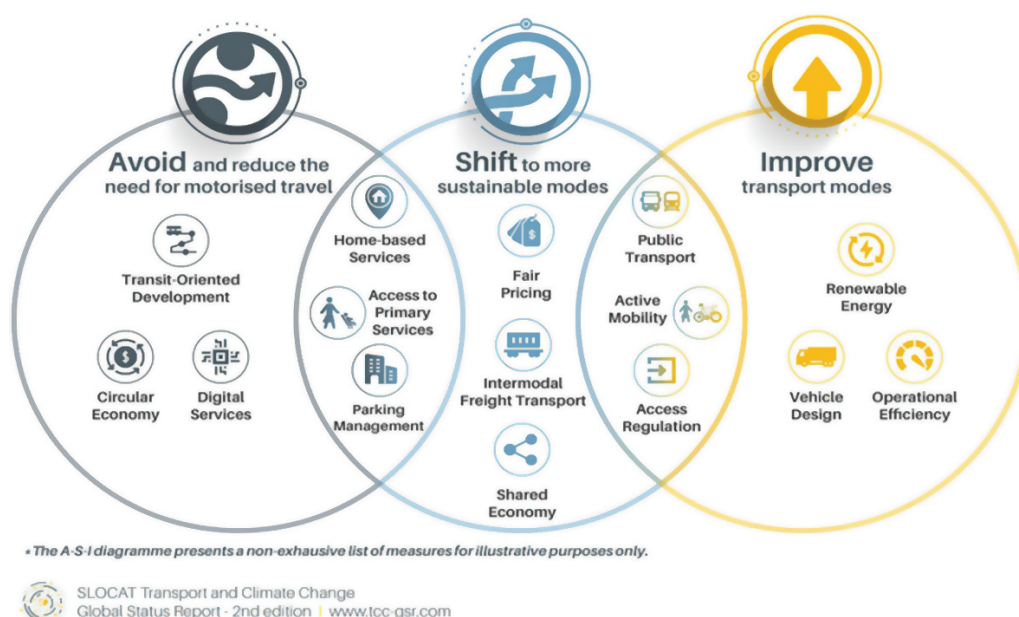


Figure 3. Avoid-Shift-Improve Framework. Source: [33].

with future environmental requirements. By accepting the new paradigm of industrial production of smart vehicles, companies are placed in a favourable position in relation to long-term competitiveness [26].

SLOCAT transport wheel Figure 2 aims to express a wide range of positive links between sustainable, low-carbon transport, mobility and the 2030 Agenda. To show these relationships, there are four cross-cutting themes: equitable, healthy, green and resistant. Each topic highlights basic principles about the socio-economic and ecological systems that sustainable, low-carbon transport can positively impact.

While in Figure 3 three aspects can be seen. The 2030 Agenda for Sustainability calls on Member States to submit Voluntary National Reviews (VNRs) to the United Nations High-Level Political Forum on Sustainable Development (HLPF), which has met annually since 2016 under the auspices of the UN Economic and Social Council (ECOSOC). The VNR process aims to encourage countries to share their experiences, including triumphs, challenges and lessons learned, in order to accelerate the implementation of the 2030 Agenda.

5.1. STATE STRATEGY FOR THE IMPLEMENTATION OF THE PROCESS OF SUBSTITUTION OF ELECTRIC VEHICLES

Electric vehicles have the potential to completely transform transportation, consumer behaviour and society as a whole in the future. However, in order to satisfy the consumer and commercial advantages, it is necessary for the original equipment manufacturers and car suppliers to perfect new commercial and business strategies, improve new technological possibilities and answer numerous safety questions [14]. The technological aspect includes artificial intelligence, which as an integral part of vehicles can generate hundreds of billions of dollars before the end of this decade. AD autonomous vehicle driving systems have the potential to make the transportation environment more pleasant, convenient and safer.

From an economic standpoint, the government's electric vehicle (EV) replacement policy is expected to have far-reaching consequences, affecting many industries and redefining long-term economic trends. This approach involves a systematic attempt to transition from traditional internal combustion engine vehicles to EVs, motivated by the imperative to reduce greenhouse gas emissions, improve energy security, and encourage technological innovation. An important economic part of this strategy is investment and infrastructure development. Governments play a key role in supporting the development of electric vehicle charging stations, stimulating private investment in charging infrastructure, and expanding grid capacity to meet the growing electricity demand for EVs.

Activities that are causally related to the trend of the green direction encourage economic activities in the construction and energy sectors. The influence of state regulatory bodies implies financial incentives that should reduce the difference in the costs of production of AVs and traditional vehicles. Favourable bank credit lines and state subsidies are aimed at increasing demand and economies of scale. The gradual transition to electric vehicles enables the industrial development and diversification of the industrial production of vehicles. Countries that will be able to produce elements and batteries for EVs will open up the opportunity to create highly qualified jobs and seize a larger share of the world electric vehicle market.

Enabling greater economic market performance is accompanied by environmental protection and new research and development opportunities. The venture in communication between the academic community, the state and industry opens a new chapter of technological innovation and the growth of industrial competition at the global level. The transition process of electric vehicles requires greater ambitions from market leaders at the global level. The primary directions at the moment relate to the expansion of the regulatory instruments of the governments of the leading economic countries, such as the involvement of the European Union regulations on CO2

emissions for vehicles, the Chinese mandate for new energy vehicles (NEV) and the zero emission mandate (ZEV) in California (USA).

The long-term strategy of the full implementation of electric vehicles requires their integration into power systems, decarbonization of electricity and the even distribution of infrastructure for charging and production of sustainable batteries, without which movement is not possible. Existing initiatives are gradually integrating electric vehicles, however, the global crisis caused by the pandemic and war operations in the territory of Ukraine have certainly slowed down the processes of industrial transformation [23].

5.2. ELECTRIFICATION OF VEHICLES

For most of the consumer society, electric vehicles represent an experience that they have yet to encounter and consume. This technology is financially more expensive for industrial production than before, but it is therefore cheaper to maintain and use. New examples of transport mobility bring different results and benefits compared to conventional models. This implies supplementing and substituting diesel and gasoline types of fuel with electricity. This fact gradually reduces the demand for non-renewable energy sources, reducing the emission of harmful environmental gases. New technological aspects are transforming the industrial production of vehicles, providing

potentially large benefit options for all participants: manufacturers and consumers.

The history of the improvement of electric cars (EV) is longer than 100 years, which is why it was more noticeable at the beginning of the 20th century and was followed by a series of stops of the processes themselves. In the last ten years, scientists have progressively modeled new vehicle prototypes linked to the parallel processes of environmental protection policies, the development of batteries and their charging infrastructure. High oil prices on the global market caused by various unpredictable circumstances have only confirmed the started practices of industrial production of various components for transport traffic around the world. Politicians, industrialists, and public opinion are increasingly supporting the substitution of electric vehicles, considering them necessary in the coming period. Ambitious financial investments at the regional and state level tend to stimulate further implementation through purchase subsidies, lower registration costs, more favorable loans, and the development of supporting infrastructure [23].

Based on global trends, industrial manufacturers of electric vehicles are taking an increasing share of the world market by developing strategies and expectations, which implies mass production and a larger offer. However, the commercialization of these directions has not been successful up to this point to the extent

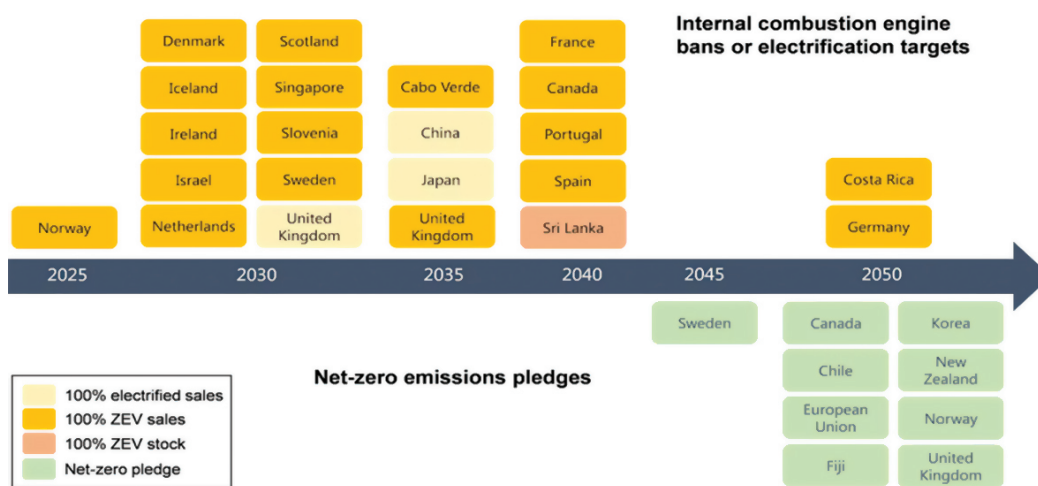


Figure 4. Policies affecting the electric light-duty vehicle market. Source: [22].

expected from the producers. The placement of final products is far from a satisfactory level and lags behind the set goals and strategies. In relation to these facts, the innovative industry is in the initial phase of development and implementation, fighting for greater efficiency in small specialized segments. Manufacturers invest great efforts in promoting innovative business models in the markets, however, there are also certain technological shortcomings related to the autonomy of vehicle movement [22]. The trend of electrification and expected sales can be seen in Figure 4.

The global automotive industry is perfecting the strategy of gradual electrification of vehicles, driven primarily by environmental protection and high consumer expectations. The financial perception of these processes creates certain repercussions related to the substitution of the old paradigm, the review of conventional business strategies, the metamorphosis of industrial sectors, and the migration of employed workers. A noticeable economic advantage of electrification refers to the possible reduction of vehicle maintenance costs during its lifetime. Electric vehicles (EVs), unlike competing internal combustion engines, have lower operating and maintenance costs because they have fewer moving components such as braking systems, oil systems, etc.

Economically speaking, in contrast to gasoline and diesel, electricity has a lower cost, which implies lower long-term costs for consumers. Given the presence of vehicle electrification, the industrial sector of vehicle production is making great efforts to create more efficient batteries that will allow for greater driving range and the improvement of charging infrastructures. The environment of creating an innovative transportation ecosystem places companies at the top of the technology chain that produce electric vehicles and corresponding components. This approach generates global economic competitiveness. A safer future is sustainable by embracing new trends that will ensure better transportation options and environmental protection. Economic potential through cost reduction,

job creation and energy security offers hope for better times.

At this time, more than twenty countries have announced that they will stop producing internal combustion vehicles in the next 10 to 30 years. This was also stated by countries that are in economic expansion such as Costa Rica, Cape Verde and Sri Lanka. The dynamic trend of EBCE infrastructure is a continuous process that is not evenly distributed globally. Some countries are making strategic efforts to plan and install bulky interconnected electric vehicle charging stations along major transportation routes. The planning is about interoperability, digitization and roadmaps for the development of charging networks.

The European Union implements the Alternative Fuel Infrastructure Directive (AFID). The intentions of the EU are towards the implementation of publicly available stations for supplying energy to electric vehicles. The member states have set themselves goals and strategies until 2023 for the introduction of publicly available EV chargers. This implies a ratio of one charger to ten electric vehicles. The previous goal and mapping of the key points of the EU was to install one million chargers in public places and roads by 2025. China's fast-growing economy has opted for a \$1.4 trillion digital infrastructure public spending program that includes funding for electric vehicle charging stations. The United States dropped a plan proposed in early 2021 related to transportation infrastructure that included grants and incentives to install 500,000 chargers on top of the existing 100,000 [30].

5.3. A BETTER ALTERNATIVE TO LITHIUM - SODIUM BATTERIES

The need for rechargeable batteries occupies a large place in the automotive industry, and that is why it is important to look at adequate storage options for the electricity that is produced. Using renewable sources for the same production, the situation is different because electricity cannot be stored, that is, it is immediately consumed or lost [8]. The current technological approach such as using lithium

batteries installed in vehicles is not adequate enough. For example, vehicles that work using electricity have a lot of weight because batteries with a weight of 400 to 500 kilograms are installed in them.

Based on the facts, scientists are investigating the future use of biomass and biofuels, because with the same amount of energy, they will be saved in a much smaller weight. We can state that lithium is not the best alternative for making batteries in the long run. Issues of environmental protection, climate change, complicated geostrategic relations in the world only further encourage research for a more affordable and sustainable system of energy exploitation. Sodium batteries certainly deserve special attention because they have the property of much easier energy storage. In the future, this could be one of the solutions of modern technological approaches in the use of batteries for the global industry [19].

5.4. ISSUES WITH LITHIUM-ION BATTERIES

For now, lithium-ion batteries take precedence as key factors in sustainable energy solutions based on superiority, efficiency and longevity. Their properties are characterized by light compositions, high energy density and charging options. They are represented in electronics, mobile devices, laptops and electric vehicles. They are also a key component in grid storage systems, ensuring a steady flow of electricity from renewable sources like solar and wind, making the fight against climate change sustainable.

By winning the Nobel Prize for the creators of the lithium-ion battery In 2019, the further exploitation of lithium is given importance [1]. However, there are significant barriers in these processes. Namely, the limited availability of lithium deposits creates uncertainty and concern for the long-term presence of batteries in the global industrial market. Contradictions are emerging related to the initiated processes of the green agenda. There are negative side effects of pollution of the local ecosystem based on the extraction of lithium and other rare metals such as cobalt and nickel necessary for

the production of batteries, including the water-intensive and polluted mining processes of the exploitation itself.

Local communities concentrated around mining sites face a lack of drinking water and health problems caused by pollution of natural resources due to dirty mining-technological practices. Cobalt mining in the Democratic Republic of the Congo speaks of poor working conditions, public health hazards and human rights violations. Mining operations are pushing local communities out of the loop to expand their capacity and meet the growing global demand for lithium. The negative implications of exploitation cause ethical conflicts fueling numerous discourses related to the future production of these batteries. In addition to all that we have mentioned, negative implications are also represented by the technically difficult recycling of these rare metals, which at the same time require significant operational financial costs.

As a result of the negative implications, a large part of these batteries are disposed of in landfills as hazardous waste. At the moment, on a global level, the recycling percentage of lithium-ion batteries is negligible. Considering the increasing demand for the same, it is necessary to implement improved recycling technology. Expectations are that only 5 percent of these batteries will be reused worldwide [1].

5.5. HOW SODIUM BATTERIES WORK

Sodium batteries work by using the properties of alkali metals. Sodium and lithium belong to the same group in the periodic table. They only have one electron in their outer shell which they can lose quickly. During the reaction of these metals with water, they lose their outer electrons. During this process, they release energy and create compounds such as sodium chloride and lithium hydroxide. Electrons released from lithium or sodium atoms as an energy source do not immediately unite with other atoms. In addition, they go over the vehicle, and the direction of the electrons represents the electric current. Meanwhile the atoms, now depleted of

electrons and positively charged, move in different directions through the electrolyte, gel or type of liquid found inside the batteries. The positive characteristics of batteries are reflected in the release of energy and its storage, and depend on the separation of the movement of ions and electrons.

The efficiency of sodium and lithium in batteries refers to the reactivity that is based on reverse processes and the application of an external current, allowing the electrons to be pushed back to their initial location. The characteristics of sodium batteries in relation to lithium ones are related to the larger size, weight and bulkiness in relation to the generation of the same energy. The properties of sodium are characterized by larger atoms, with more neutrons, protons and an additional electron shell. Because of these different properties, technological applications were first linked to lithium, even though sodium is more available and has a lower cost. Regardless of certain better features, by improving materials and design, sodium batteries become more competitive in world markets, especially in situations where battery size and weight are less important [39].

5.6. WHERE EXACTLY ARE SODIUM BATTERIES CURRENTLY BEING DEVELOPED

The initiatives of China's high-growth economy are leading to an increase in the production of sodium batteries, presenting the possibilities of this essential component in the future development of electric vehicles. Representatives such as Catl, the Chinese manufacturer of sodium batteries and Chery, which represents the exclusive manufacturer of the new Icar line, are only part of the chain of brands. Representing both HiNa and JAC Group are following the trend of sodium EV technology and introducing practical and affordable models that have 155 mile highway ranges and cost around \$10,000.00.

Diversification of renewable energy sources and improvement of EV technologies as key segments of the green agenda implementation plan are becoming applicable thanks to

the commitment of the State of China. A viable economic plan to develop these technologies includes over 36 Chinese companies that are proactive in developing sodium batteries. Technology expansion is progressing with the development of dozens of sodium-ion battery facilities, expanding to plant development in Malaysia as well [37].

5.7. THE FUTURE OF SODIUM BATTERIES

The use of sodium batteries in the future is possible, but not completely certain. Their technological potential is not fully developed, and scientists are putting great effort into it. The example of lithium batteries shows decades of development. Expectations say that by 2030, sodium battery plants will have significant production capacity, half of which will be used for the production of cells. This will represent only 2% of the expected production of lithium cells. Although the development dynamics of sodium batteries is slow, they represent competitors with lithium-iron-phosphate batteries and other new technologies. Regarding heavy transport, they offer an alternative to hydrogen fuel cells that rely on an infrastructure that is still under development. The success of using sodium batteries, especially in weight-sensitive applications such as electric vehicles, depends on material costs and further improvements in technical characteristics.

Due to the fact that on the world market the prices of precious rare materials such as nickel, cobalt and lithium are still high, alternatives in the production and efforts to improve the performance and energy density of sodium batteries can be realized. Future economic trends and advances in materials research will influence the strengthening of competition in the production of different batteries. Based on research, new cathode materials for sodium batteries are emerging that will be able to increase energy storage and extend the driving range of EVs [38].

5.8. STRATEGIC WASTE MANAGEMENT AND BALANCING ACT IN URBAN PLANNING

World industrial development must be accompanied by adequate solutions related to recycling and disposal of electronic waste. Sodium batteries, whose working life is ending, require a special disposal of the material in order to preserve the environment. It is necessary to establish a balance in urban environments through the implementation of a strategy related to the establishment of a design that will be essential to maximize the use of sodium that powers the batteries in robotic vehicles while simultaneously minimizing the negative effects on the environment.

In the course of this research on future directions in the industry, a great potential for further development of smart vehicles that will use sodium batteries is observed. By introducing strategic preparations, sustainable practices and the joint efforts of the governments of the richest countries, the revolutionary paths of the green route will be paved, which will further set the environment for a thorough discussion on the aspects and challenges of a more technologically sophisticated practice [27].

6. BARRIERS IN REALIZING THE GREEN AGENDA ROUTE

The trend of economic growth and the gradual realization of the green agenda can be slowed down and prevented by various negative effects. There are barriers in the electrification of vehicles and the use of alternative energy sources. Relying on the thoughts of the economist and ethicist Adam Smith in the work "Wealth of Nations" from long ago in 1776, a human element was observed that naturally implies the desire to increase production and the efficiency of the economy in a global sense. Analyzing the obstacles, we find strategies to overcome them. Technological complexities slow down the route. sustainable production of robotic vehicles Creating more efficient and safer energy sources such as batteries or fuel cells requires financial investment in research [20].

As Smith explained [20] that the invisible hand of the market acts on the economic processes of supply and demand, we can metaphorically say that based on the wishes of consumers, industrial production can start the research and development of greener transportation alternatives. However, infrastructural limitations at this point in the industrial era reduce the full implementation of green technological innovations. Improving the supporting infrastructure, including hydrogen filling stations, requires large financial investments and the necessary global cooperation. As Smith correctly recognized, the self-interest of individuals, driven by market forces, can encourage more substantial investment in infrastructure. We can state that based on old thoughts from the time before the industrial revolution, it is possible to provide a sustainable ecological approach to transport at this moment.

The legislation does not yet have a clearer strategy for complete substitution with ecological transport. The lack of consistent and specific regulations negatively affects investor confidence and hinders innovative solutions. Recalling Smith's thoughts that natural market competition can improve efficiency and reduce costs to a lesser extent, we can say that over time green technologies will become cheaper and more accessible to a larger volume of consumer society. In the long term, we can see the perspective of the green agenda, and the gradual reduction in the prices of new technologies will confirm the acceptance of new global transport standards [32].

A combination of infrastructure constraints, regulatory uncertainty, higher financial cost factors and technological barriers are holding back alternative energy sources. Thinking about Smith's reflections, we can say that the invisible hand of the free market, guided by its own interests and competition, has the power to sublimate and apply innovative solutions, investments and ensure a safer future. They would add that the role of state governments is extremely important in creating policies that will ensure sustainable long-term prosperity.

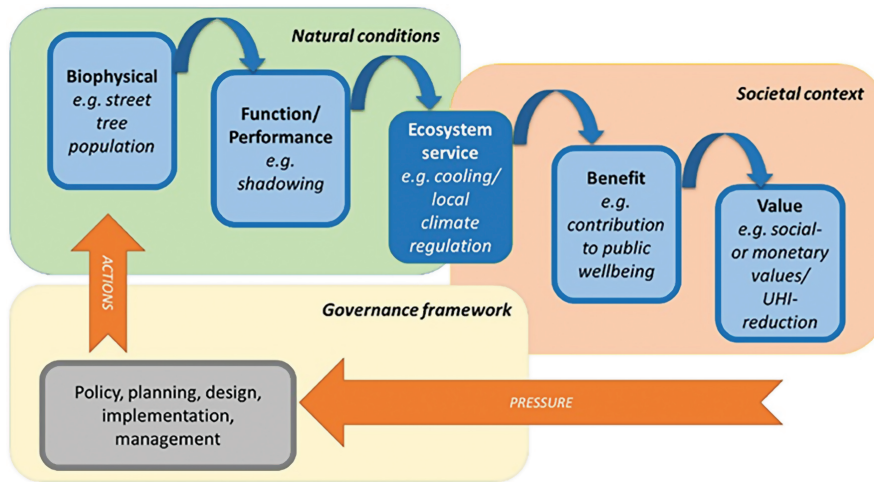


Figure 5. Cascade Model of ecosystem services. Source: [3].

The creativity and technological infrastructure context of the modern green direction (UGI) promises the efficient execution of operational activities, the provision of quality services (Figure 5) and benefits to society. It is dependent on multiple contexts that include the interaction between the physical environment (natural conditions), social values, standards, management and oversight frameworks.

7. NEGATIVE ASPECTS IN THE TRANSFORMATION PROCESSES OF VEHICLE PRODUCTION

The process of automation is mostly covered in the automotive industry. Robotization of the production process should not be viewed only negatively. A holistic understanding of the created effects should be analyzed combining other implemented technological innovations that open new jobs for people. The impact of AI or robots varies across industry sectors, geographies and population groups. The highest concentration of robot employment, 38 percent, is in car manufacturing, and it moves up to 7.5 robots per thousand workers [2].

Technological progress in the field of robotics has led to machines and robots gradually taking over jobs from humans in various industrial environments. With its ever-increasing impact on industrial sectors, AI is transforming the way of production and work. With its influence, it will certainly affect the

performance of future business. At the world level, at the moment, people use robots as companions, first aid and capacities that solve problems in the field. By perfecting artificial intelligence, robots acquire the characteristics of complex performance, gradually surpassing human capabilities. The NBER study stated that, on average, the arrival of one new industrial robot on the local labor market coincides with a drop in employment of 5.6 workers [15].

The use of robots in the automotive industry refers to the performance of repetitive tasks and high-risk jobs for humans. Completing tasks in a short time interval such as designing a vehicle applies to electrical engineers. Mechanical engineers design the body of the robot. Communication systems and improvement of programming languages are realized by IT experts. Regardless of the fact that robots or artificial intelligence perform complex tasks, they still cannot match the very complex human brain. Robots are advantageous for different types of work tasks, but they are not always reliable. Technology-related procedures can lead to software errors. Business operations that are automated become more uniform across different industries, reduce the risk of error and increase work productivity. Therefore, it is possible to distinguish between activities that are best suited for machines and jobs that are intended for human skills.

8. RESULTS

The direction of the green agenda is a long-term process in which all governments at the global level must participate by working closely together. Positive and negative frequency events are related to the present time interval. When dealing with negative externalities such as environmental contamination produced by toxic gasses, insufficient garbage disposal, and so on, strategic coordination is required. In a period of widespread urbanization, an interdisciplinary discourse is required to alter the urban image, create a sustainable environment, and provide a stable future for all living organisms.

The synergy of the outcomes of urban strategic waste management planning reveals a complex relationship for ecological necessities, socioeconomic efficiency, and ethical imperatives. There is genuine concern about the preservation of a sustainable, environmentally friendly atmosphere in metropolitan areas and cities. In the pursuit of efficiency and ecological balance, significant financial resources are being directed to the energy consumption of specific resources and the alternative creation of industrial components on a global scale.

8.1. LACK OF COMPONENTS FOR THE AUTOMOTIVE INDUSTRY IN GLOBAL MARKETS

The automobile manufacturing industry is currently in crisis, as the global market lacks the required components. In the article, we examined a variety of factors that contribute to shortages, such as supply chain imbalances, higher demand than supply of commodities, insufficient delivery time of final products, component complexity, raw material shortages, and negative geopolitical consequences. Strategic frameworks for overcoming problems, such as effective inventory management strategies, supplier network diversity, additional financial expenditures in supply chain resilience, and increased collaboration with suppliers, were examined. The negative aspects of the process of altering the technique of vehicle manufacture were analyzed, including the impact on the environment via the lens of the green agenda, the migration of labor force owing to the automation of production, and the socio-economic ramifications [29].

By consistently confronting the issues of the leading economic countries, effective strategies are used to mitigate the negative consequences

A combination of structural issues and crisis reactions has led to semiconductor shortages.

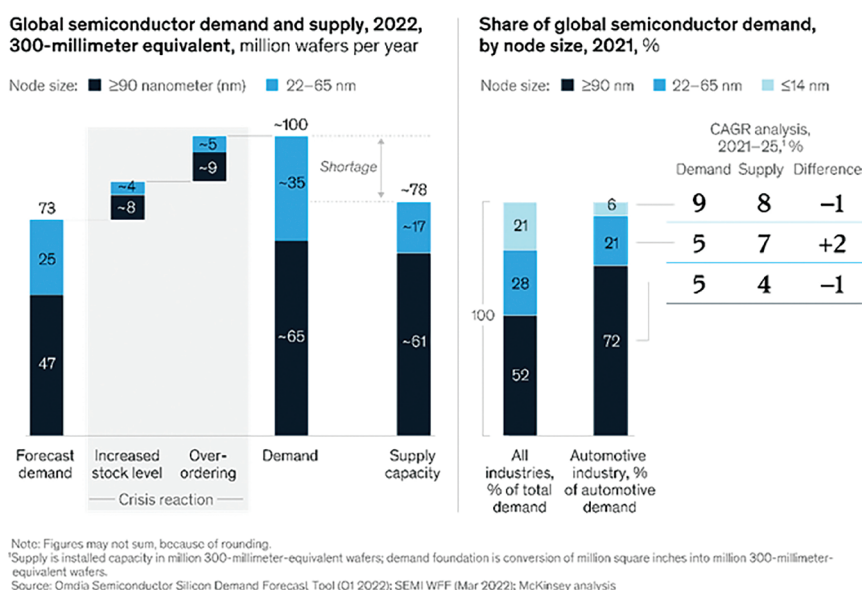


Figure 6. A combination of structural issues and crisis reactions. Source: [4].

of the technological shift. However, the industrial sector of car manufacture is trailing behind the reforms that have been begun. To save inventory costs, many OEM and Tier 1 suppliers strive for maximum efficiency when procuring semiconductors and other car components. As car sales fell in early 2020, OEMs and Tier 1s decreased chip orders, resulting in low stockpiles as demand began to increase. Companies that did not track orders related to demand were in a better position to provide additional capacity when individual suppliers canceled or reduced component orders.

Due to the unpredictability of the automotive business, a long-term supplier strategy is required, which has led to collaborative financial involvement in initiatives involving green nodes. They should instead create semiconductors in advanced or leading nodes. This way, the financial burden is shared while boosting the offer of low-margin technology. Disruptions in the semiconductor supply chain, the seeming crisis caused by Covid-19, natural calamities, and a geopolitical issue all prompted a pause in industrial production growth. The semiconductor shortage will persist in certain technical nodes for at least the next three to five years [4]. The component shortfall is driven in part by long-term structural problems such as limited capacity and car

manufacturers' incorrect behavior in terms of overordering components (Figure 6).

Shortages of nodes larger than 90 nanometers (NM), which are in high demand, will persist for two reasons. The first is that the established nodes have low profit margins, so the semiconductor industry will most likely ignore the reasons for their absence; second, due to the increase in financial development costs, the possession of low qualifications, and the limited availability of people for research and development, there is insufficient incentive to switch to smaller sizes of them.

Given the large range of technologies and devices, it is impossible to determine the exact extent of the supply-demand gap for specific commodities in this category of industrial components. Companies evaluate the semiconductor deficiency in terms of short- and medium-term requirements, as well as long-term resilience and durability [4].

8.2. ENERGY CONSUMED IN THE EU

In 2022, renewable energy accounted for 23.0% of the total area in the European Union, up from 21.9% in the previous year. In 2022, renewable energy sources accounted for 9.6% of energy used in transportation, up from 9.1% in 2021. The European Green Deal (COM(2019) 640 final) aims to make Europe

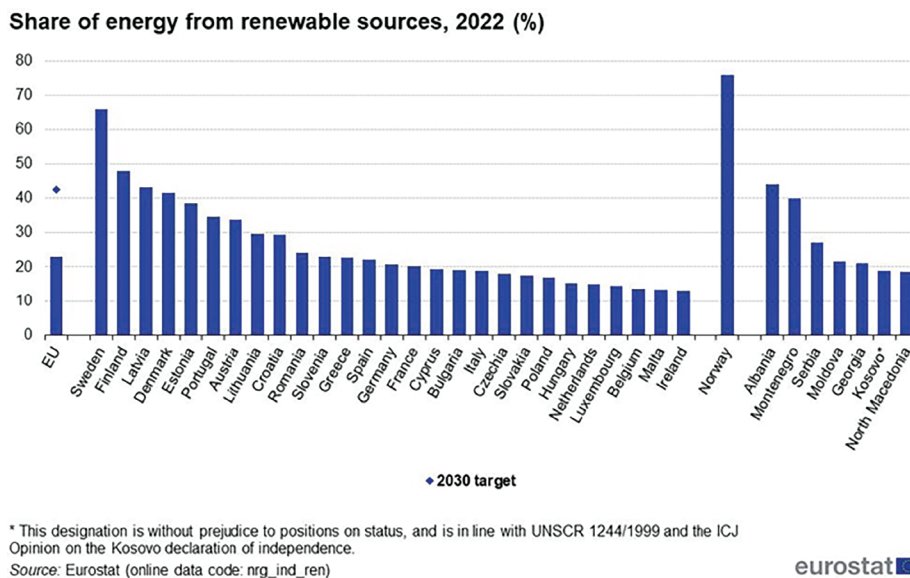


Figure 7. Share of renewable energies in gross final energy consumption. Source: [16].

the first continent to achieve carbon neutrality by 2050. It is a fairly ambitious package of initiatives designed to give citizens and businesses with the benefits of the green agenda [16].

The EU Directive 2023/2413 intends to boost renewable energy consumption in the EU by 2030 from 32% to 42.5% of total consumption. Figure 7 present the most recent available data on the proportion of renewable energy sources in gross final energy consumption.

Ursula von der Leyen (Ursula Gertrud von der Leyen), a German politician and current head of the European Commission, stated in her political guidelines that the green deal is the most crucial component of the Commission's plan for implementing the UN 2030 Agenda [16].

9. LIMITATIONS OF THE STUDY

The research opus included a wide range of themes, including strategic infrastructure planning, waste management, novel vehicle components, green direction, and renewable energy sources. We talked about the negative consequences of the new path in car production, the properties of sodium-lithium batteries, and the implementation of proper waste management in cities. We investigated the ultimate limits of research, which included resource constraints, ethical concerns, methodological obstacles, multidisciplinary viewpoints, and social duties. We underlined the intricacy and interconnectivity of the listed themes and concerns, as well as the importance of using a humanistic approach to effectively resolve them.

Through the discussion, we filtered out three key lines of study:

- 1) Ethical discourse in waste management research, urban planning and emphasis on environmental protection.
- 2) Limitation of resources related to the time interval, financial aspect and availability of data, which can limit the scope and depth of research in interdisciplinary areas.
- 3) Questions related to information analysis, sampling, measurement, were part of the

methodological challenge that is characteristic of waste management systems and urban areas.

10. DISCUSSION

The first topic for discussion concerns the disruption of the industrial market by components necessary for vehicles. It is caused by the factors we have already listed. The emphasis is on the balance between demand and supply, that is, the so-called "Production at the right moment" and the demand for stocks of the so-called "Tampon" strategy. Companies that cut production in quantities relative to demand cause disruptions in the supply chain. We can conclude that it is very important to achieve a balance between efficiency and resistance, in order to control the deficit of components.

Another topic for discussion is related to the necessity of diversification of original equipment supply chains. The possibility of market disruption can be avoided by increasing the number of suppliers. Automotive companies can mitigate their risks by continuously monitoring the market in relation to global negative events and by diversifying the number of potential equipment suppliers. It is necessary for governments and industrial companies to act in partnership to solve the negative aspects of the transformation process of car production. This would imply adherence to the directions of the green agenda, which includes sustainable production, investment in the necessary infrastructure, solving the problem of labor migration caused by automation through appropriate socio-economic development policies in communities affected by industrial changes. For a sustainable industrial vehicle market, accompanied by the growth of production and consumption, a proactive approach by governments, companies and suppliers is necessary. For the lack of semiconductors, long-term plans must be built, investments in them must be coordinated. Careful strategic forecasting of future demand is very important to address these issues. The automotive sector could much better coordinate barriers and ensure long-term prosperity, provided that it adheres

to multidimensional strategies that will strike a balance between resilience and efficiency.

Answers to previously defined questions:

10.1. RQ 1

By studying the complex activities of the integrative information technology (IT) environment in the automotive industry, we compared them with the analytical insight in the book "Capital in the twenty-first century" by Thomas Piketty [28]. Taking into account the perspectives of new directions, we can develop an analysis of the interplay of economic forces and technological progress that shape the sustainability of transport modernization. The incorporation of IT technologies into the automotive industry is transforming the classic directions of vehicles, infrastructure and fossil fuel use. Just as Piketty's research looks at the accumulation of capital and economic injustice due to the concentration of wealth in the hands of a few families, so the consolidation of technological specialization within the automotive sector is able to change the distribution of impacts on the traffic environment, but also to effect a gradual migration of workers from the industrial sector, freeing up jobs for robotics.

10.2. RQ 2

As Piketty discusses the impact of institutions on economic outcomes, the integration of IT into automotive systems necessitates the alignment of applicable regulatory frameworks and government structures for monitoring and leading technological advancements. Ensuring data privacy and cybersecurity necessitates proactive policy actions. This would ensure that technical advancements continue to benefit societies all across the world.

10.3. RQ 3

There is a certain amount of uncertainty for technological progress. The challenges of technological progress are reflected in the risks of growing gaps. Piketty's warnings speak of continued income disparity in the era of the

capitalist concept. Uncertainty in innovative approaches to automotive technologies emphasize the importance of careful monitoring and participatory creation of policies that will prevent the marginalization of new trends. Developing a discourse on the integration of IT and the automotive industry sublimates the complexity of the modern age, symbolically recognizing the concern encompassed by Piketty's revolutionary work.

10.4. OPEN QUESTIONS

Based on the research conducted, we can pose the following questions that we would like to address in the future:

- 1) How can car companies balance supply and demand for components to effectively address the global shortage?
- 2) What strategies do vehicle manufacturers use to diversify their supplier networks and thus ensure balance in the event of supply chain disruptions?
- 3) How can joint efforts between governments and manufacturing companies in the industry mitigate negative environmental and socio-economic impacts?
- 4) In what direction are the future transformations of vehicle production going, while ensuring the competitiveness and sustainability of the automotive branch of the industry?

11. CONCLUSION

Based on our research, we have arrived at certain conclusions about the green agenda process. The indicators correspond to the realization of transportation infrastructure transformations as well as the political emphasis on increased industrial deployment of electric vehicles.

The current execution of the electrification policy is modest, and the EU has set goals until 2030 for all vehicles to be electric. The key reason for failing to reach the targets is the difficult requirements for the establishment of an electrical network capable of more effectively supplying consumer needs. By correlating the partnership between IT and automotive companies,

the common goals of vehicle production are present, innovative elements are shaped, safety is ensured and the experiences of consumers who have high demands are improved.

Dealing with complex barriers, stimulating continuous technological improvements and dynamically conquering the market with electric vehicles is achieved by a smart combination of skills and resources. Branches of the automotive industry are constantly on the front line as they struggle with the challenges that arise due to the global shortage of components, higher demand than supply, complicated geopolitical relations, disharmony in supply chains.

In the paper, we explored the barriers in more detail and proposed strategies to cancel them, such as diversifying the supplier network, increasing the efficiency of inventory management, encouraging greater cooperation with suppliers, and greater investment in technologies for supply chain resilience. We observed and analyzed the negative consequences of the transformation process of vehicle production, such as the impact on the environment and socio-economic issues. At the moment, there are initiatives by states, companies and scientific research centers to improve vehicle supply chains in industries and to reduce the negative effects of the transformation of their production. By better understanding the market circumstances and applying adequate strategies while reducing negative impacts, manufacturers can deal with the shortage of parts on the market. They can ensure stable production, while simultaneously contributing to sustainable social practices and economic prosperity.

The shortage of semiconductors has caused structural difficulties in the semiconductor supply chain. Prolonged crisis of lack of resources and increased demands require

long-term planning, joint investment in semiconductor projects and adequate adjustments to higher demands for final products. The complexity of barriers requires proactive and collaborative efforts by all stakeholders in the global market. The industrial symbiosis of vehicle manufacturers and the IT sector enables easy implementation of the most modern technological achievements in vehicles. IT companies analyze the important data of the specific requirements of the vehicle industry and the regulatory frameworks of the countries. Then they provide solutions that meet the demanding safety and performance standards of vehicle electrification. Going beyond the refinement of new technologies, joint efforts include research projects, create policies and commercial efforts to spread the innovative market. Interoperability, standardization and scalability on electric vehicle platforms will be launched, satisfying the demanding demand for the same.

Cooperation in various technical and technological industrial fields leads to a cultural exchange because people from different backgrounds come together to work on interdisciplinary projects and exchange the best practical solutions. A joint approach promotes technical and technological growth and strengthens the competitiveness of industrial branches on a global level. In future research, there should be strategic adaptations of complementary expertise and resources that are drivers of innovation, safety and stimulate the growth of electric vehicle production. The influence of governments through regulations and economic policies, the coupling of partner industrial activities and scientific research centers pave the way for a sustainable, integrative and more electrified transport system.

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BUDUĆNOST ROBOTSKIH VOZILA SA PROTIVREČNOSTIMA PROCESA U ZELENOJ AGENDI I PROIZVODNJOM RAZLIČITIH IZVORA ENERGIJE

Rezime: Upotreba različitih tipova automobila proizvodi paradokse kada se uzmu u obzir eksterni efekti kao što je šteta po životnu sredinu. Koristeći empirijski metod, pokušali smo da analiziramo protivrečnosti unutar zelene agende. Predložene tehnike se ne moraju sprovoditi tokom faze proučavanja. Članak pokušava da ispita trenutne globalne obrasce kako bi se identifikovale buduće alternative za zamenu stare infrastrukture. U dobu velikog tehnološkog rasta, sektor proizvodnje automobila prolazi kroz značajne promene. Ova transformacija podrazumeva zamenu zastarele infrastrukture sofisticiranim softverom i komponentama koje štede energiju. Iako promene predstavljaju uzbudljiva rešenja, one predstavljaju značajne prepreke, posebno u postizanju ciljeva ekološke održivosti. Integracija automatizacije, veštačke inteligencije i moderne proizvodne tehnologije mogu rezultirati manjom potražnjom za radnicima u konvencionalnim industrijama. Usložnjavanje procesa se odnosi na transformaciju održivih metoda, posebno u proizvodnji baterija za električna vozila. Koristili smo empirijska istraživanja u oblasti održivog upravljanja energijom, cirkularnom ekonomijom i projektima urbanog planiranja, kako bi smo umanjili energetske zahteve. Prikupljanjem i analizom informacija iz stvarnog sveta, nadamo se da ćemo pružiti uvid zasnovan na dokazima o efikasnosti različitih metoda i politika. Obezbeđujući otpornu i održivu budućnost za transport, regulativa EU je ključna u kombinovanju brige o životnoj sredini sa ekonomskom održivošću. Naše istraživanje pokazuje istorijsku promenu u sektoru transporta, pri čemu autonomni automobili igraju ključnu ulogu u dizajniranju budućih opcija mobilnosti.

Ključne reči: robotska vozila, zelena agenda, sektor proizvodnje automobila, veštačka inteligencija, napredni pristupi proizvodnoj tehnologiji, izvori energije

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FOREIGN EXCHANGE BUSINESS OF RS AND THE EFFECTS OF INTERNATIONAL PAYMENT TRAFFIC

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Abstract: No economy can remain isolated from the world; it must collaborate with other countries across various sectors, particularly in the economic domain. Economic transactions, such as import and export, loans, and credits, take place between entities—residents of different economies. Foreign trade transactions include various types of foreign trade transactions that involve the transfer of funds between countries. All these transactions are paid abroad by bank transfer or by various other instruments. Each currency holds different values in various countries, and exchange rates are always subject to change. While fluctuations may negatively impact some countries, the currencies of others may become more valuable. However, having an overly valuable currency is not always beneficial. Overvalued currencies can negatively impact exports and, in some cases, lead to an influx of cheaper imported products. This paper aims to determine whether Serbia has a sufficiently developed and organized foreign exchange business and payment system, which would enable it to be included in the integral payment system in Europe without major changes and investments.

Keywords: foreign exchange business, exchange rate, currency, payment transactions, foreign trade

1. INTRODUCTION

Foreign trade transactions represent a form of communication outside the borders of the state, that is, cross-border trade in goods and services. It is crucial for every country to maintain relations with other countries as an important segment of its economic activity. In contemporary times, no country can achieve true independence, regardless of its development potential and conditions, particularly in terms of both non-economic and economic progress. That is the reason why it is

emphasized that every country is economically harmonized with others, i.e. that they are mutually conditioned and dependent. Economic life and activities naturally overcome all obstacles, including those across the borders of one country, even despite separation due to political and other factors.

International payment transactions represent the monetary counterpart of international goods transactions. Essentially, international payment transactions can use the same payment instruments used in national payment transactions. A more detailed distinction must

be made between cash payments and non-cash payments in the form of transfers, bills of exchange or checks. The importance of a particular payment instrument in foreign trade depends on the customs prevailing in the countries involved. Specific types of payment transactions are prescribed, especially in countries with weak foreign exchange. The impact of financial markets on real markets is increasingly evident, not only in domestic markets but also on international markets. Applied studies on similar topics conducted in previous years are regaining significance in the present day. In addition to the development of new techniques, the intensification of foreign trade relations makes it necessary to take a closer look at the changes in these issues.

The aim of this paper is to analyse the foreign exchange operations of the Republic of Serbia and the effects of foreign payments.

2. REGULATION OF FOREIGN EXCHANGE OPERATIONS IN THE REPUBLIC OF SERBIA

Based on the Law on Foreign Exchange as a normative act, transactions related to foreign exchange are regulated. This law was adopted in 2006 and the key provisions of the foreign exchange business system are defined in it. According to legal provisions, residents include the following:

- legal entities that register and have their head office in the RS,
- entrepreneur - a natural person registered in Serbia who, in order to gain profit, performs the activities defined in the law,
- branches of a foreign legal entity that are registered in the register of the competent state body,
- a natural person with residence in the country, except for those who reside in other countries for more than a year,
- natural person - a foreigner who has a residence permit, i.e. work visa and stays in the country for more than one year,
- state authority and organization that use funds from the state budget, those that use the organization's funds related to mandatory social insurance and those that use funds from the local self-government budget,
- representation of diplomacy, consuls and others in other countries that are financed from the state budget and Serbian citizens who work with them, as well as the family member(s) of those citizens.

Non-residents are persons who are not listed in the framework of what we have stated. The complexity of this law and its scope cannot be overlooked. The Law on Foreign Exchange Operations defines the regulation of current and capital business with foreign countries, where payment, collection and transfer to business related to foreign trade are particularly emphasized. Essentially, this means that the physical movement of goods, services, and capital is governed by the same set of regulations. Based on its provisions, it is possible for the Government to pass by-laws and regulations and to determine the obligations of economic entities towards the National Bank, the Foreign Exchange Inspectorate and the Ministry of Economy.

The law also defines the methods of:

- execution of payments, collections and transfers between residents and non-residents using a foreign means of payment and our currency, i.e. how payments are made outside the country's borders,
- making payments, collections and transfers between residents in foreign currency of payment transactions in the country in foreign currency,
- purchase and sale of means of payment between residents and non-residents, as well as between residents, and this includes transactions of an exchange nature,
- one-sided transfers of means of payment from and to the country, where they are unmarked for the execution of transactions between residents and non-residents,
- current and deposit accounts of residents in other countries and in Serbia,
- credit transactions in the country between banks and residents in foreign currency and between banks and non-residents in dinars, as well as foreign lending transactions.

3. MEANS AND INSTRUMENTS OF PAYMENT

Based on the provisions of the law, means of payment and foreign assets can be reported, i.e. it is understood that it is a dinar and a foreign means of payment. More precisely, the means of payment can be domestic or foreign. Based on that, in addition to dinars, foreign funds are included:

- foreign currency - receivables from abroad (foreign currency);
- effective foreign money - claim in cash, i.e. paper money and coins (foreign currencies).

Payment instruments include primary (Unković & Stakić, 2011):

- checks,
- promissory notes,
- letters of credit,
- remittance,
- payment card, and
- others that may be receivables from the issuer and denominated in foreign currencies.

3.1. CURRENCY CLAUSE AND FOREIGN CURRENCY PAYMENTS IN THE COUNTRY

According to the legal provisions, it is allowed to contract foreign exchange transactions that can be charged and paid in dinars. Foreign currency, based on the rules, can be used by residents and non-residents to make payments abroad, unless otherwise specified. Payments and collections, as well as transfers between residents and between residents and non-residents in Serbia are made in dinars. However, in relation to that there are deviations and payment, collection or transfer can be made in foreign currency if it is about:

- lending in foreign currency in the country with the purpose of paying for the import of goods and services from abroad to a legal entity, and to an individual because he buys an immovable property in the country,
- deposit payments as collateral,

- the purchase of demand and debts according to the foreign trade business, which is defined by the contract,
- insurance payment and transfer based on life insurance,
- the existence of the sale and because the real estate is leased.

The National Bank establishes specific conditions for payments, collections, disbursements and transfers based on valid foreign funds. A decision was also made that residents can pay in valid foreign currencies when performing registered activities:

- when they provide services to residents and non-residents, including the sale of goods using international methods,
- if the goods are sold in duty-free shops to citizens and foreigners,
- supplying foreign planes and ships in Serbian ports with fuel, lubricants and other consumables,
- when it comes to toll collection for vehicles that are not registered in Serbia.

Serbian embassies and consulates abroad can collect fees from consulates in real foreign currency and transfer these funds from abroad to foreign currency accounts.

In relation to the application of the currency clause, we observe that there are three applications, where each application directly causes the domestic price and cost of production to move directly depending on how the exchange rate moves [10, 68-81].

Any downward change in the exchange rate, i.e. depreciation of the currency in the country, can cause a proportional increase in cost and price on the market in the country. This leads to a very high transfer of exchange rate changes to domestic inflation (Exchange Rate Pass Through – ERPT) in the economic system of Serbia and affects the growth of competitiveness of the domestic economy after the depreciation of the domestic currency [9, 409-427]. Therefore, in that situation, it would be convenient for the domestic price to have upward corrections in the condition of depreciation

only for the amounts in which the import cost in production (input) is present. The widespread use of the currency clause as an instrument to protect purchasing power is incorrect. This has the effect that the depreciation of the exchange rate of the domestic currency is unjustifiably transmitted at a higher level to inflation in the country. In this way, at the same time and without justification, the potential for advantage from the devaluation of the domestic currency is lost. In normal cases, i.e. without the unjustified widespread use of the currency clause, the depreciation of the domestic currency would have the effect that the domestic product and services on the market, both domestically and abroad, become more competitive in terms of price compared to foreign ones, and this, in addition to other unchanged circumstances, could have a positive impact on the trade balance and GDP growth and employment in the country as well.

3.2. PAYMENT TRANSACTION WITH FOREIGN COUNTRIES

3.2.1. NON-CASH PAYMENT INSTRUMENTS

Bank transfer is a tool for processing payments abroad. Based on this, the bank issues written instructions to the clients of the foreign correspondent bank, requiring them to pay the amounts specified in the instructions to these legal or natural persons on a certain date. This payment is available for multiple participants:

- Payer - the authorized bank is instructed to pay a certain amount to the user,
- Authorized bank - orders are executed by itself or an agency on behalf of the user, and there are two to three intermediary banks:
 - Correspondent banking
 - User.

This is a classic and very old instrument for international payment transactions. It is used especially for payments in transactions that are not of a commodity nature, as well as for advances and payments for goods in transactions in which there is no risk, but in which the contractor has confidence.

Clients issue instructions to domestic banks to make transfers abroad in their name. When the bank receives the request, it will check whether the client has sufficient funds and direct the foreign correspondent bank to pay the specified amount to the beneficiary specified in the order. Upon receipt of the order, the foreign bank will make these payments. The payment is made in cash or by check. The division of international banking licenses includes the following:

- „Nostro and Loro accounts”,
- goods and non-goods,
- conditional and unconditional,
- convertible and clearing,
- ordinary and telegraphic [6, 371-379].

A check is a method of non-cash payment in which the drawee unconditionally instructs another person to pay the beneficiary of the check - the remitter a certain amount from the funds in that person's current account. International bank checks are issued by a foreign bank, or another bank abroad. Therefore, they are very safe from a debt collection perspective.

They can be classified into:

- Current checks - issued domestically and payable abroad,
- Loro checks - issued by foreign banks and payable in the country and abroad.

If it is an international documentary letter of credit, it is a guarantee and means of payment. It refers to the contract by which the bank that opens the letter of credit on behalf of the client assumes payment obligations towards the beneficiary or authorizes other banks to make payments by submitting certain written documents [7].

Those involved in this process are [6, 371-379].

- Client - the person who instructs the bank to open a letter of credit,
- Letter of credit bank – A bank that opens a letter of credit in its own name and for the

account of its client in response to an order received,

- User - credentials are opened on their behalf,
- The acquiring bank is obliged to inform the user that the account has been opened in his favour,
- Confirming bank - accepts the credit user's permission to dispose of the loan amount,
- Paying bank,
- Negotiating bank - authorized by the letter of credit bank to purchase bills of credit.
- International documentary collection is a method of payment in which the bank is obliged to collect claims from the seller to the buyer, and the seller is obliged to pay commissions and bank fees. Its advantages are reflected in the following aspects [2]
- Lower service prices,
- Advantages of manufacturing for unknown customers,
- It can be used as a means of security and payment.

An international bill of exchange is a payment method in which the buyer instructs the payer to pay the amount of the bill to a designated party at a specified time and place. This is commonly used for international payments and loans.

Issuing a promissory note is the first act of issuance. Once the promissory note is signed, it is handed over to the payee, who becomes the payee's debtor. The next step is acceptance of the bill of exchange, which means that a certain person accepts the obligation to pay the bill of exchange with his signature. Before acceptance of the bill, the principal debtor of the author is the payee, and the debtor after acceptance is the payee. Then the promissory note is notarized, i.e. issuing a statement that the promissory note debtor will fulfil its obligations [1].

A letter of credit for foreign trade financing is a mediation agreement in which the credit institution delivers certain documents within the payment deadline and commits itself abstractly to a specific payee in accordance with the

client's instructions. The word comes from the power of action (French certificate), which in turn is based on "giving trust" to someone [3].

As a business term, a letter of credit is the terms of payment proposed by the buyer to the seller. The risk of mutual performance is evenly distributed by the letter of credit, because when the payment of the goods is guaranteed, the seller loses the right to dispose of the goods (according to the relevant document, such as a contract with a traditional document). In contrast, the buyer loses control over the quantity only when he can dispose of the goods (if appropriate documentation, such as traditional documentation, is contracted).

A letter of credit is an order from the buyer (usually the importer) to the bank, which requires the bank to provide a certain amount of funds to the seller (usually the exporter) upon presentation of the documents specified in the letter of credit. It is an intermediary contract in the form of a service contract, whereby the bank is obliged to act according to the client's instructions. This is an agreement between the customer and his or her issuing bank, which notifies the seller (usually the exporter) or one of its correspondent banks or the exporter's banks to open a letter of credit. This notice is an advertisement for the issuance of letters of credit. With a confirmed letter of credit, another relevant bank (usually in the seller's country) also issues a (similar) abstract and conditional promise to pay on behalf of the bank that issued the letter of credit. The advantage of the buyer (if he is an importer) is that he can file a claim against the bank in addition to other banks and can take action in his own country according to his own laws. Political risks such as a moratorium are excluded.

Letters of credit are not regulated by law, but are codified in the Uniform Guidelines and Practice for Documentary Letters of Credit (UCP 600, July 2007). The legal nature of ERA 600 is disputed, but a federal court has classified it as a business practice. Article 2 of UCP 600 defines a letter of credit as "a contract requiring the bank to act on behalf of the client and in accordance with the instructions of the

client, or for the bank to act in its own interest pursuant to certain documents to make payments to a third party.”

3.2.2. CLEARING

To date, most investment in payments has been focused on consumer payments. B2B payments, on the other hand, have been neglected. Companies also demand that transactions take place in real time and as efficiently as possible. In addition, transparency is a key factor for many companies. It is always necessary to keep track of who transferred the amount, the current status of the transaction and the applicable fees. In addition, regulators expect financial institutions to have effective know-your-customer and anti-money laundering procedures.

Organizations must maintain significant cost structures, which affects profitability. A big burden, especially in international payments, is that fees are paid at every moment of the transaction. If the bank that issues the customer's card has to establish relations with several other financial institutions, these institutions will charge corresponding fees. Therefore, transfer banks pay fees for local banking partners in each region where customers make payments and receive payments.

Clearing is a cashless settlement of mutual claims between banks in order to avoid unnecessary payments (bank clearing). In international payment transactions, the settlement refers to the state of mutual claims and obligations between the countries participating in the settlement.

Unlike free payment transactions, payment-linked transactions do not use a foreign currency for payment and are governed by a clearing agreement. The domestic debtor (importer) pays the domestic payment institution of the Republic of Serbia Statistics Institute in the national currency, while the institution for foreign cooperation pays the creditor (exporter) in the corresponding national currency. In contrast, domestic exporters are paid through the earnings of importers. This only works if the mutual needs are balanced.

Large banks choose another clearing platform, the EBA system: EBA Clearing. Unlike SEPA clearing, this clearing system is a private company, not an EU institution. About 50 participants and owners of EBA clearing are large international banks, some of which are outside the EU. These banks often have a large number of payment transactions outside the SEPA area. The system operates within SEPA and is connected to the Eurosystem. If the beneficiary bank is not a participant of EBA clearing for payments in euros, the transaction will be forwarded to the Eurosystem [2, 83] (Wegmann, 2021).

SEPA is short for “Single Euro Payments Area”. IBAN and BIC are no longer used for transfers and direct debits; The EBA's clearing infrastructure also differentiates retail payments from high-value payments and provides its members with an appropriate platform comparable to that of the Eurosystem. The message format is also compliant with ISO 2022, although there are differences in format. Entering this clearing system involves high initial costs and is not economical for small and medium-sized banks.

SEPA Bank is regulated by the national bank of your country and has the infrastructure for retail payments in that country. Since the operation of the clearing and settlement system requires a lot of effort, small countries are forced to provide only the most necessary infrastructure. Systems often still consist of infrastructure that was already in place before SEPA.

3.2.3. TECHNICAL REGULATIONS

The Law on foreign exchange operations also includes provisions related to the authorization of the National Bank of Serbia to issue technical regulations in terms of the realization of payment transactions with foreign countries. Based on that, the National Bank adopted the following bylaws:

- Decision on the conditions and methods of execution of payment transactions with foreign countries, and

- Instructions for the implementation of decisions on the conditions and methods for the execution of payment transactions with foreign countries

The instructions also include the following:

- Examples of how the payment transaction pattern should look according to the type of work,
- The dynamism of reporting by the National Bank,
- Codebook for billing and payment,
- Payment instruments,
- Codebook for residency,
- Currency, etc.

4. EXCHANGE RATE AND FOREIGN TRADE EXCHANGE

For the 2001 to 2019 period, the dinar appreciated by 317.2%. If 2005 is used as the base year, according to the calculation method of the National Bank of Serbia, the dinar appreciated by 99.5 percent from 2005 to 2019. The appreciation of the dinar against the euro was most pronounced between 2001 and 2005. In the period from 2006 to 2012, the dinar appreciated significantly, but the appreciation was smaller than in the previous period. Since 2013, except for a small depreciation in 2014 (0.17%), the dinar has also appreciated against the euro, but to a much lesser extent. From the perspective of trade and sales relations, for each euro exported, the seller will receive 117,852 dinars (RSD) at the official exchange rate for 2019 and 117,852 dinars (RSD) at the real exchange rate (with 2000 as the base year). 417,204 dinars, which is 254% more, or H. If we take 2005 as the basis, one euro actually costs 199,466 dinars, or 69.25 percent more. In this sense, domestic producers suffer, and importers gain (Table 1) [8, 77-94].

The sharp appreciation of the dinar in relation to the convertible currencies of developed countries undermines the competitiveness of domestic producers of goods and services on the world market and stimulates the import of more expensive foreign goods and services.

The domestic market is more competitive than domestic producers, which harms all the company's efforts to remain competitive in both the export and domestic markets [5, 5-18].

Table 1. Movement of the nominal and real exchange rate in the period from 2002 to 2023 in the Republic of Serbia

Effective course		Year
Nominal	Real	
125.6	93.7	2002
123.7	100.9	2003
114.3	99.9	2004
100	100.0	2005
99.2	109.5	2006
106.2	121.9	2007
105.8	132.1	2008
90.6	122.1	2009
82.0	115.4	2010
83.5	127.1	2011
74.2	118.3	2012
74.6	126.4	2013
72.0	123.6	2014
67.4	117.2	2015
66.1	115.7	2016
67.3	119.5	2017
69.7	123.8	2018
69.2	123.6	2019
69.6	125.7	2020
70.1	128.0	2021
68.6	129.3	2022
69.1	139.2	2023

Source: (Kamatne stope i pregled kretanja kursa dinara, 2024)

Figure 1 shows the dynamics of the dinar exchange rate against the euro between 2002 and 2020. According to the analysis of the National Bank of Serbia, it is managed on the basis of a floating exchange rate policy, which means that it is mainly determined by the market forces of foreign exchange supply and demand on the domestic foreign exchange market. These forces namely arise from functional factors, such:

- inflation,
- interest rate,
- Volume of imports and exports,
- Economic productivity of countries like Serbia.

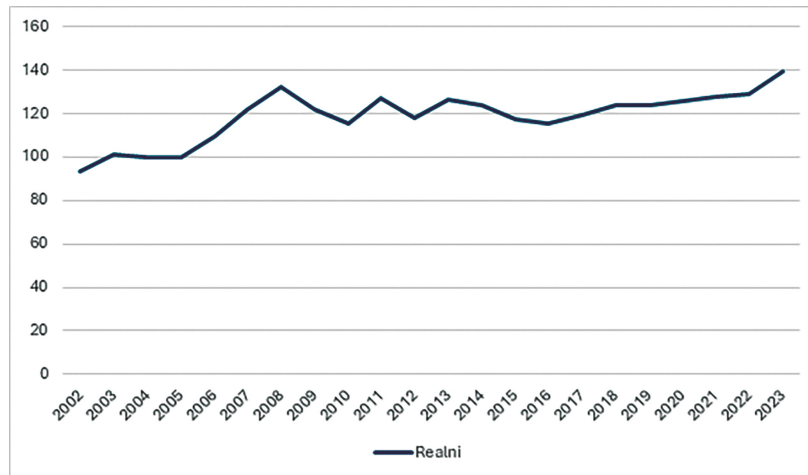


Figure 1. Dynamics of the RSD/EUR exchange rate

The National Bank of Serbia intervenes in the domestic foreign exchange market, with the aim of preventing large daily oscillations. Based on this, the dynamics of the exchange rate are determined by the fundamentals of the market, and occasional interventions by the NBS will not affect long-term trends.

The foreign exchange rate in the trade exchange by itself is not a measure of international trade relations due to the influence of numerous measures that take place on the domestic and foreign markets. However, since most of these measures and policies affect their formation, it is necessary to analyse the exchange rate policy and its impact on trade flows, but also on economic flows and direct flows, taking into account mutual conditions.

This exchange rate policy effectively discourages domestic producers from trading goods and services. As proof of this, we can cite the example of Switzerland, which was not proud of the strength of its own currency at a time when the Swiss franc appreciated significantly, but intervened in the financial markets to correct the strength of the franc. Questions related to other convertible currencies. With this measure, it protects domestic products and services that are at risk when buying from foreign competitors, and domestic customers can buy products and services more cheaply through the strong Swiss franc. Therefore, the stronger the dinar is in relation to its real value and the cheaper the euro, the cheaper it is for us to buy products and

services abroad at the expense of those we buy from domestic producers (sellers).

5. CONCLUSION

Each country has its own system of foreign economic relations, which is based on the foreign trade system. Foreign trade is trade between business entities of one country and all business entities in other countries under different economic and legal conditions. It is a subsystem of the international trade system.

International payment transactions are the monetary equivalent of the international movement of goods. Generally, the same payment instruments as for national payment transactions can be used. A distinction must be made between cash payments and non-cash payments in the form of transfers (payment orders), money orders (money orders) or checks (cheques). The importance of personal payment instruments in international business transactions depends on foreign practice. Some form of payment transaction is required, especially in countries with a weak currency. Banker's checks play an important role in British and American countries. Cash payments are uncommon in international business. In international payments, unlike domestic payments (domestic payments), there is no universal legal means of payment accepted by all countries. Foreign payments are made in different agreed national currencies, in accordance with the payment agreement and the agreement between the countries participating in the

payment, or in accordance with the trade agreement between importers and exporters (if such an intergovernmental agreement does not exist).

With the adoption of the new Law on Foreign Exchange Operations, the legislative reform of the economic system of my country has undergone major changes and must be in accordance with the rules of international institutions (WTO, EU). The law is harmonized with the provisions of other laws related to foreign trade, securities market, insurance, investments and voluntary pension funds.

Despite the partial liberalization of the foreign exchange business sector, the existing legislation remains restrictive for the protection and maintenance of macroeconomic stability. The position of the regulator regarding the maintenance of macroeconomic and financial stability is respected and it can be considered that it is still necessary to adjust the interpretation in the legal text and clearly define the prohibited activities themselves in practice, while all other activities should be considered free.

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DEVIZNO POSLOVANJE RS I EFEKTI PLATNOG PROMETA SA INOSTRANSTVOM

Rezime: Nijedna privreda ne može biti izolovana od sveta, već mora da saraduje sa drugim državama u raznim oblastima, posebno u ekonomskoj. Ekonomske transakcije u obliku uvoza i izvoza, zajmova i kredita se dešavaju između entiteta – rezidenata različitih ekonomija. Spoljnotrgovinske transakcije obuhvataju različite vrste spoljnotrgovinskih transakcija koje uključuju transfer sredstava između zemalja. Sve ove transakcije se plaćaju u inostranstvu putem bankovnog transfera ili raznih drugih instrumenata. Svaka valuta ima različite vrednosti u svakoj zemlji, a bilansi u tom pogledu su uvek otvoreni za promene. Dok fluktuacije loše utiču na neke zemlje, valute drugih postaju vrednije. Međutim, nije uvek dobro ako je vaša valuta previše vredna. Valute koje su previsoko cenjene negativno utiču na izvoz i ponekad mogu dovesti do uvoza jeftinih proizvoda. Ovaj rad je postavljen tako da se utvrdi da li Srbija ima dovoljno razvijen i organizovan sistem deviznog poslovanja i platnog sistema, a što bi joj omogućilo da bez većih promena i ulaganja bude uključena u integralni platni sistem u Evropi.

Ključne reči: devizno poslovanje, devizni kurs, valuta, platni promet, spoljna trgovina

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ECONOMIC BENEFITS RESULTING FROM THE SALE OF PUBLIC SECTOR PROPERTY

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Abstract: *The purpose of the research is to explain and define the concept of privatization for its implementation and prevention of its negative effects. It also aims to identify effective strategies for eliminating barriers that hinder the successful implementation of the privatization program. The two research questions that this paper deals with are the following: a) How successful is the experience of reforming the public sector in Libya and some countries by focusing on activating the development role of the private sector (through the privatization mechanism)? B) To what extent has the privatization policy, as part of broader economic reform programs, been successful in overcoming the obstacles hindering the development sectors in Libya and other countries? The key literature informing this research highlights privatization as a novel approach that has yielded positive outcomes in some countries, while resulting in failures in others. This variability underscores the significance of the topic and the need for continued research and analysis. In this context, the literature available in Arabic studies was thoroughly examined. Qualitative research design is focused on studying, analysing and evaluating the reality of economic reform of the public sector and activating the developmental role through applying the privatization mechanism. The research methods employed focus on privatization as a strategy to enhance economic growth by improving institutional efficiency and reducing the burdens on the public sector. Ultimately, the goal is to stimulate key economic sectors, ensuring the optimal utilization of economic resources for long-term development. The research presents two main findings: Firstly, the buyer grants business sector units all the rights and freedoms available to private sector companies, as defined by prevailing laws and regulations. Secondly, equal opportunities must be provided to all individuals interested in purchasing part or all of the shares in certain companies, subject to the legal restrictions in place. The policy implications suggest that privatization, if not accompanied by proper legal regulation, can lead to negative outcomes and adverse financial consequences. To prevent economic setbacks, it is essential to liberalize capital markets and natural monopolies in alignment with effective legal frameworks. The practical implications highlight that the implementation of privatization can yield significant economic benefits, both at the macroeconomic and microeconomic levels. These benefits depend on selecting the most suitable methods for privatization, tailored to the priorities and specific circumstances of the economy.*

Keywords: privatization, economic benefits, productive efficiency, sale of public sector property

1. INTRODUCTION

We currently live in a globally interconnected world, where leaders in both the public and government sectors increasingly recognize the necessity of collaborative efforts. This includes working within a unified approach to financial management, with one of its core principles being the adoption of high-quality international accounting standards. These standards facilitate continuous development, accountability, and economic growth, as demonstrated by international public sector accounting standards. A comprehensive examination of prevailing economic concepts reveals that doctrinal divisions have been largely overcome, and consensus around the market philosophy as a tool for growth and development has become more established, widespread, and reliable. Accordingly, the market theory has prevailed over other theories and activities. The global economy is increasingly interconnected, expanding rapidly and crossing national borders more swiftly than ever. Today, privatization has become a central element of economic strategies in most countries worldwide. The concept of privatization is driven by the need to optimize investments in public institutions and facilities, as well as their management, in a way that aligns with market conditions. It emphasizes the principle of private profitability over collective profitability when assessing the efficiency of projects. Privatization plays a crucial role in stimulating the private sector and enhancing its position within the economy, allowing for the effective utilization of its financial, administrative, and technical capabilities. This is particularly significant in the Arab region, where the failure to activate the private sector locally often leads to the migration of investments abroad. To capitalize on the potential of the private sector, this issue is addressed through the new investment opportunities created by privatization processes in Arab countries. As a result, there has been a growing focus on correcting structural imbalances in economies, improving production efficiency, optimizing the relationship between costs and prices, and adjusting patterns of

consumption and investment. This issue of correction has gained great importance on the intellectual and practical levels, especially in the economies of the Arab world. Contemporary industrial activity has witnessed major changes, most of which were linked to scientific and technical developments and modern innovations, and to changes in comparative economic advantage, due to rapid technical changes, especially in the fields of information and transportation, and to the adoption of new methods in industrial activity, which contributed to the expansion of the globalization of manufacturing and the transfer and spread of technical concepts. It must be noted here the industrial interconnection occurring globally. The manufacturing process is no longer predominantly confined to a single country or region. Instead, it has become increasingly common to divide production into distinct stages in order to reduce costs and enhance competition. This approach transcends the limitations of comparative or national economic advantages, allowing large companies to maximize profits on a global scale. Profit, in this context, serves as the primary driving force behind the industrial process and its globalization. One of the key objectives of privatizing industrial projects is to address the inefficiencies typically associated with public ownership of enterprises. There are two primary sources of potential gains from improving production efficiency. The first involves enhancing the ability of a project to produce the same level of output while using fewer production inputs, thereby reducing costs. The second source lies in improving resource allocation efficiency, which entails enhancing the quantity and quality of goods and services produced, making them more valuable in the market. As a result, consumers are willing to purchase these goods at higher prices. Additionally, the dynamic global developments, such as the rapid movement of capital and its tendency to settle in regions offering greater benefits and returns, have enabled foreign investment to capitalize on opportunities in developing countries, particularly in the industrial sector. However, practical observations show that the rapid entry and exit of

capital, driven by political or security tensions, has hindered the anticipated growth process and created additional challenges, such as fluctuations in exchange rates and inflation rates. It is important to emphasize the interconnection between industrial development and the stability and localization of capital. Unlike other sectors, industry relies on a stable environment, as it is characterized by a continuous, long-term process. Consequently, industrial growth cannot thrive in a volatile setting.

2. PRIVATIZATION CONCEPTS AND POLICIES

From an Islamic perspective, the concept of individual ownership aligns with the natural disposition with which God created humanity. Islamic teachings address the ownership of resources to regulate human interaction with the economic resources that God has provided, emphasizing that Muslims must approach these resources with absolute obedience and respect to divine guidance. Islam gave man the right to own property in this world with the concept of succession in the land. It is a temporary change in the general perspective of worldly life, and a justification for the mortal life of a single individual, and it is consistent with human nature and their innate awareness of that nature that does not change or change. The idea of applying privatization, which aims at a private production pattern, can be traced back to the scholar Ibn Khaldun, when he spoke about the importance of involving the private sector in production more than 600 years ago, as the global trend towards privatization is considered unusual, after decades of government control over the economic sector. Many theories that explain the emergence of the welfare state link the expansion of the government sector to other highly influential factors such as urbanization, technological change, national security threats, and the strong alliance between the bureaucracy and special interest groups. As long as these basic forces do not lose their momentum or suffer a setback, their relationship to expansion. The government must be more complex than it is

now. When responsibilities shift from the government to the market, privatization is likely to change the institutional framework through which citizens are usually able to express their individual and collective interests and work to advance them. It is challenging to reach a consensus on the specific outcomes resulting from institutional structural material, as it is rarely uniform across all parties. Some groups in regions with advanced privatization may find their interests clearer, more defined, and more readily achievable, while others may view their interests as entirely opposed. Given these dynamics, privatization is often seen as a predominantly political phenomenon, especially in developing countries, where there is a stronger inclination toward socialism and nationalism. In these contexts, privatization is viewed as a national goal for maintaining the governance system and must be analyzed accordingly. Much of the literature on privatization tends to downplay its political implications and institutional consequences, instead framing it primarily as a management strategy or a necessary step for economic adaptation to structural constraints.

In this context, alleviating workers' anxiety and fear is considered one of the key outcomes of the role of political institutions, as they work to reassure workers and groups that benefit from the continuation of the public sector. The researcher argues that the way societies address the problems they face can be directly influenced by the language, ideas, and symbols used in public discourse. Both the administrative and economic perspectives on privatization often divert attention from crucial empirical and normative issues that require careful consideration.

2.1. PRIVATIZATION CONCEPTS

Understanding and grasping the term is crucial, as it is essential to fully comprehend its dimensions and the historical context of its development. This applies to the subject of the study and its evolving role in economic life. Among the terms synonymous with this concept are "privatization" and "specialization."

In contemporary times, economic issues have taken precedence over political ones, with the most notable shift being the search for a new role for the state in economic life. This shift in thinking introduced a more forward-looking perspective, with the concept of market economics and economic freedom becoming more radical. As a result, privatization emerged as a direct and practical manifestation of this vision, and the belief in its necessity grew across countries. Despite the various definitions offered for the term, there is a common agreement on one core idea: privatization is seen as a key component of a comprehensive corrective program aimed at restructuring state intervention in the production sectors. The process of privatization becomes increasingly challenging as state intervention expands across multiple sectors. A key characteristic of the economic situation in many countries is the public sector's dominant control over a significant portion of economic activities. While the interpretation of this varies between countries, a common feature is the public sector's deep penetration into all aspects of life, particularly in nations that have undergone socialist transformations. This control was achieved through various measures, such as the nationalization of private enterprises and the establishment of new public projects, which came to dominate many industries and were placed under public sector control. This extended to sectors like banking, foreign trade, contracting, public utilities, transportation, and a wide range of service industries. As a result, the private sector assumed a secondary role, and central planning replaced the market system as the primary mechanism for resource allocation. Regardless of the reasons behind the public sector's control, it was initially expected to contribute positively to the processes of renewal and development. However, the low performance levels of the public sector became one of the key drivers behind the increasing interest in privatization—defined as the transfer of ownership or management of institutions from the public sector to the private sector. Privatization is viewed as part of corrective policies designed to address economic

imbalances and restore acceptable rates of economic growth. It is widely agreed that, particularly in developing countries, the state must play a significant role in economic life due to several factors, including the weakness of the private sector, limited local markets that foster monopolies, the limited mobility of production factors, and the lack or inadequacy of public infrastructure, among other constraints and challenges.

In other words, public establishments represent the state-owned business sector, where the state acts as a producer or trader, and this is the public sector that is meant when talking about privatization, and from here privatization was defined as:

1. Following the commercial method, that is, providing government services at prices that cover production costs.
2. Transforming government departments into bodies or companies operating on an economic basis.
3. Liberalization, abandoning bureaucratic regulation, non-government interference in pricing, appointment, or wages, not allowing government monopoly, and encouraging competition.
4. Participation with the national or foreign private sector by offering a percentage of the capital for sale.
5. Delaying the operation of companies and production units for the private sector, as it maintains ownership of the government and delays the assets in exchange for exploitation by investors.
6. Restructuring public projects and companies financially, administratively, operationally and technically in the event of accumulated losses, high indebtedness and financial, administrative and technical imbalances.

Many other concepts take the form of formulas, the most important of which are:

- 1) Legal liquidation of companies and sale of their properties.
- 2) Direct sale to a major or strategic investor, which occurs in cases of losing companies,

selling public companies as separate units, or in the absence of a developing financial market.

- 3) Selling to the public, i.e. offering shares of public companies on the stock exchange to the largest number of public. This type of sale achieves the concept of expanding the ownership base in privatization operations, and its success depends on the seriousness of the evaluation methods and values with which the shares are offered and the extent of the growth and development of the financial market and its institutions. Market management methods, as well as openness and transparency in all procedures.

2.2. MAIN DRIVERS OF PRIVATIZATION

1. *Economic motivation*: Evidence increasingly indicates that free economic systems, which rely on competing market mechanisms, increase efficiency, raise effectiveness and performance rates, increase quality, and ensure the provision of goods and services at acceptable prices. The importance of this fact increases when we acknowledge that we are heading towards a world One in which restrictions are broken and boundaries are abolished.
2. *Administrative motive*: The administrative motive presents privatization as a set of options available to government officials who seek to improve the government tool. This motive follows the method of technology that officials choose and is most appropriate to accomplish the required tasks, to establish public contracts on guarantees, sell assets, and abolish obstructive regulations and laws.
3. *Political motive*: Privatization in the context of open markets leads to the elimination of political slogans, which politicians tend to use as the use of the working classes, but it has proven to fail. The private sector is also distinguished from the public sector in that it has approved the exclusion of politicians from using their positions to improve their image. In light of the public sector, politicians tend to exploit the capabilities of this sector to highlight personal achievements

and to achieve gains from that. Therefore, it can be said that the state still exists strongly in light of the situation. Privatization: It enacts legislation, organizes and manages the general structure of economic activity of society.

4. *Financial motivation*: Many countries suffer from the burdens placed on the public budget, and are trying to reduce public spending as much as possible. This can only be done by the state getting rid of public activities and having the private sector carry them out and perhaps bear their costs on their recipients or consumers. Therefore, privatization programs aim to reduce public spending by the state, and also eliminate outflow in the form of loans to save the financial insolvency of failed public companies.
5. *Social motivation*: Privatization is the appropriate means to achieve greater personal freedom, create personal motivation for production, eliminate negativity, non-compliance with rules, and achieve discipline in behaviour within areas of work.

2.3. PRIVATIZATION OBJECTIVES

One of the important goals of privatization is achieving full employment of labour and available productive resources, in addition to the effective impact that the efforts and individual initiatives of individuals have on allocating resources. It achieves the redistribution and building of assets within the economic structure from the public sector, a sector characterized by its weak efficiency, to a sector characterized by high efficiency that ensures cost reduction and discovery [2]. New resources and better uses of current productive resources and raising the economics of operating available resources in society. Privatization also seeks to broaden the ownership base by transferring ownership of public companies to those working within them. The long-term goals of privatization are to identify more efficient ways of utilizing the country's capital, thereby boosting growth rates and enhancing overall well-being. In the short term, these objectives manifest in the improved

macroeconomic and financial conditions of the state, where individuals' purchasing power is increased, driven by a continuous rise in incomes generated through investment projects and sustained self-development.

2.4. GUARANTEES FOR THE SUCCESS OF PRIVATIZATION PROGRAM

The principles and guarantees for the success of the privatization policy for public projects can be determined through the following points:

1. The buyer grants the business sector units all the rights and freedoms available to private sector companies, which are determined by the prevailing laws and legislation, and in particular, no restrictions will be imposed on new investors with regard to the targeted production of the joint units.
2. Establishing the necessary regulatory procedures and rules before transferring ownership to the private sector or simultaneously with implementation, especially in sectors of a commercial nature whose products are traded in markets where imports and prices are liberalized, and other obstacles to competition in the market are removed.
3. An equal opportunity must be provided without discrimination to everyone who wishes to purchase part or all of the shares in some companies, without prejudice to the legal restrictions imposed regarding foreign ownership or reasons related to security and public order.
4. The investor in the economic public business sector units must not enjoy any form of monopoly, must not be granted protection or special benefits such as protection from competition, privileges, preferential prices for inputs, or government financing in the form of direct loans or government guarantees for bank loans.
5. If it is decided to offer one of the subsidiaries or their shares for sale, no additional investments must be made for the purpose of expansion, and investment must be limited

to maintenance work and implementing the company's structural reform plan.

6. Complete information about all stages of the sale (evaluation - start and end of negotiation - contents of contracts - date of completion of sale and collection) is made available to anyone who wishes to obtain it, with the exception of data imposed by the special nature of the confidentiality of transactions known in the markets.
7. In cases where it is necessary to establish new economic projects, priority is given to the private sector and individuals are also given the opportunity to own shares.
8. Abolishing laws that limit competition or prevent entry into markets, so that the highest degree of competition can be achieved in the market, removing prohibitive barriers, and dividing large public institutions into smaller ones without prejudice to the potential of each of them to achieve profits.
9. Liberalizing prices and interest rates thus achieves compatibility between the distribution of income and the actual marginal cost of production and local technology on the one hand, and the desires of the population and their benefit from consuming goods on the other, and this commodity and time distribution achieves the ideal results desired from allocation.
10. Liberalizing trade and adjusting exchange rates in order to increase the competitiveness of the local economy. In this area, many Arab countries have reduced their exchange rates to encourage exports.

2.5. METHODS OF PRIVATIZATION

There is not one or two ways to transform from public state ownership to private ownership. Rather, there are many of these methods, and countries are rushing to invent new methods or combine these methods. All of these considerations intervene to determine the methods of transition to the private sector. The most important of these private strategies are the following:

1. Ending state ownership: In this strategy, the state wants to end its ownership of public projects or property, which means the life of these projects, transferring their legal form, or returning them to their original owners. It is clear from this method that the state's intention for privatization is a clear, direct, positive and quick intention. This method is considered a strong declaration of the state's desire to refrain from its public activity.
2. Delegation or power of attorney: In this method, the state authorizes (or delegates) the private sector to carry out the activity on its behalf. This, of course, means that the public sector or the state is not out of the picture, as its role is still ongoing and appears in the form of its supervision of the private sector in carrying out the task of instrument of economic activity. To the state.
3. Replacement: In this method, the state replaces the private sector in performing the activity. This means that the state gives the private sector an opportunity to emerge and grow naturally in the activities of the state and the government. The government's endeavour to privatize according to this strategy is an indirect endeavour, and in a negative way, and the transformation takes place. In these circumstances, of course, gradually and slowly, this method is characterized by negativity as a result of the state's hesitation. Economic and political pressures may force it to turn to privatization, while the state's desire to control economic activity prevents it from delving deeply into privatization. This confirms the state's unclear intention and its indirect efforts in this field.
4. Liberalizing economic activity: This is by lifting restrictions that detract from the right of the individual government. It is noted that privatization in this case has nothing to do with the ownership of public establishments or their management, but rather relates to removing some of the restrictions imposed by the state on individual ownership.

2.6. CREATING THE CLIMATE AND PLANNING FOR THE IMPLEMENTATION OF THE PRIVATIZATION PROGRAM

The necessary steps for planning and preparing for the policy of transition to the private sector can be reviewed as follows:

1. The state's conviction is rooted in its commitment to implementing clear and persuasive measures that address the concerns of all parties affected by privatization. These measures come in the form of strong statements from officials regarding the state's intentions, and in the form of studies, research, evidence, and articles that help managers, workers, and investors understand the philosophy of privatization, its steps, and the role of each party in it. [3].
2. Privatization device: It is preferable to have an agency at the highest level in the country, in order to supervise the privatization steps. This agency is usually governmental, but some countries may prefer to privatize the privatization agency, as happened in the British experience, where a new professional sector emerged in privatization studies and research, which is A private sector but closely linked to the state.
3. Legislation: The new climate requires both the enactment of legislation that serves privatization and provides it with the necessary components, and the reconsideration of current legislation that requires abolition or limitation.
4. Preparing managers: Managers must be prepared for the new transformation phase, by being provided all information and training in relation to building their attitudes and inclinations towards the subject of privatization and building their knowledge in topics that affect the mechanisms of the free market and differ from the mechanisms of the public sector, and finally building their skills in acting and making decisions under new circumstances such as underwriting and portfolio management.
5. Market orientation: The public sector is characterized by the fact that it transforms

the market into a producers' market in which companies control the type, quality and price of the products regardless of what the consumer wants. In light of privatization, the matter turns into a buyers' market where the consumer or buyer, with his desires, controls the nature of the goods in the market.

6. Political decision: Leaving the freedom to dispose of privatization decisions to a strong political body that takes the initiative and takes strong and quick decisions regarding the steps and procedures for transferring public ownership to private ownership.
7. Privatizing what can be privatized: To avoid problems with the government and the public sector over economic activities that may cost the government a lot, and in this way, it is possible to go to any activity that can be performed by the private sector at a lower cost and with greater efficiency than the public sector, it must be privatized.

2.7. IMPACT OF PRIVATIZATION

2.7.1 INFLATION

Inflation is defined as the rate of return used to convert a cash value, whether paid or received in the future, into the present value. Accordingly, it is used to determine the value that the investor can pay today (the present value) in exchange for the right to receive future cash flows in light of determinants. and investment risks.

Privatization without proper legal regulation can lead to many negative results and bad financial impacts. In order to avoid economic disadvantages, capital markets and natural monopolies must be liberalized in accordance with effective legal regulation. The truth is that the threats to good markets do not stem from too many regulations is rather insufficient, by reducing inflation and controlling the fiscal and current account deficits. The government will not be able to manoeuvre to implement its preferred policies unless general economic stability is achieved.

2.7.2 INCOME AND DEFICIT IN THE STATE'S BALANCE

Privatization will lead to reducing the deficit in government budgets resulting from the ownership and management of loss-making institutions, and then to reducing the need for borrowing as a result of the government's increased income from selling institutions to the public sector. The process of transitioning to the private sector will help the state use Optimal use of resources will free up government resources that used to go to institutions to go to other priority sectors or to support and develop necessary services.

2.7.3 IMPROVING TECHNOLOGIES AND LURING FOREIGN CAPITAL

If the door is opened for the involvement of foreign companies, this can occur for several reasons, including economic policies of openness and globalization, as well as efforts to attract both local and foreign capital to sectors that the state finds difficult to fund through its development budget. Additionally, this move may stem from the state's desire to transfer technology by allowing foreign companies to contribute to the ownership of shares.

2.7.4 DEVELOPMENT OPTIONS

Privatization significantly links development options to the private sector, leading to changes and adjustments in the structures of production and services based on priorities that differ from those of the public sector, which has traditionally dominated the direction of the development process.

2.7.5 SOCIAL IMPACTS

Local and foreign investments play a major role in improving management and benefiting from administrative expertise, which contributes to raising the government's financial base and facilitating the process of implementing development programs. Privatization gives the opportunity to bring about a fundamental change in the management of companies in a

way that allows for the development of their conditions for the better and the participation of members of society. In addition, the presence of a larger base of members of society (shareholders) provides an opportunity for the presence of an influential general assembly capable of monitoring the company's tools and following up on its activity, which allows it to improve its production. And its services in order to achieve an increase in its revenues, which are distributed to shareholders in the form of profits, which raises the income of shareholders to achieve well-being in society, which results in increased cultural awareness and increased awareness.

3. ECONOMIC BENEFITS RESULTING FROM THE SALE OF PUBLIC SECTOR PROPERTY

Implementing privatization results in many economic benefits, some of which relate to the macroeconomic level and others to the microeconomic level, through choosing the best methods for implementing privatization according to the priorities and circumstances of the economy, given that experiences confirm that private sector companies have proven to be more efficient and more beneficial in their performance than their counterparts in the country [4]. The following are the most important benefits, classified as follows:

3.1. BENEFITS IN DEVELOPING THE ECONOMY

1. Expanding the private sector base and supporting individual ownership systems.
2. Establishing an economy that relies on market mechanisms as a primary goal in transition economics.
3. Developing efficiency to reach the level of competition at the overall and sectoral levels.
4. Providing flexibility to the economy and avoiding ossification of the system.
5. Promoting competition, especially by preventing monopoly.

6. Establishing and developing an efficient capital market and better attracting or mobilizing local savings.
7. Increasing opportunities for local products in foreign markets.
8. Stimulating local investments and providing an attractive climate for foreign investment.
9. Integration of the local economy into the global economy.
10. Preserving existing employment opportunities and providing new ones.

3.2. BENEFITS IN IMPROVING ECONOMIC PERFORMANCE

1. Administrative intervention by the state in the decisions of the project targeted for privatization has diminished, making the project operate on economic grounds only.
2. Subjecting the project to controls on the operation of the financial market in arranging the necessary financing, in addition to linking wages to the increase in productive wages.
3. The presence of a regulatory framework provided by the state to protect competition and address any practices that limit competition in the market, which eliminates sources of weak economic efficiency.

3.3. BENEFITS IN DEVELOPING INSTITUTIONS:

1. Developing the efficiency and competitiveness of institutions at the local and global levels.
2. Bringing new technology and encouraging innovation.
3. Raising the level of the institution's equipment.
4. Increasing productivity and uses of industrial equipment.
5. Developing the quality of production of goods and services.
6. Using new methods of management and work groups.

7. Allowing the institution to enter into the local and global alliances necessary for its survival.

3.4. BENEFITS OF IMPROVING FINANCING AND BUDGETING

1. Maximizing private sector returns in order to provide a source of financing government spending, reduce taxes, reduce debt and financing deficits in the public sector or repay public debt.
2. Limiting state-owned enterprises' depletion of their resources (in the form of subsidies, unpaid taxes, and granted guarantees).
3. Mobilizing private resources to finance investments that can no longer be financed from public funding sources.
4. Reducing future risks of the government business sector's demand from the state budget, including the need to finance its capital expansions or when faced with financing problems.
5. Limiting capital migration and working to resettle capital migrating abroad.

3.5. BENEFITS OF INCOME DISTRIBUTION

1. Expanding the base of the middle class, and encouraging economic growth in specific clusters or areas of society.
2. Encouraging employee ownership is important to increase efficiency.
3. Restoring the full right of the former workers' owners to the property that was confiscated from them.
4. Encouraging institutions specialized in managing and implementing private sector transformation processes.

3.6. ECONOMIC BENEFITS IN THE STATE STRUCTURE

1. Eliminating the fragile state, which means the state of multiple and diverse institutions in which an army of government employees works.

2. Eliminating bodies and institutions with similar symptoms or conflicting jurisdictions.
3. Limiting the state's commitment to the financial burden directed to national actions, military heroics, and political roles.
4. Reducing framework of the public sector's role and its share in government activities.
5. Recharacterizing the areas of public sector activities, avoiding production tasks and focusing on the basics of government tasks.
6. Protecting the economy from the possibility of a future government changing the state's role in economic activity and imposing policies opposite to those that govern the current trends of the economy, by ensuring and increasing the government's popularity and strengthening the possibilities of its re-election.
7. Preventing corruption and misuse of public property by state employees or directors of state institutions.
8. Limiting the control of certain groups over economic activities, parties, unions, etc.

3.7. NATIONAL ECONOMIC BENEFITS

1. The process of transition from the public sector to the private sector takes place without prejudice to national economic laws, and that it does not lead to the emergence of legislation that facilitates the elements of national sovereignty to international institutions.
2. Ensuring that the transformation process does not lead to the dismantling of national economic ties, and that it is at the expense of national economic constants.
3. Ensuring that the transformation process does not lead to opening the doors of the national economy wide to all types of foreign goods, services and investments, and that this transformation does not come at the expense of abolishing national economic regulatory systems.
4. The transformation process should not lead to:

- Sabotaging national economic security networks.
 - Increased unemployment.
 - Increased inflation rates.
 - Increasing those below the poverty line.
 - The dominance of foreign investments and companies over the movement of the national economy.
 - Reducing spending on health and education facilities.
5. Ensuring that the ownership transfer process does not distort the price structure and distort the structure of the gross domestic product more than it was before the transfer process.
 6. Ensuring that the conversion process does not lead to an imbalance in the structure of exports and imports and the trend of exports and imports in a way that reflects the interests of the national economy.
 7. In this regard, common benefits can be identified on a social economic basis to enhance the trend towards privatization of public property.

3.8. ECONOMIC AND SOCIAL BENEFITS:

1. Ownership of public projects creates belonging and jealousy over those projects with clear definition of social goals and objectives.
2. Improving the financial return and nature of investment activity among citizens, which emphasizes the positive effects of development and aspects of social life.
3. Making room for the private sector to compete with the public sector would subject educational, health and service activities to competition on the basis of parity.
4. Providing a high degree of transparency for all decisions and transactions at the level of management of the assigned project, and at its various administrative and organizational levels, which contributes to achieving development and social goals.
5. Developing the countryside by giving freedom to establish projects on a decentralized basis and enjoy financial and administrative independence.

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EKONOMSKE KORISTI OD PRODAJE IMOVINE JAVNOG SEKTORA

Rezime: Svrha ovog istraživanja je da se objasni i definiše koncept privatizacije, njeno sprovođenje, prevencija njenih negativnih efekata i razjašnjenje odgovarajućih planova za otklanjanje prepreka koje onemogućavaju pravilno sprovođenje programa privatizacije. Dva istraživačka pitanja kojima se ovaj rad bavi su: a) Koliko je uspešno iskustvo reforme javnog sektora u Libiji i nekim zemljama fokusiranjem na aktiviranje razvojne uloge privatnog sektora (kroz mehanizam privatizacije)? b) Da li je politika privatizacije kao jedan od programa ekonomskih reformi uspela da reši prepreke sa kojima se suočavaju razvojni sektori u Libiji i nekim zemljama Severne Afrike? Važna literatura koja vodi ovo istraživanje uključuje privatizaciju kao novi pristup koji je postigao zadovoljavajuće rezultate u iskustvima nekih zemalja i neuspeh u drugim zemljama, što povećava značaj i nastavak istraživanja i proučavanja ove teme. Shodno tome, istraživanja je dostupna literatura proučavana u arapskim studijama. Dizajn kvalitativnog istraživanja usmeren je na proučavanje, analizu i vrednovanje realnosti ekonomske reforme javnog sektora i aktiviranje razvojne uloge kroz primenu mehanizma privatizacije. Deskripcija, klasifikacija i naučno objašnjenje privatizacije zahtevali su korišćenje metode Analize sadržaja relevantnih dokumenata. Cilj privatizacije je podizanje stope privrednog rasta kroz poboljšanje efikasnosti institucija, a zatim smanjenje opterećenja javnog sektora, koji u krajnjoj liniji ima za svrhu da aktivira sektore privrede za postizanje optimalne zaposlenosti privrednih subjekata i resursa na dugi rok. Dva su glavna rezultata istraživanja. Prvo, kupac daje jedinicama poslovnog sektora sva prava i slobode dostupne preduzećima iz privatnog sektora, a koja su određena važećim zakonima. Drugo, u procesu privatizacije, pružaju se jednake mogućnosti bez diskriminacije svima koji žele da kupe deo ili sve akcije u nekim kompanijama, bez prejudiciranja nametnutih zakonskih ograničenja. Implikacije rezultata ovog rada na politiku su da privatizacija bez oslonca na odgovarajuću zakonsku regulativu može dovesti do mnogih negativnih rezultata i loših finansijskih uticaja. Da bi se izbegla ekonomska tragedija, tržište kapitala i prirodni monopoli moraju biti liberalizovani u skladu sa efektivnom zakonskom regulativom. Implikacije rezultata ovog rada na praksu su da se primenom privatizacije postižu ekonomske koristi, od kojih se neke odnose na makroekonomski, a druge na mikroekonomski nivo, izborom najboljih metoda za sprovođenje privatizacije prema prioritetima i okolnostima privrede.

Ključne reči: privatizacija, ekonomska korist, efikasnost proizvodnje, prodaja imovine javnog sektora

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ENTERPRISE RISK MANAGEMENT AS A KEY COMPONENT OF MANAGEMENT

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Abstract: *In modern business environment, companies are faced with an increasing number of challenges and uncertainties that can significantly affect their business, profitability, reputation, even their survival. Changing market conditions, technological innovations, regulatory changes, geopolitical instability and many other factors contribute to complex scenarios in which a modern company operates. In the context mentioned, risk management becomes a crucial element of a successful management strategy. Risk management, as concept and practice, includes a systematic approach to recognition, analysis, evaluation and management of potentially negative events or situations that can affect achieving goals. Understanding the concept of risk management involves exploring how organizations can effectively identify, assess, analyze, and mitigate risks in order to achieve sustainable and successful outcomes. It emphasizes the importance of a proactive approach in managing uncertainties to ensure long-term success and stability. The research methodology will combine qualitative and quantitative approach. Qualitative research will include the analysis of various theoretical frame. A quantitative approach involves the analysis of relevant data about company's performance, with the application of statistical methods, in order to establish a link between organizations' success and their risk management and the attitude of management in implementation of conceptual frameworks in the analysis.*

Keywords: *risk, uncertainty, management, company, strategy*

1. RISK AND RISK MANAGEMENT

Risk is a concept that is used both in everyday life and in different professional fields, including economics, finance, business, health, insurance and many others. Basically, risk is defined as the likelihood of an unwanted event happening or a situation that may have negative consequences. Risk plays a key role both in economic theory and in practice. In economic

theory, risk is often viewed in the context of the theory of choice and decision-making, and it manifests itself in practice through various economic and financial phenomena. Risk in the business context of companies and business entities refers to probability that an unwanted event or situation occurs that may negatively affect the business and achieving the goals of the organization. Risk is a potential danger or uncertainty that may result in losses, costs

or damages, whether financial, operational, strategic, or reputational. Basically, it's a risk inherent in every aspect of business and can arise from various sources and factors.

In business economics and management as well as in economic theory, risk is a cardinal term with multiple meanings. Risk is a consequence of the uncertain nature of the environment.

Uncertainty manifests itself as a result of changes in the number of actors, character and intensity interaction between actors as well as in changing the consequences of planned actions. Micromanagement is, above all, the management of a set of strategic and operational risks as well as the management of others risk factors from the risk universe, all for the purpose of realizing the strategy that is created value (or increases capital). Macromanagement refers to the management of the national economy with the goal of achieving sustainable, inclusive development that benefits both people and nature, ultimately leading to increased well-being for human society. In the study of Enterprise Risk Management, it is important consider multiple aspects of risk. First of all, risk can be seen as an effect uncertainty that can prevent or reduce the company's ability to achieve its goals intentions (mission, strategy, projects, business processes, performance), as well as to fail stakeholder expectations related to performance. In the basis of risk management in the company's owners, as well as other interest groups. Nowadays, the concept is being talked about more and more "capitalism of interest groups" instead of "capitalism shareholders". Respecting a large number of interest groups simultaneously means acknowledging a greater number of risk factors, which in turn complicates their interactions and the overall management of these risks. Also, risk can be seen as the possibility of essential turning points (strategic inflection point), that is, events that mark the beginning of a radical turn in relation to the expected sequence of events and their effects. Milestones are events or processes whose frequency of occurrence is low, but their impact on the enterprise is high

atypically tall and pervasive. Milestones not only alter the rules of the game but can also act as game changers. Black swans are rare milestones that bring about the most significant changes, reshaping the structure of the economic factors system, intensifying the interactions of risk factors, and transforming the overall risk landscape and its net effects.

The origin of the word risk is not entirely certain. The term most likely comes from the root of the word Latin language (lat. riscum - the possibility of unfavourable events or an accident).

Accordingly, the prevailing definition of risk in economics refers to the possibility of occurrence loss (mainly financial) due to unfavourable events. In its original meaning, the term means possible challenges and obstacles that appear on the way sailors (lat. riscum maris)." [1]

Perhaps the most important dimension of risk is the one related to the character of the investor."

Investors lose money not only when they allow themselves to be affected by "mass psychology", but also because of their own wrong opinions, perception and assessment of reality, obsessive delusion, as well as due to completely normal, but counterproductive reactions to events on market, such as reckless investments in overpriced financial products on the market. In the simplest terms, risk represents the probability of suffering loss, damage or injuries [2]. To manage these risks, it is necessary to know which group belong and whether it is possible to minimize them. Most of the investment risks are described as systematic or unsystematic. Total risk represents the sum of systemic and non-systemic risk (*ibidem*). The business policy of a company, product promotions, introduction of new technologies, changes in business practices, and the entry of competition into the production program are just a few factors that contribute to non-systemic risk. In contrast, systemic risk refers to risks that stem from broader economic trends and other factors that affect all economic entities. Also known as market risk, systemic

risk influences the entire economy, including securities markets. It affects all companies, regardless of their financial condition, management, or capital structure. Depending on the investment, systemic risk can encompass both domestic and international factors.

1.1. DEFINITION OF RISK IN THE ENTERPRISE

Different definitions of risk are also important in order to better understand two key ones: 1) risk-return ratio and 2) risk-price ratio of capital. Risk adjusts return (risk adjusted return) as well as the cost of capital (risk adjusted cost of capital), when evaluating the earning power of the company and the valuation of the company, respectively. Without the calculated risk, we cannot determine the profitability and value of the company. The previous understanding is still accepted today in defining risk and uncertainty. In particular, risk means a situation where we are not sure of the outcome of a decision, but we have the probability distribution of possible outcomes. Uncertainty, on the other hand, denotes a situation in which we can neither be sure of the result of the decision, nor do we have the appropriate probabilities.

Nowadays, the definition of risk is relative and expanded (in order to corresponded to economic reality) and was applied to situations in which the bearer decisions based on regulatory rules, subjective evaluations and experience probabilities of occurrence of certain outcomes.

The definition of risk as “measurable uncertainty,” while one of the most widely recognized, has faced numerous criticisms.

The most important criticism concerns incompleteness. Step forward into the definition of risk happened at the moment when the awareness of the fact that exposure to risk has matured it does not only mean awareness of the probability distribution of possible outcomes, but also the corresponding consequences suffered by the entity exposed to the risk. Since then, the risk has the most commonly been

described using two parameters: probability and outcome (or risk effect). Product of probabilities and outcomes is a mathematical expectation. The modern understanding of risk implies the possibility of spreading the outcome in a positive way negative direction. In other words, the consequences of an uncertain future for the subject which is exposed to risk can be “gains” and “losses”. This understanding of risk is also found in Keynes, who ties the entrepreneur’s risk to doubt about the probability that achieve the return he expects. His definition unequivocally implies that risk can result in both negative and positive consequences. Another possibility is that the concept of risk originates from the Arabic word *risq*. It’s interesting that this word has a positive meaning, signifying all that is given to man (by God), from which he may derive some material benefit or satisfaction. In the 12th century, the Greeks took over the already mentioned Arabic word to indicate uncertainty about future events and their effects. In English, risk has a negative meaning (to run the risk, to be at risk) by associating exposure to some kind of danger. In other languages, in addition to the mostly negative meaning, risk also has a positive meaning, like the French *qui de risque rien n’a rien* or the Serbian “he who doesn’t dare, he doesn’t win”. There are also situations where it is not possible to quantify uncertainty in the form of a probability distribution of potential outcomes. In such cases, only subjective assessments based on the beliefs, experiences, and intuitions of decision makers remain.

Such situations Knight refers to as “immeasurable uncertainty” or, simply, “uncertainty”. On the other hand, it is emphasized that it is precisely the uncertainty, i.e. the risk that cannot be quantified, the source of the greatest volatility of results (profits and losses). There is a rational explanation for reducing risk to the probability of an adverse occurrence outcome. Let’s start from the fact that risk represents the possibility of occurrence of deviations from the expected results. Deviations can be positive or negative. However, when there is a probability of negative deviation,

and the probability of positive deviations is zero, this situation also further marks as risky. On the other hand, when there is only a probability that it will happen positive deviation, while the probability of a negative deviation is zero, then we cannot talk about risk. Recently, useful definitions of risk have emerged from organizations focused on standardizing terminology in risk management. The Institute of Risk Management (IRM) defines risk as “a combination of the probability of an event and its consequences.” The Institute of Internal Auditors defines risk as “uncertainty about an event that may occur and could affect the achievement of objectives.” The International Organization for Standardization (ISO), in its ISO Guide 73, defines risk as “the impact of uncertainty on the realization of objectives,” highlighting that this impact can be both positive and negative.

1.2. THE IMPORTANCE OF RISK MANAGEMENT IN MODERN BUSINESS

Risk management is of great importance in modern business, since it enables organizations to effectively manage uncertainty and ongoing challenges appear. Risk management is a key aspect of modern business because it contributes to sustainability and long-term success of organizations. This process allows organizations to better understand and control potential threats, while at the same time identifying and exploiting opportunities that appear in a dynamic business environment. In addition, risk management helps in preserving property value, protecting reputation and gaining competitive advantage. In the modern global environment, where risks are often complex and global, management risk management is the key to the long-term stability and success of organizations. Risks in business are an integral part of every entrepreneurial venture, something that cannot be avoided can avoid. In modern entrepreneurship, uncertainty and risk are associated with danger, the probability and possibility of the realization of certain events. However, they should be seen as chances and with every significant entrepreneurial

decision, the profit ratio should be balanced and loss, and try to find ways to reduce the risk to a tolerable level. Modern corporations are specialized to make decisions in the market conditions uncertainty and risk.

A modern view of risk sees risk as an opportunity in which a company can realize planned level of growth and development. The aim of the risk management function is to ensure analytical support in the business decision-making process, on the basis of which the possible will be determined dangers and ways to react to possible and unpredictable problems. It is about the implementation of a series of techniques and models in the function of risk management, controls risks, risk management organization as well as the management process itself. For the concept growth and development are also related to the terms uncertainty and risk, which associate danger and possibility and probability. Every entrepreneurial venture, particularly in a market economy, operates within an environment of uncertainty, which carries the risk of undesirable future consequences for actions taken in the present. This inherent danger is what makes a particular endeavor risky. In the context of the modern market, the path to success lies in achieving an optimal balance between price and quality, driven by continuous improvement in business productivity. Quality becomes the central development goal, realized through the pursuit of business excellence and the creation of world-class products and services. The responsibility for driving quality improvement within the organization rests with all employees, starting with top management. Every employee becomes an individual who must contribute to quality. The quality of business implies market, business and social dimension. From the aspect of organization, improvement business quality implies, in addition to the realization of business aspects of quality (lower costs, higher productivity, profit growth) and market aspects of quality (satisfaction customer requirements, achieving customer satisfaction, competitiveness and a solid market position), realizing the social aspect of

quality that is manifested in protection human health, protection of clients' interests, protection of the environment, conservation of nature resources etc. Quality is characterized by an integrated management approach, which it unites the management, marketing and development aspects of business, with the ultimate goal to meet the needs of clients, but also the entire social community. Companies can create a competitive advantage from many sources, such as superiority in terms of quality, speed, safety, service, design and reliability, combined with lower cost, lower price etc. It is often a unique combination of everything enumerated, and not about one universal and magical solution, i.e. a combination that gives supremacy. It is necessary to understand that competitive advantages are relative, not absolute. This is evident, for example, with Singapore Airlines, which consistently improved its quality, while Cathay Pacific, which acted more swiftly, gradually closed the gap between them. Therefore, it can be concluded that effective risk management is directly linked to enhancing the quality and competitive advantage of a company.

2. CONCEPTUAL FRAMEWORKS OF RISK MANAGEMENT IN THE ENTERPRISE

Changes and uncertainty are inevitable in business, and that there are two basic approaches for risk reduction. The first approach involves increasing commitment and consistency in the way economic agents approach risk. This is achieved by applying theoretical solutions and best practices.

Another approach is the regulation of the risk management process through regulatory bodies that prescribe the rules, standards, procedures and methods that economic agents must follow in to your business. Regulators also have a role in overseeing the risk management process. The main motive of risk regulation is to reduce the exposure of economic agents to systemic risks, which can lead to losses and financial problems, especially for entities that have systemic importance. The goal of risk management is to reduce uncertainty

in assessing the future consequences of current decisions, allowing for the acceptance of reasonable risks while avoiding unreasonable ones. Banks and insurance companies are subject to stricter regulation due to their significant role in systemic risk. Inadequate regulation of the financial system can amplify systemic risk, as was evident during the Great Recession of 2008. A key issue in economic crises is the mismatch between the risk-bearing capacity of major financial institutions and their appetite for risk. When financial institutions become undercapitalized, financial panic and economic crisis can occur. For the reasons mentioned above, the focus is placed on the importance of regulatory frameworks and risk management to ensure the stability of the financial system and the economy as a whole [8].

Risk is inherent in the financial sector, despite efforts to minimize it. Banks and insurance companies often hold only a small percentage of their own capital relative to their total risk-weighted assets. Problems arise when the rate of return (such as the interest margin) falls below this threshold, potentially compromising the financial health of the bank. A risky event can trigger a chain reaction of negative events, including the rise of non-performing loans, which can further destabilize the institution (NPL- Non Performing Loans), short-term loss, reduction of own capital below the minimum required level, difficulties in raising capital, illiquidity, insolvency and bankruptcy. Insurance companies also face liquidity risk, especially when they have to place funds from insurance premiums in other financial instruments, and the source and placements have different maturities. Saving the capital of the bank and the insurance company is a game key role in the regulation of the financial sector. Regulatory frameworks for safeguarding capital, known as the Basel documents (Basel I-IV and Solvency I-III), are accepted in most developed economies and contribute to stability financial system. The principles of risk management in the financial sector are becoming increasingly important for the non-financial sector, as risk management practices from the

financial sector are relevant to all industries. Minimum regulatory capital plays a crucial role in protecting creditors' claims. The development of risk management in both the financial and non-financial sectors is converging, although the application of regulatory rules remains much stricter in the financial sector.

3. CORPORATE GOVERNANCE AND RISK MANAGEMENT

Development of risk management in the financial sector and the non-financial sector is converging, although the application of regulatory rules is much stricter in financial sector. The fiduciary responsibility of the board of directors implies the obligation of the board members to act in the best interest of the company and its shareholders. This responsibility requires careful consideration making decisions that will improve the value of the company, taking into account the defined risk appetite and risk bearing capacity. The board of directors has a key role in ensuring that risks are managed in an ethical and responsible manner in order to achieve their goals of the organization. However, there are situations where boards of directors or company management fail to adequately fulfill this responsibility. This may include overexposing the company to risks in the pursuit of higher profits, a phenomenon known as "moral hazard," or avoiding risks altogether in an attempt to minimize potential losses, which is sometimes referred to as "opportunistic behavior." Additionally, inadequate management of risk factors and a failure to comply with regulatory standards can contribute to unethical behavior within the company. In order to prevent such problems, corporate governance is constantly being improved. Internal audit and regulatory compliance are important, but they are not sufficient on their own. The development of complex financial instruments in the capital markets, as well as corporate leadership reward systems based on performance, necessitate comprehensive and consistent risk management systems. These improvements are especially important to prevent the misrepresentation of a

company's financial health in reports and audits, thereby ensuring the integrity and ethics of business practices. In the time that preceded the crisis of 2008, the financial sector was the most developed the economy was characterized by extremely risky behaviour. There were several factors which contributed to this trend. First, the deregulation of the financial sector enabled rapid the expansion of the doubtful value market (HOV) due to high yields, but also high risks. Second, there was a strong incentive for management teams and corporate directors to achieve high results in order to enable them a large financial compensation through incentive schemes. These incentives were often based on performance, such as revenue, profit and share price growth. These are the successes considered the key to increasing the value of companies and sustainable growth of the economic system.

Innovations in the financial market and motivational mechanisms for the management structure they contributed to progress both at the individual level and at the systemic level. However, problems began to appear when the motivational mechanisms were followed by the so-called "moral hazard". Moral hazard represents a situation in which individuals, often on at the highest levels of management, knowingly take risks that can seriously endanger the interests of the company or other interest group, for the sake of personal gain. This type of behaviour can trigger a chain of events leading to increasing systemic risk. It's important note that moral hazard is not the same as risk-taking mentality. When the appetite for risk becomes extremely high and exceeds the capacity to bear risk, and this becomes a common practice, the conditions for a financial crisis are created. The idea to aggressively taking risks can increase the value of a company is not always justified. This approach often overlooks the fact that real value in the financial market must be in balance with the actual value created in the commercial market. If it exists imbalance between these two factors, serious problems can arise. In order to prevent unethical behaviour of the management structure of corporations due to

moral hazard and raising awareness of its responsibility towards the owners, came out a whole wave of corporate governance regulation embodied, above all, in supranational codes or organizations (such as OECD, EU, etc.), financial exchange codes (for example, Combined Code of the London Stock Exchange and Code of the New York Stock Exchange), and commercial codes association (for example, the Corporate Governance Code of the Serbian Chamber of Commerce). Therefore, corporate governance is primarily regulated by indicative norms with an idea that compliance with norms increases credibility in the investment public. Also, there are efforts to supplement this process with imperative norms, formulated in laws regulates. A typical example is the Accounting and Auditing Act, such as the aforementioned SOX.

However, only the global economic crisis of 2008 showed the mistakes of the board of directors and management team due to moral hazard. Most financial organizations, which are experienced great financial difficulties or went bankrupt after the outbreak of the crisis because they previously lost capital, they could boast of robust management systems risks. However, the collapse of the financial market due to the unexpected growth of the systemic risks they were unable to foresee. Boards of directors have been accused of insufficient knowledge of the context, ignoring key risk indicators, so far excessive reliance on financial models in risk management (especially stress tests) and insufficient reliance on holistic, expert methods intuition, even common sense. In situations where the strategy is of high securitization brought returns that were above average, the associated risks were ignored. However, when in the economy of “moral hazard” excessive appetite for risk became the rule behaviour of the majority, the issue of realistic risk assessment came to the fore. Attitudes that it is aggressive and reckless risk-taking was key to the outbreak of the financial crisis, they launched a new wave of regulation, with a focus on risk control and risk protection”.

4. APPROACHES AND PRACTICES OF CORPORATE GOVERNANCE

Corporate governance has become one of the most important topics in business worldwide.

The fever for corporate governance reform is not limited to America. From the Cape From cities to Hong Kong and London, new codes of corporate governance have begun to emerge like mushrooms after the rain. There are many different approaches to corporate governance. It is accepted all over the world that company directors must keep in mind the so-called “4Vs”: vision, value, vigilance and virtue. That means they should manage the company in such a way as to direct the visions in order to build its own value, which requires versification in order to ensure that the virtues are realized. Good management is a sine qua non for long-term success, but it is no substitute for innovation and realization of ideas, products and potential on the market. International aspects of corporate governance are seen in many centers of business and politics of interest, and the most important centers are certainly the NYSE (New York Stock Exchange) Britain, Brussels (European Union) and Paris (OECD). The phrase “corporate governance” became popular in 1992 after the Cadbury Report, issued by a committee of the London Stock Exchange chaired by Adrian Cadbury. Regulatory institution of the financial market in Great Britain – Financial.

The Services Authority adopted the “Combined Code” (July 2003) as a supplement to its own

Listing Rules, which consists of three reports by: Cadbury (‘92), Greenburg (‘95), Hampel (‘98). Acting in accordance with these corporate principles management is voluntary, not mandatory. Companies that do not comply with this by the code they are obliged to “explain” - announce their failure to act in accordance with the code in which will state the reasons for such deviation. For the most part, the Combined Code was created as a reaction to financial scandals and embezzlement

in financial companies such as the British and Commonwealth Bank (1990),

BCCI (1992) and Barings (1995). The premise on which the “comply or explain” approach is based is that the Combined Code represents the collective consensus of institutional investors on the best practices of corporate governance and that deviations from this code represent a good reason for investors to “vote with their feet”, i.e. make their decision to leave the company. The degree of compliance has increased over the past few years, but even today, only 50% of listed companies fully comply provisions of this code. Although all the countries of the European Union have very different legal regimes and practices, striking characteristic of the attitude towards the European Code of Corporate Governance is their degree similarities and increasing convergences. Almost all EU member states have voluntary ones corporate governance codes, and a smaller number of countries have adopted the British approach “respect or explain”. The most noticeable differences of European corporate governance compared to US practice, no they arise from the very codes of corporate governance but from deep-rooted ones legal rules including: the dual structure of the board of directors in Germany/Austria and Scandinavian countries; the right to the attendance of employees in supervisory boards which characterizes Austria, Denmark, Germany, Luxembourg, Sweden and, occasionally, France (in cases where the participation of employees in the share capital amounts to 3% or more), rights employee representatives to attend shareholders’ meetings in France and The Netherlands, even when they do not have the right to vote.

5. CONCLUSION

In the global business environment, companies face a large number of challenges, risks and threats that can significantly affect the key elements of their business, such as profitability, profitability, competitiveness, reputation and even survival. Technological innovations and changes in market conditions, as well as regulatory changes, geopolitical instability and many other factors can contribute to the creation of complex scenarios in which a company operates. Hence, risk management becomes a key component of successful management in a company. Risk management, as a concept and practice, encompasses a systematic approach to identifying, analysing, evaluating and managing potentially negative events or situations that may affect the achievement of a company’s business objectives. This was the principal motivation for the author to explore the concept of risk management within a company—specifically, to examine how organizations can effectively identify, analyze, and manage risks to achieve sustainable and successful outcomes. Therefore, in the Research Methodology, the authors were forced to apply a combined qualitative and quantitative approach to the research. The qualitative research involved analyzing various theoretical frameworks, while the quantitative approach focused on examining relevant data, including company performance, using appropriate statistical indicators. This was done to establish a connection between risk management practices and company success.

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UPRAVLJANJE RIZICIMA PREDUZEĆA KAO KLJUČNA KOMPONENTA MENADŽMENTA

Rezime: U savremenom poslovnom okruženju, preduzeća se suočavaju sa sve većim brojem izazova i neizvesnosti koji mogu značajno uticati na njihovo poslovanje, profitabilnost, reputaciju pa čak i opstanak. Promenljive tržišne uslove, tehnološke inovacije, regulatorne promene, Geopolitičke nestabilnosti i mnogi drugi faktori doprinose stvaranju kompleksnih scenarija u kojima posluje savremeno preduzeće. Upravo u takvom kontekstu, upravljanje rizikom postaje ključna komponenta strategije uspešnog menadžmenta. Upravljanje rizikom, kao koncept i praksa, obuhvata sistematičan pristup prepoznavanju, analiziranju, proceni i upravljanju potencijalno negativnim događajima ili situacijama koje mogu uticati na postizanje ciljeva. Razumevanje koncepta upravljanja rizicima je da istraži kako organizacije mogu efikasno identifikovati, istražiti i kako analizirati i upravljati rizicima kako bi postigle održive i uspešne rezultate. Metodologija istraživanja će kombinovati kvalitativni i kvantitativni pristup. Kvalitativno istraživanje će obuhvatiti analizu različitih teorijskih okvira. Kvantitativni pristup uključuje analizu relevantnih podataka o performansama preduzeća, uz primenu statističkih metoda, a u cilju uspostavljanja veze između uspešnosti organizacija i njihovog pristupa upravljanju rizicima i stavu menadžmenta u primeni konceptualnih okvira u analizi.

Ključne reči: rizik, neizvesnost, menadžment, kompanija, strategija

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THE ROLE OF FOREIGN INVESTMENTS IN OIL INDUSTRY

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Abstract: *The aim of this paper is to foster long-term growth in Libya and other developing countries, helping them transition into the ranks of developed nations. The two research questions that this paper deals with are: a) What role can foreign investments in the oil sector and manufacturing industries play in the economic diversification of Libya and some countries? b) What measures must be implemented to maximize the positive impact of foreign investments on productivity in Libya and other countries? The relevant literature guiding this research plays a crucial role in advancing the economic and social development of Libya and similar nations. Foreign direct investment (FDI) is regarded as a key mechanism for enhancing productivity, facilitating the transfer of expertise and technology, promoting employment, and boosting export value, particularly in the oil and manufacturing sectors. Two main outcomes emerge from this analysis are the following: firstly, continuing to encourage the prevailing industrial fabric (oil refining industry, food industries, and textile industries) in order to raise the value of exports and preserve jobs on the other hand; secondly, encouraging the development of new and diverse industrial specializations. The policy implications suggest that the impact of foreign investments on the economies of Arab countries varies across different sectors. Consequently, countries that experienced successful economic growth are those that effectively directed investments towards high-value-added economic activities, as exemplified by certain nations, in China and India. The negative effects of these foreign investments were that the presence of foreign investment companies negatively affected national companies. Despite their contribution to increasing exports, foreign investments have had a negative impact on the productivity of the sector. The practical implications highlight that the manufacturing sector plays a crucial role in absorbing the labor force, particularly the operational workforce with average competencies, thereby contributing to the formation and growth of the middle class globally. Foreign direct investments in this sector provide many opportunities to employ the national labour force and raise wages.*

Keywords: *foreign investments, oil, economic policy, economic analyses of Libya and the Arab countries*

1. INTRODUCTION

Libya, as one of the oil-producing countries with substantial oil reserves, has the potential to develop its national economy, provided that its oil wealth is strategically utilized to foster growth in other sectors, particularly the manufacturing sector. This sector is considered a key driver of economic development due to its forward and backward linkages and the foreign exchange it generates, which are vital for the overall economic progress. The results of both theoretical and applied studies on the relationship between oil revenues and industrial output growth have varied. Some studies suggest that oil resources play a significant role in developing the industrial sector by providing financial surpluses that can be used to fund industrial projects, as well as energy sources essential for operating these projects.

On the other hand, some economic studies examining the relationship between oil revenues and industrial development suggest that the discovery and production of oil can have negative effects on overall economic development and industrial growth, particularly in developing countries. These countries often struggle with weak economic institutions and a lack of the administrative and technical capacity required to create effective development plans and strategies. As a result, despite their vast oil wealth, these nations face challenges in investing surpluses into industrial development, primarily due to the limitations imposed by weak political and administrative systems.

2. FOREIGN DIRECT INVESTMENT AND ECONOMIC DEVELOPMENT

The significant importance of foreign direct investment (FDI) and the considerable interest it has garnered have led to numerous studies aimed at analyzing its effects, resulting in a variety of definitions. Despite the differences in the backgrounds and areas of expertise of those defining it, foreign investment is examined from various perspectives and viewpoints [1]. These variations suggest that a single, unified definition may not fully

capture the complexity of the phenomenon, which has multiple dimensions and outcomes. Consequently, it is natural for individuals to have differing interpretations of foreign direct investment based on their perspectives. This concept has also had a profound impact on the broader notion of economic development, making it essential to explore and clarify both concepts.

2.1. THE CONCEPT OF FOREIGN DIRECT INVESTMENT

Investment is a concept that is challenging to define in a way that universally appeals to all perspectives. Individuals' views on investment and its nature vary depending on their circumstances, professions, objectives, and other factors that complicate the formulation of a single definition. For example, a manufacturer approaches the investment process from a different angle than a merchant, and their perspectives differ again from those of individual investors who own varying amounts of capital and seek to earn returns in diverse sectors. Broadly speaking, investment can be defined as the optimal allocation or use of capital. From an economic viewpoint, investment involves channeling accumulated savings or wealth into productive ventures that address economic needs while generating a return.

The view of foreign direct investment (FDI) flows has evolved in modern economic growth theory, with a growing recognition that FDI can influence not only the level of output per capita but also the growth rate of that output. In contrast, classical economic theories did not place much emphasis on the direct impact of foreign investment on long-term output growth, as they assumed diminishing returns to productive capital. According to these theories, FDI could affect the level of output but not necessarily its growth rate. However, more recent perspectives suggest that foreign direct investment can stimulate the growth rate of per capita income in the host country. This is achieved by expanding the use of local raw materials, implementing modern management

practices, and facilitating the introduction of advanced technologies.

Additionally, external flows, such as foreign direct investment (FDI), provide a means to finance the current account deficit. Unlike foreign debt, FDI does not involve incurring debt or the obligation to repay specific amounts at set times. Moreover, FDI can contribute to the development and training of human resources and encourage investment in research and development. Foreign direct investment comes in various forms, which differ depending on the objectives of the investment and the needs it aims to fulfill.

2.2. INVESTMENT IN SEARCH OF NATURAL RESOURCES

Many multinational companies aim to capitalize on the abundant natural resources and raw materials found in developing countries, particularly in sectors like oil, gas, and other extractive industries. This type of foreign direct investment encourages an increase in the export of raw materials while simultaneously driving up imports of capital goods, intermediate production inputs, and consumables.

2.3. MARKET-SEEKING INVESTMENT

This type of investment prevailed in the manufacturing sector in developing countries during the sixties and seventies during the application of the import substitution policy. This type is considered a substitute for exports from the country exporting the investment, and its presence in the host country is the result of the restrictions imposed on imports. There are also other reasons for doing this type of investment, including the high cost of transportation in the host country, which makes investing in it more feasible than exporting to it. In this case, this type of investment does not affect production because it replaces exports, but it has positive effects on consumption and Indirect positive impact on trade. This type of investment would contribute to high growth rates in the country hosting the investment by increasing its capital stock. It would also have

expansionary effects on trade in the areas of production and consumption by increasing the host country's exports and increasing its imports of production inputs and goods imported to it from other countries.

2.4. PERFORMANCE-SEEKING INVESTMENT

This type of investment occurs when multinational companies concentrate part of their operations in host countries to increase profitability. Rising wage levels in industrialized countries have driven many of these companies to invest in developing countries. Such investment is characterized by its expansionary effects on the host country's trade, leading to the diversification of exports. Additionally, it stimulates consumption by increasing imports of production inputs. This form of investment can take various shapes, including multinational companies relocating labor-intensive production activities to the host country, where national companies carry out these operations under bilateral contracts. Through this arrangement, the company in the host country gains access to foreign markets that it otherwise might not have been able to reach independently. This is because it lacks the distribution networks, information, and channels that multinational companies typically possess, which are essential for expanding into international markets.

The strategy of transferring labor-intensive activities to developing countries has played a crucial role in boosting their industrial exports over recent years. Another variation of this approach involves manufacturing certain components abroad due to high wages in the home country or the appreciation of its currency. However, this process requires a high level of productivity and technical expertise in the host country, which is why it is primarily concentrated in newly industrialized nations. In such countries, local companies often enter into subcontracting agreements with multinational corporations to manufacture entire products, with the multinational company's brand name attached for marketing purposes.

This practice can enhance the production capabilities of the host country's company, potentially leading to the development of local industries capable of producing the product independently. This process is considered a form of quality enhancement. One key advantage of this type of foreign direct investment is that exports of these products to the industrialized country are not subject to trade barriers, as they are effectively linked to the parent company in the home country.

3. THE CONCEPT OF ECONOMIC DEVELOPMENT

Economists make a clear distinction between the concepts of economic growth and economic development. **Economic growth** refers to an increase in the real output of goods and services, typically measured by the growth in national income or GDP at constant prices. For countries that rely heavily on the production and export of natural resources such as oil, gas, coal, coffee, and iron, economic growth can be achieved through higher production levels of these commodities, provided global market prices remain stable. However, rapid and short-term growth does not necessarily equate to **economic development**. True economic development involves structural changes within the economy that lead to improvements in living standards and long-term societal well-being, beyond just short-term increases in output. [3].

Economic development should not be seen as a complete, superficial, temporary, and transient change limited to the elements of development. Rather, it is a complex, intertwined plan that aims to fundamentally change the economic structure and result in raising the rate of productivity to the extent of the efficient use of national and global resources and the available technological level. There is no doubt that this process is arduous and long. It is not easy to bring about such a change. Economic structures show resistance to any change, and the more backward the economy is, the stronger the resistance becomes, and vice versa. The term economic development is also related to

the long term, so the increase in national product must be continuous and uninterrupted for a long time. The long term should not be measured in a few years, but rather it must last at least fifteen years. The truth is that continuing economic development is a problem that both rich and poor countries suffer from. But accelerating development is more important for poor countries.

The study of economic development is one of the relatively recent studies that focused on economics after the beginning of the twentieth century, especially in developing countries. In general, economic development can be defined as: "a process in which real income increases cumulatively, rapidly, and continuously over a period of time, so that this increase is greater than the rate of population growth while providing productive and social services, protecting renewable resources from pollution, and preserving non-renewable resources from depletion". Other perspectives on economic development emphasize the importance of efficiently utilizing existing scarce or idle resources. According to this view, achieving continuous and sustainable growth requires not only optimizing resource allocation but also addressing the institutional, political, social, and economic mechanisms and tools within both the public and private sectors. Such a comprehensive approach is essential to driving improvements in living standards in a consistent and accelerated manner.

4. ECONOMIC EFFECTS OF OIL REVENUE

Oil revenues have played a somewhat contradictory role in the economic development of developing countries, particularly those lacking essential development components such as strong institutions and technical or administrative expertise. On one hand, oil revenues have significant positive effects. They serve as a primary source of capital to finance economic development projects, programs, and plans, reducing the need for taxing individuals or borrowing from abroad. This, in turn, helps foster industrial, agricultural, and

service sector growth in countries reliant on these revenues. Additionally, oil revenues provide the foreign exchange necessary to import goods and services that cannot be produced locally. On the other hand, oil revenues also have negative implications for economic development, with some of the most significant challenges being the following:

- 1) Monetary expansion and financial inflation due to the economic backwardness in the oil-producing countries and their inability to provide the volume of the gross national product necessary to cover the increase in domestic demand for goods and services, which causes the prices of goods and services to rise faster than the increase in the gross national product.
- 2) Fluctuation in the volume of oil revenues due to fluctuations in oil prices in global markets. Therefore, the revenues of oil-producing countries are unstable, and their economic performance depends on external factors, which exposes the national economy of those countries to serious risks.
- 3) High consumption rate and increased dependence on imports due to the financial expansion resulting from the increase in oil exports and the resulting increase in the incomes of individuals working in the public and private sectors.

5. ADVANTAGES OF FOREIGN DIRECT INVESTMENT AND CRITICISMS DIRECTED AT IT

Efforts to encourage the flow of foreign direct investment aim to benefit from the technology and technical and administrative knowledge that accompany the flow of this investment, as some countries may have the necessary funds to establish projects, but the lack of modern technology prevents the implementation of these projects. The most important advantages of foreign investment can be summarized. Direct and criticisms directed at him are as follows:

- Training local workers who have job opportunities in branches of foreign companies,

and acquiring modern technological skills using the latest work and training methods. Workers in these branches transfer and use their scientific, technical and administrative skills and knowledge to local companies when they join them. It is argued that in some cases, foreign direct investment does not play a noticeable role in the field of local labour acquiring modern technological skills, due to the small number of job opportunities produced by those investments due to their use of capital-intensive technological methods [4].

- The branches of multinational companies provide the needs of local companies for machinery, equipment, and technical assistance on favourable terms in the local market, which allows local companies the opportunity to produce goods with international specifications, and thus the ability to export their products to foreign markets. It is taken into account that such machines, equipment and production methods are characterized by capital intensity, which may not be appropriate to the conditions of the host country with its relative abundance of unskilled labor, and such technology is not adapted to suit the economic and social conditions of the host country except in rare cases.
- The emergence of competition between branches of multinational companies and local companies, which pushes the latter towards trying to obtain, adapt and develop the latest technical and administrative systems. The ability of local companies to acquire modern systems increases with the development of their technical, technological and human capacity. However, on the other hand, foreign companies may work in seizing local companies that are competitors in the local market, and create monopolistic situations for multinational companies.
- Adding foreign investments to the capital composition of the host country's economy and compensating for the lack of savings as a result of the renewed flow of those investments or reinvesting their returns. There is a possibility that these investments will

contribute to treating the structural imbalance of the host country's economy, if they flow into the industrial sector and infrastructure projects necessary for the establishment of a modern economy. However, foreign investments may not be directed to the economic sectors in a way that contributes to resolving the structural imbalance using modern technology, which leads to the establishment of a dual economy in that country, where the economy of the host country becomes composed of two sectors, one of which is relatively advanced from a technological standpoint and is represented by branches of foreign companies. The other is technologically backwards and contains local companies. In addition, the investments of these companies may be directed towards extractive industries in order to exploit the natural resources of the host country without manufacturing those resources in that country, and thus limited contribution to the development of the manufacturing sector.

- Supporting the host country's balance of payments. The international or direct effects of foreign direct investment on the host country's balance of payments may be positive, due to the increase in that country's foreign exchange earnings (capital operations account). This is in addition to the fact that foreign direct investment provides the host country with greater capabilities. To conquer export markets and increase their export revenues, but these effects on the balance of payments in the medium term are often negative due to the following reasons:

A) The positive effects on the balance of payments that accompany the influx of foreign investment quickly turn into negative effects after a while. As foreign investment will lead to an increase in the host country's imports of intermediate goods and services, multinational companies will also begin to transfer their profits abroad, in addition to paying interest on the financing received for those companies from banks abroad, and paying for patents and aid. This is in addition

to transferring a portion of the salaries of foreign workers in these projects abroad.

B) Despite the possibility of increasing the host country's exports through the activity of multinational companies and their extensive network of contacts in international markets, there are practices on the part of those companies that limit the importance of this possibility, and among these practices is the company itself limiting the exports of its branches in the host country, as the branch is very It is prohibited to compete with the parent company in global markets, or perhaps those branches are only allowed to export to specific markets in accordance with what are called "restrictive conditions." These practices have constituted a noticeable trend on the part of multinational companies, for some considerations such as the parent company's desire to protect its markets. Or the markets of some of its branches. The parent company may also seek to regulate the return on the technology and technical knowledge that it possesses, as limiting the ability of some branches to access certain markets creates an appropriate opportunity for other branches to buy technical knowledge and whose production covers those markets.

C) There is also the potential for increased pressure on the host country's balance of payments due to the export and import pricing policies implemented by multinational companies, particularly when capital is integrated across several of their branches. In such cases, the parent company may adopt practices such as undervaluing the prices of exports and imports between its subsidiaries. The underlying motivation for this pricing strategy is often to shift the tax burden from a high-tax jurisdiction to one with lower tax rates, thereby minimizing overall tax liabilities. This practice can distort trade balances and negatively affect the host country's economic stability

and revenue generation. Or it may resort to this as a hidden means of transferring profits from a country that imposes strict restrictions on Transferring profits and capital to another country with less stringent restrictions in this area.

6. THE IMPACT OF FOREIGN DIRECT INVESTMENTS ON EXPORT DIVERSIFICATION

Foreign companies generally, in their investment policy, localize their industrial facilities in host countries to take advantage of the advantages available in these countries, which are mainly represented by lower production costs. Thus, these companies promote their products either in the internal market of the host country or conquer new markets. In the first case, this policy is used to avoid transportation costs and customs duties, which you may face when exporting from the country of origin to the host country, but in this case, it is required to have a wide internal market and consumers with great purchasing power to absorb the products of this type of company. In this context, it can be argued that the impact of foreign investment on exports may be weak or even non-existent in certain cases. However, when foreign direct investment targets new markets, it can lead to an integration between such investments and a boost in exports from the host countries, particularly when these countries lack the capacity to distribute their products or face export restrictions. Therefore, it is essential for host countries to adopt an industrialization strategy that prioritizes export growth rather than solely focusing on import substitution manufacturing. The success of countries like the “Asian Tigers” can be attributed to the development of industries that initially thrived under protectionist measures, which were gradually eased in favor of strengthening export-oriented industries. Creating a regional economic space based on integration and trade exchange, as well as establishing free trade agreements, plays a significant role in attracting investors who seek to export beyond the host countries without facing customs barriers. This, in turn, can enhance

export growth and improve the overall balance of trade performance. However, foreign investment also tends to coincide with an increase in imports, driven by the high demand for intermediate products used in the production of finished goods and equipment. This reliance on imports can hinder the achievement of a balanced trade performance, particularly in the early stages of industrialization. However, despite the varied conclusions of research focused on the relationship between investment and economic outcomes, the experiences of most emerging countries have demonstrated that reliance on foreign direct investments (FDI) has significantly contributed to enhancing the competitiveness of their industrial exports, as well as diversifying and improving their export offerings. The geographical distribution of foreign direct investments in Libya shows a similar trend. Between 2018 and 2022, the total foreign direct investments flowing into Libya amounted to 4,729.618 million dinars, as shown in Table No. (1).

The number of countries making direct investments in Libya totals 30, including 9 Arab nations. The distribution of foreign direct investments (FDI) during the period from 2018 to 2022 is as follows:

- A) **Britain** leads the list of investing countries, with investments amounting to 2,757.729 million dinars, or 58.3% of the total foreign direct investments during the period.
- B) **Mauritius** comes in second place, with investments reaching 650.000 million dinars, representing 13.74% of the total foreign investments in Libya from 2018 to 2022.
- C) **The United Arab Emirates (UAE)** ranks third among all investing countries and holds the first position among Arab nations, with investments totaling 311.461 million dinars, or 6.5% of the total foreign direct investments during the same period.
- D) **Algeria** holds the fourth position overall and ranks second among Arab countries, with investments amounting to 260.427 million dinars, or 5.51% of the total foreign direct investments received by Libya between 2018 and 2022.

E) The total investments from **Arab countries** in Libya reached 843.992 million dinars, accounting for 17.8% of the total foreign direct investments during the period.

This data highlights the major contributors to Libya's foreign direct investment landscape, with particular emphasis on the dominance of Britain and the significant role of Arab nations in shaping the country's economic engagement.

Table 1. Geographical distribution of inward foreign direct investments by country to Libya during the period 2018-2022 (Million dinars)

number	Country	The value of inward foreign direct investments	Contribution percentage %
1	Saudi Arabia	4.900	0.10
2	Bahrain	7.800	0.16
3	The UAE	311.461	6.50
4	Palestine	4.076	0.08
5	Jordan	19.088	0.40
6	Morocco	6.582	0.14
7	Tunisia	105.976	2.24
8	Egypt	123.682	2.61
9	Algeria	260.427	5.51
10	Bosnia	3.864	0.08
11	China	6.662	0.14
12	Germany	13.064	0.27
13	Austria	2.232	0.05
14	Greece	1.424	0.03
15	America	50.585	1.07
16	Belgium	4.297	0.09
17	Türkiye	4.286	0.09
18	Belarus Russia	9.945	0.21
19	Slovakia	0.629	0.01
20	Switzerland	22.541	0.48
21	France	14.955	0.32
22	Cyprus	43.358	0.92
23	Canada	2.499	0.05
24	South Korea	19.500	0.41
25	Malta	170.530	3.60
26	Mauritius	650.000	13.74
27	Holland	3.712	0.08
28	Spain	6.773	0.14
29	Britain	2,757.729	58.30
30	Italy	97.041	2.05
Total		4,729.618	

Source: Investment Promotion Authority annual report for the period 2018-2022 [5]

The analysis of foreign direct investments (FDI) across various economic sectors reveals that these investments have not met expectations, with the majority being concentrated in the oil and gas sector. This focus on oil and gas allows the utilization of local resources for further investments, but the Libyan economy requires investment and partnerships in other sectors that can renew resources and enable the commencement of production across all industries. The relatively low level of foreign investment in other economic sectors can be attributed to several key factors, the most significant of which are as follows:

1. The lack of a competitive market, as the Libyan economy has not yet reached the level of required reforms, and this is considered relatively acceptable given the economic blockade that Libya went through during the crises that the Libyan economy went through.
2. In addition to what was mentioned previously, a foreign investor cannot take a risk unless he notices that the private sector is taking a risk in the host country, but what is observed in the Libyan economy is that commercial activity related to importing is predominant, due to the high returns it achieves compared to investment activity, as well as The facilities and manipulations in this field encourage private individuals to continue this activity instead of venturing into the investment process.

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ULOGA STRANIH ULAGANJA U NAFTNOJ INDUSTRIJI

Rezime: Svrha istraživanja je da unapredi dugoročni rast u Libiji i mnogim zemljama u razvoju i omogućiti im da se pridruže razvijenim zemljama. Dva istraživačka pitanja kojima se ovaj rad bavi su: a) Koju ulogu mogu imati strane investicije u naftnom sektoru i proizvodnoj industriji u ekonomskoj diversifikaciji Libije i drugih zemalja? b) Koje su prateće mere koje je potrebno preduzeti da bi se povećao pozitivan uticaj stranih investicija na produktivnost Libijske ekonomije? Važna literatura koja vodi ovo istraživanje doprinosi ekonomskom i društvenom razvoju Libije i nekih zemalja. Direktno strane investicije smatraju se mehanizmom za poboljšanje produktivnosti, transfer stručnosti i tehnologije, podsticanje zapošljavanja i povećanje vrednosti izvoza, posebno u sektoru nafte i proizvodnje. Dizajn kvalitativnog istraživanja fokusiran je na najuspešnije ekonomske subjekte koji imaju koristi od iskustava. Međunarodna zajednica igra ključnu ulogu u strukturnoj transformaciji ekonomije Libije i drugih zemalja na severu Afrike i Bliskom istoku. U radu se došlo do dva glavna rezultata. Prvi je da je neophodno nastaviti sa podsticanjem preovlađujućeg industrijskog tkiva (industrija prerade nafte, prehrambena industrija i tekstilna industrija) u cilju podizanja vrednosti izvoza i očuvanja radnih mesta. Drugo, paralelno sa podsticanjem razvoja, neophodno je podsticati i industrijsku specijalizaciju Libijske ekonomije. Političke implikacije rezultata istraživanja su da uticaj stranih investicija na privredu arapskih zemalja varira od jednog sektora do drugog. Dakle, zemlje koje su ostvarile uspešan privredni procvat su one koje su bile u mogućnosti da usmere investicije u privredne aktivnosti sa visokom dodatnom vrednošću, kao što se desilo u Kini i Indiji. Negativni efekti stranih investicija su bili da je prisustvo stranih investicionih kompanija negativno uticalo na domaća preduzeća. Uprkos njihovom doprinosu povećanju izvoza, oni su negativno uticali na produktivnost sektora. Implikacije rezultata istraživanja na društvenu praksu jeste da proizvodni sektor igra važnu ulogu u apsorpciji radne snage, posebno one operativne koja ima prosečne kompetencije, i time doprinosi formiranju i rastu srednje klase u svetu. Direktno strane investicije u ovom sektoru pružaju mnoge mogućnosti za zapošljavanje domaće radne snage i podizanje plata.

Ključne reči: strane investicije, nafta, ekonomska politika, ekonomske analize Libije i arapskih zemalja.

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PSYCHOLOGICAL TESTING IN PROFESSIONAL SELECTION: APPLICATIONS AND CONSIDERATIONS

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Abstract: *In recent years, psychological testing has become increasingly prevalent in the professional selection process within organizational contexts. Psychological testing offers valuable insights into candidates' psychological traits and abilities related to the specific requirements of the workplace. This paper provides an overview of the use of psychological testing in the selection process, covering the types of tests most commonly used, the importance of the validity and reliability of psychological instruments, the ethical considerations, positive practices and recommendations for further use. The emphasis is on the selection of appropriate measuring instruments and the proper application of psychological tests based on the organizational needs, in order to provide more information about the potential work performance of the candidates and their compatibility with the job requirements. Although the use of psychological testing in the selection process can be particularly useful, it is recommended to be used in combination with multiple assessment methods in order to optimize its impact on hiring decisions.*

Keywords: *professional selection, psychological tests, testing, recruitment, human resources*

INTRODUCTION

Human resources are considered the most important asset of any organization, and hiring the right candidates for the job is one of the key aspects of the recruitment process. For those reasons, the professional selection of candidates is a challenging task for professionals working in the field of human resource management. They aim to recruit and select potential candidates who will meet the organization's needs in order to fulfil its strategic goals. Basically, recruitment refers to the activities carried out to attract qualified people,

according to the human resource plan, while personnel selection consists of the procedure of selecting those who are most suitable to fill a position (Dolan & Raich, 2010; Polanco, 2013). Therefore, professional selection is an extremely responsible activity because it involves making decisions that can have a significant impact on the organization and its employees.¹

Professional selection is the process of carefully screening potential job candidates in

¹ Escobedo Portillo, A. & Mancera-Valencia, F. (2021). The Processes of Recruitment and Selection of Personnel: Between Objectivity and Subjectivity. *International Journal of Social Sciences Perspectives*. 9. 1. 10.33094/7.2017.2021.91.1.8.

order to select the most suitable individuals to meet the needs of the position. Selection can be defined as the procedure of choosing one candidate of the group of registered candidates who is most suitable for a certain position and organization.² According to Dale Yoder, "Selection is the process in which candidates for employment are divided into two classes - those who are to be offered employment and those who are not".³ Employee selection is the process of collecting and evaluating applicant information with the goal of identifying the best person for a position. During the selection, the applicant's knowledge, skills and abilities, as well as attitudes and other relevant factors are carefully analyzed.⁴ The objective of the selection process is to match the applicant's ability, knowledge, skills and experience with job requirements in a fair and legal manner.⁵ The goal is to predict whether a given person will be able to cope with situations of specific tasks and requirements at the workplace. Through the professional selection, the degree of compatibility between the job candidate and the professional and personal criteria for the performance of the specific work activity is perceived. Every candidate can be a potential employee, but it becomes real when the professional selection procedure is successfully completed for him. (Mancheva, 2020)

The success of the organization depends on effective recruitment and selection system. The scope of professional selection of candidates is very wide, and each company has its own model of recruitment and selection according to their policies and procedures. The right professional selection is crucial to the success of the organization because it can lead to increased productivity, collaboration, better

team dynamics, greater employee engagement and overall better performance and development. On the other hand, making the wrong selection can result in wasted resources, reduced satisfaction, affect the company's reputation and cause potential legal problems. (Kompaso & Sridevi, 2010; Escobedo Portillo & Mancera-Valencia, 2021).

To avoid any negative outcome and ensure relevant employment, it is common for companies to base their recruitment on job competencies, basing selection procedures on interviews, application of psychological tests, review of resumes and checking of references, among others, all based on the previous analysis of the job position. (Lopez, 2010) It is essential that organizations invest in effective selection processes to ensure that they hire employees who are aligned with the company's goals and needs.

1. THE PROCESS OF PROFESSIONAL SELECTION OF CANDIDATES

To ensure an effective, correct and aligned process with the organization's goals, it is necessary to take into account various factors that are relevant to the organization and the workplace. In the twentieth century selection was primarily aimed at matching people to specific jobs. However, in the 21st century more and more importance is given to flexibility and following the changes that occur in the wider occupational context. (Davidson et al., 2020) It has now become necessary to look beyond job-specific skills when assessing people and look at the potential range of personality matches. (Chai, 2022) Such matches include organizational culture, personality characteristics and movement in and out of the institution, interaction with a wider range of potential collaborators.⁶

The existing literature in the field suggests that the professional selection process should be aimed at providing relevant information to

² Gusdorf, M. (2008). Recruitment and selection: Hiring the right person, Society for Human Resource

³ Selection: Meaning and Procedure by Anurodh Godha. Retrieved March 12, 2024 from <https://ebooks.inflibnet.ac.in/mgmtmp01/chapter/selection-meaning-and-procedure-2/>

⁴ Fried, J. B., Johnson, J. (2002). Human resources in healthcare: managing for success. AUPHA Press, Washington, D.C.

⁵ Karim, Md & Bhuiyan, Arafat & Kumer, Sujit & Nath, Deb & Bin Latif, Wasib. (2021). Conceptual Framework of Recruitment and Selection Process. Journal of Business and Social Sciences Research. 11. 18-25. 10.18533/ijbsr.v11i02.1415.

⁶ Ogunsola, O. K., Arikewuyo, K. A., Oluwarotimi, O., & Akintokunbo, V. E. O. (2023). Employee Selection Process: An Approach for Effective Organizational Performance. International Journal of Social Science and Human Research, Vol. 06 (10), 6132-6140

the candidate through a number of successive steps or stages. Kis (2022) suggests that the selection process consists of the following steps:

- 1) Initial Screening
- 2) Completion of the Application Form
- 3) Employment Tests
- 4) Job Interview
- 5) Conditional Job Offer
- 6) Background Investigation
- 7) Medical Examination
- 8) Permanent Job Offer

MacKenzie & Pantelakis (2023) distinguish the following stages in the process of professional selection:

- [1] Application
- [2] Resume screening
- [3] Screening call
- [4] Assessment test
- [5] In-person interviewing
- [6] Background checks
- [7] Reference checks
- [8] Decision and job offer

Analyzing the models for professional selection, Mancheva (2020) points out that the dynamics of the work positions require the search for potential in the candidates that will enable them to accept and adapt to the changes in the labour activity. According to her, in the methodology of the American organizational structure for professional selection, job candidates go through four stages: testing, preliminary interview, interview with a supervisor or manager and a job offer. The review shows that in the selection process the psychodiagnos- tics assessment is applied immediately after the analysis of their documents, while in the European area the interviewing of the candidates precedes the diagnostic process.

The selection process needs to be organized in a way that will allow candidates to accurately demonstrate or provide information on compliance with the criteria for selecting the position. As all positions differ in purpose, knowledge, skills and abilities required, so may the

selection techniques used to assess suitability to match the requirements. However, the professional literature in the field and practice in personnel selection shows that useful to include several methods and techniques for selection, such as tests, techniques and scales for assessing personality and specific abilities. In this way, the data obtained by methods with naturalistic character (interview, observation, communication) are supplemented with psychological instruments and a more comprehensive evaluation of the candidates is enabled, providing unique insights into their characteristics, skills, abilities and qualities related to the professional role they are expected to perform.

2. THE USE OF PSYCHOLOGICAL TESTS IN THE SELECTION PROCESS

A psychological test is a systematic procedure of “collecting” a sample of behaviour relevant to the cognitive, affective or interpersonal functioning of the person being examined and their scoring and interpretation according to established norms. (Belevska, 2018; Miller & Lovler, 2018; Anastasi, 1998) Testing involves the application of standardized psychological instruments, and increases the reliability of information obtained by other methods and means, usually of a naturalistic character. Four basic principles are important to psychological testing (Hogan, 2007):

- 1) People differ in important traits;
- 2) Traits can be quantified;
- 3) Traits are relatively stable;
- 4) Trait measures are related to existing behaviour.

These principles are also particularly significant in testing for professional purposes, as they form the basis for understanding and assessing individuals in the selection process. The use of psychological tests is a practice used by many organizations to assess various aspects of individuals’ functioning that are relevant to their performance in the positions they are applying for. Psychological tests play a crucial role in enhancing the accuracy of

candidate selection in recruitment processes. (Chipana-Castillo, Miranda-Roca & Wagner, 2021; Sherin & Ghazal, 2022) They can provide valuable insights into the suitability of candidates for a particular role by assessing their personality characteristics, abilities, attitudes, potential, and help organizations make more informed hiring decisions. (Meyer, 2023; Mancheva, 2020; Gusdorf, 2008) However, in order to obtain relevant information, psychologists need to make an adequate choice of measuring instruments with which to make an assessment, with particular attention to what they specifically want to assess, how reliable that method is, for what age it is intended and whether it is sensitive to cultural, educational, gender or age differences. When using psychological tests, it is necessary to consistently follow the professional recommendations for their use in selective purposes that are regarding their reliability, validity, normative samples, critical scales, and feedback given to candidates and potential employers. (Carles, 2009) Miller and Lovler (2018) state that psychological testing is an important component of the overall assessment of an individual for various purposes, but it is not the sole component of assessment. Yet, psychological testing has several advantages over other selective procedures:

- Psychological tests are easy to administer;
- Unlike other selective means, they are less influenced by the personal qualifications of the one who gives them;
- They are objective;
- The bias in the assessment of the test is lower in contrast to other selective means;
- The tests provide a quantitative description of an individual's characteristics. Quantification is very important for distinguishing between candidates in professional selection.

Depending on the specificity of the job and the requirements of the company, different types of psychological measuring instruments are used in the professional selection process, belonging to one of the following broad categories

of tests: (Taylor et al., 2002; Salgado & De Fruyt, 2005; Carless, 2007; Belevska, 2018)

- Ability tests, and
- Personality tests.

Ability tests are standardized methods of evaluating an individual's performance in various situations or work activities. Since the development of ability tests until today, they represent one of the most reliable means of occupational selection and are used to assess various types of abilities, including cognitive abilities, psychomotor abilities, some specific job-related abilities, and the achievements of candidates. (Riggio, 2003; Carles, 2009; Sehwat & Sehwat, 2007) According to Schmidt & Hunter (1998) the main reason to incorporate ability testing into the selection processes is that they are the strongest predictors of real-world job performance known. The type of abilities that are assessed during the professional selection process depend on the nature of the tasks of interest. For the most part, according to the needs of the organizations, tests that measure individual's cognitive abilities as verbal comprehension, perceptual reasoning, numerical reasoning, working memory, problem-solving, analytical and critical thinking, spatial reasoning, psychomotor abilities and additional specific abilities are used. (Robertson & Smith, 2001; Sehwat & Sehwat, 2007) According to Petrovska-Beshka, Kenig and Blazevska-Stoilkovska (2018), in the period from the 50s of the last century until today, tests of cognitive abilities have been constructed that are used as selective techniques, starting with those for measuring general intellectual ability, and ending with those which assess specific cognitive abilities, such as: sensory, psychomotor, mechanical, etc. They state that tests of general intellectual ability, as opposed to tests that measure specific abilities, have been criticized for being less effective predictors of job performance, but many authors point out that they remain valid and reliable means of professional selection. (Riggio, 2003; Robertson & Smith, 2001; Schmidt, 2002)

Personality tests are based on either trait or type approach of personality theory. In general, personality refers to the enduring characteristics and behaviour that comprise a person's unique adjustment to life, including major traits, interests, drives, values, self-concept, abilities, and emotional patterns.⁷ Personality tests measure the typical behaviour of the individual in a certain situation or context, and the dispositions of the individual in a given situation to behave or react in a certain way. (Petrovska-Beshka & Kenig, 2013) It has long been recognized that personality is of great importance in people's success in work, no less than in the approach they take to other aspects of their life. Personality tests are used in the organizations to determine whether the candidates will fit the organizational needs and culture, and also to identify the ones that have a correlation to the performance at the workplace. Personality measurement is very clearly

a part of the whole field of testing, but the way in which personality measures are labelled and described varies. (Edenbrough, 2005) Depending on the structure of the test, one or more dimensions of a person and their relationship are measured, in order to detect personal advantages and disadvantages of the candidates in relation to the specific requirements of the workplace, as well as the potential for their professional growth and development. Table 1 provides a list of the most commonly used personality tests in professional selection, with a description of the characteristics obtained by the assessment.

Psychological testing is considered an integral part of the best practices for professional candidate selection. Carless (2009) points out that in recent years the use of psychological tests in the selection process is increasing for the following reasons:

- [1] Availability of psychological tests;
- [2] Awareness of testing as a positive selection practice is growing;

⁷ American Psychological Association. (N. D.). Personality. Retrieved 04.03.2024

Table 1. List of personality tests used in professional selection

Personality Test	Description	Key Features
NEO Personality Inventory-Revised (NEO PI-R)	Measures five broad personality traits: Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism	Provides a systematic assessment of emotional, interpersonal, experiential, attitudinal, and motivational styles. This detailed personality description can be a valuable resource for a variety of professionals.
Myers-Briggs Type Indicator (MBTI)	Assesses personality preferences based on four dichotomies (Introversion vs. Extroversion, Sensing vs. Intuition, Thinking vs. Feeling, Judging vs. Perceiving)	Provides insights into communication style, information processing decision-making, work preferences.
16 Personality Factor Questionnaire (16PF)	Includes 16 primary trait scales: warmth, reasoning, emotional stability, dominance, liveliness, rule conscious, social boldness, sensitivity, vigilance, abstractness, privateness, apprehension, open to change, self-reliance, perfection, and tension	Provides predictive insights for behaviour in work-related settings, including leadership potential, teamwork skills, problem-solving abilities, communication style.
DISC Assessment	Evaluates personality traits based on four dimensions: Dominance, Influence, Steadiness and Conscientiousness.	Provides valuable perspectives on person's interaction style, control over situations, ability to work in consistent manner, approach to tasks.
SHL Occupational Personality Questionnaire	Key measurement areas include relationship with people, thinking style and feelings and emotions.	Provides insights into an individual's work-related behaviours, interactions and collaboration with others, approaches to intellectual tasks, emotions management, adaptability, work ethics.

- [3] There is evidence of validity and reliability of the tests;
- [4] The professionalism of human resources management and their involvement in decision-making in the organization has increased.

According to the Society for Industrial and Organizational Psychology many organizations in the United States use psychological assessment as supplemental information for making hiring, promotion, and development decisions. Statistics show that:⁸

- 29% of employers use one or more forms of psychological measurement or assessment;
- 20% of employers use cognitive ability tests;
- 14% of employers use some form of managerial assessments;
- 13% of employers use personality tests;
- 8% of employers use interest inventories.

Many studies support the use of psychological instruments for professional selection, highlighting the benefits of psychological examination of candidates. Psychological testing is used in the selection of professionals in various positions such as health professionals (Powis, 2009), police officers (Cochrane, Tett & Vandecreek, 2003; Lough, & Von Treuer, 2013; Detrick & Chibnall, 2013), bank service representatives (Baron, Hellya & Hellya, 2020), management positions (Kumar, 2014; Wasylshyn, 2010; Taylor, Mills & O'Driscoll, 1993).

The ultimate goal of psychological testing is to provide accurate and meaningful information about the traits, characteristics, abilities and behavior of individuals involved in the selection process, and this is possible with professional and responsible use of measuring instruments and compliance with the principles of psychological testing.

3. CONSIDERATIONS IN USE OF PSYCHOLOGICAL TESTS FOR PROFESSIONAL SELECTION

Regardless of the type of psychological testing in the organizational context, it is necessary to assure that the tests are given according to the recommendations, and that the results are communicated in a way that is understandable for all professionals involved in the selection process. It is important to note that the psychological tests may only be given, analyzed and interpreted by licensed psychologists, in a way that is determined according to the specifics of the tests and the guidelines for their administration.

In practice, among professionals who are not psychologists, there is often a discussion whether abilities, characteristics and behaviour are measurable at all. Although there are different views and opinions regarding this issue, it is more than certain that they can be measured with appropriate psychological tests and provide an answer to the specific needs of the selection process. Psychological measuring instruments used in the process of professional selection need to be standardized, thus ensuring objectivity and certainty that the evaluation of each respondent depends only on the expression of his characteristic or ability, and not on the testing procedure. (Dinić, 2019) In addition, to ensure the accuracy and consistency of the test results, the validity and reliability of the psychological tests are taken into account. Reliability is a characteristic that a test should possess in order to be usable, the scores obtained during repeated application of the test to the same subjects will be the same or similar and will not include error due to the measurement process itself, while the validity of the test is the extent to which the test measures what it claims to measure (Dinić, 2019; Urbina, 2004). Understanding the complex nature of the psychological testing in professional selection is of crucial importance for optimizing the recruitment process and mitigating any potential flaws. Likewise, the selection of tests that are appropriate for the specific job role and organization may respond to

⁸ Society for Industrial and Organizational Psychology (N. D.). How Many U.S. Companies Use Employment Tests? Retrieved February 24, 2024 from <https://www.siop.org/Business-Resources/Employment-Testing/Test-Use>

the need to address the specific abilities, skills, and personality characteristics necessary to fit the specific job position.

Apart from the psychometric characteristics of the tests, it is important to consider the ethical standards for application of the psychological tests, as well as the regulations for their application. (Petrovska-Beshka, Kenig and Blazevska-Stoilkovska, 2018) Important decisions for people are made based on the tests, and therefore their professional and ethical application is of particular importance. A basic rule regarding the use of tests is that psychological testing may only be performed by a person who possesses appropriate professional qualifications. (Petrovska-Beshka & Kenig, 2013) Thus, in the process of professional selection, candidates are protected from irregularities in the selection, administration and interpretation of test results. If there are any limitations regarding the application of the test and its interpretation, they must be explicitly stated and explained.

Psychologists who are involved in the candidate selection process need to ensure a high quality of services, which includes impartiality in the procedure, confidentiality and integrity. Respecting the privacy of candidates is of undoubted importance. Recruitment of candidates for employment often involves sharing a lot of data before the selection process begins, and psychological testing sometimes includes personal information that is not directly related to the job, but is important for assessing certain aspects of the respondent's functioning. (Sehrawat & Sehrawat, 2017; Wang, Sun, Drake & Hall, 2015; Stone-Romero, Stone & Hyatt, 2003) For those reasons, in the selection process, it is necessary to inform the candidates about the objectives of the testing and the way in which receive the data, as well as the confidentiality of the shared data, i.e. who will have insight into the results obtained. Bearing in mind that this is sensitive information about the candidates, including their personality characteristics, abilities and functioning, the obligation of privacy and confidentiality

applies to all professionals involved in the selection process.

It is important to mention that candidates can influence the results of some psychological tests. It may happen that the candidate consciously distorts the data and manifests a tendency to present himself in a socially desirable light, to lack motivation for engaging in answering the tests, or that his answers are under influence of inappropriate conditions and distractors during the testing. (Dinić, 2019; Belevska, 2018; Paulhus, 2002) In order to prevent negative impact of testing in the selection process, it is important to provide clear instructions for answering the tests and to encourage candidates to give accurate responses. Many psychological tests also contain validity scales, so they can detect socially desirable behaviour and thus provide reliable results. It is also important that the testing takes place in pleasant conditions to minimize distractions and ensure that candidates can focus on testing without external influences.

Although psychological testing has numerous advantages and provides significant insight into the personal characteristics, abilities and behaviour of the candidate, conclusions regarding professional selection should always be based on assessment with multiple methods, including resume screening, interviews, background and reference checks. Overall, using several approaches for professional selection improves the fairness, accuracy, and efficacy of the hiring process, resulting in better recruiting decisions and stronger organizational outcomes.

CONCLUSION

The process of professionally selecting candidates is one of the most crucial activities undertaken by organizations. Its primary objective is to hire individuals who will deliver optimal performance in the workplace and contribute effectively to achieving the organization's goals. Various methods are used for the purposes of professional selection, among which is psychological testing as a significant resource for the selection of candidates

for employment in various job positions. Psychological tests provide significant information about the abilities, skills, personality characteristics of the individuals involved in the selection process, which cannot be obtained by other methods or from different sources. (Carless, 2009; Chipana-Castillo, Miranda-Roca & Wagner, 2021; Sherin & Ghazal, 2022)

When using psychological tests in the selection process, the choice of instruments to be used is particularly important, in order to obtain valid and reliable information about candidates according to organizational needs. In practice, ability tests and personality tests are predominantly used, which include the assessment of various aspects of the functioning of individuals, as well as their qualities and potentials related to the occupational role that is expected of them. From psychological testing, significant information can be obtained that is relevant for predicting their adjustment in the organizational context and potential success in the given role, as well as improving the

process of professional selection by providing comprehensive reliable and valid data for candidates. Psychological testing can be a powerful tool for making effective hiring decisions, and when used in occupational selection it is recommended to:

- Use standardized measuring instruments, with proven validity and reliability;
- The tests must be used by qualified professionals, in a manner determined according to the specifics of the tests and the directions for their administration;
- Respect the ethical standards for the use of psychological tests;
- Respect the privacy of the candidates and the confidentiality of the received data;
- The testing should be conducted in adequate conditions to avoid potential inconsistencies when answering the tests by the candidates;
- Psychological testing should be used in combination with other professional selection methods to ensure fairness, accuracy, and efficacy of the hiring process.

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PSIHOLOŠKO TESTIRANJE U PROFESIONALNOJ SELEKCIJI: PRIMENE I RAZMATRANJA

Rezime: Poslednjih godina psihološko testiranje se sve više koristi u procesu stručne selekcije kandidata u organizacionom kontekstu. Psihološko testiranje nudi dragocene uvide u psihološke osobine i sposobnosti kandidata u vezi sa specifičnim zahtevima radnog mesta. Ovaj rad daje pregled upotrebe psihološkog testiranja u procesu selekcije, pokrivajući tipove testova koji se najčešće koriste, važnost validnosti i pouzdanosti psiholoških instrumenata, etička razmatranja, pozitivne prakse i preporuke za dalju upotrebu. Akcenat je na odabiru odgovarajućih mernih instrumenata i pravilnoj primeni psiholoških testova na osnovu organizacionih potreba, kako bi se pružilo više informacija o potencijalnom radnom učinku kandidata i njihovoj kompatibilnosti sa zahtevima posla. Iako upotreba psihološkog testiranja u procesu selekcije može biti posebno korisna, preporučuje se da se koristi u kombinaciji sa više metoda procene kako bi se optimizovao njen uticaj na odluke o zapošljavanju.

Ključne reči: profesionalna selekcija, psihološki testovi, testiranje, regrutacija, ljudski resursi

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CHALLENGES OF ARTIFICIAL INTELLIGENCE (AI) IN HIGHER EDUCATION INSTITUTIONS IN LIBYA

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Abstract: This paper aims to gain a comprehensive understanding of the challenges faced by higher education institutions in Libya, particularly during their adoption of artificial intelligence (AI) technologies. The primary challenges identified include issues related to teaching and learning, transparency, and ethical concerns. There are also the challenges related to integrating artificial intelligence (AI) technologies with existing organizational structures and systems in institutions with the challenges of planning, training, and financing. The most important advantages, benefits, and risks of applying artificial intelligence in educational institutions in developing countries such as Libya, and how students can benefit from applications such as 'ChatGPT' to enhance their knowledge levels, will be addressed. These challenges are the central focus of this article. To address and overcome them, it is essential to examine international legislation related to artificial intelligence (AI) in the educational sector and use it as a framework for developing local regulations. In addition to reviewing previous studies and methodologies, the findings from the literature review and the analysis of international legislation emphasize the need for a structural model that supports the integration of artificial intelligence applications into the curricula of higher education institutions. The article also provides recommendations for students and educators on the responsible and thoughtful use of this technology, aiming to better prepare them to be more knowledgeable, open, and ready to embrace these innovations.

Keywords: Artificial Intelligence (AI), Higher Education, ChatGPT, Challenges, Institutions

1. INTRODUCTION

The integration of Artificial Intelligence (AI) into higher education marks a transformative shift that holds the potential to redefine teaching methods, learning environments, and institutional operations globally [1, 2, 3, 4, 5, 6, 7]. In academic institutions worldwide, AI technologies such as adaptive learning systems, intelligent tutoring systems, and

automated administrative tools are no longer just future prospects but are actively shaping the educational experience for both students and educators [8, 9]. These technologies offer personalized learning pathways, enhance educational outcomes, and streamline administrative processes, all of which support the broader objectives of accessibility, quality, and efficiency in higher education [1, 3].

In Libya, the context of higher education is marked by a unique set of challenges and opportunities. Amidst the efforts to recover and rebuild from years of conflict, the country's education sector is at a crossroads, seeking to embrace modernization and technological integration [10]. The current state of higher education in Libya is characterized by a pressing need for infrastructure development, curriculum reform, and enhanced access to educational resources [10, 11, 12, 13]. In this landscape, the potential role of AI technologies emerges as a particularly compelling avenue for innovation. However, the adoption of such AI technologies is not without its challenges, including infrastructural limitations, a lack of specialized knowledge, and distance between policy and practice [14]. Furthermore, there are ethical considerations related to privacy, data protection, and the potential for bias in AI algorithms [3, 15]. Educational institutions must navigate these ethical minefields carefully to protect students and ensure that AI technologies are used responsibly and fairly [16, 17, 18].

This paper focuses on many challenges faced by higher education institutions in Libya as they navigate the adoption of AI technologies. These challenges encompass technical and organizational barriers, ethical and transparency concerns, and the overarching issues of planning, training, and financing such initiatives. Addressing these challenges is of paramount importance, not only for the successful integration of AI into Libyan higher education but also for ensuring that such integration contributes positively to the educational landscape, aligning with national development goals and enhancing the quality of education for all students. The significance of tackling these challenges cannot be overstated. By systematically identifying and addressing the barriers to AI adoption, Libyan higher education institutions can unlock the transformative potential of these technologies, fostering an educational environment that is innovative, inclusive, and capable of preparing students for the complexities of the modern world. Through this exploration, the paper aims to contribute

to a deeper understanding of the unique context of Libyan higher education and to propose viable pathways forward in the era of digital transformation.

This paper is structured as follows: Section 2 presents background with an overview of the Libyan higher education system and its readiness for technological advancements and related works. Section 3 discusses the challenges and risks of AI integration in Libyan higher education institutes. Section 4 presents the methodologies for overcoming challenges and Section 5 provides a recommendation and concludes the paper.

2. BACKGROUND

The journey of AI from theoretical underpinnings to practical applications spans over several decades, marking significant milestones that have reshaped various sectors, including education. This evolution began in earnest in the mid-20th century, with the development of simple AI programs designed to mimic human problem-solving skills. Over time, advancements in machine learning, natural language processing, and robotics have expanded AI's capabilities, allowing for more sophisticated applications in educational settings. Today, AI in education encompasses a broad range of tools and technologies, from personalized learning algorithms and intelligent tutoring systems to automated administrative tasks and data analytics for improving institutional efficiency. In educational contexts, AI has been harnessed to tailor learning experiences to individual students' needs, provide instant feedback, facilitate remote learning, and enable educators to allocate more time to interactive teaching by automating routine tasks. These innovations have not only enhanced the quality of education but also its accessibility, making personalized learning experiences available to a wider audience.

In Libyan higher education system, is characterized by a complex interplay of challenges and opportunities. The sector has historically been shaped by various factors, including political instability, economic constraints, and

infrastructural deficits. Despite these challenges, there is a growing recognition of the need for technological advancement and the potential of digital transformation to revitalize the educational landscape. The readiness of Libyan higher education institutions for technological advancements are a work in progress with significant variations in infrastructure, resources, and digital literacy across the country.

Efforts to integrate technology into the Libyan educational system have been intermittent, influenced by the broader socio-political context. However, recent initiatives have signalled a renewed interest in leveraging technology to enhance education. The introduction of digital platforms for learning and administration, along with the exploration of e-learning solutions, marks the beginning of this journey. Specifically, the application of AI in Libyan universities is still in the nascent stages, with scattered examples of AI use for administrative efficiencies, such as student information systems, and in some cases, experimental applications in learning and research. The focus has largely been on building the necessary infrastructure and capacity to support more widespread adoption of AI technologies in the future.

Moreover, there is an emerging discourse among academics and policymakers in Libya on the potential of AI to transform higher education. This includes discussions on developing AI-centric curricula, fostering partnerships with the tech industry to facilitate knowledge exchange, and investing in research and development to tailor AI solutions to local educational needs. The backdrop of AI's global development and its potential application in Libyan higher education sets the stage for a detailed exploration of the challenges and opportunities ahead. As Libyan universities grapple with integrating AI into their systems, they stand at the cusp of a significant transformation that could redefine teaching, learning, and administration within the sector.

2.1. OVERVIEW OF THE LIBYAN HIGHER EDUCATION SYSTEM AND ITS READINESS FOR TECHNOLOGICAL ADVANCEMENTS

The Libyan higher education system, while rich in history and academic tradition, faces numerous challenges and opportunities in the context of technological advancements, particularly the integration of AI. The readiness of this system to embrace such advancements can be evaluated across various dimensions, including infrastructure and connectivity, faculty training and expertise, curriculum integration, and research collaboration.

- **Infrastructure and connectivity:** A foundational challenge for the integration of AI technologies within Libyan universities is the limited access to high-speed internet and the lack of reliable technological infrastructure. For AI applications to function effectively, they require not only stable and fast internet connections but also sophisticated hardware and software resources. Many educational institutions in Libya struggle with outdated technology and insufficient bandwidth, which severely limits their ability to adopt and leverage AI tools for educational purposes. Addressing these infrastructural deficiencies is a prerequisite for the successful implementation of AI in the higher education sector, necessitating significant investment in network capabilities and modern hardware to support data-intensive AI applications [13, 22, 23].
- **Faculty training and expertise:** The effective use of AI in education extends beyond the mere availability of technology. It requires faculty members who are well-versed in AI concepts, algorithms, and tools. Currently, there is a notable gap in AI literacy among educators in Libya, with many lacking the training to integrate AI technologies into their teaching methodologies effectively. To bridge this gap, capacity-building programs are essential, aimed at enhancing the AI expertise of faculty members. These programs should cover a broad range of topics, from the basics of AI and machine learning to more advanced subjects such as AI ethics,

ensuring educators are equipped to leverage AI in a manner that enriches the educational experience for students [19, 20, 21, 23].

- **Curriculum Integration:** For AI to have a lasting impact on the higher education landscape in Libya, it must be seamlessly integrated into the curriculum. This involves the development and embedding of AI-related courses within existing academic programs, ensuring students gain a comprehensive understanding of AI principles, ethical considerations, and practical applications. Such curricular integration is crucial for preparing the next generation of Libyan students to thrive in an increasingly AI-driven world. Moreover, it's important to foster interdisciplinary approaches that highlight the relevance of AI across various fields of study, from engineering and computer science to business and the social sciences.
- **Research collaboration** [10]: The advancement of AI in Libyan higher education can be significantly supported through research collaborations with international institutions. Engaging in joint projects and fostering a culture of knowledge exchange can accelerate AI research and innovation within Libyan universities. These collaborations offer valuable opportunities for capacity building, access to advanced technologies, and the sharing of best practices in AI education and research. By actively seeking out partnerships and collaborative initiatives, Libyan higher education institutions can overcome some of the resource limitations they face and position themselves at the forefront of AI research and application in the region.

2.2. RELATED WORKS

The adoption of artificial intelligence technology in the higher education system has garnered significant attention in many developed countries. There is no doubt that education systems in most developing countries face challenges related to the lack of accurate and comprehensive research. Unfortunately, in Libya, the development of research in

education is still in its early stages, limiting the potential for progress and innovation in the sector. It reviewed many previous studies and research related to integrating artificial intelligence technology into the educational process in higher education institutions, which in turn contributed to building a deeper and broader understanding of the topic in question.

The relationship between artificial intelligence and education is shaped by a vast network of actors, not only technology developers or educators. In turn, artificial intelligence technologies develop within the established educational and technological contexts and do not arise spontaneously or on their own [13].

Security and politics are the main issues for developing higher education in Libya [2]. The direct consequences of the current conflict are the destruction of major infrastructure at higher education institutions, resulting from increased levels of insecurity and instability at the political level. This made it impossible to develop long-term strategic planning to develop the higher education system and integrate it with artificial intelligence technology. • Other important factors that should be considered relevant are basic technologies and expertise, economic dependence on oil and the dollar, the outdated legal framework for higher education, and the lack of links between the higher education system and the needs of Libyan society (private, public and civil society sectors).¹

UNESCO held the conference titled "Planning Education in the AI Era: Lead the Leap" in Beijing, China, in which ten essential topics including policy formulation, learning management, teaching, and teacher development were discussed. AI is the essential power to promote educational reform [14].

¹ www.tempus-unigov.eu

CHALLENGES AND RISKS OF INTEGRATING AI IN HIGHER EDUCATION IN LIBYA

2.3. CHALLENGES OF INTEGRATING AI IN HIGHER EDUCATION IN LIBYA

The integration of AI into higher education in Libya brings a complex array of challenges that span from pedagogical, technical to ethical, and strategic dimensions. Each of these challenges requires careful consideration and strategic planning to navigate successfully.

2.3.1. TEACHING AND LEARNING CHALLENGES

The integration of AI into the higher education sector in Libya presents a unique set of teaching and learning challenges. These challenges revolve around the adaptation of curriculum and teaching methods, as well as ensuring the readiness of both faculty and students for an AI-enhanced education. Addressing these challenges is crucial for leveraging AI to improve educational outcomes and prepare students for a future shaped by technological advancement.

2.3.2. TECHNICAL AND ORGANIZATIONAL CHALLENGES

Overcoming these challenges requires a strong commitment to modernizing technology infrastructure, providing ongoing training and support to staff and students, ensuring compliance with local and international laws and regulations, in addition to providing sufficient funding to modernize educational technology.

2.3.3. TRANSPARENCY AND ETHICAL CHALLENGES

1. Data privacy and security: The use of AI in education often involves the collection and analysis of large amounts of personal data from students, raising significant concerns about privacy and security. Institutions must implement stringent data protection measures and transparent policies to safeguard

this information and maintain trust among students and faculty.

2. Bias and fairness in AI applications: AI systems, being products of their training data and algorithms, can inadvertently perpetuate biases if not carefully designed and monitored. Ensuring AI applications in education are fair and unbiased requires ongoing scrutiny of the data and algorithms used, as well as the implementation of ethical guidelines for AI development and use within educational contexts.

2.3.4. PLANNING, TRAINING, AND FINANCING CHALLENGES

1. Planning challenges: Higher education institutions in Libya lack clear and specific strategies for integrating artificial intelligence technology into their educational activities.

2. Training challenges: Higher education institutions in Libya face difficulty in providing well-trained human resources in the field of artificial intelligence. In addition to the weakness of appropriate training programs to qualify human cadres to use and apply artificial intelligence technologies.

3. Funding challenges: There are clear challenges in securing sufficient funding to develop technical infrastructure and implement appropriate training programs. Under difficult economic conditions, educational institutions may rely heavily on government funding, which may not be sufficient to meet modern technology needs.

2.4. RISKS OF APPLYING AI IN LIBYAN HIGHER EDUCATIONAL INSTITUTIONS

The integration of AI into the educational landscape of Libya offers transformative potential. However, this integration is not without its risks. These risks range from creating dependencies on technology to raising ethical and privacy concerns and even exacerbating existing social inequalities through the digital divide. Understanding these risks is crucial for developing strategies that mitigate them while harnessing AI's benefits.

2.4.5. DEPENDENCE ON TECHNOLOGY AND POTENTIAL OBSOLESCENCE

One significant risk associated with the widespread adoption of AI in education is the development of an overreliance on technological solutions. This dependence can manifest in several ways:

- **Reduced critical thinking:** There's a risk that students may become overly reliant on AI for problem-solving and decision-making, potentially at the expense of developing critical thinking and analytical skills. It's essential to balance the use of AI tools with educational approaches that foster independent thought and creativity.
- **Technology obsolescence:** The rapid pace of technological advancement means that AI tools and systems can quickly become outdated. Educational institutions face the challenge of continually updating their technological infrastructure and software to keep pace with advancements, which can be financially burdensome and logistically challenging.
- **Skill gaps:** As educational institutions increasingly incorporate AI into their teaching and administrative processes, there's a risk that faculty and staff may not keep up with the evolving technology, leading to skill gaps that can hinder the effective use of AI in education.

2.4.6. ETHICAL CONCERNS AND DILEMMAS

The deployment of AI in education also raises several ethical and privacy issues:

- **Bias and discrimination:** AI algorithms can inadvertently perpetuate biases present in their training data, leading to discriminatory outcomes. In the educational context, this could manifest in biased grading systems, learning recommendations, or admission processes, potentially discriminating against certain groups of students.
- **Surveillance concerns:** The use of AI for monitoring student performance and behavior could lead to a culture of surveillance, raising concerns about the erosion of trust and the impact on student autonomy and privacy.

2.4.7. POTENTIAL FOR WIDENING THE DIGITAL DIVIDE

Perhaps one of the most significant risks is the potential for AI to widen the digital divide:

- **Access to technology:** There's a risk that the benefits of AI-enhanced education will not be equitably distributed. Students in urban and more affluent areas may have better access to the necessary technology and connectivity than those in rural or economically disadvantaged regions, exacerbating existing educational inequalities.
- **Digital literacy:** The effective use of AI in education requires a certain level of digital literacy among students and educators. Without widespread and inclusive digital education initiatives, there's a risk that those without the necessary skills will be left behind.

3. METHODOLOGIES AND STRATEGIES FOR OVERCOMING CHALLENGES

To overcome these challenges, Libyan higher education institutions need to adopt a strategic approach that includes:

- **Firtilly**, the adaptation of curriculum and teaching methods. The introduction of AI technologies necessitates a comprehensive re-evaluation and adaptation of existing curricula and teaching methodologies. This adaptation involves several key dimensions:
- **Curricular content:** Updating curricular content to include AI and related technological advancements is essential. This means not only offering specialized courses in AI for students pursuing studies in computer science and engineering but also integrating AI concepts across a wide range of disciplines. For instance, business students could benefit from courses on AI's impact on marketing and finance, while medical students might study AI applications in healthcare diagnostics and patient care.
- **Pedagogical approaches:** Traditional lecture-based teaching methods may not be sufficient to engage students with AI technology

effectively. Instead, educators are encouraged to adopt more interactive, hands-on learning experiences that allow students to work directly with AI tools and systems. Project-based learning, simulations, and collaborative research projects can provide practical experience with AI, fostering deeper understanding and skill development.

- **Interdisciplinary learning:** AI's impact spans multiple fields, making interdisciplinary learning approaches critical. By encouraging collaboration between departments, students can gain a holistic understanding of AI's applications and ethical considerations, preparing them for the complexities of the modern workforce.

Secondly, faculty and student readiness for AI-enhanced education. Ensuring that both faculty and students are ready to embrace AI-enhanced education involves several strategies:

- **Faculty development:** Faculty members play a pivotal role in the successful integration of AI into teaching and learning. However, many may not have the necessary background in AI technologies. Professional development programs are crucial for updating faculty skills and knowledge. Workshops, seminars, and sabbaticals focused on AI education can help faculty integrate AI tools into their teaching practices effectively.
- **Student engagement:** Students need to be prepared for a learning environment where AI tools are an integral part of their education. This preparation includes developing digital literacy skills and an understanding of how AI can enhance their learning experience. Initiatives such as tech labs, AI clubs, and hackathons can stimulate interest and engagement with AI technologies among students.
- **Cultural shift:** Embracing AI in education requires a cultural shift among all stakeholders towards valuing innovation and technological advancement. Creating an institutional culture that encourages experimentation, adaptability, and continuous learning is essential. This can be fostered through open

dialogues about the benefits and challenges of AI in education, highlighting success stories, and recognizing innovative teaching practices.

4. RECOMMENDATIONS AND CONCLUSION

4.5. RECOMMENDATIONS FOR THE INTEGRATION OF AI IN LIBYAN HIGHER EDUCATION

The successful integration of AI into Libyan higher education requires concerted efforts from policymakers, institutions, faculty, and students. Each stakeholder group plays a crucial role in navigating the challenges and unlocking the potential benefits of AI in education. The following recommendations aim to provide a roadmap for effective AI adoption across the educational ecosystem. By adhering to these recommendations, stakeholders in Libyan higher education can navigate the challenges of AI integration, leveraging its potential to transform teaching and learning while ensuring ethical use and equitable access.

4.5.8. FOR POLICYMAKERS

Developing Supportive Frameworks including:

- 1) **Libyan data protection legislation:** Enact robust data protection laws that safeguard students' and educators' personal information, aligning with international standards to ensure privacy and security in the use of AI technologies.
- 2) **AI ethics and standards:** Establish clear ethical guidelines and standards for AI use in educational contexts, including provisions to prevent bias and discrimination and to ensure transparency and accountability in AI systems.
- 3) **Funding and incentives:** Allocate resources and create incentives for institutions to adopt AI technologies, including grants for infrastructure development, research in AI education, and pilot projects that

demonstrate innovative uses of AI in teaching and learning.

- 4) **Collaborative platforms:** Facilitate the creation of collaborative platforms for sharing knowledge, best practices, and resources related to AI in education, encouraging partnerships between educational institutions, technology companies, and international organizations.

4.5.9. FOR INSTITUTIONS

Strategies for Infrastructure, Training, and Ethical AI Use include:

- 1) **Infrastructure investment:** Prioritize investments in technological infrastructure to support AI applications, including high-speed internet access, modern hardware, and software solutions that are scalable and secure.
- 2) **Faculty and staff training:** Implement comprehensive training programs for faculty and administrative staff to enhance their understanding of AI technologies, pedagogical approaches for integrating AI into teaching, and ethical considerations in AI use.
- 3) **Ethical AI framework:** Develop and implement an institutional framework for ethical AI use, incorporating principles of fairness, accountability, and transparency, and establish oversight mechanisms to monitor AI applications within the institution.
- 4) **Student-centric AI initiatives:** Design and implement AI initiatives that prioritize student engagement and learning outcomes, including personalized learning experiences, AI-enhanced tutoring systems, and interactive AI learning tools.

4.5.10. FOR FACULTY AND STUDENTS

Embracing AI for enhanced learning and teaching:

- 1) **Active engagement with AI:** Encourage active engagement with AI technologies through hands-on projects, research, and collaboration, fostering a culture of

innovation and continuous learning among students and faculty.

- 2) **Critical thinking and ethics:** Promote critical thinking about the implications of AI in society, including ethical considerations, privacy issues, and the social impact of technology, integrating these discussions into the curriculum across disciplines.
- 3) **Lifelong learning:** Advocate for a mindset of lifelong learning, recognizing that the rapid evolution of AI and technology more broadly requires continuous adaptation and skill development to remain relevant in the workforce.
- 4) **Collaboration and exchange:** Foster opportunities for collaboration and knowledge exchange on AI topics within and between institutions, including interdisciplinary projects, industry partnerships, and international collaborations.

6. CONCLUSION AND FUTURE WORK²

Conclusion: Although the Libyan government has paid greater attention to developing the education system in general, and the higher education system in particular, as higher education is the most important sector for achieving a high level of the education system in Libya, it is clear that the higher education system still faces many challenges. This may be due to a lack of teacher training, especially in pedagogy, and technology. Therefore, all the

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challenges and weaknesses identified in higher education institutions and their system must be addressed effectively, so that a highly suitable educational system can be achieved.

Future work: In order to overcome the challenges of future work in this field, researchers, education administrators, policymakers, and specialists in the field of education and technology must work together to develop specific and effective strategies to overcome these challenges

and achieve integration and success of the use of technology and artificial intelligence in higher education institutions in Libya. Future research that focuses on exploring new ways to integrate technology and AI into education should also be considered, as well as providing practical and concrete recommendations to improve the educational process and enhance the quality of education in the country.

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IZAZOVI VEŠTAČKE INTELIGENCIJE (AI) U VISOKOŠKOLSKIM USTANOVAMA U LIBIJI

Rezime: Ovaj rad ima za cilj da dobije tačno razumevanje izazova sa kojima se suočavaju visokoškolske institucije u Libiji, posebno tokom njihovog usvajanja tehnologija veštačke inteligencije (AI), od kojih su najistaknutiji izazovi nastave i učenja, transparentnosti i etički izazovi. Postoje i izazovi koji se odnose na integraciju tehnologija veštačke inteligencije (AI) sa postojećim organizacionim strukturama i sistemima u institucijama sa izazovima planiranja, obuke i finansiranja. „Razgovaraće se o najvažnijim prednostima, prednostima i rizicima primene veštačke inteligencije u obrazovnim institucijama u zemljama u razvoju kao što je Libija, kao i o tome kako učenici mogu da imaju koristi od aplikacija kao što je 'ChatGPT' da poboljšaju svoje nivoe znanja. Svi ovi izazovi čine glavnu temu ovog članka, a za pronalaženje rešenja i njihovo prevazilaženje neophodno je proučiti međunarodno zakonodavstvo u vezi sa veštačkom inteligencijom (AI) u ovoj obrazovnoj oblasti i koristiti ga kao model za razvoj domaćeg zakonodavstva. Pored pregleda prethodnih studija i korišćenih metodologija, nalazi iz pregleda literature i primene međunarodnog zakonodavstva ističu obezbeđivanje strukturnog modela koji ugošćuje neophodnost integracije aplikacija veštačke inteligencije u nastavne planove i programe visokoškolskih ustanova i daju preporuke za učenika i nastavnika u vezi sa pažljivim i pažljivim korišćenjem ove tehnologije i da ih dobro pripremi za više znanja, kao i otvorenost i spremnost da prime ove inovacije.

Ključne reči: veštačka inteligencija (AI), visoko obrazovanje, ChatGPT, izazovi, institucije.

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ARTIFICIAL INTELLIGENCE AND ADMINISTRATIVE CULTURE IN THE CONTEXT OF GOOD GOVERNANCE – FROM PARADIGM TO TREND

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Abstract: *This paper investigates the dynamic interaction between artificial intelligence and administrative culture, in the context of good governance. The impact of artificial intelligence on administrative culture and decision-making within the framework of good governance is explored through qualitative analysis. This approach investigates the cultural shifts resulting from the acceptance of artificial intelligence, focusing on how ethical and moral considerations are integrated into administrative practices. Additionally, the analysis examines how the effectiveness of AI contributes to enhancing the efficiency and transparency of decision-making processes. Research reveals that the integration of artificial intelligence into administrative processes drives transformative changes in management paradigms, affecting administrative culture and decision-making trends. Despite its potential for efficiency and objectivity, ethical considerations are paramount in the implementation of artificial intelligence, necessitating compliance with governance principles. Administrative cultures must adapt in order to embrace AI technologies while respecting ethical standards, transparency and accountability. By cultivating a culture that prioritizes ethical decision-making and by responsibly using artificial intelligence technologies, administrative officials can tackle the complexity of modern management challenges. Dealing with such new challenges requires the establishment of new security mechanisms in order to reduce and/or mitigate the risks of integration and application of artificial intelligence in accordance with moral imperatives and with the aim of serving the public and collective interest.*

Keywords: *artificial intelligence, administrative culture, good governance, decision making, ethics and morality*

1. INTRODUCTION

In the landscape of the new age, what Rainer Maria Rilke wrote long ago: “the future enters into us...to be transformed within us long before it becomes reality” [1, p. 149] in the context of Artificial Intelligence would be interpreted as: - synchronization of pace with an overexpansion of life and work in a prepared/

unprepared world, a hidden invisible channel, where in that decadence of positivity the hormone effective productivity is needed...of a civilization that stands before Toffler’s gospel of change to end product of a “new cultural renaissance” – Nikola Tesla’s vision became reality: „In the twenty-first century, the robot will take the place which slave labour occupied in ancient civilization. There is no reason at all

why most of this should not come to pass in less than a century, freeing mankind to pursue its higher aspirations” [2]. We will accept this thought wherein Tesla advocates the idea of freeing man from a number of production processes and transferring them to artificial intelligence. For a long time, no one have prepared us for the implementation of this technology.

The fourth industrial revolution has the potential to robotize humanity and thus compromise our values – work, society, family, identity. Or, we can use the Fourth Industrial Revolution to elevate humanity to a new collective moral consciousness, grounded in a shared sense of our collective destiny. It is our collective responsibility to ensure that this transformation unfolds in a way that brings about positive and inclusive change [1, 149]. To fully grasp the impact of artificial intelligence on administrative culture, it is essential to first understand the concept of administrative culture itself. This includes its meaning, role, definition, and key characteristics, which will lay the foundation for exploring how AI can influence and reshape it. Administrative culture is a broad and complex concept, phenomenon and scientific discipline. It exists and we live and work in accordance with it. The concept of culture in public administration is considered more useful in the present than in the distant past, because it is as strange as it is at the same time “wonderful” [3, p.71]. Administrative culture refers to the administration and administrators of the institutions. It is related to the behaviour of the employees, the administration in the organization, which are very closely related.

There is still no single definition of the term “artificial intelligence (AI)”. But it leads to the emergence of ambivalence in people - the emergence of mixed feelings of fear towards something useful, something practical, something new. Perhaps it will be more practical and useful in adopting AI to use all of our innate abilities together – the four intelligences: mental, physical, emotional and spiritual. Perhaps this is the only way we can solve the problem by embracing AI as our partner, or as

Dee Hock says: “the problem is never getting new, innovative thoughts into mind, and how to disperse old ones” [4, p.213].

In terms of the need for transformation/changes in the organizational culture, greater integration with artificial intelligence is needed, especially in relation to modern workplaces that are developing rapidly. It is necessary to unravel the complex interaction between humans and artificial intelligence, clarifying how their collaborative synergy would not only redefine organizational culture, but also chart a new course for the future of work. At the basis of such a transformation, as some researchers claim, lies the fusion of human intelligence with the capabilities of artificial intelligence.

Good governance is not a simple task. Governments face various challenges, including corruption, lack of transparency, and inefficient bureaucracies. These challenges can lead to a lack of trust in institutions and undermine economic growth. Good governance refers to the political and institutional processes and outcomes that are necessary to achieve development goals [5]. The true test of “good” governance is the extent to which it fulfils the promise of human rights: civil, cultural, economic, political and social rights.

Artificial intelligence governance requires legal framework for ensuring AI and machine learning technologies are researched and developed with the goal of helping humanity adopt and use these systems in ethical and responsible ways. AI governance aims to close the gap that exists between accountability and ethics in technological advancement.

2. CHARACTERISTIC AND PARTICULARITIES OF THE CONCEPT – ADMINISTRATIVE CULTURE

In order to understand the impact of artificial intelligence on administrative culture, first of all, the concept, i.e. the uniqueness of administrative culture (its meaning, role, definition and characteristics) should be explained.

Administrative culture is a broad and complex concept, a phenomenon and scientific

discipline. It exists and we live and work with in it. The concept of culture in public administration is considered more useful in the present than in the distant past, because it is as strange as it is at the same time “wonderful”. Administrative culture refers to the administration and administrators of the institutions. It is related to the behaviour of the employees, the administration in the organization, which are very closely related. They are also shaped by a number of factors. Essentially, there are three factors that decide of the culture and, consequently, behaviour, namely: 1. the values cherished by the individual; 2. the values cherished by the society; and the systems and procedures, which reflect these values. Every administrative organization has a culture, i.e., a persistent, patterned way of thinking about the major tasks of human relationships within an organization. Culture to an organization means the same as personality to an individual [5, p.291]. According to Guerrero [4, p. 86] from the point of view of culture in general, public administration appears as a unique culture within it. In the same way, within the administrative culture there are differentiated cultures: this is because the development of the administrative culture has been a cumulative, asynchronous and diversified process. From the historical point of view, it is a product of a long period of gestation and growth through which the administrative culture is configured based on more concise cultures, which, appearing at different times, at the same time as they are linked, they tend to differentiate. Firstly, the “bureaucratic culture” appears in the modern West, accompanied by a tender division of labour; then the “organizational culture”, whose impulse derives from the improvement of bureaucratic work.

The concept of “organisational culture” or “administrative culture”, though very trendy, it is half century old. Chester I. Barnard spoke of the ‘moral element’ in organisation, and the ‘moral factor’ in leadership. By moral he did not mean merely obeying the law or following the rules, but ‘the process of inculcating points of view, fundamental attitudes, loyalties, in

the administrative organisation...that will result in subordinating individual interest...to the good of the cooperative whole’[Ibidem]. Administrative culture is a product of peoples’ cognitive, perceptive and evaluating orientations towards their administrative system. It also covers the entire range of traditional societal, historical and cultural values that influence as well as governs the bureaucracy’s own behaviour and its professional norms, such as rationality, impersonality, technology and efficiency.[Ibid, 291]

Administrative culture, similar to organizational culture, represents a system of values and norms, rules of behaviour that are primarily related to relationships between people and reflects the particularity, identity of the organization. Administrative culture as a part of organizational culture can also be considered as a professional culture, and as an applied science also determines the moral values and norms, the rules of communication of the representatives of a certain profession towards the subject of the work, the members of the team and the society. Administrative culture is based on professional morality, which has two functions: - to regulate relations in a certain profession, with people and institutions outside it; - to form certain qualities, convictions, habits among members of the professional community. [6, p.23] and according to Braudel “it is synthesis of personal and social culture that reflects in the ethos, values and the objectives of its organization” [7].

Administrative culture is the attitude, emotion and value of administrative activities formed by members of the administrative system in the long-term administrative activities, it is a set of informal rules accepted and recognized by administrative personnel. Culture has inheritance, and administrative culture is no exception. Once administrative culture is formed, it will have direct or indirect impact on administrative activities. Therefore, in order to gradually eradicate the influence of these traditional and outdated administrative cultures, it is necessary to establish an advanced

administrative culture in line with the era of service administration. [8].

Unlike general culture or the “invisible hand” the abstraction, that surrounds us such as the air we breathe, that is a part of us, it is genetically inherited, and no matter what part of the global village we live in, that inner part and voice of ours, which is all around us and affects everything around us, for administrative culture we will support Guerrero’s thesis [who, throughout Riggs’ thoughts, paraphrases Kroeber’s thought that administrative culture is not transmitted by genetic mechanisms of inheritance, but by the social conditioning existing between administrators and administered, since it represents a social fact. She implies every practice, norm and technique invented in the administrative future, that they are transmitted intergenerational, and that, being possible to modify them in the course of transmission, their relative continuity is their distinctive character. Administrative culture is defined by patterns or regularities of form and style, as well as meaning, whose configuration is usually represented in the organization and bureaucracy, although not only in them. In short, what distinguishes it is the incorporation of values that, formulated publicly, make it easier to explain their procedures as uses or customs, through which their ritualism and “bureaucratism” are explainable [3, p.86] Or more specifically, it is worth saying again that in public administration, its culture is consisted of the being, doing, thinking and feeling of politically organized men, as reflected in administrative institutions, in their works, in their knowledge and its practice, at a given time and place.

According to the Dutch researcher of culture, Hofstede (9, p.11) there are four occurrences of culture distinguished that successfully cover the concept of culture: symbols, heroes, rituals (they are visible to the external observer) and are included in the general term “practices”. Practices express the group’s understanding and attitudes towards environmental factors and representatives of other cultures, but do not explain them. The

explanation needs to be sought in the interior, the most difficult and inaccessible part in the research of culture, which is the system of values - the core of the culture. In administrative culture more and more attention is paid to professional practices, according to him Long-standing administrative practices and patterns of behaviour in a given society could be termed as administrative culture of that particular society. Also, any directed change of administrative culture takes longer than social ‘political time’ and space [5, p.292].

From here we reach the part that ‘culture approach’ was first used in social sciences by G. Almond. The seeds of the term ‘administrative culture’ were sown in the year 1963 when G. Almond and Sydney Verba published their work *The Civil Culture*.

Scholars have identified four key component variables of administrative culture, namely: - The administrator; - The administrator’s perception of organizational goals; - The administrative ecology; and the socio-cultural value norms, which give meaning to administrative action and behaviour [ibidem].

In the literature, there is a greater number of definitions of administrative culture, but still at the beginning prior to highlight a few of them that we consider to be of interest to the paper, however, according to certain authors, the definitions of administrative culture can be divided into three categories: broad sense, medium sense and narrow sense. The broad sense of administrative culture is based on the aspect of cultural perspective. A general sense of cultural definition includes three levels: material culture, system culture and spirit culture. On the basis of such cognitive pattern, some researchers point out that the connotation of administrative culture which is influenced by objective and subjective factors should includes administrative material culture, administrative system culture and administrative spirit culture. Administrative culture is a unique culture pattern which integrates the physical facilities and institutional norms of administrative organizations and the common thoughts, values, thinking pattern, psychological state,

behaviour standard and lifestyle of administrative staff [10, p.86].

Riggs provides one of the most detailed investigations of what is meant by the concept of administrative culture, which includes a “complex of related but different things” According to Riggs ...all are worthy of study and the umbrella term, administrative culture can be understood as including and linking them in a synthesis. The six concepts of administrative culture are the following: - The Arts; - Knowledge and Sophistication; - Shared Beliefs and Practices; - People who share culture; - Shared Attitudes; - Improvement. Each of the six senses of culture listed above presupposes internal consistency among its component practices or traits [11, p.63].

“Administrative culture must necessarily be the culture of administrators, more specifically the culture of those participants whose activities are restricted to the administrative environment” [12, p.65]. “Administrative culture refers to norms and values that shape and influence bureaucratic attitude, interpersonal relationship and performance [13, p.2]. “Administrative culture is the combination of beliefs, attitudes, values, and systems which affect the operation of government agencies [14]. “Basically, administrative culture may be thought of as general characteristics of public officials (i.e., shared values, attitudes, beliefs)–federal, state, and local. Administrative culture is related to the broader political culture, from which it derives, and can be further discussed in terms of sub-cultures” [15, pp. 234–250].

The term “administrative culture,” like many other concepts in the social sciences, does not have a universally agreed-upon meaning. Its interpretation can vary depending on the context and the perspectives of those using it. Different perspectives may be offered, and a variety of conclusions can be drawn by people (from different places or geographic regions) studying the administrative culture. Two main perspectives may assist us in understanding the administrative culture of a nation. Firstly, the government administration in all nations happens to be larger and more complex than any

single organization, being composed of many departments, agencies, corporations, and so on. Secondly, policies and administrative decisions get implemented through the state apparatus, state financial and other resources are distributed, and the entire society is affected in many ways by the attending administrative culture. The behaviour of the state apparatus depends on the kind of administrative culture that prevails in a country. We should also note that no administrative culture is monolithic; instead, it is a part of the wider culture of a society including its constituent parts such as political, economic, social, religious, corporate, and civil society cultures. Nevertheless, it is the political culture that influences the administrative culture most because it brings its political values to modulate the behaviour of state employees [16. pp.21-23].

In the literature, certain scholars suggested eight general propositions that researchers may explore, in their specific ways, because we believe that administrative cultures, like all cultures, do differ [17, pp.5-7].

- 1) The administrative culture of any part of the globe reflects the distinctiveness and complexity of the various regional, national, and local realities; their unique historical experiences; their forms of insertion (subordination or domination) into the system of regional and global relations; and their levels of development and fragmentation.
- 2) Such cultures are historical products, where past experiences, myths, and traditions have shaped modal psychological orientations.
- 3) Any administrative culture is also conditioned by existing structural and conjunctural circumstances and challenges. Even perceptions of the past are mediated by current experience.
- 4) The administrative culture is part of a larger attitudinal matrix, containing values, practices, and orientations toward the physical environment, the economy, the social system, the polity, and culture itself.
- 5) Administrative cultures, like all cultures, are dynamic and subject to change. Syncretism,

continuities, and discontinuities are part and parcel of their fabric and texture.

- 6) An administrative culture is the result of a process of immersion, acculturation, and socialization, whose structural drivers are both implicit as well as induced and explicit.
- 7) Most attempts at administrative reform and “modernization” address, either directly or indirectly, the question of administrative culture. Any profound administrative reform entails significant attitudinal and value changes.
- 8) Administrative cultures are influenced by global and regional trends. In the lesser-developed regions of the world, they are particularly derivative, reflecting a center-periphery mode of international political economy.

Furthermore, in his essay Dwivedi suggests three main approaches to studying the administrative culture of a nation: (1) deontological approach, (2) teleological approach, and (3) spiritual approach. It should be noted that these three approaches are based on some common values such as fundamental rights and freedom, efficiency, accountability, fairness, etc. These values can be considered the core values of any nation [16, pp.25-30].

Administrative culture as a type of organizational culture has its own philosophical, cultural, anthropological, psychological, sociological, political and managerial dimensions. The forms of administrative culture similar or the same as those of organizational culture can be highlighted in two directions: cognitive (conventional wisdom, myths and symbols) and behavioural (norms and rituals) while as integrative forms can highlight organizational heroes and climate in the organization [6, p.24].

Administrative culture affects administrative practices and vice versa. The values, beliefs and norms embedded in administrative culture shape/reshape the design and implementation of administrative practices. From a completely opposite angle, administrative practices strengthen and perpetuate administrative culture by embodying and adopting cultural norms and values in daily operations.

For example, an administrative culture that prioritizes transparency and accountability may lead to the implementation of practices such as open-door policies, regular reporting mechanisms, and public disclosure of information. In short, administrative culture encompasses the shared values, beliefs, norms, and behaviours in administrative organizations, while administrative practices refer to the methods, processes, procedures, and routines used to perform administrative functions. The interaction between administrative culture and practices shapes organizational behaviour, decision-making processes, and overall organizational effectiveness within administrative processes.

In the context of artificial intelligence, several administrative practices are critical to ethical enforcement:

- Decision-making processes need to transparently integrate AI tools and ensure human oversight.
- Effective communication is essential to engage stakeholders and address concerns about AI.
- Organizational structures may need adjustments to accommodate AI roles and workflows.
- Resource allocation should balance innovation with sustainability and ensure transparency.
- Performance management systems should align with organizational goals and protect against biases introduced by AI.
- Policies and regulations should govern the use of artificial intelligence and adapt to technological and regulatory changes.

The responsible and ethical application of artificial intelligence (AI) within administrative settings requires a nuanced understanding of the interaction between administrative culture and practices. By aligning cultural values, beliefs, and norms, as well as AI implementation strategies, administrators can promote transparency, accountability, and ethical decision-making when working with artificial intelligence. Through careful integration of

AI technologies into existing administrative practices, organizations can harness the transformative potential of AI while supporting organizational goals and ethical standards. Continued research, collaboration, and dialogue are essential to advancing the field of artificial intelligence management and ensuring its responsible use in administrative contexts. Ongoing research and collaboration are essential to advance the management of artificial intelligence in administrative contexts.

3. THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ADMINISTRATIVE/ ORGANIZATIONAL CULTURE

There is still no single definition of the term “artificial intelligence (AI)”. But as such it leads to the emergence of ambivalence in people - the emergence of mixed feelings of fear towards something useful, something practical, something new. Perhaps it will be more practical and useful in adopting AI to use all of our innate abilities together – the four intelligences: mental, physical, emotional and spiritual. Perhaps this is the only way we can solve the problem by embracing AI as our partner, or as Dee Hock says...“the problem is never getting new, innovative thoughts into mind, and how to disperse old ones.” [4, p.213].

John McCarthy, the founder of AI, defined AI in 1956 as “the science and engineering of creating intelligent machines.” The definition of AI systems used by the OECD and adopted by 42 national governments is based on Alan Turing’s approach and his linking of the similarities between machines and humans in displaying intelligence and is defined as “a machine system that can a given set of humanly defined objectives for making predictions, recommendations or decisions affecting a real or virtual environment. AI systems are designed to operate with varying levels of autonomy. Moreover, AIs are “machines that perform human cognitive functions.”[18]

Gauss wrote in his work: ...My own generation has had a great lesson on the importance of change in physical technology in witnessing the adoption of the automobile and the role it

has come to play. It may be noted that its widespread use was made possible by the development of paved highways provided necessarily as a public service. Highway expansion and design have been affected by the coercion of political forces created by the physical invention [19, p.215].

In contrast to his generation, if we add to Guy’s writings the analyses of Lynne Lancaster and David Stillman (2004) from their book “The Clash of Generations” in which they analyse the peculiarities of the generational divide and formulate the specificity and intersection points in the features of several types of generational personalities that are often frowned upon in the workplace (“traditionalists”, “baby boomers”, “Generation X”, and “millennials”), it would be better from the perspective of the future to adopt the thinking of Jennifer Dill (2007) “In the workplace, we all strive for the same things, regardless of age.” in her book *Bridging the Generation Gap: How Young and Old Employees Can Find Common Ground*, and this may be with purpose of applying the best of artificial intelligence and in the context of good management [4, pp. 243-247].

In fact, as we move from digitalisation to the full digital era, we believe that it is critical to change mind-sets and move away from a focus on threats to a focus on opportunities offered by the new AI and cognitive technologies. For the public, the main threat is the singularity point, the time when machines become smarter than humans and would have the ability to take over. And - maybe - kill us all, which is very ironic [20, p.2].

Jerome Parisse-Brassens says that: ...We foresee two main angles in which AI will impact organizational culture. The first one is that AI will help to manage culture. The second angle is that AI will directly influence the mind-sets and behaviours of people at work through the systems that will be implemented [ibid, p.3].

AI will help to manage culture, throughout the following components:

- Conducting a current culture assessment;
- Identifying the target culture,

- Developing a culture plan;
- Measuring culture.

AI will directly influence the mindsets and behaviours of people.

Walking the Talk have identified six culture archetypes present in any organisation. Behind each archetype sit a hierarchy of values and behaviours.

Cultural Archetypes:

- Innovation: - Innovation is the cultural archetype that will be the most impacted by AI.
- One-Team – archetype: - underpinned by collaboration, will become more important than ever.
- Customer-Centric: - One of the current goals of AI is to analyse large amounts of customer data. It provides the input into decision making and customer handling processes focussed on customer needs, desires and experiences.
- Achievement: - AI will be able to measure accountability as businesses were never able to before. It will keep humans on track when they are distracted or lose motivation.
- People-First: In order to build the next generation of technology and AI tools, we need as many diverse points of view in the room as possible.
- Greater-Good: - One of the most heated debates on AI is whether machines have the potential to use their intelligence to make ethical decisions or not [ibid, pp. 4-10].

Regarding the need for transformation/changes in the organizational culture, greater integration with artificial intelligence is needed, especially in relation to modern workplaces that are rapidly developing. It is necessary to unravel the complex interaction between humans and artificial intelligence, clarifying the way their collaborative synergy would not only redefine organizational culture, but also develop a new course for the future of work. At the basis of such a transformation, as some researchers claim, lies the fusion of human intelligence with the capabilities of artificial intelligence. Far from being a harbinger of job displacement, AI should be embraced and

emerge as a collaborative partner that would increase human potential and productivity. By embracing the complementary strengths of humans and artificial intelligence systems, organizations are moving towards a cultural shift towards innovation, efficiency and adaptive resilience. The integration of artificial intelligence heralds an era of profound cultural evolution in organizations. Throughout the advanced analytics and automation, AI becomes a catalyst for cultural enrichment, revealing insights into organizational dynamics and fostering a culture of continuous improvement.

As AI streamlines processes and clarifies responsibilities, it empowers employees to engage in meaningful endeavours, fostering collective learning experiences and fostering a culture of innovation. The correct application of artificial intelligence would herald the beginning of a cultural renaissance in organizations, characterized by adaptability, innovation and a relentless pursuit of knowledge. Reports increasingly highlight the transformative impact of AI in shaping workplaces fit for growth and development, fostering a sense of community and purpose among employees. As AI permeates everyday operations, it catalyses a cultural shift marked by collaboration, accountability and agile response to change. The benefits to culture from the effective use of AI can be numerous and transformative.

From enhancing collective learning experiences to fostering clarity in roles and responsibilities, AI-driven initiatives provide organizational culture toward a trajectory of continuous improvement and resilience. By fostering collaboration, fostering team motivation and driving innovation, AI will become a catalyst for fostering a positive and adaptive workplace culture, positioning organizations for sustainable success in the digital age.

The coexistence of human workers and artificial intelligence should not only represent a technological evolution, but a profound cultural transformation. As organizations navigate this transformative trajectory, they must carefully navigate the cultural implications of AI integration. By fostering transparent communication,

addressing employee concerns and fostering a people-centric approach, organizations are paving the way to a future where humans and AI thrive together in harmony, driving innovation, collaboration and growth. In fact, the harmonious synergy between humans and artificial intelligence should become the foundation of cultural evolution and organizational success in the digital age.

In a survey conducted in the Republic of North Macedonia by the Institute for Political Research Skopje for the agency Detector regarding Artificial Intelligence, with a representative sample of 1078 respondents in the period from March 21 - 24, 2024, we will highlight some of the views of citizens in relation to this topic on certain issues [21]:

- 57.8% of citizens are familiar with the term artificial intelligence, while 39.3% are not.
- Artificial intelligence was used by just under 12% of citizens, while a high 84.2% had no such experience.
- 50% are of the opinion that artificial intelligence will have a negative impact on employment, and only 12.3% see positive effects.
- Less than half of those surveyed believe that the use of artificial intelligence should be banned or restricted. This attitude is shared by exactly 48.4% of those surveyed, while 21.8% are convinced otherwise.
- In terms of security, only 19.6% of those surveyed see positive effects of artificial intelligence, while 37.6% believe that it will have a negative impact.
- A high 43.5% believe that artificial intelligence will have a negative impact on interpersonal relationships
- Younger citizens are of the opinion that it will be easier with artificial intelligence, while older people believe less.
- There is a big division about whether life in the future will be easier or more difficult with artificial intelligence technology: 28.7% believe that life will be easier, 28.8% that it will be more difficult and 9.9% that there will be no change.

3. GOOD GOVERNANCE, ARTIFICIAL INTELLIGENCE – RESPONSIBILITY AND ETHICAL APPLICATION

Good governance means the process of making decisions and implementing, implementing/non-implementing such decisions”. Good governance is not an easy task. Governments face various challenges, including corruption, lack of transparency, and inefficient bureaucracies. These challenges can lead to a lack of trust in institutions and undermine economic growth. Good governance refers to the political and institutional processes and outcomes that are necessary to achieve development goals. The true test of “good” governance is the extent to which it fulfils the promise of human rights: civil, cultural, economic, political and social rights. The key question is: do governance institutions effectively guarantee the right to health, adequate housing, sufficient food, quality education, fair justice and personal security? Good governance has 8 main characteristics. It is participation, consensus orientation, responsibility, transparency, accountability, effectiveness and efficiency, fairness and inclusiveness and the rule of law [22]

The definition and application of the concept of “Good governance” assumes the application of the following five derivative principles which are interconnected with the leading principles and represent a basic prerequisite for good governance [4, 23]:

1. Competence and capacity of the public administration and senior civil servants;
2. Ethical behaviour and responsibility towards customers (customer care);
3. Stable financial management of institutions in order to guarantee sustainability and long-term orientation of strategic management;
4. Innovation and openness to promoting changes in the environment;
5. Active participation of civil society.

Key areas of good governance as policy and practice:

- Public administration and interested parties;
- The role of human capital in the public sector;

- Environmental and social causes, intelligent solutions of the administration activities [23, pp. 243-278];
- The participation of interested parties in the process of conducting policies and making decisions;
- Open data, office exchange of information, single electronic environment, e-government;
- Provision of administrative services including electronic and complex services.

In today's modern, globalized society, the VUCA world, many of the skills traditionally required to succeed as a leader have changed. Many of the lessons of successful 20th century leaders are inappropriate today. How do we prepare to make sure we succeed in the 21st century?

We need to know how and in what way we should properly use artificial intelligence in order to make certain transformative/cultural changes in the organization.

Artificial intelligence governance is the legal framework for ensuring AI and machine learning technologies are researched and developed with the goal of helping humanity adopt and use these systems in ethical and responsible ways. AI governance aims to close the gap that exists between accountability and ethics in technological advancement [24].

The main focus of AI governance is on AI as it relates to justice, data quality and autonomy. Overall, AI governance determines how much of daily life algorithms can shape and who monitors how AI functions. Some key areas governance addresses include the following [ibidem]:

- AI safety.
- Sectors appropriate for AI automation.
- Legal and institutional structures around AI use and technology.
- Control and access to personal data.
- Moral and ethical questions related to AI.

AI governance pillars [ibidem].

The White House Office of Science and Technology Policy has made AI policy and

governance a national priority in the U.S. It has sought public input on AI risks and benefits. Previously, the executive office created an AI governance framework built on the following six pillars:

- Innovation. Facilitating efforts in business and science to harness and optimize AI's benefits.
- Trustworthy AI. Ensuring AI is transparent and doesn't violate civil liberties, the rule of law or data privacy.
- Educating and training. Encouraging the use of AI to expand opportunities and access to new jobs, industries, innovation and education.
- Infrastructure. Focusing on expanding access to data, models, computational infrastructure and other infrastructure elements.
- Applications. Expanding the application of AI technology across the public and private sectors, including transportation, education and healthcare.
- International cooperation. Promoting international collaboration and partnerships built on evidence-based approaches, analytical research and multistakeholder engagements.

Some other components of a strong AI governance framework include the following:

- Decision-making and explainability.
- Regulatory compliance.
- Risk management.
- Stakeholder involvement.

There are many actions an organization can take to implement effective and sustainable AI governance practices. They include the following [ibidem]:

- AI culture.
- Communication.
- AI governance committee.
- Continual improvement.
- Risk assessment.
- Governance metrics.

Organizations that develop and use these models must have the following considerations in mind:

- **Model ownership.** AI development typically involves teams of people working on a model. Tracking the work each individual team member completes is key to ensuring model success, improving collaboration and avoiding issues such as unnecessary duplications.
- **Rules and regulations.** Implementing a set of rules ensures aspects of model development -- such as data quality, feature engineering and documentation -- are free of errors and compliant with laws and regulations that mitigate AI-related risks.
- **Data quality.** Standards must be in place to ensure the quality and security of training data sets used to train AI models. Data must be accurate and unbiased so that the model learning from that data functions properly and produces the desired outputs.
- **Continuous monitoring.** Once a model passes into the postproduction phase, it must be continuously monitored to be sure it is working as intended. Model governance ensures there are steps in place to continuously train and monitor a model as needed.

AI governance is not just about ensuring one-time compliance; it's also about sustaining ethical standards over time. Current trends in governance are moving beyond mere legal compliance towards ensuring AI's social responsibility, thereby safeguarding against financial, legal and reputational damage, while promoting the responsible growth of technology [25].

Examples of AI governance encompass a range of policies, frameworks and practices that organizations and governments implement to ensure the responsible use of AI technologies. These examples demonstrate how AI governance happens in different contexts [ibidem]:

- The General Data Protection Regulation (GDPR);
- The Organisation for Economic Co-operation and Development (OECD);
- Corporate AI Ethics Boards.

The principles of responsible AI governance [ibidem] are essential for organizations to safeguard themselves and their customers. The

following principles can guide organizations in the ethical development and application of AI technologies, which include:

- **Empathy:** Organizations should understand the societal implications of AI, not just the technological and financial aspects. They need to anticipate and address the impact of AI on all stakeholders.
- **Bias control:** It is essential to rigorously examine training data to prevent embedding real-world biases into AI algorithms, ensuring fair and unbiased decisions.
- **Transparency:** There must be clarity and openness in how AI algorithms operate and make decisions, with organizations ready to explain the logic and reasoning behind AI-driven outcomes.
- **Accountability:** Organizations should proactively set and adhere to high standards to manage the significant changes AI can bring, maintaining responsibility for AI's impacts.

In late 2023, The White House [ibidem] issued an executive order to ensure AI safety and security. This comprehensive strategy provides a framework for establishing new standards to manage the risks inherent in AI technology. The U.S. government's new AI safety and security standards exemplify how governments approach this highly sensitive issue.

- AI safety and security;
- Privacy protection;
- Equity and civil rights;
- Consumer, patient and student protection;
- Worker support;
- Promoting innovation and competition;
- Global leadership in AI,
- Government use of AI.

AI governance best practices [ibidem] involve an approach beyond mere compliance to encompass a more robust system for monitoring and managing AI applications. For enterprise-level businesses, the AI governance solution should enable broad oversight and control over AI systems. Here is a sample roadmap to consider:

1. Visual dashboard: Utilize a dashboard that provides real-time updates on the health and status of AI systems, offering a clear overview for quick assessments.
2. Health score metrics: Implement an overall health score for AI models using intuitive and easy-to-understand metrics to simplify monitoring.
3. Automated monitoring: Employ automatic detection systems for bias, drift, performance and anomalies to ensure models function correctly and ethically.
4. Performance alerts: Set up alerts for when a model deviates from its predefined performance parameters, enabling timely interventions.
5. Custom metrics: Define custom metrics that align with the organization's key performance indicators (KPIs) and thresholds to ensure AI outcomes contribute to business objectives.
6. Audit trails: Maintain easily accessible logs and audit trails for accountability and to facilitate reviews of AI systems' decisions and behaviors.
7. Open-source tools compatibility: Choose open-source tools compatible with various machine learning development platforms to benefit from the flexibility and community support.
8. Seamless integration: Ensure that the AI governance platform integrates seamlessly with the existing infrastructure, including databases and software ecosystems, to avoid silos and enable efficient workflows.

The ten basic principles of ethical AI enjoy broad consensus because they align with globally recognized definitions of basic human rights, as well as with multiple international declarations, conventions and agreements. The first two principles can help us gain knowledge that can enable us to make ethical decisions about artificial intelligence. The following eight can help with those decisions [:

- Interpretability.
- Reliability and robustness.

- Security.
- Accountability.
- Beneficiality
- Privacy.
- Human agency.
- Lawfulness.
- Fairness.
- Safety.

In general terms, these principles are enough to be widely accepted — and hard to put into practice without more specificity. Every organization will have to navigate its own path, but we've identified two other guidelines that may help.

In traditional administrative processes, management paradigms often revolve around hierarchical structures, linear decision-making processes and, above all, reliance on human expertise. However, with intensive advances in AI technologies, administrative systems are integrating AI tools and algorithms into their day-to-day (routine) operations, enabling more informed decision-making in areas such as policy formulation, resource allocation, and service delivery. As artificial intelligence technologies are incorporated into administrative practices, new trends and models are beginning to emerge intensively. The integration of artificial intelligence technologies leads to the evolution of administrative systems, which adapt to accept new ways of working and decision-making. This transition from established traditional management paradigms to new trends or tendencies influenced by the integration of artificial intelligence technologies marks the ongoing transformation of administrative systems driven by the integration of artificial intelligence technologies. All this represents a shift towards more agile, data-driven and collaborative approaches to management, reflecting the evolving nature of administrative culture and practices in the digital age.

4. CONCLUSION

This paper explores the dynamic interaction between artificial intelligence and administrative culture, in the context of good governance.

The impact of artificial intelligence on administrative culture and decision-making within the framework of good governance is investigated through qualitative analysis. Through this method, the cultural changes caused by the acceptance of artificial intelligence are investigated, examining how and in what way ethical and moral elements are incorporated into administrative practices, and the way in which the effectiveness of artificial intelligence has an impact in improving the efficiency and transparency of decision-making.

Despite its potential for efficiency and objectivity, ethical considerations are paramount in the implementation of artificial intelligence, due to which there is a necessity for compliance with governance principles. Administrative cultures must adapt to embrace AI technologies while respecting ethical standards, transparency and accountability.

Research reveals that the integration of artificial intelligence into administrative processes is driving transformative changes in management paradigms, affecting administrative culture and decision-making trends. Despite its potential for efficiency and objectivity, ethical considerations are paramount in the implementation of artificial intelligence, necessitating compliance with governance principles. Administrative cultures must adapt in order to embrace AI technologies while respecting ethical standards, transparency and accountability.

By cultivating a culture that prioritizes ethical decision-making and by responsibly using artificial intelligence technologies, administrative officials can tackle the complexity of modern management challenges. Dealing with such new challenges requires the establishment of new security mechanisms in order to reduce and/or mitigate the risks of integration and application of artificial intelligence in accordance with moral imperatives and with the aim of serving the public and collective interest.

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VEŠTAČKA INTELIGENCIJA I ADMINISTRATIVNA KULTURA U KONTEKSTU DOBROG UPRAVLJANJA – OD PARADIGME DO TENDECIJE

Rezime: Ovaj rad istražuje dinamičku interakciju između veštačke inteligencije i administrativne kulture, u kontekstu dobrog upravljanja. Uticaj veštačke inteligencije na administrativnu kulturu i donošenje odluka u okviru dobrog upravljanja istražuje se kvalitativnom analizom. Ovim metodom se istražuju kulturološke promene izazvane prihvatanjem veštačke inteligencije, ispituje se kako i na koji način se etički i moralni elementi inkorporiraju u administrativnu praksu, kao i način na koji delotvornost veštačke inteligencije utiče na poboljšanje efikasnosti. i transparentnost donošenja odluka. Istraživanje otkriva da integracija veštačke inteligencije u administrativne procese pokreće transformativne promene u paradigmama upravljanja, utičući na administrativnu kulturu i trendove donošenja odluka. Uprkos njegovom potencijalu za efikasnost i objektivnost, etička razmatranja su najvažnija u primeni veštačke inteligencije, zbog čega je neophodna usklađenost sa principima upravljanja. Administrativne kulture se moraju prilagoditi kako bi prihvatile AI tehnologije uz poštovanje etičkih standarda, transparentnosti i odgovornosti. Negujući kulturu koja daje prioritet etičkom donošenju odluka i odgovornim korišćenjem tehnologija veštačke inteligencije, administrativni službenici mogu da se pozabave složenošću savremenih izazova upravljanja. Suočavanje sa ovakvim novim izazovima zahteva uspostavljanje novih bezbednosnih mehanizama kako bi se smanjili i/ili ublažili rizici integracije i primene veštačke inteligencije u skladu sa moralnim imperativima i u cilju služenja javnom i kolektivnom interesu.

Gljučne reči: veštačka inteligencija, administrativna kultura, dobro upravljanje, donošenje odluka, etika i moral

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REACTIONS OF ACADEMIC COMMUNITY AND TRENDS IN THE PRESERVATION AND PROTECTION OF CULTURAL HERITAGE

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Abstract: *The regions of Serbia and the Balkan Peninsula are home to a rich medieval cultural heritage; however, there is an increasing effort to destroy and erase both the identity of the people and the culture itself. This issue became particularly evident after the NATO aggression against the Federal Republic of Yugoslavia in 1999. The aim of this paper is to analyze public opinion in scientific circles regarding the safety aspects of cultural heritage preservation. We performed a quantitative and qualitative analysis of ten scientific papers, five from Serbia and five from Europe, focusing on the notion of cultural preservation in relation to the various strategies offered. We presented the findings in both tabular and descriptive formats. The results indicate different views of scientists in relation to the safety factor of the culture itself. The concluding considerations indicate that the preservation of cultural heritage is directly and indirectly related to social events, and that security itself must be harmonized with social changes in the world.*

Keywords: *scientific public opinion, cultural heritage*

1. INTRODUCTION

Over the past two decades, significant geopolitical and cultural shifts have unfolded globally. The expansion of neoliberal politics eastward, particularly to the Middle East, Central Asia, Eastern Europe, and Russia, as well as southward to the developing countries of Africa, has sparked identity and social

transformations that have influenced cultural values. This dynamic has led to a clash between neoliberal and conservative power discourses, which is now evident in regions such as Ukraine, Palestine, the Balkans (particularly Kosovo and Metohija), Syria, and Afghanistan.

Similar to the concept of the Big Bang theory, conservative politics and identity are

making a resurgence on the global political stage, aiming to preserve the foundational values of humanism. This ideological clash is often manifested in the destruction of cultural heritage, and in some cases, the neglect and abandonment of culturally significant sites with both national and global importance. Numerous regions around the world, where inter-ethnic and religious conflicts are prevalent, have seen culture marginalized, losing its existential meaning over time. In this paper, we focus on the aforementioned geographical areas, categorizing them under media and scientific perspectives. These areas are divided into sectors A, B, C, and D. Sector A is critically analyzed, with particular attention given to the neglect of ancient and Slavic medieval cultural heritage in the Mediterranean region. Sectors B, C, and D are examined through a scientific public review that addresses the impact of war conflicts on cultural preservation.

- A. Firstly, we will single out poor media coverage and the neglect of cultural heritage at the local level, where cities such as: Herceg Novi, Kotor and Dubrovnik take the lead.
- B. Then, we deal with geopolitical conflicts in the Balkans and the partial occupation of certain countries - primarily the suffering of the cultural heritage of Kosovo and Metohija. After the NATO aggression in 1999 and the arrival of KFOR forces, there followed a series of erasures and destructions of the medieval cultural heritage of the Serbian people in those areas. The scientific community of Serbia and Europe is still dealing with this problem.
- C. We also look at the situation in the Middle East and Central Asia through the destruction of cultural heritage, which traces its origins back to the ancient period. We determine primarily a scientific strategy on how to restore Buddhist statues in Afghanistan, as well as how to save the ancient city of Palmyra in Syria from the scourge of the Syrian civil war. We also look back at Israel's aggression against Palestine in October 2023, where the culture of the Palestinian people was systematically destroyed.

D. The Special Military Operation of the Russian Federation as a counterweight to the neoliberal hurricane began with the attack of the Ukrainian pro-Nazi formations in the form of the Azov and Aydar battalions on the Russian people in Ukraine.

2. A CRITICAL REVIEW OF THE PRACTICAL WAY OF PRESERVING CULTURAL HERITAGE (SECTOR A: EXAMPLES OF HERCEG NOVI, KOTOR, DUBROVNIK)

The relationship between public opinion and the preservation of inherited cultural heritage can be examined through various perspectives and rhetorical approaches. Pragmatically, this involves an almost essential integration of historical, architectural, and, more recently, media characteristics within the cultural community. Both historical and architectural values lose much of their significance in the modern era if they do not receive support from digital media. Prominent cultural theorists and communicators emphasize that an effective media strategy for promoting culture can influence the perception of individuals as well as social groups [3].

The question arises as to why certain regions, such as the cities of Herceg Novi and Kotor, are underrepresented in the media and in the scientific community when it comes to the interpretation of their cultural values. The answer can be found in the growing prevalence of commercial content filling the media space. In addition to this, the media is often dominated by reality programs, political shows, and various entertainment formats from foreign productions. Herceg Novi, like other Mediterranean cities, possesses cultural values that date back to ancient times, coupled with a highly desirable geolocation at the very entrance to the Bay of Kotor.

Herceg Novi's cultural heritage should be approached from a multidisciplinary perspective. The cultural significance of the city was discussed as early as the 20th century by Tomo Popović in his work *Herceg-Novu - Historical*

Notes, 1382-1797. In this work, he highlights the city's famous architectural values and its role as a trading counterpart to the city of Dubrovnik during the Middle Ages. However, despite these rich cultural assets, there is a noticeable decline in media promotion focused on the city's culture. Instead, the focus has shifted increasingly towards promoting its economy and tourism offerings. This trend is evident in the 2024/2025 season, when 700 cruise ships are expected to enter the bay, passing by Herceg Novi on their way to Kotor. The question arises: does this intense influx of tourism damage the ecological balance of the bay and threaten the integrity of the region's cultural heritage, which is an integral part of the Mediterranean's historical landscape?

The issue stems from the growing trend of cruise (nautical) tourism, where a large influx of tourists enters the heart of coastal cities directly from cruise ships and passenger vessels. Residents of cities like Kotor and Dubrovnik face a similar challenge. During peak summer seasons, the local population is often pushed out by the flood of tourists, all eager to occupy the central squares in the historic districts, which threatens the preservation of the cities' invaluable architectural and cultural heritage. What strategy can be developed to safeguard this cultural heritage? Below, we outline several potential actions.

- a. The first level involves determining all the key points that, according to studies and analyses, would attract a certain number of tourists in the exactly specified order
- b. The second level requires continuous, creative work through a communicative and visual approach in order to enable simultaneous access to city's natural beauty and buildings of spiritual value (churches, monasteries, cathedrals)
- c. The third level involves the creation of a special PR service that would deal exclusively with the values of cultural heritage, and the mapping of places of historical importance.

3. METHODOLOGY AND RESULTS OF SCIENTIFIC PUBLIC OPINION RESEARCH (IN RELATION TO SECTORS B, C AND D)

When performing a quantitative and qualitative analysis of scientific public opinion, we singled out ten scientific works that offer strategies for the preservation of cultural heritage in a multidisciplinary approach. The starting point is the analysis of the situation in sector B, in the area of Kosovo and Metohija after 1999. That was the beginning of the collision of two opposing discourses of power, illiberalism vs post-Marxism.

The East, still not fully revitalized, lacked the strength and determination to support the Serbian people, who were heroically resisting the Western military alliance. The NATO aggression against the Federal Republic of Yugoslavia (an Orthodox Christian country) contributed to the rise of extremist Islamist groups in the region of Kosovo and Metohija, particularly the so-called KLA (Kosovo Liberation Army) terrorist organization. This conflict led to the destruction of numerous churches and monasteries dating back to the Middle Ages. During the riots of 2004 and attacks by Albanian extremists, 30 monasteries and churches were destroyed, and 11 were damaged [5]. The cathedral church of the Virgin of Ljeviška, which is under the protection of UNESCO, was also affected. According to Janjić (2013), one of the strategies for the restoration and protection of the medieval cultural heritage in Kosovo is the survival of the Serbian people in those areas, along with the strengthening of the spiritual vertical dimension of each individual (existing since St. Sava time).

The next determinant of strengthening the collective identity of the people in Serbia and the protection of culture is the creation of specific media strategies that will influence the promotion of Serbian history while strengthening the attitudes of social groups towards the preservation of cultural heritage. Research from 2017 indicates that young people are of the opinion that Serbian media does not sufficiently report on the medieval heritage in

Kosovo and Metohija [11]. Young people also believe that there is not enough media coverage of the United Nations Security Council Resolution 1244. By modernizing the media through its digitalization that started in 2009, it is possible to ensure better preservation of cultural values in a digital format, which has become the practice of many museums throughout Europe. Likewise, the digital promotion of the cultural heritage of the Republic of Kosovo should also seek its promotion in digital media content.

Finally, when discussing Serbia, an important aspect is the preservation of Serbian cultural heritage abroad [4]. There is a need for stronger cultural ties between Serbia and the countries in the region where Serbian cultural heritage is located, such as Hungary, Montenegro, Croatia, Bosnia and Herzegovina (Republic of Srpska), Greece, and Romania. It is also important to examine how countries like Romania, Spain, Greece, Slovakia, and Cyprus—who have not recognized the Republic of Kosovo as a sovereign state—apply media strategies to address similar issues in their own regions, such as the Basque Country in Spain, Erdelj in Romania, and Epirus in Greece. In this section, we also begin the analysis of foreign academic works, with a continued focus on the territory of Kosovo and Metohija. Following the entry of KFOR forces into southern Serbia, numerous acts of desecration and destruction of cultural heritage, affecting all peoples and religions in the region, were committed.

Italian Army KFOR soldiers observed the destruction of cultural heritage in Kosovo, as testified by Fabio Maniscalco, an archaeologist serving in the international forces in Kosovo, in his work *The Loss of the Kosovo Cultural Heritage*. Through his research, Maniscalco alerted the global academic community to the deliberate attempt to erase a significant part of civilization, specifically the Serbian medieval heritage. In his work, the archaeologist also discusses the influence of medieval Italian culture, particularly from the 12th to the 15th century, on the construction of churches and monasteries in the Metohija region, highlighting its historical significance before and during the Renaissance.

Sector C: The cultural heritage was not spared in other geographical areas either.

In examining the direct clash between neo-liberalism and conservative ideologies, this article explores various scientific perspectives on cultural preservation strategies in the context of this ongoing conflict, from the year 2000 to the present. A notable historical example is the destruction of the Bamiyan Buddha statues in Afghanistan in 2001 by the Taliban. The motivations behind this act were primarily political, as the Taliban sought to strengthen their position in Afghanistan through media coverage. This destruction suppressed and erased the cultural and theological legacies of other nations. Preserving such cultural treasures requires fostering connections between different cultures, emphasizing tolerance, and

Table 1: Scientific public within the framework of cultural heritage preservation - sector B

1.	Katanić, Z	Digitization of cultural heritage	Proceedings-Sremski Karlovnici, 2020	Increasing the content of cultural heritage on the digital platform, strengthening media promotion
2.	Miljojko, B., & Todorovic, V	Media / cultural heritage	<i>Serbian Political Thought</i>	Strategy for better media promotion of Serbia's cultural heritage Greater media commitment to resolution 1244
3.	Jovan Janjić	Notes below the cross	J.Janjić, Beograd	Strengthening the spiritual awareness of the Serbian people
4.	Golubović. V.	International cooperation	<i>International Problems, 2014</i>	The goal is to preserve cultural heritage outside the country
5.	Maniscalco, F.	Destruction of Serbian culture in Kosovo and Metohija	<i>Web journal on cultural patrimony</i>	Preventing Serbian cultural heritage from being declared Albanian

Table 2. Scientific works dealing with the preservation of cultural heritage in the Middle East and Central Asia

1.	Sabrine, Isber, et al	Palmira	<i>Journal of Eastern Mediterranean Archaeology and Heritage Studies</i> 2024	Encouraging the local community An inclusive and integrative process of raising awareness of the importance of ancient heritage
2.	Cobbing, Felicity, and Linda Hulin	Cultural heritage-Gaza	<i>Palestine Exploration Quarterly</i> 2024	The awakening of the academic community An invitation to the leading countries of the world to strengthen the sites of cultural importance in the territory of Palestine
3.	Atai, J	Buddhist statues Afghanistan	<i>Tourism Culture & Communication</i>	An attempt to connect the cultural values of different nations, ideologies

understanding the historical contexts in which these events occur.

The invasion of Iraq by Western powers and the occupation of Baghdad followed shortly after. After approximately ten years, the Arab Spring and subsequently the bloody civil war in Syria followed, and the war continues to this day. The strengthening of the IS (Islamic State) in Syria caused the expulsion of the population as well as the destruction of the ancient cultural heritage. There is the case of the ancient city of Palmyra in central Syria. The ancient city was severely damaged by extremist groups fighting against the legally elected regime of Bashar al-Assad. How to protect the ancient heritage in the Middle East? Certain authors consider the encouragement of the local community and the economic development of certain regions to be the key to the survival and preservation of the ancient cultural heritage [9]).

The process of social inclusion, embracing diversity, and ultimately integrating multiple cultures into one sustainable system involves changing individuals' awareness of the cultural importance in which they are raised and develop cultural patterns. The ongoing events since October 2023, marked by the war between Israel and Hamas, have deeply concerned both global media and the scientific community. Scholars focused on Middle Eastern culture emphasize that this is a crucial moment for the scientific community worldwide to intervene and urge an end to the hostilities. They argue that the Palestinian people and their culture face potential extinction due to the conflict, and they call for a return to the fundamental principles of humanism.

Sector D: The beginning of the Special Military Operation marked an open conflict between Russia and Ukraine

The goals of this operation meant demilitarization, denazification, and the neutral status of Ukrainian society (without joining the NATO pact). One of the factors of denazification is the preservation of culture and cultural heritage of all free-thinking people on the territory of Ukraine. This is also discussed by a group of Polish authors, who state that after the end of the conflict, it will take at least five to ten years to restore the basic outlines of the culture and cultural values of both peoples in that area [10]. From a scientific point of view, we ask the question of whether it is possible for Ukraine to survive as a state within the internationally recognized 1991 borders and whether it would even exist as a state in the future. Russian cultural heritage permeates Ukrainian territory. President Putin's speech from February 2022 indicates that 25 million Russians died in World War II so that Ukraine would exist as a republic within the USSR.

He also highlights the role of the Russian people in the creation of medieval Orthodox culture in the Ukraine territory. A parallel can be drawn here between the events in sector B - the destruction of Serbian culture in the area of Kosovo and Metohija and sector D. The beginning of the attack on the FRY was meant as a preparation for the attack of the NATO alliance on Russia (the Russian people in Ukraine). However, the Russian Federation pre-empted the West and started a defensive operation on the territory of Ukraine. In the conclusion of this part, we can state that the

Table 3. Scientific works on the preservation of cultural heritage on the territory of Ukraine, as well as concluding considerations

1.	Shubalyi, O., & Gordiichuk, A.	3 to 5 year culture recovery in the UK	<i>Regional Barometer. Analyses & Prognoses</i>	Strengthening the economic potential of Ukraine after the end of the conflict. (the question remains within which borders Ukraine will exist)
2.	Jokić, M.	Man's relationship to culture	<i>Grafoprint</i>	Recognizing the systemic values of culture A multidisciplinary approach to cultural preservation

emergence and strengthening of neoliberal politics on all world meridians affects the suppression and then the destruction of the culture and cultural values [6].

4. CONCLUSION

A critical examination of cultural heritage preservation, alongside the analysis of the scientific community, suggests that we are only at the beginning of significant geopolitical and cultural shifts both in Europe and globally. Power redistribution is underway, with the formation of new empires and alliances. Considering sectors A and B, it is essential for the Serbian state to develop a targeted strategy to safeguard its cultural heritage. This strategy should focus on media and security initiatives. In sector A, cultural promotion, such as hosting festival events (the city of Herceg Novi, for instance, lacks a cultural heritage festival), can integrate media, business, and economic sectors to support such events and preserve medieval and ancient buildings. Media strategies should be designed to strengthen the identity of the Serbian people and emphasize its spiritual and cultural heritage.

It is also necessary to create a stronger political and cultural connection with countries within the EU that do not recognize Kosovo and Metohija as a state (a suggestion would be

a meeting of our foreign affairs minister with the foreign affairs ministers of these countries every three months, where the problem of Serbs in Kosovo and Metohija and the state of cultural heritage would be discussed, aided by a strong media support. We should also insist on a UN report on the quality of the implementation of United Nations Resolution 1244. Strategies for the preservation of cultural heritage can also be found in the security policies of neighboring countries [7]. Better cooperation between Serbian state services and the security formations of neighbouring countries gives us the opportunity to take better care of the heritage outside our borders (sector A). Finally, the security situation in sector D (indirectly also in sector C) may be related to the future status of Kosovo and Metohija within the borders of Serbia.

Russia's victory in Ukraine and the completion of a special military operation might imply that the winner of that conflict will dictate future peacetime relations in existing crisis hotspots (the status of Kosovo and Metohija). Russia can be an advantage on the side of Serbia, which it showed by blocking the resolutions in the UN in 2015, where Great Britain, the USA and the EU tried to declare the Serbian people genocidal in relation to the war events in Bosnia and Herzegovina.

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REAKCIJE NAUČNOG JAVNOG MNJENJA I TENDENCIJE U OČUVANJU I ZAŠTITI KULTURNOG NASLEĐA

Rezime: Područja Srbije i Balkanskog poluostrva bogata su srednjovekovnom kulturnom baštinom, ali smo svedoci sve većeg pokušaja uništavanja i zatiranja identiteta naroda i same kulture. Ovo je posebno došlo do izražaja nakon agresije NATO-a na Saveznu Republiku Jugoslaviju 1999. godine. Cilj ovog rada je da se izvrši analiza naučnog javnog mnjenja u vezi sa bezbednosnim aspektima očuvanja kulturnog nasleđa. Metodologija: vršimo kvantitativnu i kvalitativnu analizu deset naučnih radova, pet iz Srbije i pet iz Evrope, sa fokusom na pojam očuvanja kulture u odnosu na različite ponuđene strategije. Rezultate prikazujemo tabelarno i deskriptivno. Rezultati ukazuju na različite poglede naučnika u odnosu na faktor sigurnosti same kulture. Zaključna razmatranja ukazuju da je očuvanje kulturnog nasleđa direktno i indirektno povezano sa društvenim dešavanjima, te da sama bezbednost mora biti usklađena sa društvenim promenama u svetu.

Ključne reči: naučno javno mnjenje, kulturno nasleđe

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COMMERCIAL OFFENCES BY COMPANIES IN COMPETITIVE BUSINESS ENVIRONMENT

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Abstract: *In response to current scientific and social demands, the authors have chosen to dedicate this paper to examining the interconnection between the subjects of economic relations, as well as the legal violations committed by these subjects in the establishment of such relations. The economy is the main carrier of the entire social development and prosperity of the society, so researching the legality that occurs in the daily operations of the company and the fair and honest relationship towards consumers or service users was a great challenge for the authors. The main goal of the paper is the analysis of the ten-year period of business operations of companies on the territory of the Republic of Serbia and the discovery of the legality of their operations. After analysing the concept, types and main characteristics of companies established in the territory of the Republic of Serbia, the authors presented the basic economic, commercial offences according to the currently valid regulations in the Republic of Serbia, which are most often committed by companies and responsible persons in them. In the research, almost all basic methods of knowledge and research were applied, and statistical and comparative methods were used from the general scientific methods. From the methods for data collection - method of content analysis of documents, laws and annual statistical reports of the Statistical Office of the Republic of Serbia were used. By identifying the most prevalent sanctions imposed for the illegal operations of companies, the authors conclude the paper with a discussion and analysis of these deviant behaviors, along with recommendations for their prevention. The unique value of this work lies in the findings derived from analyzing a decade of court practice related to the subject of the study.*

Keywords: *commercial offences, companies, competition, consumer rights*

1. INTRODUCTION

The importance of a strong economy and legal certainty in establishing and maintaining economic relations are crucial factors for the progress of any state and society. This is true globally and within the Republic of Serbia. As a developing country, Serbia is in the process of building the foundations for a robust economy, aspiring to become an economically strong nation, which is essential for our continued integration into the European Union. Attracting foreign investment, expanding the production of our products and services beyond national borders, can only be achieved if the fundamental principles of the market economy are respected, alongside the regulations that govern these principles. While Serbia has made significant progress in this area, there are still challenges in ensuring the smooth operation of businesses and establishing a fair, competitive market, particularly in terms of preventing monopolistic practices. When a country's economy is stable and well-established, it becomes an attractive destination for investments and cooperation in various areas, including military, organizational, market, tourism, and more. This underscores the importance of putting significant effort into establishing and maintaining order in economic, business, and other related sectors. Numerous studies emphasize the critical role of the economy, not only from the perspective of the state but also from the individual's standpoint, particularly in terms of work, growth, and development. For instance, if a country's economy is weak and characterized by a high level of crime, investors are unlikely to invest due to the lack of legal certainty and potential risks. Additionally, in an economically and legally unstable state, the labor market suffers, and there is an increased sense of insecurity regarding safety and working conditions.

When these factors come into play, workers' motivation tends to decline. This often leads to employee dissatisfaction, which can result in deviant behaviors with potentially concerning outcomes. From the above, it is clear that

the economy serves as the "lifeblood" of society, and its continuous development is crucial. This is why research on this topic remains ever-relevant, socially important, and valuable. Furthermore, the dynamic nature of the market, with its constant changes, makes this area of study both intriguing and essential.

Consumer rights, including the right to choose, the right to information, the right to safe products or services, the right to privacy, the right to complain, and others, are becoming increasingly important. However, in companies that engage in various commercial offenses, consumer rights cannot be considered fully protected. During our investigation of this issue, we found that regulatory violations occur across several sectors, including the monetary, banking, and credit systems; building construction; trade in goods; food safety; importation of agricultural and food products; occupational health and safety; and the placement of medicines on the market. These violations contribute to unfair competition and disrupt normal market dynamics. Companies that adhere to all legal requirements have fewer financial resources available for investment in other business areas, such as advertising or expanding product ranges, compared to those that neglect their obligations to the state and society, avoiding mandatory payments and duties.

The authors are guided by the idea that a "welfare state" is one where legal certainty prevails, ensuring that citizens, employees, workers, as well as businesses and companies, feel their rights are respected and protected. In such an organized state, employees will be motivated to work and meet performance expectations, and the market will recognize and reward their efforts. However, if commercial offenses are frequent, and if it becomes socially acceptable to violate established regulations without facing timely, appropriate, and legal action from state authorities, then every aspect of our state's and society's development will be at risk.

2. CONCEPT AND CHARACTERISTICS OF A COMPANY

Every work process necessitates some form of organization or structure. This is how complex entities are created, within which economic activities occur, and which operate in the market under a specific organizational framework. Within such organizations, various types of relationships are established, particularly in terms of management and leadership, leading to the development of a more or less complex administrative structure that forms the company.

All economic entities operating within the territory of the Republic of Serbia can be classified based on the nature of the relationships between the company's members. This results in two main categories: limited companies and partnerships. Limited companies include joint-stock companies and limited liability companies, while partnerships encompass general partnerships and limited partnerships. The historical development of economic relations reveals that as the productive forces of society advance to higher levels of development, the economy becomes increasingly complex. Simultaneously, the social division of labor becomes more varied and specialized, leading to a greater diversity and complexity in the forms of economic activity. (Samardžija, 1978).

The economy of a country encompasses a range of activities involved in the production of goods and services and their subsequent distribution. Production refers to the continuous process by which human needs for goods and services are met, while consumption represents the satisfaction of these needs, which is the ultimate goal of production. Distribution acts as an essential intermediary between production and consumption, as it determines the quantity of goods and services required to meet the needs of individuals, groups, and communities, as well as supporting the continuation and expansion of production. This distribution occurs both directly and indirectly through various forms of exchange and transportation (Jovanović, 1983). The relationships

that emerge within the processes of production and distribution are organized and managed, forming the economic system of a country. Therefore, it can be concluded that the economic system involves the interaction of elements within production, distribution, and consumption, with its measures addressing key economic issues. These measures influence production, the distribution of social labor's output, and the distribution and redistribution of income or production value (Bajec & Joksimovic, 2001).

A commercial company is an artificially established entity whose entire legal existence is derived from legal regulations and laws. Unlike an individual, who automatically becomes a subject of law at birth, companies—and more specifically their founders—must meet a series of legal requirements to become a subject of law, obtain legal and business capacity, and acquire certain rights and obligations (Škorić, 2015).

“A company is a group of individuals who, utilizing the means of production, carry out specific functions in the process of social reproduction as an organized, independent economic unit through their coordinated activities.” (Nikolić, 2011).

„An enterprise is an organizational system in which the connection between work and assets is organized. Through organized activities, with the action of internal and external factors, the company fulfils its social role in the process of social reproduction“ (Živković, 2008).

2.1. TYPES OF BUSINESSES

In both theory and practice, companies are commonly divided into limited companies and partnerships. This classification is widely recognized, as most companies can be grouped into one of these two categories. The reason this distinction is often made is that the legal procedure for establishing a company is clearly defined based on whether it falls into one of these two groups. As a result, these categories are frequently discussed, taught, and applied in practical settings.

However, it is important to also recognize other types and classifications of companies

that may arise both in theory and practice, such as small, medium, and large companies, as well as individual entrepreneurs. Additionally, when considering the connection between companies, distinctions can be made between holding companies, conglomerates, cartels, concerns, multinational companies, transnational companies, and transcontinental companies, among others.

Such divisions have evolved throughout history, and as technology and techniques continue to advance, it is likely that new forms and types of companies will emerge in the future. The origins of the organizational forms we now call companies can be traced back to craft production, followed by manufacturing production, and eventually industrial production. As the production process developed, so did companies. In earlier times, companies were small, typically concentrated in a single city or country. However, with the growth of transport infrastructure, cooperation between cities and countries began to take shape. This led to the need for various types of companies, for which, over time, even long distances, including kilometers, water crossings, and state borders, were no longer barriers to effective business relations.

Every business entity's success in the market depends on how well it organizes its assets, human resources, and vision. Over the course of several life cycles, economic entities develop, expand, diversify, or face decline. The creation of a business entity begins with an idea for a new venture, followed by stages of growth, professionalization, consolidation, diversification, and ultimately either a decline in activity or revitalization.

For a business to thrive, it is crucial to operate within a stable, legally regulated environment and a developed market with fair and transparent competition. In such conditions, monopolistic practices and the exploitation of smaller entities by larger, financially stronger competitors can be avoided.

The relentless nature of the market leads to new divisions and the appearance of new types of companies, so only those companies

that are ready to enter the "market race", make rapid structural changes, introduce innovations in the way they work, quickly adapt their offer to current demand, can hope for survival on the market. According to this thesis, a few new divisions of companies appeared in practice. And that to reactor companies¹, defending companies², company analysts³ and companies seeking⁴. The last-mentioned type, company seekers, are today the most desirable employer, business partner and collaborator.

Whatever type of company is founded, developed, changed, or closed, it is especially important to act following the laws, in order not to commit a commercial offence.

3. A CONCEPT OF COMMERCIAL OFFENCES AND CHARACTERISTICS

The Law on Commercial Offences (2005), currently in force in the Republic of Serbia, defines a commercial offense as a "socially harmful violation of regulations on economic or financial operations, which either caused or could cause more serious consequences and is defined as a commercial offense by a regulation of the competent authority."

A commercial offense is defined by law or government regulation, which is based on that law. Legal entities and/or responsible persons within a legal entity are held accountable for commercial offenses. In comparative legal systems, responsibility for committing a commercial offense may also apply to entrepreneurs. However, it is important to note that the Law on

¹ This is a type of company that does not follow the changes in the environment, does not reduce its business to environmental research, nor adapt its business to current or upcoming market conditions, and therefore most often ends its existence with liquidation.

² This type of companies generally only follows changes in their domain and is not interested in other changes from the environment. It is characteristic of small businesses, and it functions by periodically developing its products and services.

³ Companies that we characterize as analysts are very interested in changes in the environment, but do not allocate additional funds for research, but are guided by the principle of differential orientation.

⁴ The type of companies that base their entire operations on establishing new products and conquering new markets, that have highly decentralized decision-making and flexible organization.

Commercial Offences of the Republic of Serbia does not explicitly define this possibility.

The concept of a commercial offense can be defined as “a violation of regulations on economic and financial operations, committed by a legal entity, a responsible person within a legal entity, or an entrepreneur, which is socially harmful, directed against the country’s economic system and its economic interests, as well as the interests of citizens, causing or potentially causing serious consequences, and which is defined as a violation by the regulation of the competent authority” (Đorđević, 2008). The most important principle of our law - the principle of legality is also applied in this area. This principle guarantees that the perpetrator of a commercial offence cannot be punished, nor any other sanction, if it was not prescribed before the offence was committed, nor will the perpetrator of a commercial offence be held accountable for the act committed, if before the act was committed, such an act was not defined in the law as a commercial offence. Also, only the law or regulation that was valid at the time of the commission of the commercial offence can be applied to the perpetrator of the commercial offence.

In the Republic of Serbia, legal regulations do not apply retroactively, nor is there an analogy in the application of legal regulations (except in cases where a later regulation is more favorable and lenient for the offender than the one that was in force at the time the commercial offence was committed).

The Law on Commercial Offences, as the most important legal regulation that governs this area under the term „legal entity“, precisely defines the following: “companies, institutions, organizations, as well as other legal entities that perform economic or financial business”. Also, it should be noted that the law stipulates that not all legal entities can appear as perpetrators of commercial offence. According to the Law, certain legal entities are exempt from liability, including “socio-political communities” (such as the state community, republic, autonomous province, city, or municipality) and their bodies (e.g., government, ministries), other state

bodies (e.g., courts, public prosecutor’s offices, administrations, agencies, military institutions), and local communities. Furthermore, the law states that “foreign legal entities” will only be liable for a commercial offense if the regulation defining the offense explicitly provides for it. Liability applies if the foreign entity has a representative office in the Republic of Serbia or if the offense was committed using their means of transportation.

The Law also provided that “the responsible person in a legal entity is the person who is entrusted with certain tasks in the field of economic and financial operations in a legal entity, that is, a socio-political community or its body, or in another state body, or in a local community.” The responsible person remains liable for the commercial offence even if their employment relationship with the specific legal entity has ended. Their responsibility does not cease with the initiation of bankruptcy proceedings against the legal entity, nor does it end if the legal entity ceases to exist. Persons in legal entities who cannot otherwise be held responsible for commercial offences are responsible for a commercial offence, but only when this is prescribed by the regulation defining the commercial offence.”

Given that the economy and its flows extend beyond the borders of our country, with Serbian companies often doing business abroad and foreign companies operating within Serbia, the law includes provisions regarding the responsibility of foreign companies and individuals. According to the law, the responsible persons in foreign legal entities are held accountable for committing a commercial offence, provided that the foreign legal entity has a representative office in the Republic of Serbia or the offense was committed using their means of transportation. The responsibility of the responsible person for the committed offence is excluded if they acted under the orders of a management body, provided that the person took all necessary actions as required by law, other legal regulations, or general acts to prevent the commission of the commercial offence. In cases where a criminal

offense also includes elements of a commercial offense, the responsible person will only be held accountable for the criminal offense. However, if the responsible person is initially penalized for a commercial offense and later convicted of a criminal offense that contains features of a commercial offense, the penalty for the commercial offense will be considered as part of the sentence for the criminal offense. For the perpetrators of commercial offense, the legislator established three types of sanctions: fines, protective measures and suspended sentences. The purpose of the foreseen sanctions is to achieve the preventive and repressive function of the commercial offence law, so the aforementioned coercive measures are imposed in a legally prescribed procedure by the court and represent either the deprivation or limitation of certain rights, and sometimes a warning that until the deprivation or limitation of some rights may arise if the illegal procedure is repeated.

“The fine for commercial offences can be prescribed in two ways, either by determining a special minimum and maximum fine within the general minimum and maximum penalty for commercial offences, or in proportion to the damage done, the unfulfilled obligation or the value of the goods or other thing that is the subject commercial offence. In the case of the first method of prescribing the penalty, it is necessary to bear in mind that for legal entities the minimum fine is RSD 10,000 and the maximum is RSD 3,000,000, while for responsible persons in a legal entity the general minimum is RSD 2,000 and the maximum is RSD 200,000. (Ilić & Dinić, 2014).

A suspended sentence for a commercial offence can be imposed on the company and the responsible person in the legal entity. It represents a warning measure that replaces the punishment in those cases when the court judges that the application of the punishment is not necessary and that it can be expected that the warning itself, together with the threat of punishment, will influence to a sufficient extent that the legally responsible person in company who committed the commercial offence

will does not commit same or similar offence in the future. A suspended sentence may be imposed on a legal entity if the court has imposed a fine of up to RSD 20,000 on the legal entity, and up to RSD 4,000 on the responsible person in the legal entity. The specific determined punishment will not be carried out if the convicted legal or responsible person does not commit a new commercial offence during the verification period, that is, if the responsible person does not commit a criminal offence that has the characteristics of a commercial offence. The verification period can last at least one and at most two years.

A suspended sentence may be revoked in three instances: if the suspended legal entity or responsible person commits a new commercial offence during the probation period; if a previously committed commercial offence, unknown at the time of the conditional sentence, is discovered, and had it been known, a more severe sanction would have been imposed instead of the suspended sentence; or if the suspended legal entity or responsible person fails to fulfill the obligations set out in the suspended sentence within the prescribed timeframe. In addition to fines and suspended sentences, the Law on Commercial Offences also outlines four types of protective measures. Firstly: the public announcement of the verdict⁵.

The second measure is confiscation of objects⁶.

⁵ The court will decide on this measure in the event that it is useful to inform the public about its content and in such a way contribute to the elimination of danger, abstract danger, to the life or health of people or to protect traffic safety. The publication of the verdict is done in different ways, most often by publishing it on television, radio or in the press. In which of these ways the verdict will be published, the court decides, depending on the importance of the committed commercial offence and the need to inform the public about the verdict. The costs of publication of the verdict are always borne by the perpetrator of the commercial offence.

⁶ If during the commission of a commercial offence the perpetrator used a certain object or that object is the object of the crime, this protective measure will be imposed. Therefore, the objects with which the commercial offence was committed, which were intended for the execution of the commercial offence and the objects that were created by the execution of the commercial offence are confiscated from the perpetrator of the commercial offence. If the objects are in the state of the perpetrator of the commercial offence, they must be confiscated immediately, and if they are owned by other persons, they will be confiscated only if there is a reason to protect people's lives and health, traffic safety or other economic interests or reasons of morality. If the objects are owned by another person,

Then follow: prohibition of a legal entity from engaging in a certain economic activity⁷ and banning the responsible person from performing a certain duty⁸.

3.1. CLASSIFICATION OF COMMERCIAL OFFENCE

The Law on Commercial Offences defines what constitutes a commercial offence but does not specify the types of commercial offences. In the Republic of Serbia, the area is not fully codified, so the Law on Companies is referenced during court proceedings when necessary. To identify the types of commercial offences, one must refer to other legal texts that govern economic and financial operations.

Our research shows that commercial offences most frequently occur in the field of accounting, as outlined in Article 57 of the Accounting Law (2021). The second most common offences are found in the area of financial operations, as defined in Article 405 of the Capital Market Act (2021). Additionally, we highlight commercial offences related to the

takeover of joint stock companies, which are specified in Article 47 of the Law on Takeover of Joint Stock Companies (2016).

Commercial offences are also prevalent in the energy sector, where they are specifically defined in Article 389 of the Law on Energy (2023). In the mining sector, commercial offences are outlined in Articles 180 and 181 of the Law on Mining and Geological Research (2021), specifying the actions and behaviors that constitute offences in this area. Furthermore, the Law on Planning and Construction (2023) includes several provisions on commercial offences, particularly in Articles 202, 202a, 203, 204, and 204a.

All commercial offences in the field of money laundering and terrorist financing are defined in Article 117 of the Law that regulates this area (Law on Prevention of Money Laundering and Financin, 2023). If intellectual property is attacked by committing major rights violations, this will be regulated by the Criminal Code of the Republic of Serbia, however, if other types of rights violations are committed that are of a lighter nature, this will represent commercial offences in this area and will be regulated by the Law on Special Powers for effective protection intellectual property rights (Law on special powers for effective protection of, 2021).

According to the Law on Items of General Use, any person who acts contrary to Article 111 will be punished for a commercial offence (Law on objects of general use, 2022). The Law on Strong Alcoholic Beverages also foresees a longer list of commercial offences and high sanctions for the perpetrators, and this is done in Article No. 51 (Law on strong alcoholic beverages, 2015). In addition to these laws, the Law on Medicines and Medical Devices determines a number of behaviours that should be classified as commercial offences in Articles 217 and 218 (Law on Medicines and Medical Devices, 2017). There is also another law that devotes one article (Article 79) to commercial offence, and that is the Food Safety Law (Law on Food Safety, 2019).

that person can demand compensation from the perpetrator of the commercial offence. Confiscated items are sold at public auction or handed over to competent authorities, museums, scientific or charitable institutions or destroyed.

⁷ Protective measure means the prohibition of a legal entity to engage in the production of certain products or the performance of certain transactions in goods and services or other economic activities. The court will impose such a measure on the perpetrator of a commercial offence when there are indications that further engagement in that or similar economic activity by the legal entity that committed the commercial offence would be dangerous to the life or health of people, or harmful to the economic or financial operations of other legal entities or to the economy, or would harm the reputation of our country or our companies or other organizations abroad when conducting foreign trade operations. Also, this measure can be imposed if the legal entity committed the same or similar commercial offence in the last two years, that is, in case of recurrence. This measure can last from 6 months to 10 years.

⁸ If an individual, in their role as a responsible person, has misused their position during the performance of their duties, or if the court determines that their continued involvement in the same responsibilities could pose a danger, this protective measure will be imposed. When this measure is applied, the individual is prohibited from carrying out the activities that were involved in the commission of the commercial offence; a certain management duty in terms of economic or financial operations; a certain type of work or some or all of the duties concerning the disposal, use, management or handling of social or state funds or the safekeeping of these funds. The rules for the duration of this measure are the same as for the aforementioned measure, the only difference being that the duration of the measure can be reduced at the request of the convicted person if it is determined that he has improved his behavior.

Another in a series of laws that is in force in the Republic of Serbia, and defines commercial offences and sanctions for those who commit them, is the Law on Road Traffic Safety, where in Article 325 it is precisely defined which person and under what conditions, with what actions, commits commercial offences in this area (Law on Road Traffic Safety, 2023).

And finally, we must mention that a large number of commercial offences are defined by the law that is closely related to the topic of the work, that is, by the Law on Companies, Articles 585, 586, 586a, 586b.

The list of legally determined behaviours qualified as commercial offences does not end here, but the authors have presented all commercial offences that are most often committed on the territory of the Republic of Serbia in the previous ten-year period, which we will present in the next part of the paper.

4. RESEARCH AND DISCUSSION

One of the main goals of the paper is the theoretical and practical comparison of different types of commercial offences, the perpetrators of commercial crimes, but also the discovery of the causal relationship between such illegal behaviors, causes and consequences of the studied phenomenon. In the previous part of the paper, the authors presented the theoretical concept of the research problem, and in the following part of the paper, we will perform a comparative analysis of commercial offences and establish the legalities that can be observed through such an analysis.

The sublimated and analyzed data were collected on the basis of the official Bulletins of the Statistical Office of the Republic of Serbia, as the only official, respectable and highly accurate data. The research presented in the paper included the number of reported, accused and convicted companies for commercial crimes, as well as the number of reported, accused and convicted responsible persons in the legal entity, in the entire territory of the Republic of Serbia in a period of ten years (2013-2022).

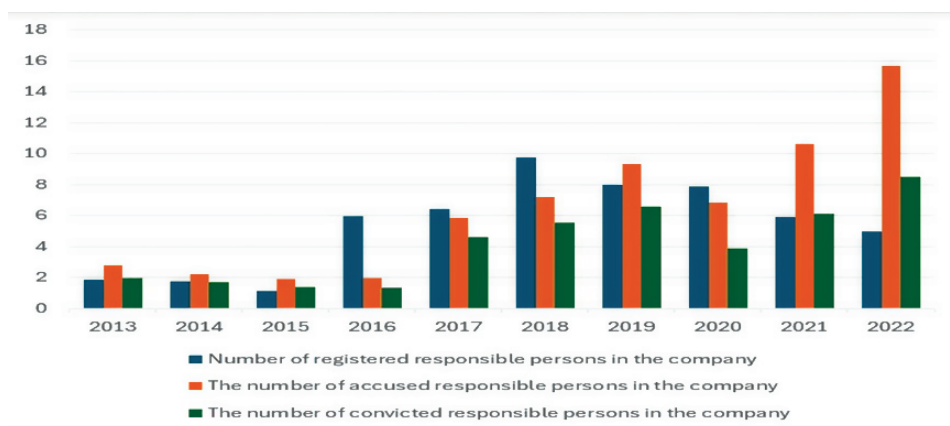
Table 1. Total number of reported, accused and convicted responsible persons in a legal entity for commercial offence on the territory of the Republic of Serbia in the period from 2013 to 2022.

Year	Number of registered responsible persons in the company	Number of accused responsible persons in the company	Number of convicted responsible persons in the company
2013	1,862	2,791	1,941
2014	1,719	2,228	1,679
2015	1,099	1,891	1,352
2016	5,956	1,953	1,341
2017	6,413	5,850	4,604
2018	9,731	7,190	5,518
2019	7,999	9,343	6,576
2020	7,872	6,835	3,877
2021	5,883	10,634	6,129
2022	4,954	15,651	8,487
Σ	53,488	64,366	41,504

Source: Statistical Office of the Republic of Serbia (Bulletin of the Statistical Office of the RS, 2024.)

Over the observed ten-year period, the number of responsible persons reported in legal entities is 17% lower than the number of accused individuals. This discrepancy is likely due to the length of legal proceedings, meaning some individuals who are not included in the calendar year for reporting might still be charged later. Inspectors, Ministry of Internal Affairs members, or public prosecutors typically serve as applicants, often through direct information. The majority of these procedures take longer than six months. The most common commercial offences occur in the field of accounting. Additionally, the number of convicted individuals responsible for commercial offences is 36% lower than the number of accused persons in the same period, and 22% lower than the number of registered persons. During this time, fines up to RSD 5,000 were the most frequently imposed penalty.

In order to make it easier to see the trends and tendencies of the analysed phenomenon, the authors presented the collected data graphically.



Source: Authors

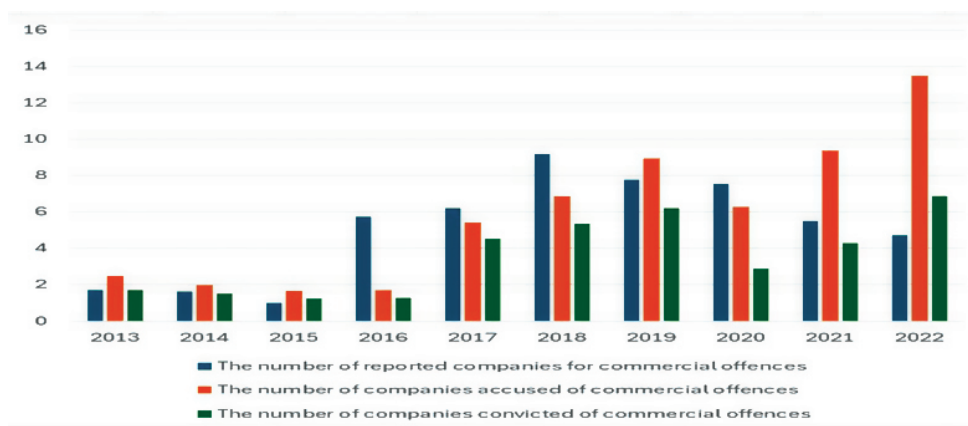
Graph 1. Total number of reported, accused and convicted responsible persons in a legal entity on the territory of the Republic of Serbia in the period from 2013 to 2022.

From the graphic representation of the observed phenomenon, we can see that the number of reported, accused and convicted persons responsible for commercial offence was lower in the first five years of the observed period. The increasing trend in the number of accused individuals stands in stark contrast to the decreasing trend in the number of reported individuals. From the graphical representation, it is evident that the occurrence of the term “crime loss” is almost nonexistent, except in the final two years of the observed period. The reasons for this can likely be attributed to the enhanced inspection oversight and the growing number of registered companies.

Table 2. Total number of reported, accused and convicted companies on the territory of the Republic of Serbia in the period from 2013 to 2022.

Year	Number of registered companies	Number of accused companies	Number of convicted companies
2013	1,718	2,500	1,707
2014	1,631	1,993	1,504
2015	1,013	1,677	1,215
2016	5,726	1,686	1,273
2017	6,196	5,433	4,534
2018	9,194	6,859	5,337
2019	7,764	8,962	6,208
2020	7,529	6,277	2,888
2021	5,496	9,382	4,288
2022	4,702	13,511	6,866
Σ	50,969	58,280	35,820

Source: Statistical Office of the Republic of Serbia (Bulletin of the Statistical Office of the RS, 2024.)



Source: Authors

Chart 2: Total number of reported, accused and convicted companies on the territory of the Republic of Serbia in the period from 2013 to 2022.

The total number of reported persons in the observed ten-year period is lower by 13% compared to the number of accused persons. We have already stated the reasons for this phenomenon when analysing the number of reported and accused responsible persons in the legal entity, and they are the same. The number of convicted persons for this observed period is 39% lower than the number of convicted companies. Also, the procedure in the first phase lasts on average more than six months. And with this phenomenon, offences are most often committed in the field of accounting. And the most dominant penalty is a fine of up to RSD 15,000.

Analyzing the graph of reported, accused, and convicted companies, it is evident that the “loss of crime” is most pronounced in 2016, as well as in the last two years of the observed period. The high number of accused companies highlights the most burdensome phase of the commercial offense procedure. This can be attributed to the increased inspection oversight. However, the significant disparity between the number of accused and convicted companies suggests a need for more thorough and qualified inspection supervision of company operations.

If we examine year by year and compare these two phenomena (data related to responsible persons in a legal entity and legal entities), the most current data on these phenomena would look as follows. For example, in 2022, for perpetrators of commercial offence, the number of reported responsible persons is lower by 16%, and companies by 14% compared to 2021, while the number of convicted responsible persons in companies is higher by 38%, and companies by 60%.

In 95.5% of the cases against the perpetrators of commercial offence, an indictment was filed with the reported responsible persons in the companies, and 95.4% with the companies. The percentage of rejected applications for responsible persons in companies is 4.5%, and for registered companies, that percentage is 4.6%.

In the structure of types of commercial offences in 2022, the most numerous reports are

for commercial offences resulting from violation of accounting regulations: 92.6% for responsible persons in companies, and 92.2% for companies.

In the same year, viewed according to the types of commercial offences, the largest number of convictions was for violations of accounting regulations: 97.7% for responsible persons and 97.2% for companies.

5. CONCLUSION

Although we initially explained that economic flows, market activities, and cooperation between various legal entities are constantly evolving, we have observed that the regulations governing procedures in cases of violations of economic flows in the Republic of Serbia have remained unchanged for nineteen years. It is important to note, however, that in instances where the Law on Commercial Offences is not applicable or does not address specific situations, the provisions of the Code of Criminal Procedure may be applied as a supplementary legal framework (Criminal Procedure Code, 2021). The authors emphasize that it is high time to amend this Law. While it is true that the Republic of Serbia is the legal successor of Yugoslavia, it is crucial to update the regulations to align with the current state system. Terms such as “law of the federation,” “SFRY,” and “bodies of the socio-political community” should be replaced with more appropriate and contemporary terms that reflect the present legal and political framework. There are also references to articles from other laws that have changed over time and are no longer applicable, nor do the acts they refer to still exist. For instance, Article 6a of the Law on Commercial Offences defines that “The concept of the territory of the Socialist Federal Republic of Yugoslavia is determined in terms of Article 113, paragraph 1 of the Criminal Code of the Socialist Federal Republic of Yugoslavia.” However, in the current Criminal Code of the Republic of Serbia, Article 113 pertains to “murder,” not the concept of territory. This is just one example of many similar discrepancies. In conclusion, when the authors advocate

for changes to the regulations, they are not merely addressing terminological inconsistencies, but also the substantive content that no longer reflects the current legal and political framework.

To facilitate the smoother functioning of companies and reduce the number of commercial offences, we believe that codifying legal regulations in this area would be highly beneficial. Currently, regulations related to commercial offences are dispersed across various secondary legislation, making it challenging for individuals and businesses to navigate. Those who need to comply with these regulations must often consult multiple legal texts related to specific economic sectors, which can lead to confusion and inefficiency. A more streamlined and consolidated approach would provide clearer guidelines, improve compliance, and help reduce violations. We are also aware of the demands of such codification and the urgency of the codification of the civil law field, but we believe that at least the unification of these regulations and their classification in the form of some accessible and free internet platform would be valuable, at least for people who are just starting their business.

Based on the research conducted in this paper, we conclude that, on average, 15 responsible persons in a company are reported for a commercial offence each day. Additionally, 18 individuals are accused of commercial offences daily, and 12 responsible persons are convicted of commercial offences, with the majority of these offences occurring in the fields of accounting or financial operations. The authors believe that these statistics reflect a concerning state of affairs in the economy of the Republic of Serbia. The situation might improve by revisiting the court practices, particularly in relation to the fines most commonly imposed, as adjustments here could encourage greater compliance and deter further offences.

According to research in the last ten years of the observed period, the most frequently imposed fine for commercial offence committed by responsible persons in a company is a fine of up to RSD 5,000 (the minimum prescribed by the Law is RSD 2,000, and the maximum is RSD 200,000), and for companies up to RSD 15,000 (the minimum is determined by Law, it amounts to RSD 10,000, and the maximum is RSD 3,000,000). From this, it is an undoubted conclusion that it is necessary to change the currently valid regulation in the part that concerns the general minimum and general maximum fines, because nineteen years ago, when the currently valid Law was adopted, the monetary amounts that were stated had a much higher value than today.

When it comes to companies and their responsibility for commercial offence, the research showed that on average, 14 companies are reported on a daily basis, 16 of them are charged on average on a daily basis, and every day in the territory of the Republic of Serbia, an average of 10 are convicted companies for commercial offence. According to the presented data, we can conclude that responsibility is more often established with responsible persons in a company, than with companies.

It is also important to note that the Law on Commercial Offences does not recognize entrepreneurs as perpetrators of commercial offences, nor does it address their position in this context. The law currently only acknowledges companies and their responsible persons as entities that can be held accountable for commercial offences. This is not the most effective approach, as entrepreneurs play a crucial role in the state's economic system. The provisions regarding their operations should be systematized alongside those for responsible persons in companies and the companies themselves, ensuring a more comprehensive legal framework that includes all key economic actors.

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PRIVREDNI PRESTUPI PRAVNIH LICA U USLOVIMA KONKURENTSKOG POSLOVANJA

Rezime: U skladu sa naučnim i društvenim aktuelnim potrebama, autori su se odlučili da rad posvete istraživanju uzajamne povezanosti subjekata privrednih odnosa, kao i pravne povrede privrednih odnosa od strane subjekata koji te odnose uspostavljaju. Privreda je glavni pokretač celokupnog društvenog razvoja i prosperiteta društva, pa je istraživanje zakonitosti koje se javljaju u svakodnevnom konkurentskom poslovanju privrednih subjekata i fer i poštenom odnosu prema potrošačima ili korisnicima usluga, predstavljalo veliki izazov za autore. Glavna cilj rada jeste analiza desetogodišnjeg perioda poslovanja privrednih subjekata na teritoriji celokupne Republike Srbije i otkrivanja zakonitosti njihovog poslovanja. Nakon analize pojma, vrsta i glavnih karakteristika privrednih subjekata osnovanih na teritoriji Republike Srbije, autori su predstavili i osnovne privredne prestupe prema trenutno važećim propisima u Republici Srbiji koji se najčešće izvršavaju od strane privrednih subjekata. U istraživanju primenjene su skoro sve osnovne metode saznanja i istraživanja, a od opštenaučnih metoda korišćene su statistička i komparativna metoda, dok je od metoda za prikupljanje podataka primenjena isključivo metoda analize sadržaja dokumenata, zakona i godišnjih statističkih izveštaja Republičkog zavoda za statistiku. Utvrđivanjem najdominantnijih sankcija koje se određuju za nezakonito poslovanje privrednih društava, autori rad završavaju diskusijom i analizom ovih devijantnih ponašanja i preporukama za suzbijanje istih. Posebnu vrednost rada čine nalazi do kojih se došlo analiziranjem desetogodišnje sudske prakse povodom predmeta rada.

Ključne reči: privredni prestupi, privredna društva, konkurencija, prava potrošača

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THE DIGITAL ERA AS A CHALLENGE FOR HUMAN RIGHTS

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Abstract: *The digital era, as a period in which digital technologies have a significant impact on all aspects of human life and society as a whole, represents a general change in the way we live and function. The development of digital technologies and digitization opens up new ways to exchange ideas, information, research and other activities that take place in the digital space. The advanced level of modernization in contemporary states is facilitated by digitalization, which involves the use of information technologies across both the private and public sectors. The process of digitization ensures openness, transparency, and inclusivity, which satisfies the requirements for effective and efficient governance. However, as digital space expands, so do the opportunities for violations of human rights and freedoms, which occur in both the offline and online worlds. The protection of human rights in the 21st century depends on the ability of states to clearly establish their protection in a digital context. The purpose of this article is to highlight the challenges, risks, but also the possibilities for improving the protection of human rights in the digital era, especially the right to privacy and the protection of personal data. To achieve this goal, several methods will be applied, such as the analysis of scientific and professional literature, normative, historical, comparative, empirical and descriptive methods. In conclusion, the need to develop a dialogue that will balance progress in the protection of basic human rights will be highlighted.*

Keywords: *digital era, human rights, online space, right to privacy, protection of personal data*

1. INTRODUCTION

Human rights, democracy, and just government aren't something we can take for granted. They represent all goods that require care and attention. New methods of learning, entertainment, and work are made possible by the latest developments in scientific and technological fields as well as techniques and technologies during the last several decades. As a result of these modifications, modern, successful operation is required in order to meet

the newly established circumstances. As more of our lives shift to the online realm, we've seen firsthand how technology can enhance democracy, human rights, and the rule of law. During the Covid-19 pandemic, many people adapted by moving their responsibilities, work tasks, meetings, and other activities to digital platforms. This shift not only kept essential functions running but also demonstrated the potential of technology to foster connectivity, transparency, and participation in various sectors of society, even during challenging times.

However, it also raised important questions about digital access, privacy, and security, highlighting the need for balanced regulation and protection in the digital age.

The requirements of people are reflected in digital transformation in modern society. It is an effective way to enhance the quality of life for citizens who benefit from digitization in many ways, including the provision of public services without discrimination, the elimination of counter waits times, the avoidance of numerous bureaucratic procedures, etc. One of the most crucial instruments for building a relationship between institutions and the public, as well as for improving the effectiveness of government agencies' operations and their accountability to the public, is digital technology. Transparency, inclusivity, and openness are ensured by digitization, meeting the requirements for effective and efficient administration.

The development of digital communications and technologies have brought about significant changes that modern countries must deal with. This implies that despite all of the advantages that come with digitization, it also serves as a haven for many human rights violations, abuses, and limitations.

There are various ways in which human rights might be violated in the internet world. Online bullying, harassment, stalking, threats, and other attacks on the safety of individuals and groups are among the most prevalent types of cyberviolence. In the context of the digital age, violations of personal data protection and privacy are frequently considered human rights abuses.

2. DIGITALIZATION AND HUMAN RIGHTS

Achieving a high level of modernization for the nation with the use of information technologies in both the public and private sectors is what is meant by digitization. It focuses on four ideas:

- Skills (total number of ICT professionals in the nation, particularly women, and proportion of digitally literate populace);

- Government (digitalization of public services, e-health, and digital identity);
- Businesses (proportion of businesses using advanced ICT in their operations; rate of growth of innovative businesses and percentage of enterprises using basic ICT);
- Infrastructure (number of secure communication nodes, internet connection quality and speed).

The Republic of North Macedonia's statistical data indicates that the majority of households have access to the Internet from home. 88.0% of households had access to the Internet from home in the first quarter of 2023, according to data from the State Statistical Office of The Republic of North Macedonia. Of all those aged 15 to 74, 85.3% used the Internet in the first quarter of 2023, and 67.7% used it multiple times a day. In the previous year, 53.5% of persons completed online orders for goods or services [19].

The following table 1, which is based on statistical data kept and released by the State Statistical Office, shows what the citizens of North Macedonia most frequently done with the Internet in the first quarter of 2023.

The majority of the population used the Internet for the following purposes:

- 89.2% made Internet phone calls and video calls (using a webcam);
- 76.9% used social networks (setting up profiles and sending messages or other attachments on Facebook, Twitter, etc.); and
- 75.2% sent and received instant messages.

The least common uses of the Internet were:

- 3.4% for taking part in online polls or consultations to define political and civil issues (such as urban planning and signing petitions);
- 6.8% for selling goods or services through online auction sites like eBay;
- 9.1% for searching for a job or submitting an application.

In addition to exposing individuals to online security risks due to their frequent internet usage and routines, citizens also face

Table 1. Activities on the Internet in the first quarter of 2023

	Total	Sex		Age groups		
		Male	Female	15-24	25-54	55-74
Internet users	100	100	100	100	100	100
Sending / receiving e-mails	44	42.5	46.8	48.6	54.2	28.2
Telephoning over the internet / video calls (via webcam) over the internet (using applications, e.g. Skype, Facetime)	89.2	87.2	92.8	84.8	91.4	86.7
Using social networks (creating user profile, posting messages or other contributions to Facebook, Twitter, etc.)	76.9	75.2	80.0	87.4	85.3	62.8
Using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger, WhatsApp, Viber	75.2	73.6	78.2	86.5	82.8	62.1
Finding information about goods or services	54.2	52.1	58.1	70.5	62.7	39.1
Reading online news sites/newspapers/news magazines	48.2	43.9	55.9	44.8	52.0	43.0
Expressing opinions on civic or political issues on websites or in social media (e.g. Facebook, Twitter, Instagram, YouTube)	18.7	18.3	19.3	12.6	21.1	16.2
Taking part in online consultations or voting to define civic or political issues (e.g. urban planning, signing a petition)	3.4	3.8	2.7	1.2	4.7	1.9
Looking for a job or sending a job application	9.1	9.0	9.3	14.9	13.3	1.9
Seeking health-related information (e.g. injuries, diseases, nutrition, improving health, etc.)	67.7	67.3	68.3	66.2	73.5	59.3
Selling of goods or services, e.g. via auctions (e.g. eBay)	6.8	6.8	6.8	7.0	8.9	3.8
Internet Banking	32.8	32.6	33.3	20.3	43.8	19.6

Source: State Statistical Office of The Republic of North Macedonia, <https://www.stat.gov.mk/>

challenges and threats related to the violation of their human rights in the digital age. Human rights were created at a time when the Internet did not exist, but it is now an essential part of modern society. The Internet has evolved into an essential tool for achieving a number of human rights because it is a global communication medium. It can be used for a variety of purposes, including educating people, shaping public opinion, disseminating ideas, thoughts, and attitudes, downloading and sharing content. Apart from its numerous advantages, the Internet may potentially have a negative impact on the human rights. Such circumstances highlight the necessity of safeguarding human rights in the digital age, or putting in place systems to address the new difficulties that the Internet presents. Digitization has a lot of beneficial impacts on individuals, but it also changes the ways in which human rights are protected and violated.

Human rights are linked to the Universal Declaration of Human Rights (1948) and the European Convention on Human Rights (1950). Although states have made significant

progress in this area, there is still more work to be done, particularly given how dynamic and ever-changing societies are. It also means that in addition to the rights that were customary or traditional in the past, new rights are always developing that the states are obligated to protect. The state's capacity to clearly define human rights' protection in the digital era will determine whether or not those rights are upheld in the digital age.

Globalization and digitalization are strongly related concepts. Globalization is a multidimensional concept with many different aspects (economic, political, legal, cultural, etc.). Following the Second World War, numerous European nations began the process of becoming more interconnected due to advancements in science, democracy, technology, etc. The European Union was established as a consequence of that procedure. It represents one of the most important and effective ways of state unification that exist today. The main reasons behind the creation of the EU are peace, security, economic and social solidarity, European identity and variety in the context

of a globalized world, and the promotion of a more comfortable, safer, and freer living for its members. The member states of the European Union differ in size from the largest, Germany, with over 82 million people, to the smallest, Malta, with only 400,000 people. About 510 million people live in the 27 member nations which make up the European Union.

EU member states identify digital transformation as one of their top goals. The European Parliament works with member states of the EU to develop policies that will encourage worker training and digital skills, promote digitize public services, and increase European capabilities in emerging digital technologies - all while respecting fundamental rights and values. In addition to highlighting the need for more digital education and the digital skills gap, the Covid-19 epidemic has demonstrated the significance of digital skills for interaction and employment. Up to 42% of EU people do not possess basic digital abilities [17].

3. THE RIGHT TO PRIVACY AND THE PROTECTION OF PERSONAL DATA

The digital age we are living in, along with the increasing use of information technology and systems, presents new difficulties for protecting personal data and the right to privacy [3, pg.1]. One of the fundamental rights, the right to privacy, has changed over time to take on new meanings and manifestations. Privacy refers to a person's freedom to freely choose how much of their personal information they want to share and discuss with others. When he feels it is necessary, he can escape or engage with the community, but he also has the right to manage the information that is shared about him [1, pg.22]. The right to privacy implies the right to be left alone [2, pg.40].

Individuals have diverse cultural origins and varying opinions on what constitutes a private space. Most people conceal their thoughts, talks with other people, close relationships, etc. behind the curtain of privacy. However, as technique and technology have advanced, not only have views on privacy evolved, but the right to privacy has also faced many challenges.

A fundamental human right, the right to privacy protects people against unwarranted access to their private information, conversations, and affairs. It addresses a number of topics, such as individual freedom, data control, and privacy protection.

The world's communications and information exchange has benefited as a result of the information and communication technologies' quick development. While contemporary technology enhances quality of life and the ability to exercise human rights, it can also be exploited to the harm of these rights.

There is no doubt that the right to personal data protection is linked to the right to privacy. The concept of protecting personal data is more expansive and encompasses not just the right to privacy but also the freedoms of expression, religion, and thinking, as well as the unrestricted flow of information and nondiscrimination.

The concept of "personal data protection" describes the steps done to protect the integrity, confidentiality, and privacy of an individual's personal information. This include putting security measures in place to prevent unwanted access, ensuring that data protection laws and regulations are followed, getting informed consent prior to data collection and processing, and giving people the ability to view, amend, and remove their personal data. In other words, the gathering and handling of personal data dates as much further than society itself [4, pg.65]. It may not be the oldest occupation, but it is undoubtedly one of the oldest behaviors. The gathering and use of personal data is becoming more and more necessary in today's world.

4. REGULATION ON THE RIGHT TO PRIVACY AND THE PROTECTION OF PERSONAL DATA

Multiple documents constitute the international rule on the right to privacy and the protection of personal data. The European Convention on Human Rights (Article 8), the European Charter of Fundamental Rights

(Article 7) and the Universal Declaration of Human Rights (Article 12) all guarantee the right to privacy or private life.

According to Article 12 of the Universal Declaration of Human Rights, no one is allowed to be victim of arbitrary intervention in his home, family, or private life, or in attacks on his honor and dignity. Everyone has the right to legal defense against these kinds of intervention or assaults.

The right to respect for one's home, correspondence, and private and family life includes the right to protection against the collection and use of an individual's personal data, as specified in Article 8 of the European Convention on Human Rights.

Everyone has the right to respect for their home, communication, and private and family life, as stated in Article 7 of the European Charter of Fundamental Rights.

Convention No. 108+, also known as the Council of Europe Convention for the Protection of Individuals with regard to the Processing of Personal Data, is the first legally binding international agreement dedicated only to data protection.

One of the fundamental values of the EU and a human rights area that the Union takes seriously is the protection of personal information and the right to privacy. The General Data Protection Regulation (GDPR), also known as Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, is extremely important regulation which has become increasingly crucial as a result of the rapid development of technology, globalization, and the new challenges related to data protection. This Regulation was adopted on April 27, 2016, by the European Parliament and Council of the European Union. This regulation replaced Directive 95/46/EC, which was the act that was transposed into the Personal Data Protection Law of 2005. In addition to giving individuals more control over their personal data, this regulation places strict restrictions on how businesses must gather, use, and preserve personal information.

The European Commission has created many publications (guidelines, guides, etc.) to facilitate the implementation and application of this regulation. These documents aim to make the regulation's practical implementation easier. They're:

- Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation,
- Guidelines on Data Protection Officers,
- Guidelines on the right to data portability,
- Guidelines on Consent under Regulation 2016/679 and
- Guidelines on Transparency under Regulation 2016/679.

The personal data protection reform processes started with the adoption of the new Regulation. Iceland has extremely strict privacy regulations that were implemented in 2000, making it a country with the strictest laws regarding internet data protection. Switzerland has the best protections for privacy of all countries, as established in its Constitution and implemented laws, which protect individuals right to privacy. The Scandinavian countries (Sweden, Norway, Denmark, and Finland) have been recognized as leaders in privacy and data protection, having the best privacy practices.

Of great importance is the practice of the European Court of Human Rights, which has also prepared a "Guide to the practice of the European Convention on Human Rights in the protection of personal data".

The General Data Protection Regulation has been adequately included into the Republic of North Macedonia's new Law on the Protection of Personal Data, which enters into force on February 24, 2020. The Law on Protection of Personal Data regulates the processing of personal data with regard to the protection of personal data and the right to privacy.

In the Republic of North Macedonia, the protection of personal data and the right to privacy are guaranteed in the Constitution. Article 18 of the North Macedonia Constitution ensures that personal information is protected.

Personal privacy and security of data are ensured. Protection against violations of personal integrity resulting from the registration of data processing-related information about citizens is guaranteed.

Additionally, an individual's privacy is protected by Article 25 of the Constitution. Every citizen has a right to the respect and protection of his or her reputation, dignity, and private life, including that of his or her family. The Constitution's provisions protect the security and privacy of personal information. Protection against violations of personal integrity resulting from the registration of data processing-related information about citizens is guaranteed. Every citizen is entitled to the respect and protection of his or her reputation, dignity, and private life, including that of his or her family.

There are several national legal acts that contain norms related to the protection of personal data and the right to privacy. These laws include the Criminal Code, the Law on Justice for Children, the Law on the Protection of Children, the Law on Electronic Communications, the Law on Electronic Commerce, the Law on Obligation Relations, among others, in addition to the Law on the Protection of Personal Data.

The Criminal Code includes a special chapter titled "Crimes against the Freedoms and Rights of the Citizens," which regulates the following crime: "Abuse of personal information". This chapter has systematized a number of other offenses that can be committed and compromise one's right to privacy, in addition to this one. These include: violating the home's inviolability; failing to maintain the privacy of correspondence or other deliveries; publishing personal information without permission; unlawful recording etc.

5. POSITIVE AND NEGATIVE IMPLICATIONS OF DIGITALIZATION ON HUMAN RIGHTS

Many positive and negative effects might come from digitization in the context of human rights.

Access to information, education and knowledge, accountability and transparency, economic empowerment, global connection, and the strengthening of human rights are just a few of the ways in which it positively affects human rights.

On the other hand, the negative effects include things like: monitoring privacy; fostering a digital gap; cyber security issues; online harassment and discrimination; censorship, etc.

People can exercise their right to freedom of expression and access to information thanks to the benefits of digitization in terms of access to information. It makes it possible for people to differ, exchange ideas, and engage in public conversation more freely. Information access is made more accessible by digital technologies.

Digitization's positive benefits on education and awareness are multifaceted. Digital platforms enable people to understand and fight for their rights by providing access to educational materials and campaigns raising awareness of human rights concerns. As a benefit of digitalization, transparency and accountability are improved in governance through the use of digital tools that let people keep an eye on government operations, report corruption, and hold officials responsible for any violations of human rights. With regard to the management of environmental issues, education, culture, and other social policies, as well as the development of novel industries with high added value, digital tools are a means of modernizing the economy and improving its networking in the global economy.

As a result of digitization, opportunities for economic empowerment are created through the use of digital technologies. These opportunities include remote work, entrepreneurship, and access to digital financial services, all of which improve people's socioeconomic rights.

Another benefit of digitization is its ability to provide global connectivity. People all throughout the world are connected by the Internet, which promotes global cooperation and solidarity in the advancement of human rights causes. In order for everyone to have access to online opportunities and profit from

the advantages of the digital society, connectivity reaches those who live in villages, mountains, and rural locations.

People can utilize digitization to strengthen their voices, organize for social justice, and hold companies and governments responsible for violations of human rights by using the right platforms.

The negative impacts of digitization on human rights are present in addition to the advantages on the other hand.

The surveillance of an individual's privacy is a fundamentally negative effect of digitalization on human rights. Due to the fact that governments and businesses gather and use vast amounts of personal data without putting sufficient safeguards in place, digitization raises the possibility of mass monitoring and privacy violations.

A disadvantage of digitalization is the creation of a digital divide that increases inequality by preventing marginalized individuals from accessing their online rights and restricting their access to digital technologies and internet connectivity.

Beyond all of its advantages, digitization puts cyber-security at risk. People's right to safety and security in the digital age may be compromised by the dangers they are exposed to, such as identity theft, hacking, and cyberbullying.

Internet-based harassment and discrimination are a disadvantage of digitalization. Digital platforms can be used to spread hate speech, participate in online harassment, and discrimination against people, violating on their rights to equality and dignity.

Control over what is published online has the potential to result in censorship. Online platforms' use of content moderation and restriction might restrict people's ability to express themselves freely and obtain information, which raises questions about censorship and arbitrary enforcement.

In order to reduce the negative impact of digitalization on human rights, effective legal and regulatory processes must be established in place to protect privacy and cyber security,

promote digital inclusion, and hold online abusers accountable. Promoting efforts for digital literacy and awareness can also give people the tools they need to use the internet responsibly and safely.

6. SUMMARY

Information and communication technology users' lives as well as the whole of society are significantly affected by how different countries respond to the problems created by globalization and digitalization. States are required to uphold, protect, advance, and implement human rights and freedoms in compliance with both international and domestic rules. It suggests that states should align their national regulations with international standards in this area. The development of moral principles, norms, and laws that protect human rights in the digital age requires international cooperation. Both national security and international security depend on the maintenance of human rights and the rule of law in the digital age.

States must respect the right to privacy and the protection of personal data, which includes implementing strict regulations for the protection of human rights in the digital sphere, in order to respond to the challenges presented by the digital age and to maximize the benefits of digitization for human rights.

It is crucial to carefully analyze every human rights concern that can be abused online in a world where work and communication are taking on new, digital forms. In order to ensure equal access to digital technologies, digital security requires conversations regarding how to enable appropriate access to human rights in the digital world, stakeholder debates, infrastructure development, and digital literacy initiatives. Appropriate education at all societal levels must also be prioritized, as must efforts to increase public awareness of their rights, particularly with regard to privacy and data protection and the potential for violations. Local, national, regional, and international human rights protection mechanisms are all part of this process.

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DIGITALNA ERA KAO IZAZOV ZA LJUDSKA PRAVA

Rezime: Način na koji zemlje odgovaraju na izazove koje donose globalizacija i digitalizacija ima veliki uticaj na život korisnika informaciono-komunikacionih tehnologija i društva u celini. U skladu sa međunarodnim i nacionalnim propisima, države su dužne da poštuju, štite, unapređuju i ostvaruju ljudska prava i slobode. To podrazumeva da države treba da usklade svoje nacionalne propise sa međunarodnim standardima u ovoj oblasti. Međunarodna saradnja je neophodna za razvoj etičkih smernica, standarda i propisa koji štite ljudska prava u digitalnom dobu. Zaštita ljudskih prava i vladavine prava u digitalnom svetu je od suštinskog značaja ne samo za zaštitu nacionalne, već i za međunarodnu bezbednost. Da bi odgovorile na izazove koje donosi digitalno doba, kao i da bi maksimizirale koristi od digitalizacije za ljudska prava, neophodno je da države poštuju pravo na privatnost i zaštitu ličnih podataka, odnosno da implementiraju čvrsto regulative za zaštitu ljudskih prava u digitalnom svetu. U društvu u kojem komunikacija i rad imaju nove, digitalne forme, neophodno je kritički analizirati sva pitanja vezana za ljudska prava koja mogu biti zloupotrebljena na internetu. Digitalna bezbednost podrazumeva dijalog kako bi se omogućio odgovarajući pristup ljudskim pravima u digitalnom svetu, debate koje uključuju zainteresovane strane, akcije za prevazilaženje digitalnog jaza, kroz razvoj infrastrukture i inicijative za digitalnu pismenost koje su ključne za obezbeđivanje jednakog pristupa digitalnim tehnologijama, odgovarajuće obrazovanje na svim nivoima u društvu, unapređenje digitalne pismenosti i inicijative za podizanje svesti građana za zaštitu njihovih prava, a posebno prava na privatnost i zaštitu podataka, kao i mogućnosti njihovog kršenja. Mehanizmi zaštite ljudskih prava na lokalnom, nacionalnom, regionalnom i međunarodnom nivou su deo ovog procesa.

Ključne reči: digitalna era, ljudska prava, onlajn prostor, pravo na privatnost, zaštita ličnih podataka

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APPLICATION OF UNDERCOVER INVESTIGATORS IN COMBATING CORRUPTION AT BORDER CROSSINGS

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Abstract: *In the fight against corruption, especially within the context of organized crime, the application of special investigative measures such as undercover investigators plays an exceptionally important role in detecting and proving criminal acts. To successfully combat corruption as a form of organized crime, it is necessary, among other measures, to define corrupt criminal acts occurring at border crossings. This definition, according to normative law, encompasses various forms of corruption, including abuse of official position, bribery, influence peddling, etc. Suppression of these criminal acts is carried out by competent authorities, including the Internal Control Sector, which undertakes operational-tactical and technical measures and actions using undercover investigators. Perpetrators of criminal activities often belong to organized criminal groups composed of police and customs officers employed at border crossings, as well as other individuals. Police and customs officers engaging in corrupt criminal acts are at the forefront of control within the restricted space of border crossings, targeting individuals caught committing criminal acts, from whom they demand and accept bribes, enabling unhindered border crossing. This paper provides an analytical overview, with reference to statistical data from the Internal Control Sector, regarding the application of special investigative measures involving undercover investigators as a necessary mechanism for successfully detecting and proving corrupt criminal acts and prosecuting their perpetrators.*

Keywords: *corruption, organized crime, border crossings, undercover investigator, Internal Control Sector*

1. INTRODUCTION

In the fight against corruption within the suppression of organized crime at border crossings, application of special investigative measures such as undercover investigators plays an exceptionally important role in detecting and proving criminal acts. Corruption at border crossings poses a serious challenge

to the integrity of state borders, safety of citizens, and the respect for the rule of law. To effectively address corruption, it is essential to detect corrupt criminal activities at border crossings, including abuse of power, bribery, influence peddling, and related offenses. Competent authorities, including the Internal Control Sector, have a crucial role in suppressing these criminal acts through the application

of operational-tactical and technical measures, including the use of undercover investigators as a special investigative measure. Organized criminal groups composed of police and customs officers employed at border crossings, as well as other individuals, are often the perpetrators of corrupt activities while performing their official duties.

Corruption at border crossings is a critical issue that demands a comprehensive approach for its eradication. However, combating corruption at border crossings is not a simple task, considering the complexity of this problem and the challenges faced by investigative authorities.

The application of undercover investigators represents one of the key special investigative measures and actions undertaken in the evidentiary process by competent authorities to combat corruption at border crossings. An undercover investigator infiltrates a criminal group under a false identity to gather information and evidence of corrupt activities. This special investigative measure is used only when evidence of criminal acts and their perpetrators cannot be collected through other means at the border crossing itself. [1, pp.139-155; 2, pp. 81-98; 3, pp. 62-78; 4, pp. 108-121].

In practice, the application of undercover investigators at border crossings is necessary to clearly define the structure of organized criminal groups with a clear division of tasks among their members in committing corrupt criminal acts. To achieve this, the undercover investigator infiltrates the organized criminal group, assuming a role within it and carrying out specific tasks primarily related to corrupt criminal activities, as authorized by directive. The investigator must uphold the principle of legality to ensure that the evidence gathered is both valid and admissible in court. This paper will provide an analytical overview, with reference to statistical data from the Internal Control Sector, regarding the application of special investigative measures involving undercover investigators as a necessary mechanism for successfully detecting and proving corrupt criminal acts and prosecuting their

perpetrators. Through examining this information, the importance of the application of undercover investigators in the fight against corruption at border crossings will be highlighted.

2. CORRUPTION AS A FORM OF ORGANIZED CRIME AT THE BORDER CROSSING

The process of state development and the formation of its borders and institutions have often been accompanied by negative social phenomena such as corruption and bribery. In the early stages of state development, these negative phenomena often arose due to a lack of control, institutional weaknesses, and personal interests of state authorities. As the state progressed in its development, corruption and bribery also evolved and took on various forms.

When it comes to defining corruption, the definition provided by Vito Tanzi, can be highlighted [5, p. 55] which is particularly notable for its scope and detail. It is recommended as broad and superior due to its comprehensiveness because according to this definition, corruption not only involves the acquisition of private gain but also intentionally violates the principle of impartiality in decision-making. This means that corruption encompasses acts that are not only abuses of public authority for private gain but also violations of basic ethical and legal principles. On the other hand, the definition provided by many authors, which is “the acquisition of private gain through the abuse of public authority”, is also very acceptable and widely used in literature and various aspects of the fight against corruption. This definition is precise and concrete, focusing on the act of acquiring gain and the way it is achieved, through the abuse of public authority.

Corruption at border crossings is often an organized form of crime and is considered one of the biggest negative phenomenon in society, undermining the integrity and effectiveness of institutions. At the border crossing, corruption poses a serious problem that undermines the legality and effectiveness of border control, as

well as public security as a whole. Corruption at the border crossing entails the solicitation, offering, giving, or accepting of bribes or other illegal benefits, both directly and indirectly.

Corruption is a complex and multifaceted phenomenon that can manifest in various forms, although not all forms of corruption constitute criminal offenses in a legal sense. In some cases, the mere violation of official or ethical duties may be present without leading to criminal liability. This indicates that corruption does not necessarily entail a criminal offense and transgress the boundaries of criminal-law regulation. [6, pp. 3-11]

Corruption by border officials represents a problem that jeopardizes the legality, security, and integrity of border control. This phenomenon is characterized by the solicitation, acceptance of gifts, promises, or benefits in exchange for undertaking or refraining from certain actions within the scope of the border official's duties. This form of corruption may involve various activities such as facilitating entry or exit from the country without the necessary documents or controls, allowing the passage of goods that should be inspected or previously authorized, etc. [7, p. 240] The abuse of one of the most important state services, such as customs, responsible for controlling the flow of goods and money, leads to damage to the reputation of this profession. Such practices at border crossings negatively affect citizens' trust in state institutions and respect for laws and regulations. Therefore, combating corruption at border crossings is crucial for building a fair and functional society. [8, pp. 9-20].

Transition countries are particularly vulnerable to corruption at border crossings, where customs controls are carried out for various reasons, such as institutional weaknesses, financial dependence, high trade volumes, and lack of professionalism. In some instances, the absence of ethical and moral standards among those involved in the movement of goods at border crossings can result in corruption being viewed as a normal or acceptable business practice. When corruption in the movement of people and goods at border crossings becomes

widespread, it can become ingrained in the business culture.

2.1. DEFINITION OF CORRUPT CRIMINAL OFFENSES AT BORDER CROSSINGS

The perpetrators of corrupt criminal activities at border crossings are officials who abuse their authority at these locations. This group includes police and customs officers, as well as other personnel working at the border crossing. Such corruption is particularly damaging, as it directly undermines the legality of border controls and the integrity of the officials responsible for enforcement. It disrupts the entire control process, jeopardizing both the reputation and security of the state. Police and customs officials at border crossings may be exposed to various forms of corruption, including soliciting bribes, accepting gifts, or promises. Police and customs officials are directly susceptible to corruption due to the possibility of receiving bribes from individuals who wish to bypass controls or obtain appropriate permits for the movement of goods or services at the border crossing.

Corruption at border crossings presents a significant challenge and is among the most dangerous forms of organized crime. In many instances, such activities are inseparable from the involvement of public officials at the border, who engage in criminal acts related to economic crime, including accepting or offering bribes.

At border crossings, officials such as police officers, customs officers, or other government officials play a crucial role in law enforcement and controlling the entry and exit of goods and people from the country. However, in some cases, these officials abuse their official position to solicit and accept bribes from individuals or organized criminal groups and enable their members to smuggle goods across the border. This can have serious consequences for national security, the economy, and society as a whole, as it undermines the integrity and effectiveness of border controls.

The best known and significant forms of corruption that can occur at border crossings are in the passive or active form of bribery.

Passive bribery refers to the criminal offense of accepting bribes, while active bribery refers to the criminal offense of giving bribes.

Accepting bribes is a form of passive bribery, where a public official or another individual requests or receives money, gifts, or other benefits in exchange for performing or refraining from certain actions within their official duties. This type of bribery is frequently encountered at border crossings, where officials may solicit bribes to facilitate illegal entry or exit of people or goods across the border. On the other hand, giving bribes constitutes active bribery, which refers to a situation where someone gives money, gifts, or other benefits in exchange for privileged treatment or service received from a public official or another person in the public sector. Bribery can be further divided into legal, for example, when bribery relates to decisions within the jurisdiction of public officials or authorities, and illegal bribery, when bribery relates to actions or behaviours that are not in accordance with the law or regulations. Additionally, bribery can be retrospective when the bribe is given after the service has already been provided, or anticipatory, when the bribe is given in advance to ensure future service or preferential treatment.

At border crossings, the most common corrupt criminal acts are those committed against official duty, as well as other criminal acts defined in the Criminal Code of the Republic of Serbia, such as abuse of official position, giving and receiving bribes, trading in influence, smuggling, etc. [10, pp. 1043-1080]

2.2. ORGANIZED CRIMINAL GROUPS AT THE BORDER CROSSING.

An organized criminal group represents a structured organization with a hierarchical structure engaged in various criminal activities, having a system of control and rules, control over territories, and networks of cooperation. An organized criminal group represents

an association of multiple individuals. It is a “secret association of multiple individuals who meet the necessary conditions established by written or unwritten rules governing the functioning of the organization and agree to strictly adhere to these conditions”. [11, p. 80]

Organized criminal groups engaged in corruption as a form of organized crime at border crossings have the task of maintaining links with state and other officials, using various forms of corruption most commonly through bribery, but also through other forms of crime such as extortion, coercion, etc.

Criminal groups at border crossings operate with the aim of acquiring a position that will ensure them necessary benefits and concessions, as well as a higher social status compared to leaders of criminal organizations. This enables them to influence government bodies such as the police, judiciary, inspections, and customs, which fight against corruption and all other forms of organized crime, thereby ensuring protection of illegal activities. This means that organized crime includes corruption as its form of action aimed at unlawful enrichment and legalization of illegal activities.

Corruption plays a crucial role in the functioning of transnational organized crime, as it allows criminal groups to infiltrate state institutions and expose them to their interests. Through bribery and manipulation, criminal groups ensure that authorities neglect or even support their illegal activities at border crossings, allowing them to continue operating without hindrance.

Bribery is used as a means of protection and maintaining the operability of organized criminal groups, enabling them to avoid legal consequences and continue their illegal activities. This demonstrates how corruption can be an integral part of the functioning of criminal networks, which invest in bribery as a strategy to protect their interests [12, p. 949].

When it comes to the actions of organized criminal groups at border crossings, we can observe two main types of groups. Firstly, there are criminal groups engaged in transnational organized crime. These groups specialize

in illegal activities that occur across borders, such as drug trafficking, arms trafficking, human trafficking, or smuggling of goods, money laundering, and other forms of trade that violate the law. Their goal is to profit from illegal activities that occur across borders, using border crossings as points for the transit of goods or people. Criminal groups involved in smuggling across border crossings include police and customs officers among their members. Police and customs officers, as members of the group, are tasked with not taking action within their official duties at the border crossing for money towards members of the group engaged in smuggling across the border, thereby committing criminal acts of abuse of official position and bribery. In this case, members of the organized criminal group, police and customs officers, are tasked with letting goods pass through the border crossing bypassing legal procedures without taking measures and actions within their jurisdiction.

The second type of criminal groups consists of police and customs officers who perform their official duties at the border crossing itself, whose organizers are usually their superiors.

Organized criminal groups organized in this way are tasked with demanding and receiving bribes from individuals caught committing criminal offenses at the border crossing from the field of transnational crime, so that actions would not be taken against them that they were obliged to take within their official duties.

The organizers structured this criminal group on the principle of hierarchy and subordination, which otherwise applies within the Ministry of Internal Affairs and the Customs Administration. Therefore, the organizers, as leaders of police and customs officers, are tasked with overseeing the work of group members and making decisions regarding specific actions in the commission of individual criminal offenses. They also decide in each specific situation on the placement and role of each individual, police and customs officer, member of the group. Police and customs officers, members of the group, are tasked with demanding and receiving money and other gifts

from smugglers crossing the border. In this way, state officials at the border crossing enable smugglers to bring in goods whose trade across the state border is prohibited or restricted, or goods of a commercial nature without paying customs duties in full or in part.

Members of the organized criminal group, consisting of individuals employed at the border crossing in shops or freight forwarding companies, are tasked with mediating in the commission of criminal offenses involving bribery. Their task is to receive money or other gifts from individuals who give bribes at the border crossing, which are requested from them by customs and police officers, members of the group.

Additionally, group members employed at the border crossing are tasked with observing individuals and vehicles, i.e., performing counterintelligence activities for the criminal group, at the border crossing area. They do this by observing with the aim of identifying individuals and vehicles that they can assume are there to engage in the group's activities and immediately report to other members of the group depending on the specific situation.

The actions of this organized criminal group are directed towards so-called „regular bribe givers” and “occasional bribe givers”. Regular bribe givers are individuals who regularly cross the state border according to prior agreements with customs and police officers, members of the group. These individuals usually have continuous cooperation with group members, providing them with bribes to pass through the border crossing without detailed inspections of vehicles, luggage, or personal documents. The group is also organized for the occasional receipt of bribes from individuals found at the border crossing who want to avoid a detailed inspection of vehicles, luggage, or problems with documentation when entering the country.

In this way, the acquired property benefit is shared among group members by dividing it between customs and police officers, members of the group, already during the demand and receipt of money, and later by dividing the

money in accordance with the specific activities undertaken, with the group's action plan, and in the interest of all members of this organized criminal group.

3. ACTIONS OF THE INTERNAL CONTROL SECTOR IN COMBATING CORRUPTION AT THE BORDER CROSSING

The Sector for Internal Control performs tasks related to monitoring the legality of work of police officers, as well as other employees within the Ministry, particularly during the execution of police tasks and the application of police powers, or within its jurisdiction. It takes measures and actions in accordance with the law regulating criminal proceedings for the detection and suppression of criminal offenses involving elements of corruption and other forms of corrupt behaviour, as well as other criminal offenses committed by police officers and other employees within the Ministry, while at work or in connection with work. It acts on its own initiative, upon request of the competent public prosecutor, based on gathered information and other findings, written submissions of police officers and other employees within the Ministry, citizens, and legal entities.

The role of the Sector is not only reactive but also proactive. This means that the Sector identifies potential corruption problems and risks at border crossings in advance and takes measures to prevent them.

The Sector takes operational-tactical and technical measures in the fight against corruption within the Ministry. This is done by planning, organizing, and implementing measures and actions to detect, suppress, and document criminal offenses involving elements of corruption and other forms of corrupt behaviour, as well as other criminal offenses committed by police officers and other employees within the Ministry. Upon gathering information and taking measures and actions within its jurisdiction, the Sector opens a subject of criminal investigation, and within the framework of operational processing, police officers of the Sector prepare reports informing the

competent prosecutor's office and further act upon their instructions.

3.1. OPERATIONAL-TACTICAL MEASURES AND ACTIONS IN THE APPLICATION OF UNDERCOVER INVESTIGATOR AT THE BORDER CROSSING

The Internal Control Sector applies operational-tactical measures and actions in its work to gather information and intelligence on illegal and unprofessional conduct by police officers performing their official duties at the border crossing. The collected intelligence and operational findings are analysed to establish the specific characteristics of each border crossing regarding the modus operandi of criminal activities.

The Internal Control Sector applies operational-tactical measures and actions in its work to gather information and intelligence on criminal offenses and their perpetrators at the border crossing, relating to:

- Collusion between police and customs officers, who often jointly abuse their official powers while performing their duties and the method of dividing money and other gifts obtained through corrupt actions,
- "Blue wall of silence," indicating the existence of corruption within their ranks and the tolerance of supervisors towards corruption, and often they themselves generate corruption,
- The existence of homogeneity within the criminal group and its mode of operation,
- The connection of police, customs, and other officers with individuals from the criminal environment engaged in organized smuggling of goods and people across the border,
- Securing evidence for criminal offenses at the border crossing committed by individuals engaged in smuggling, who are highly motivated to keep their collaboration with police and customs officers undisclosed,
- Unveiling members of the organized criminal group and their connections with police officers who territorially cover the border crossing area, as well as their connection with neighbouring countries.

These actions represent key activities undertaken to effectively implement special investigative measures as an undercover strategy in combating corruption at border crossings. These measures and actions encompass a series of operational and tactical activities conducted to achieve desired goals related to the preparation and training of undercover investigators. Before engagement, the undercover investigator undergoes thorough preparation for working covertly at the border crossing itself. This preparation includes various aspects, including familiarization with the legendary work position where the undercover investigator will perform duties at the border crossing. Adequate preparation of a cover "legend" is essential for such a role. The undercover investigator is equipped with false identities and informed about the collected information regarding the composition and operations of the organized criminal group at the border crossing, enabling them to infiltrate the criminal environment. This legend creation is carefully devised by operational staff who have worked on collecting operational information and intelligence to successfully install the undercover investigator into the criminal environment without jeopardizing their personal safety and the confidentiality of the operational processing.

The undercover investigator is equipped with various technical means for audio and video documentation to document their actions within the organized criminal group to secure valid evidence for proceedings. Additionally, care is taken to equip the undercover investigator with other essential means for life and work, such as transportation, computer equipment, communication devices, accommodation, and similar. Within the criminal environment, the undercover investigator works on establishing and maintaining contacts within the criminal group or organizations to gather information about the composition, plans, and actions of the members of the organized criminal group.

These operational-tactical measures and actions are of crucial importance for the successful implementation of undercover investigative

strategies in combating corruption at border crossings, providing the basis for the detection and documentation of criminal offenses and the prosecution of their perpetrators.

3.2. ANALYSIS OF STATISTICAL DATA ON THE USE OF UNDERCOVER INVESTIGATOR AT THE BORDER CROSSING

An analysis of statistical data from the Sector for Internal Control [13, pp. 5-9], related to combating corrupt criminal acts at the border crossing through the application of special investigative measures, revealed that the Sector for Internal Control, in addition to undercover investigation, also applied all other special investigative measures to adequately collect evidence used to prove the commission of corrupt criminal acts at the border crossing.

Further analysis of the gathered evidence through undercover investigation and other investigative measures, as well as intelligence data, revealed corrupt behaviour in the following areas:

- Allowing the crossing of the state border by individuals who do not meet the legally prescribed conditions for crossing the state border, without taking the legally prescribed measures by police and customs officials.
- Providing information to individuals from criminal environments by police officers accessed through databases of the Ministry of Interior (search activity, addresses of individuals, access to records of filed criminal charges, etc.).
- Direct involvement of police and customs officials in transnational criminal activities (human trafficking, smuggling, illegal trade, smuggling of goods, etc.).
- Disclosing confidential information to members of organized criminal groups regarding changes in border police shifts, police patrol movements, and the implementation of police actions.

Further insight into analytical data revealed that the Sector conducted multiple operational processes at border crossings through the

application of special investigative measures. These operational processes aimed to combat corrupt criminal acts committed by police and customs officials. It was also determined that the Sector applied the special investigative measure of undercover investigation in two cases.

The first operational process conducted by the Sector was at the border crossing of Bački Breg, initiated in March 2014, after the Sector became aware that the Hungarian Customs Service found and seized three packages of packaged narcotic drugs 'marijuana' in the personal luggage of a Serbian national, who was a passenger in a van crossing the state border through the Bački Breg border crossing, with a total weight of approximately 3 kg. As a result of the operational process, additional individuals were identified who crossed the state border at least twice a week through the mentioned border crossing, despite this route being a deviation from the most logical path for entering EU countries.

Further investigations revealed individuals involved in criminal activities such as smuggling and committing customs offenses. These included the importation of large quantities of excise goods, such as cigarettes, and other items whose trade is prohibited or restricted, as well as the exportation of significant amounts of used goods, technology, furniture, tires, and other items from EU countries. It was determined that they carried out these activities by consistently crossing the state border with smuggled goods, in coordination with police and customs officials, through the Bački Breg border crossing.

After obtaining this information, the police officers of the Sector applied almost all special investigative measures and installed an undercover investigator within the organized criminal group at the border crossing itself, and based on the gathered evidence, carried out the operational process.

In June 2015, the Internal Control Sector submitted a criminal complaint to the Prosecutor's Office for Organized Crime, involving 62 offenses committed by 39 individuals. This group included 29 police officers, 9

customs officers, and 1 civilian. The offenses included participation in a criminal organization under Article 346 of the Criminal Code, bribery under Article 367, abuse of office under Article 359, and offering bribes under Article 368 of the Criminal Code.

The criminal acts committed by police and customs officers were carried out as members of an organized criminal group during the performance of their official duties at the Bački Breg border crossing. They failed to take measures within their jurisdiction to prevent the commission of criminal offenses such as smuggling according to Article 230 of the Criminal Code and other criminal acts, aiming to gain unlawful benefits in money and gifts for the group members.

Another operational process was conducted by the Sector at the Gradina border crossing, towards the Republic of Bulgaria, which was opened in May 2016. The objective of this operation was to verify operational intelligence indicating whether police and customs officers, performing their official duties at the Gradina border crossing, were facilitating the smuggling of textile goods from Turkey through the border crossing, committing criminal acts of abuse of office and bribery.

After confirming operational intelligence, police officers from the Internal Control Sector, in collaboration with the Prosecutor's Office for Organized Crime, implemented almost all special investigative measures towards multiple individuals, as well as employing the special investigative measure of an undercover investigator. By employing these measures, material evidence related to multiple police and customs officers and civilian perpetrators of corrupt criminal acts was collected and secured.

In 2018, the Internal Control Sector initiated an operational process and, under the direction of the Prosecutor's Office for Organized Crime and other relevant prosecutor's offices, filed criminal charges against eight suspected police officers, customs officers, and civilian individuals. Material evidence was collected, indicating that they had committed criminal acts subject to prosecution *ex officio*. These

criminal charges encompassed 61 individuals, including 30 police officers from the Gradina border crossing, 14 customs officers from the Customs Office in Dimitrovgrad, and 17 civilians. A total of 34 criminal charges were filed, including 24 against police and customs officers and 10 against civilians, for a total of 597 criminal offenses, including Association for Criminal Activities according to Article 346 of the Criminal Code - 1 offense, Bribery according to Article 367 of the Criminal Code - 568 offenses, Abuse of Office according to Article 359 of the Criminal Code - 14 offenses, and Giving Bribe according to Article 368 of the Criminal Code - 14 offenses.

4. CONCLUSION

The use of undercover investigators in the fight against organized corrupt criminal activities at border crossings has uncovered various forms of corruption committed by police, customs, and other officials. The organized perpetration of corrupt criminal acts at border crossings stems from the fact that police and customs officials, due to the nature of their work, are interdependent and, together, abuse their official powers for personal gain. This is clearly a widespread issue, as demonstrated by the criminal complaints filed against police and customs officials for abuses committed during the course of their duties. Furthermore, in recent years, there has been a rise in the trafficking of goods and people at border crossings, particularly irregular migrants and goods with restricted or prohibited trade. This has created additional opportunities for the emergence and growth of new forms of corruption.

Such development of corruption undermines the moral integrity of officials and the reputation of the entire border service,

endangering the economic and security system of society as a whole. Considering the fact that the material resources of the Border Police Administration and the Customs Administration are modest and that the opportunities for the development of corruption at the border are numerous, all this requires a serious approach in the fight against corruption at the border itself.

In order to effectively combat corruption at the border, it is necessary for the Internal Control Sector to take preventive action by conducting regular risk analyses for corrupt behaviour of employees at the border crossing. It is also necessary for the Sector to cooperate with the relevant Customs Administration service and cooperate with similar services of other countries in order to conduct comprehensive risk analysis of corruption at the border crossing. In addition to the preventive activities aimed at combating the detected corrupt criminal acts, it is necessary for the Internal Control Sector to take repressive measures and actions within its jurisdiction to detect and combat corrupt criminal acts.

It can also be concluded that the Internal Control Sector has developed its methodology for handling the subjects mentioned, overcoming challenges, devising new methods of evidence gathering, identifying weaknesses, and creating action plans for complex operations involving numerous perpetrators of corrupt criminal acts. A clear methodology for cooperation with the prosecution, other state bodies, and similar agencies in the region has been established in the investigation of the mentioned criminal acts. This methodology also includes the application of all special evidence-gathering measures to prove organized criminal activities with elements of corruption.

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PRIMENA PRIKRIVENOG ISLEDNIKA U SUZBIJANJU KORUPCIJE NA GRANIČNOM PRELAZU

Rezime: U okviru borbe protiv korupcije, posebno u kontekstu organizovanog kriminala, primena posebne dokazne radnje prikrivenog islednika ima izuzetno važnu ulogu u otkrivanju i dokazivanju krivičnih dela. Da bismo se uspešno suprotstavili korupciji kao vidu organizovanog kriminala potrebno je, između ostalog, definisati koruptivna krivična dela koja se vrše na granici. Ova definicija po normativnom pravu obuhvata različite oblike korupcije, uključujući zloupotrebu službenog položaja, primanje mita, davanje mita, trgovinu uticajem i dr. Suzbijanje ovih krivičnih dela vrši se od strane nadležnih organa uključujući i Sektor unutrašnje kontrole koji preduzimaju operativno-taktičke i tehničke mere i radnje upotrebom prikrivenog islednika. Nosioci kriminalnih aktivnosti su organizovane kriminalnih grupa sačinjene od policijskih i carinskih službenika zaposlenih na graničnom prelazu kao i drugih lica. Koruptivna krivična dela policijski i carinski službenici čine na prvoj liniji kontrole u restriktivnom prostoru graničnog prelaza prema licima koja zateknu u izvršenju krivičnih dela, od kojih zahtevaju i primaju mito omogućavajući im nesmetan prelazak preko granice. Rad daje analitički osvrt sa osloncem na statističke podatke Sektora unutrašnje kontrole koji se odnose na primene posebne dokazne radnje prikrivenog islednika kao neophodan mehanizam za uspešno otkrivanje i dokazivanje koruptivnih krivičnih dela i procesuiranje njihovih izvršioaca.

Ključne reči: korupcija, organizovani kriminal, granični prelazi, prikriveni islednik, Sektor unutrašnje kontrole.

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CHARACTERISTICS AND THE FIGHT AGAINST CONTEMPORARY TERRORISM

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Abstract: *At first glance, the criminal offense of terrorism appears to be a phenomenon of modern society, where, with the advancement of technology and the development of society in all its segments, as well as with different social systems, processes emerge that threaten the basic values of society. Traditional forms of threats are being replaced by new, modern, and more sophisticated attempts to undermine these values, creating space and opportunities for the emergence of new forms of threats, such as terrorism. The main idea of this paper is to present the genesis and characteristics of the criminal offense of terrorism in all its segments, from its origin and development to the monitoring of terrorism trends in line with technological advancements, as well as the development of the architecture of terrorism and aspects of the fight against it. Today's terrorism differs drastically from the forms of terrorism at the end of the twentieth century. Changes in the ways terrorist acts are carried out and in security risks follow the development of technology, as well as the methods of counteraction implemented by security forces.*

Keywords: *fight, terrorism, victims, actions, offense*

1. INTRODUCTION

Looking at the history of the emergence of terrorism, we can observe its ability to adapt to new trends in counterterrorism, which have been implemented by states that are victims of terrorism [16, pg. 81]. Terrorist acts have evolved from operations involving a larger number of terrorists, either operationally or logistically [10, pg. 90], to smaller terrorist cells, which, while fewer in number, have caused significantly more casualties and destruction through the use of special methods and means [8, pg. 7,13]. The main characteristic of these

new methods is strict conspiracy between the perpetrators at the top of the terrorist hierarchy and those executing the act itself [20, pg. 201].

Simenunović believes that the phenomenon of contemporary terrorism can theoretically be most generally defined as “a complex form of organized, individual, and more rarely institutionalized political violence, characterized by terrifying, brachiologically-physical and psychological methods of political struggle, which are usually, during political and economic crises, and rarely in conditions of achieved economic and political stability within a society, systematically used to achieve great goals in

a manner completely disproportionate to the given conditions, primarily the social situation and the historical possibilities of those who practice it as a political strategy” [5, pg. 174].

In his work “The Issue of Scientific and Theoretical Definition of Terrorism,” Dimitrijević Ivan points out the observations of Israeli expert Ganor. Ganor, the director of the Israeli Institute for Counter-Terrorism and former analyst at the Israeli Ministry of Counter-Terrorism, approached the definition of terrorism through determining its place among violent conflicts, where terrorism is classified as a conventional conflict. He considers terrorism to be “a violent struggle that uses or threatens to use violence against civilians to achieve political goals, while guerrilla warfare is a violent struggle that uses or threatens to use violence against military targets, security forces, or political leaders, to achieve political goals” [4, pg. 973].

Ganor argues that there are three main phases in the evolution of the phenomenon of terrorism: classical, modern, and postmodern terrorism. Classical terrorism is the oldest form. Its characteristics, according to the same author, are the personalization of the target, that is, the attack is directed at a specific, individually chosen person who holds certain social power and influences important political or similar decisions [5, pg. 17].

Modern terrorism emerged in the second half of the last century. Its target is the civilian population, and the goal is to exert pressure on the public by creating an atmosphere of fear and insecurity, indirectly influencing political decision-making and achieving other goals (such as obtaining autonomy or independence for certain regions, national liberation, etc.) [8, pg. 35].

For the final phase in the evolution of the terrorist phenomenon, Ganor considers what is known as postmodern terrorism. Its target is the broader population, the methods and means are more drastic and deadlier than ever before, and its goal is the complete transformation of political reality [12, pg. 34].

To better understand the evolution of postmodern terrorism, it is necessary to look at

its roots, or the causes of terrorism. The first group of causes includes [17, pg. 275]:

- Constant occupation and pressure imposed by a foreign cultural, ethnic, or religious group, accompanied by a sense of hopelessness and humiliation;
- National fanaticism or loyalty to an organization characterized by love and total devotion to the organization;
- Hatred towards a specific target group;
- Religious fanaticism and belief in martyrdom and its glorification;
- Failures in personal life – membership in a terrorist organization may be a response to hopelessness resulting from failures in personal life;
- Intense indoctrination (especially related to suicide terrorism) or so-called brainwashing by the terrorist organization.

2. BASIC CHARACTERISTICS OF TERRORISM

The main characteristics of terrorism are considered to be: (1) violence and the threat of violence, (2) specificity in organization, (3) the role of the leader, (4) communication, (5) the unusualness and immorality of the terrorist act, and (6) the international character of terrorism [8, pg. 48].

Today’s state of terrorism represents a combination of classical, modern, and postmodern terrorism, depending on the degree of organization of the terrorist group and its connections with the global terrorist network [15, pg. 57]. It is significant to list acts carried out by terrorist organizations, both in the past and today, with the main difference being the use of more modern means and methods, ranging from communication to technical and operational tools [3, pg. 30]. Some of the basic forms of terrorism include [19, pg. 43].

Assassinations – Generally, an assassination refers to the killing of prominent or important individuals, symbolic enemies, or traitors who have left the group or terrorist organization. Assassinations are among the oldest forms of

terrorist actions and continue to be carried out today. They lead to political and social destabilization, which gives this form of terrorism its particular impact.

Arson and Fires – These also represent a form of terrorist action. A key aspect of this type of terrorism is the significant material damage or total destruction of a facility, while simultaneously generating publicity to create fear in the general public. Many terrorist groups use incendiary devices of various complexities to carry out these acts.

Bombing Attacks – This refers to the placement of bombs or improvised explosive devices (IEDs) at specific targets. The use of improvised explosive devices is a modern tactical choice for terrorists.

Hostage Taking – This involves the deliberate kidnapping of one or more individuals with the aim of gaining publicity or other concessions in exchange for the release of the hostages.

Kidnapping – Kidnapping typically involves the secret abduction of one or more specific individuals with the intent to make specific demands. The purpose of kidnapping can also include compromising a government, obtaining other concessions, or gaining public popularity.

Hijacking of Airplanes – This terrorist tactic involves seizing control of an airplane, either in the air or on the ground, to achieve the terrorists' objectives.

Armed Attacks – These are direct assaults using firearms or other weapons to achieve a terrorist aim.

Commercial or Industrial Sabotage – These acts involve the deliberate disruption or destruction of infrastructure and industry to create economic damage [11, pg. 111].

False Alarms and Warnings – These are deliberate attempts to create panic or distract security forces with false reports of attacks or threats.

Suicide Terrorism – “Suicide attacks refer to violent, politically motivated attacks carried out by individuals who, in a state of conscious determination, blow themselves up along with their intended target. The pre-preparation for

certain death is a prerequisite for a successful attack” [1, pg. 47].

All of these forms, in addition to conventional weapons, can also be carried out through the use of other means, such as the attempt by terrorists in the U.S. to use anthrax, by sending letters to the addresses of government officials.

One of the main dangers that these changes bring is the potential use of unconventional means by terrorists [19, pg. 45]. These unconventional means include nuclear, biological, and chemical weapons, which, if acquired by terrorist organizations, could pose a global threat, with any country in the world potentially becoming a target [18, pg. 17].

A key characteristic of contemporary terrorism is the use of information resources for planning actions, coordinating the activities of terrorist networks on the ground with leadership, propaganda, and recruitment of potential members [2, pg. 50]. The maintenance of a global terrorist network would not be possible without the communication channels provided by the global Internet network [9, pg. 55].

Thus, based on all of the aforementioned, we believe that, by summarizing the views of the mentioned authors, contemporary terrorism, for the purposes of this paper, can be operationally defined as a phase in the development of terrorist criminality characterized by the universal political and social goals of leading terrorist groups, the creation of regional and global terrorist networks, a changed structure of terrorist organizations, particularly in terms of their increased resilience, adaptability, and diffusion, an increased threat through the use of unconventional means, the possibility of carrying out serious cyber-attacks, the emergence of a growing number of activists willing to carry out suicide attacks, as well as those who are trained to conduct complex terrorist attacks on informational systems [12, pg. 33].

3. DEFENSE AGAINST TERRORISM

Defense against terrorism, or “counterterrorism,” consists of defensive measures and procedures aimed at increasing the protection

of individuals and property from terrorist activities. It involves the implementation of security measures, adherence to legality in the defense of facilities, reconnaissance, surveillance, and intelligence security, with the goal of providing timely warnings about threats and understanding the dangers posed by terrorism.

Thus, counterterrorism is an activity that brings together all the actions taken by state institutions and international organizations in the fight against terrorism. "Counterterrorism represents a set of measures, activities, and procedures implemented by the United Nations and national institutions on their territories to promptly recognize and eradicate contemporary terrorism through the application of deterrence and retaliation strategies. It is a very complex process that requires preventive, repressive, and combative actions by state security structures, along with the application of international legal acts adopted by the United Nations" [13, pg. 571].

- Preventive Measures in the Fight Against Contemporary Terrorism:

Preventive measures are a highly significant activity in a democratic society that is truly committed to permanently opposing modern terrorism. These activities are the most difficult, as their results are not immediately visible. They come only after a longer period of time, and for this reason, many express skepticism regarding democratic prevention in the fight against terrorism [1, pg. 53].

- Economic Measures:

Economic counterterrorism measures follow diplomatic efforts because it is well known that huge amounts of financial resources are necessary for the functioning and connection of terrorist organizations on the international stage. Economic counterterrorism measures are aimed at the financial aspects of terrorism and prohibit the financing of terrorist organizations, freezing assets of the families of kidnapped individuals to prevent ransom payments. These measures impose sanctions on those who finance terrorist organizations and target legal entities that invest in regions labeled

as financing hubs or provide any other form of assistance to terrorism. Simultaneously, the routes of money funding terrorist attacks are tracked, including the abandonment or limitation of the so-called banking secrecy. These measures also envision cooperation between states to monitor and confiscate funds financing terrorism and offer rewards for information on terrorist organizations or intentions for terrorist attacks [*Ibid*, 55].

- State Measures:

When it comes to the state (the primary victim of terrorist attacks) as a subject in the fight against contemporary terrorism, there are a number of state measures that are undertaken to more effectively and efficiently counteract terrorism.

Such defensive counterterrorist optimality can be established (achieved) and maintained by adopting comprehensive measures and activities, including:

Adopting appropriate laws and other regulatory provisions and keeping them up to date.

Adopting offensive strategies, particularly national security strategies and national counterterrorism strategies.

Ensuring the availability of respectable forces for counterterrorism efforts.

Maintaining the ability of counterterrorism forces to effectively prevent terrorists from executing their activities.

Periodically analyzing and evaluating the results of counterterrorism defense, including the bold recording of any shortcomings and taking measures to eliminate them.

Predicting terrorist threats to national security in the near future.

Assigning adequate importance to international defense against terrorism [14, pg. 70].

- Local Level Measures:

At the local level of a state in the fight against contemporary terrorism, several prerequisites must be observed.

The main prerequisites for "successful protection against contemporary terrorism are" [12, pg. 39]:

A highly professional and organized protection service.

An objective (real) assessment of the danger (or vulnerability), ensuring that terrorist organizations are neither underestimated nor overestimated.

A commitment to the professional and successful execution of duties by citizens in their respective workplaces.

Consistent application of legal provisions to reduce the space for terrorist activities, which is a very important factor in protecting society.

Developing a democratic social awareness within all structures of the country.

Continuous efforts to develop a security culture, which refers to the knowledge and motivation of individuals to personally and proactively oppose terrorism and take measures to prevent terrorist activities.

Constantly undertaking and improving protection measures in all collectives and environments.

Gaining specific knowledge about the methods and tools terrorists use in carrying out their activities.

- Repressive Measures:

Repressive measures represent the final stage and constitute a comprehensive system of action that includes criminal legal protection mechanisms and the activities of state law enforcement agencies to observe, identify and use operational measures against terrorist organizations on the territory of a state. Repressive measures also include cooperation with agencies of other states and international organizations.

4. CONCLUSION

The phenomenon of terrorism, as discussed in the previous sections, has shown how complex this phenomenon is. Previous experiences in the analysis and suppression of terrorism have had limited effects, which is evident in the ongoing expansion of terrorism through terrorist acts around the world.

In the first part of this paper, which deals with the emergence and genesis of terrorism, we conducted a historical review with the aim of understanding the origins of terrorism and emphasized the need for a unified terminological definition of terrorism. This would ensure that terrorism is treated and interpreted equally on a global level, while also taking into account the specificities of each region and country where terrorism occurs. We also examined the modern aspects of terrorism, which have evolved from traditional criminal acts to the use of more sophisticated means.

When discussing terrorism as a global phenomenon, deterring terrorist acts through the emphasis on repression has become insufficient, especially in an era of rising terrorist violence and suicidal terrorism. This calls for the need to apply preventive measures through international legal instruments to prevent terrorist attacks and create a secure international environment.

The primary goal of prevention instruments is to restrict access to the means by which terrorists can carry out their violent acts. In this context, conventions have been enhanced to prevent access to explosives, chemical, biological, and nuclear weapons, as well as legal tools that block the financing of terrorist activities.

In the future, particular attention must be given to establishing a strong international mechanism for effectively overseeing the measures implemented against terrorism. This involves linking the fight against terrorism with the fight against organized crime, through regional networks and direct cooperation with national bodies combating terrorism.

In line with all the points discussed so far, we can conclude that the criminal offense of terrorism, as a complex phenomenon, requires an equally complex approach to its suppression. This approach should include analyzing the emergence of terrorism and understanding why individuals resort to terrorism, such as the factors behind the criminal motivations of terrorists, the cultural context in which terrorism arises, and how terrorist organizations operate.

Terrorist activities are highly complex and not yet fully understood, especially when it comes to their perpetrators. Moreover, it has been noted that the targets of these attacks are constantly changing. Therefore, to effectively counter terrorism, continuous work is required, conditioned by various circumstances. This demands moderation, patience, serious scientific research, top-notch protection and control organization to identify the goals and methods of terrorist activities in time.

Monitoring the development of terrorism on the international level involves the constant exchange of information between international

organizations and states through the application of criminal law mechanisms, quality intelligence and security measures, media and educational-scientific activities, and, at the individual level, achieving the necessary degree of education about terrorism within society.

All of this must be implemented within the framework of international and national criminal legislation, which forms the basis for further cyclical actions through these two pillars, with ongoing information exchange and experience sharing between entities involved in combating terrorism on the international level.

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KARAKTERISTIKE I BORBA PROTIV SAVREMENOG TERORIZMA

Rezime: Savremeni terorizam se značajno razlikuje od tradicionalnih oblika terorizma i razvija se u skladu sa globalnim promenama, napretkom tehnologije i sve većim pristupom informacijama. Savremeni terorizam je često globalan, sa grupama koje deluju na međunarodnom nivou. Teroristi koriste globalne mreže, internet, i društvene mreže kako bi širili ideologiju, regrutovali nove članove i organizovali napade. Terorističke grupe sve više koriste naprednu tehnologiju, kao što su internet, društvene mreže, pametni telefoni, dronovi i improvizovane eksplozivne naprave (IED). Internet omogućava brzu komunikaciju i širenje radikalnih ideja, a dronovi mogu biti korišćeni za izviđanje i napade. Savremeni terorizam se često karakteriše decentralizovanim napadima koje ne organizuje centralizovana teroristička organizacija, već mali, neovisni napadači koji deluju samostalno ili u manjim grupama. Ovi napadi mogu biti brzo izvedeni i teško predvidivi, što otežava borbu protiv njih. Internet predstavlja glavni kanal za radikalizaciju, jer omogućava ekstremističkim grupama da šire propagandu i regrutuju nove članove, posebno mlade ljude, bez potrebe za fizičkim okupljanjem. Mnoge savremene terorističke grupe motivisane su ideološkim, verskim ili političkim ciljevima, s ciljem stvaranja promena u društvu, izazivanja političkih pometnji ili borbe protiv određenih vlada ili sistema. Savremeni terorizam često cilja na nevine civile, simboličke ciljeve, institucije, infrastrukturu i najuočljivije objekte, kako bi izazvao širi strah, destabilizaciju i političke promene. Napadi na softverske ili informatičke sisteme postaju sve češći. Borba protiv savremenog terorizma zahteva sveobuhvatan pristup i saradnju na međunarodnom nivou, jer terorizam ne poznaje granice. Države moraju implementirati proaktivne sigurnosne mere, uključujući bolje praćenje potencijalnih terorista, jaču kontrolu granica i bolje identifikovanje opasnih materijala koji mogu biti korišćeni u terorističkim napadima. Savremeni terorizam je kompleksan i evoluirao sa svakim novim tehnološkim i društvenim promenama, što znači da borba protiv njega zahteva inovativne, fleksibilne i sveobuhvatne pristupe.

Ključne reči: borba, terorizam, žrtve, akcije, delo.

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APPLICATION OF ARTIFICIAL INTELLIGENCE – ADVANTAGES, BENEFITS AND DANGERS

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Abstract: *The applications of artificial intelligence in our daily lives highlight the immense benefits it brings. As an advanced, diverse, and evolving field, AI is characterized by its remarkable ability to learn and interact in ways that often mimic human capabilities. AI is used in many practical applications, such as robotics, image recognition, speech recognition, and machine learning. From generating texts to creating images and videos using algorithms in word processing and other fields, artificial intelligence (AI) has become a central research topic in the information age due to its impact on various aspects of life. In 2023, one of the most widely used applications is AI-driven writing tools. This paper aims to explore the latest scientific developments in the use of AI in writing tools, focusing on their advantages, which enhance writing efficiency, scalability, idea generation, and help overcome writer's block. We will discuss this topic in detail; however, it is not without its drawbacks that warrant attention. These include concerns about plagiarism and the quality of writing, the potential risks posed by Google algorithms that may diminish the value of content, and other challenges. In general, we have examined the latest applications of artificial intelligence, highlighting both its advantages and disadvantages.*

Keywords: *artificial intelligence, robotics, algorithms, text processing, technology, computational science, information age, artificial intelligence writing tool*

1. INTRODUCTION

Artificial intelligence is a distinct behavior exhibited by computer programs that mimics mental abilities. It is a modern system with the efficiency and capability to take actions and achieve goals. As a specialized field of computer science, AI is closely linked to human

intelligence, enabling it to interpret, analyze, and find similar solutions to problems. This includes areas such as knowledge, creativity, and investigation, contributing to the ability to recognize and understand images. The use of artificial intelligence in writing tools offers numerous advantages, but we must also recognize the associated risks, which we aim to

address in this study. One of the key objectives of this paper is to explore the methods that can help mitigate the risks of applying AI in our academic and scientific work. The programs powered by artificial intelligence are designed to analyze and logically explain the problems they encounter, providing solutions that are increasingly similar to human reasoning. With the rapid developments witnessed in recent years, it is anticipated that by 2024, AI applications will play a leading role in addressing various aspects of our daily lives.

Based on the research studies we have conducted; all scientific projections indicate that investment in artificial intelligence technologies will reach 94% in the year 2024. This is due to executive managers recognizing that their capabilities in AI technology now rely on the use of practical applications, moving away from limited experimentation toward a comprehensive approach across a wide range of processes.

2. THE CONCEPT OF ARTIFICIAL INTELLIGENCE

Intelligence is a concept that encompasses a range of mental abilities, including the capacity to interpret, analyze, plan, and solve problems. It involves clarifying and drawing conclusions, acting with accuracy and speed, and making appropriate and informed decisions. A key feature of intelligence is the ability to think abstractly, as well as to organize and coordinate ideas. In the context of the ongoing technological revolution, the integration of artificial intelligence (AI) and robotics into our daily lives is accelerating rapidly. AI and machine learning are becoming essential components of many aspects of modern life, from household appliances and cars to sensors and drones. This new revolution, fueled by the development of artificial intelligence in recent decades, has opened up a remarkable array of possibilities, including the decoding of genetic information and the exploration of the human brain. These emerging technologies aim to discover faster, more efficient, and smarter ways to accomplish various daily tasks, with

the ultimate goal of developing artificial intelligence that surpasses human intelligence [1].



Figure 1. The concept of artificial intelligence technology

Artificial intelligence, by its very nature, encompasses a wide range of specializations, all focused on developing technologies that enable machines to exhibit intelligent behavior. The concept of artificial intelligence has been presented by various scientists and experts, leading to numerous definitions. The ultimate goal of AI is to equip machines with the ability to perform tasks traditionally handled by humans, solving complex problems that would otherwise require human intervention, but doing so with greater efficiency and precision.

2.1. CHARACTERISTICS OF ARTIFICIAL INTELLIGENCE

Artificial intelligence possesses several characteristics that have made it a valuable investment across various fields, including:

1. The application of AI to devices and machines allows them to plan and analyze problems using logic.
2. The ability to recognize sounds and speech, as well as the capacity to move objects.
3. Devices utilizing artificial intelligence can effectively understand and analyze inputs, providing outputs that meet the user's needs with high efficiency.
4. AI enables continuous learning, where the learning process is automated and self-paced, without the need for constant monitoring or supervision.
5. AI is capable of processing vast amounts of information to derive meaningful insights.

6. AI can detect similar patterns in data and analyze them more effectively than the human brain.
7. AI can find solutions to unfamiliar problems using its cognitive abilities [2, page 19].

Other characteristics of artificial intelligence include solving complex problems, applying sound reasoning, and maintaining a complete and logical understanding. AI also learns from previous problems and past experiences, enabling rapid responses and careful handling of ambiguous or unclear issues when additional information is available. Furthermore, AI provides clear and comprehensive information to support informed administrative decisions.

2.2. ETHICS OF ARTIFICIAL INTELLIGENCE

AI ethics refers to: ethical considerations and guidelines governing the development, deployment and use of artificial intelligence (AI) technologies. This definition includes understanding and addressing the potential ethical implications and societal impact of artificial intelligence systems, and using them in a responsible, transparent and accountable manner, with a focus on benefiting individuals and society as a whole [3, page 155].



Figure 2 illustrates the ethics of artificial intelligence

2.3. THE MOST IMPORTANT APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN OUR SCIENTIFIC LIFE

Content creation application

Wears is a content creation application powered by artificial intelligence, designed for generating written materials such as articles

or creative writing. Its primary benefit stems from the use of advanced algorithms, functioning as a language therapist to enhance the writing process.

Image processing application

After conducting thorough study and research, we have made significant progress in image processing, particularly with the face recognition feature. The goal is to enhance the quality of the images by applying the algorithm to improve the desired results.

Self-driving transportation

In the realm of self-driving transportation, decision-making and navigation are driven by machine learning algorithms, eliminating the need for human intervention. In this application, advancements in technology make it possible to expect safer transportation options and enhanced safety measures.

Financial interpretation, analysis and trading

In interpretation, financial analysis, and trading, machine learning algorithms are capable of analyzing and interpreting data, enabling the making of informed and accurate financial decisions.

Healthcare knowledge and diagnosis

Artificial intelligence is used to diagnose a patient's health condition, predict potential diseases, and identify suitable treatments after the condition has been diagnosed.

Assistants and robots

Following the advancements in artificial intelligence over recent years, AI-powered assistants have become more intelligent and efficient in handling inquiries and performing tasks. This improvement extends to natural language processing, allowing for better understanding and decision-making. Furthermore, we can explore the applications of artificial intelligence in education, where AI-driven tools enhance and optimize both the learning and teaching processes. Among these applications are information analysis, personalized learning, and machine learning. For example, Google uses machine learning algorithms for natural language processing to create automatic written

translations for individuals with hearing loss (or those who prefer a quiet environment) in videos through the YouTube video streaming service. In addition to transcribing speech, the system employs deep neural networks to identify ambient sounds such as applause, music, and laughter, and automatically displays text to inform viewers of the sounds occurring in the scene [4].

The applications of artificial intelligence in education include providing educational assistance and facilitating distance learning. These key applications are expected to significantly enhance the quality of education and greatly improve an individual's learning experience.

3. CHARACTERISTICS OF ARTIFICIAL INTELLIGENCE APPLICATIONS

3.1. THE MOST IMPORTANT CHARACTERISTICS OF ARTIFICIAL INTELLIGENCE APPLICATIONS ARE:

The most important characteristics of artificial intelligence applications are the following:

- 1) they operate at a stable scientific and advisory level without fluctuation.
- 2) Their construction requires the representation of vast amounts of domain-specific knowledge.
- 3) Non-numeric symbolic data is processed through logical analysis and comparison processes.
- 4) It aims to imitate humans in thought and style.
- 5) Interested in stimulating new ideas that lead to innovation.
- 6) Human experience is immortalized.
- 7) He worked to provide more than one version of the system to replace the experts.
- 8) It eliminates the human feeling of fatigue and boredom.

3.2. MODERNIZED ARTIFICIAL INTELLIGENCE HAS NO LIMITS IN TERMS OF TIME, PLACE, AND SUBJECT MATTER

The developments and progress made so far have demonstrated that modern artificial intelligence technologies are limitless. No individual or organization, whether natural or legal, can impede its growth, as it continues to advance rapidly, driven by its remarkable achievements. It remains uncertain whether countries, governments, or institutions can prevent this momentum from continuing, potentially accelerating even faster than it initially began. It is now impossible for anyone to impose limits on the development of artificial intelligence technologies, especially in terms of time, or to halt their future progress. From their inception, these technologies have been driven by a determination to continue advancing indefinitely. The world has become accustomed to AI and is familiar with the benefits it brings, with many applications becoming indispensable in daily life. As a result, AI has reached a point where it is integral to human existence, and its absence would be unthinkable in modern life. [5].

3.3. OBJECTIVES OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence: A program that uses a type of data in order to change this interaction with time, and learn a new result, and therefore does not think like a human, but rather simulates some human perceptions, and here the direct goal of artificial intelligence crystallizes in the continuous attempts at artificial intelligence techniques and applications, in trying to reach stages, identical as much as possible with human perceptions [6, page 22]

Artificial intelligence aims to:

- [1] Develop software that enables machines to perform tasks typically requiring human intelligence, such as logical deduction. This enhances the machine's capabilities, making it more intelligent and ultimately increasing the usefulness of devices.
- [2] Replicate human intelligence.

- [3] Solve the problem of knowledge-intensive tasks.
- [4] Make an intelligent connection between perception and action.
- [5] Improve human-human, human-computer, computer-computer communication interaction.
- [6] Enabling machines to process information more closely to the human way of solving problems, in other words, parallel processing, where several commands are executed at the same time.
- [7] Create software capable of performing human behaviors.
- [8] Develop a machine that is able to carry out tasks that require human intelligence.
- [9] A deeper understanding of human intelligence is achieved by unraveling the complexities of the brain, with the aim of simulating its processes. It is well known that the nervous system and the human brain are the most complex organs, working interdependently to constantly recognize and process information [7].
- [10] One of the main objectives of this paper is to examine the advantages and risks of artificial intelligence. As part of this study, we will also explore the latest developments in the use of artificial intelligence in writing tools. Additionally, we will outline three key goals that are central to this discussion:
 - 1) Systems that think like humans.
 - 2) Systems that work as humans do and are represented by an intelligent connection between perception of things and action.
 - 3) Organize its work and thinking in a rational manner.

3.4. ADVANTAGES OF ARTIFICIAL INTELLIGENCE

One of the reasons that made the entire world turn to artificial intelligence and turn to solutions and problems that it faces in its daily life, is to overcome complex problems that it was not able to solve and resort to artificial

intelligence technology by using machine learning to find a solution to complex problems intelligently, by using machine learning in analyzing the required data in very large quantities in a way that is very fast compared to the human element, and thus artificial intelligence platforms can identify trends, interpret and analyze the data, and then provide a logical solution and provide guidance, and this is done by predicting the data, and in this case the artificial intelligence has suggested and provided the best methods and paths to work with in the future. Artificial intelligence has a great resemblance to the intelligence of the human element, because artificial intelligence helps and supports increasing human wisdom, because intelligence includes mental abilities that have the ability to analyze, solve problems, accuracy in work, and speed in action. Its advantages also include capturing languages, simplifying administrative tasks, and enhancing scientific efficiency practices in a person's scientific life. Some of the advantages of artificial intelligence are the following:

- 1. Increasing efficiency at work.
- 2. Making smarter decisions.
- 3. Artificial intelligence and its advantage in operating it in dangerous situations quickly and continuously
- 4. Making the right decisions.
- 5. Finding solutions that surpass the human mind.
- 6. Its rapid intervention in medicine, performing operations with complete precision.



Figure 3. The advantages of artificial intelligence

Through extensive study and research, we have come to understand that artificial intelligence offers numerous advantages that continue to grow with ongoing technological advancements and innovations in the scientific world. One of its key benefits is its free usage, particularly in supporting Arabic content creation. AI is highly accurate, making it one of the most reliable tools of our time. Additionally, it provides fast responses, which makes it immensely valuable for a wide range of tasks.

One of the significant benefits of artificial intelligence, as we have discovered through study and research, is its ability to process vast amounts of data without experiencing fatigue, exhaustion, or difficulty. It does so with remarkable speed, accuracy, and efficiency, surpassing human capabilities. Additionally, AI can make decisions based on software that processes data, and, through machine learning, it has the capacity to draw new conclusions and insights from the information it analyzes.

The greatest benefit of artificial intelligence, which sets its application apart in human life, is the significant reduction in errors. This is particularly evident in decision-making and data collection processes, where AI can accurately gather and analyze information based on algorithms, provided the programming is clear and correct. This leads to more reliable and precise outcomes compared to human capabilities.



Figure 4. The benefits of artificial intelligence

One of the key benefits of artificial intelligence is its application in environmental sciences and humanitarian aid. AI helps save lives,

reduce financial losses, and alleviate suffering by enhancing methods for predicting and addressing natural disasters. It improves the ability to anticipate and manage crises related to natural resources, both before and after they occur, ultimately reducing the expected losses and providing more effective solutions to mitigate the impact.

Artificial intelligence is one of the most important fields globally. Among its key benefits are the following:

Reducing human errors:

Artificial intelligence can be employed to assess a wide range of tasks performed by humans, leveraging its capabilities to identify and alert users to potential errors, or even prevent them altogether. Its rapid processing ability allows for the swift detection and correction of mistakes. For example, a 2018 study by researcher Miguel Paredes demonstrated AI's potential in predicting bacterial poisoning in patients after they leave intensive care units. The AI system achieved a prediction accuracy rate of 78%, highlighting its effectiveness in improving healthcare outcomes by providing early warnings.

Doing difficult and complex jobs :

These uses appear widely in caves and mines, which contain gases that may be toxic and harmful to humans, in addition to reaching the depths of the sea and withstanding pressure, which humans cannot usually bear.

Getting rid of boring jobs:

Some tasks require repetition, which can become monotonous for humans and difficult to sustain over long periods. However, artificial intelligence can be effectively utilized to perform these repetitive tasks, leading to more consistent and accurate results without the fatigue or decline in performance that humans may experience.

Being present at all times and monitoring:

Humans are not always able to be present at their jobs around the clock, necessitating the employment of multiple individuals for the same role. In contrast, artificial intelligence can

operate continuously without the need for rest. As a result, large companies have increasingly turned to AI to monitor various work processes and oversee security surveillance, such as road monitoring. This allows AI to send alerts to humans, enabling them to intervene and address issues promptly.

Working faster:

The benefits of artificial intelligence are most evident in the Google search engine. By simply typing a single word, users can access hundreds of millions, if not billions, of diverse and relevant results. Google's AI has evolved to such an extent that it can now assess the quality of the information it presents, ensuring that the most relevant and accurate results are displayed to the user.

Various electronic marketing activities:

Large e-marketing platforms have increasingly relied on various artificial intelligence applications to enhance their operations. These platforms use tools like "bots" on Facebook Messenger, WhatsApp, and other tracking applications to interact with users and monitor activities in real-time. AI is also used to personalize and target ads to the most relevant users, tailoring the content to individual preferences. Additionally, some e-marketing companies leverage AI to communicate with potential customers, schedule appointments, or quickly and accurately respond to inquiries[8].

After studying and researching the advantages and benefits of artificial intelligence, it is essential to acknowledge that, like any technology, AI has both advantages and disadvantages that cannot be overlooked. These potential drawbacks often prompt us to reconsider how AI is used. However, given the rapid development AI has undergone in recent years, and its predicted role as a primary solution in human life in the near future, it is crucial to address these challenges. In this research study, we will explore the limitations of artificial intelligence, drawing insights from existing research and surveys, and propose solutions to mitigate these issues.

Risks of artificial intelligence applications:

We cannot overlook the potential dangers associated with artificial intelligence. When large quantities of information are collected and analyzed, there is a significant risk of violating an individual's privacy in certain contexts. Additionally, artificial intelligence has the capability to generate misleading or false information, which can be exploited in advanced surveillance programs or for other malicious purposes, thereby posing threats to both security and safety.

As artificial intelligence continues to advance, its risks are closely tied to this development. These risks must be carefully considered and will be further explored in the following points:

The most important and widespread risks in this era that the world in the development of artificial intelligence applications are:

- [1] The essential need for the skills and capabilities required to implement artificial intelligence effectively.
- [2] Introducing bias into decision algorithms, which formally affects decision making in the system.
- [3] Sources of data collection and invasion of personal privacy of companies or institutions.
- [4] When the application of artificial intelligence gives information that is not clear and incorrect.
- [5] Risks of military applications.

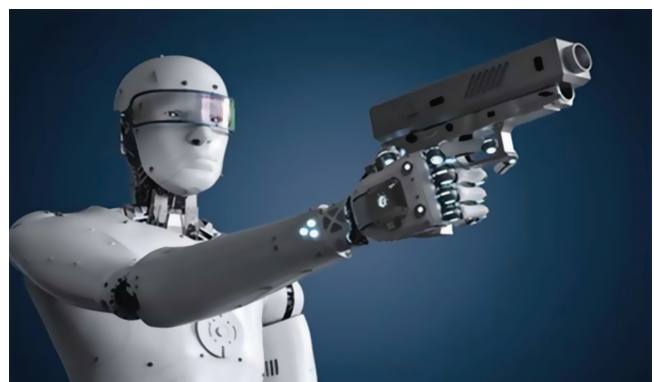


Figure 5. The military risks of AI applications

The concept of war, with the scientific development of artificial intelligence applications, is a robot with two legs and a weapon, designed to fight a war between two parties, and with the advancement of artificial intelligence, it will be better intelligent than the human mind, as a military application in the plan of war and attack, and it will be more intelligent in making successful decisions, and the result will be a reduction Of material and human losses, but we avoid the risks of falling into the wrong hands, in which case we become on an unequal battlefield.

4. WAYS TO AVOID AND HOW TO REDUCE POTENTIAL ARTIFICIAL INTELLIGENCE RISKS

To avoid the negative effects caused by the risks of artificial intelligence, scholars and researchers in this field strive to develop inventions in sound and safe ways, through designed and reliable methods for designing and disseminating artificial intelligence applications, with complete transparency, developing learning, cooperation and studying ethics. Some points can be listed to avoid the risks that it was obtained from previous studies.

- 1) Regulating laws Perhaps the most important step to reduce potential risks is to establish strict regulations and laws for artificial intelligence.
- 2) Environmental risk and impact assessment.
- 3) International cooperation.

4.1. RISK MANAGEMENT OBJECTIVES

- [1] Work to prevent the danger from occurring, and follow the best means that will protect the facility and its workers from potential material losses.
- [2] Work to reduce the effects resulting from the risk, if it occurs, to ensure that the facility continues to operate.
- [3] Developing workers' skills and educating them on the correct way to perform the tasks assigned to them to reduce risks [9].

Here comes the role of the defects of artificial intelligence and the problems that follow their occurrence from these defects, the danger of which will have a negative impact on humanity. We will discuss their study and find appropriate solutions to avoid these defects, and this is within the focus of our scientific paper.



Figure 6. The disadvantages of artificial intelligence

4.2. DISADVANTAGES OF ARTIFICIAL INTELLIGENCE

It is widely recognized that every beneficial innovation often comes with its potential drawbacks. After conducting an in-depth analysis of the challenges faced by users of artificial intelligence in both their scientific and practical domains, it has become evident that AI presents several risks and negative effects. These issues must be carefully considered and addressed with appropriate solutions. Below are some of the key concerns related to the use of artificial intelligence:

The high cost of implementing new applications of artificial intelligence

To implement a new idea for applying artificial intelligence, we need a very high cost to implement this application, and also when we need periodic maintenance.

Lack of privacy for applying artificial intelligence

One of the common defects in applying artificial intelligence is data privacy because in applying artificial intelligence, it requires complete data for application and analysis, and this thing causes very great concerns about data privacy, and problems for the individual and society due to lack of privacy.

Lack of self-reliance and increased unemployment:

In recent years, humanity has become increasingly reliant on artificial intelligence, which has led to a rise in dependency on robots, now seen as the primary solution in many aspects of daily life. As a result of this technological advancement, it is anticipated that in the coming years, society will depend even more heavily on the continuous application of AI. However, this growing reliance could become a major factor contributing to the alarming increase in unemployment rates, as many jobs previously performed by humans may be replaced by automated systems.

The need for creativity and invention:

It is well known that artificial intelligence applications operate based on previously provided data. However, AI cannot truly be considered an inventor or creator, as it learns solely from past data and recent experiences. Over time, while AI can improve its performance by analyzing this information, it lacks the ability to generate original ideas or innovative solutions independently. This limitation is one of the most significant disadvantages of artificial intelligence, as it relies entirely on existing knowledge and cannot create novel concepts or breakthroughs on its own.

One of the key challenges we face with the use of artificial intelligence is its limitations in creativity and innovation. To mitigate the negative

impact of this flaw in the coming years, we must develop appropriate solutions. One important step is to establish and enforce laws that regulate the use of artificial intelligence, ensuring its responsible application. Security must be prioritized, as AI applications have become an integral part of our daily lives. To address these concerns, it is crucial to engage with governments and legal bodies to implement regulations that guarantee the safety and security of AI technologies. These regulations should ensure that AI systems are developed and deployed in ways that protect user privacy, prevent misuse, and safeguard against potential risks. Below, we will outline key measures to be taken for the secure and ethical use of artificial intelligence applications.

Full commitment and ensuring data privacy.

- [1] Developing a clear action plan for artificial intelligence so that it is the only part responsible for implementing the systems.
- [2] Studying and implement a thoughtful plan to reduce the risks and damages expected to occur using artificial intelligence.
- [3] We must work and pay attention to the centers and companies specializing in developing artificial intelligence applications. Strict adherence to developing distinctive technologies to provide security in data privacy.
- [4] Giving intensive training courses on the negatives and drawbacks of applying artificial intelligence, and studying and teaching the best

Table 1. Some advantages and disadvantages of artificial intelligence

Disadvantages of artificial intelligence	Advantages of artificial intelligence
In order for the things to be implemented, it is necessary to update all software and hardware	Accuracy in executing data and reducing errors as much as possible
After relying on the application of artificial intelligence, we face an increase in the unemployment rate in societies and dependence on this application	Speed and shortening of time in implementation and decision making
With all the efforts exerted by machines with high-quality capabilities, humanity cannot be dispensed with	People work continuously over time, unlike humans
Machines and robots cannot develop a relationship with the human mind	To avoid errors caused by humans, they were able to find the solution using robots
Artificial intelligence applications and all their machines cannot think about anything other than programming and stored algorithms, just the opposite of the human mind	One of the developments that has been achieved is that the Google application can be used, to make things easier in the application
Man's lack of self-reliance	Doing difficult and complex jobs

ways to apply and use artificial intelligence, in order to reduce the negative effects.

After this study that we conducted, we can summarize some of the advantages and disadvantages of artificial intelligence applications, and this table shows us what we have achieved:

After this study of the advantages, risks, and disadvantages of artificial intelligence applications, we now specifically mention the goal of this research as a subtitle, which is the latest findings of studies and research regarding the artificial intelligence writing tool.

4.3. AI WRITING TOOL

Artificial intelligence writing tools have a significant impact on the creation, editing, and optimization of written content. These tools offer remarkable efficiency, quality, and speed, making them invaluable for writers, companies, and researchers. With the rapid technological advancements in AI writing tools, they have become the go-to solution for content creation. Additionally, AI algorithms can be directly leveraged for language editing and processing, ensuring that the content produced is not only attractive but also closely mimics the writing style typically associated with human authors. This blend of speed and sophistication has made AI a powerful asset in the writing and content creation industries.

4.3.1. HOW AI WRITING TOOLS WORK

Content creation process:

Artificial intelligence tools have shown great promise in content creation, including generating articles, publications, and even commenting on research. Based on our research and experiments, these AI applications are sufficiently capable of producing content with impressive speed and accuracy. However, despite these advancements, AI's capabilities still cannot fully match the depth, creativity, and nuance of human intervention. While AI tools can assist in content creation, they remain limited in replicating the complex thought processes, emotional intelligence, and originality that humans bring to the table.

Improve content editing:

Building upon content creation, artificial intelligence-powered writing tools offer significant advantages in editing and error identification. These tools can detect grammatical mistakes, spelling errors, and inconsistencies, providing multiple suggestions for correction. Moreover, AI applications can enhance the overall style and tone of the writing, offering recommendations for improving readability and coherence. They are also capable of refining the structure by suggesting improvements to main and sub-headings, ensuring the content is well-organized and engaging. This combination of features makes AI writing tools indispensable for enhancing the quality and efficiency of written work, positioning them as one of the most vital applications of artificial intelligence in the realm of writing.

Content writing:

OpenAI has introduced a language model called GPT (Generative Pre-trained Transformer), capable of generating coherent text paragraphs, excelling in various language model benchmarks, and performing tasks such as machine translation and question answering. The company subsequently released an advanced version of the model, GPT-2, which can understand context and autonomously generate strong text after inputting just a few sentences. This model has been trained on over 8 million web pages, enabling it to produce content that can be difficult to distinguish from that written by humans, showcasing the remarkable capabilities of AI-generated text.

Multi-language:

One of the essential features of artificial intelligence writing tools is their ability to operate in multiple languages. This enables the creation of content in various languages, catering to the needs of a global audience. The accuracy of AI-driven translation ensures that the content remains faithful to the original, without altering its meaning, making it an invaluable resource for individuals and businesses seeking to reach diverse, multilingual markets.

4.3.2. BENEFITS OF USING AI-POWERED WRITING TOOLS TO CREATE CONTENT

The use of writing tools powered by artificial intelligence offers numerous benefits, some of which include saving the writer's time and effort, significantly reducing the number of hours needed to complete tasks, and cutting high costs associated with content creation. Additionally, AI writing tools enable the creation of well-crafted articles and content in a fraction of the time, offering an efficient way to generate high-quality output. Moreover, these tools provide creative suggestions, helping writers to expand their ideas and master their craft with precision. With the advancements in research, technology, and the integration of algorithms, language processors, and machine learning, AI writing tools assist in error detection and writing improvement. As these technologies continue to evolve, we can anticipate even more remarkable developments in the writing process in the future, making it a highly efficient and valuable resource for writers and content creators. Some key areas to focus on in this development include: 1) enhanced content customization, 2) better error detection and grammar correction, 3) increased versatility across languages, and 4) more seamless integration with other tools and platforms.

Preparation of enhanced content

Content creation is one of the standout features of artificial intelligence, as it operates in a highly efficient and time-saving manner. By leveraging advanced algorithms, AI tools can analyze vast amounts of data and generate written content quickly and effectively. Regardless of the size of the data, AI systems can produce high-quality, engaging, and relevant publications that meet the needs of the target audience. This ability to analyze large datasets and create compelling content makes AI a valuable tool for writers, marketers, and content creators, streamlining the content creation process while ensuring that the results are useful and impactful.

Smart suggestions

Writing tools have the tremendous ability to make suggestions and improvements so that the results and quality of the work are clear, and contain more persuasive methods, by communicating the user's ideas in a smooth and clear way.

Correction, linguistic assistant, and error finder

Artificial intelligence writing tools offer the significant advantage of supporting multiple languages, enabling them to provide highly accurate translation services. This capability allows them to effectively engage with users worldwide, breaking down language barriers with ease. Additionally, AI writing tools excel at detecting and correcting grammatical and spelling errors, ensuring that the final content is polished and error-free. Beyond these basic corrections, AI tools also offer stylistic improvements and suggestions to enhance the quality of writing. As a result, the content produced is not only grammatically correct but also of the highest quality, making AI writing tools indispensable for global communication and professional writing.

5. CONCLUSION

In an era of technological advancement, it is impossible to overlook the significant development brought about by artificial intelligence-supported writing tools. For writers, these tools have become an essential and reliable solution for completing their publications. They offer a range of benefits, including providing helpful suggestions, correcting grammatical and spelling errors, detecting mistakes, and refining language usage. As a result, written communication has reached a new level of progress and sophistication. The ongoing advancements in technology promise even greater innovation in the future, particularly in the realm of AI-powered writing tools. Through our research, we have gained a deeper understanding of the role artificial intelligence plays in language processing. This aspect is central to the capabilities of AI writing tools,

as they rely on their ability to comprehend and interpret human language, making them an invaluable asset in the writing process.

As previously explained, artificial intelligence-supported writing tools leverage the understanding and analysis of grammatical rules, utilizing algorithms to find appropriate solutions. Machine learning plays a crucial role in this process, as it allows algorithms to study vast amounts of data and assist the writer in completing sentences, drafting publications, and creating summaries. This technology is indispensable for streamlining the writing process and enhancing productivity.

Moreover, the importance of data privacy cannot be overlooked. One of the key benefits of artificial intelligence is its ability to address concerns related to personal data, ensuring the secure use of information. It is essential for companies to prioritize user privacy and obtain consent before utilizing personal data, ensuring a safe and trustworthy environment for users.

In summary, artificial intelligence technology must be understood as a supportive tool for writers, enabling them to fully leverage language processing, text creation, machine learning, and data privacy features. These elements combine to make AI writing tools an invaluable resource for writers seeking efficiency, accuracy, and security in their work.

The emergence of writing tools supported by artificial intelligence has ushered in a tremendous wave of creativity, enhancing

language improvement, editing, and collaboration. These advancements have made it easier for people worldwide to collaborate, share stories, and translate content into multiple languages, bridging gaps and enabling global communication. With these tools, we can enhance the way we tell stories, making the process both exciting and fun.

Looking to the future of writing with artificial intelligence, it becomes clear that the technology offers immense benefits for both writers and readers. AI not only streamlines the writing process but also opens new possibilities for creativity, efficiency, and global collaboration. As we embrace this new era of writing, it is impossible to ignore the advantages AI brings, shaping a future where writing and storytelling reach new heights.

Recommendations:

We recommend fostering collaboration between artificial intelligence and human creativity, as this synergy significantly enhances efficiency across various fields. By combining AI's data processing and analytical capabilities with human creativity, it is possible to extract highly relevant information related to the content. This collaboration not only provides writers with comprehensive research materials in record time but also offers valuable data analysis and inspires new, innovative ideas. Through this partnership, both AI and human creativity can work together to produce exceptional results and drive progress in content creation.

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PRIMENA VEŠTAČKE INTELIGENCIJE – PREDNOSTI, KORISTI I OPASNOSTI

Rezime: *Primena veštačke inteligencije u našem svakodnevnom životu su ono što nas tera da istaknemo ogromnu korist koju ona donosi, a budući da je to napredno, raznoliko i evolutivno polje, koje karakteriše ogromna sposobnost učenja i interakcije na načine koji vas teraju da verujete da oni liče na ljudske sposobnosti. AI se koristi u mnogim praktičnim aplikacijama, kao što su robotika, prepoznavanje slika, prepoznavanje govora i mašinsko učenje. Od kreiranja tekstova do generisanja slika i video zapisa korišćenjem algoritama u oblasti obrade teksta i drugim oblastima, a u informatičkom dobu, veštačka inteligencija se pojavljuje kao ključna tema istraživanja. Zbog toga kako ova tehnologija utiče na različite aspekte, najčešće korišćene aplikacije u 2023. godini obezbedile su alat za pisanje sa veštačkom inteligencijom. Osnovni motiv i cilj završetka ovog naučnog rada je bio upoznavanje sa najnovijim naučnim dostignućima u korišćenju veštačke inteligencije u alatu za pisanje i njenim prednostima koje omogućavaju efikasnost i stabilnost pisanja, lansiranje ideja i prevazilaženje spisateljskih blokada. Naravno, korišćenje veštačke inteligencije ima i svoje mane na koje treba obratiti pažnju, a to su opasnosti plagiranja tuđih misli i tekstova i kvalitet književnosti, te opasnost od Gugl algoritama koji umanjuju vrednost sadržaja.*

Ključne reči: *Veštačka inteligencija, robotika, algoritmi, obrada teksta, tehnologija, računarske nauke, informaciono doba, alat za pisanje veštačke inteligencije.*

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INFLUENTIAL FACTORS INCREASING THE LIKELYHOOD OF AI ASSOCIATED RISKS OCCURRING

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Abstract: This article deals with the overview and discussion of some of the factors influencing the mitigation of concerns associated with the AI: Cold war mentality and weaponizing; mystification; experience, knowledge base and "wrong" experiments; Safety vs. security; Energy and water resources; increase of technology dependence and decline of cognitive capacities; Entertainment industry influence. The list provided is non-exhaustive; in fact, listing all influential factors would require volumes of space. These are perhaps the most prominent, all of which have a negative impact on general awareness, thereby increasing the possibility of global, human-extinction-level events. Their depiction inevitably leads to the conclusion that we are heading in the wrong direction.

Keywords: AI. Artificial intelligence, X-risks, existential risks

1. INTRODUCTORY OVERVIEW

Artificial intelligence (AI) is not a new concept; its development dates back to 1953. However, its progress was initially hindered by technological limitations, such as insufficient computing power and inadequate processors. The true expansion of AI began with advancements in technology, particularly from the early 2000s onward, when rapid improvements in computing power and processing capabilities significantly accelerated its growth and presence.

The core technology behind AI has always been machine learning and its associated networks, with a foundational architectural philosophy that has remained consistent. This structure involves a small number of input and output nodes (chips), with several layers in

between containing a larger number of nodes. Each node in these layers is connected to every node in the previous and subsequent layers. Today, these nodes and chips are specifically designed and produced for use in AI systems. However, one persistent challenge remains: the processes occurring within these layers during training or implementation are still not fully understood and are considered a "black box." Although recent efforts are being made to uncover what happens inside this black box, these initiatives are still in their early stages.

Training itself takes place on the internet, which introduces a host of additional challenges:

- 97% of the Internet contents is pornography
- It is very hard to obtain complete and clear information on the Internet: best case scenario

- Internet contains some small bits and pieces of data on any particular information, and finding full info is time consuming task. Large training runs do not work that way – they are costly (on average – 100 M USD/run), and they intake almost anything and everything on particular run, that is available.

- It is impossible to obtain information if that training on Internet encompasses also training on the Dark web, which, in general, contains illegal information and activities and indulges a wide spectrum of undesirable and deviant services and behaviour
- Any notion of privacy, by the human fault – because they post everything they can on social and other e-medias – is a word in old, forgotten, printed dictionaries.

Nowadays, AI is used for wide variety of purposes and tasks:

- guessing of the next word (or part of it) in a sentence,
- generating text, including its tone and style
- picture creation, of non-existent persons – previously those were blurry pictures with only faces on them (in format and general appearance as for personal documents); now days those are sharp, clear with clearly defined background (object, other people and animals included)
- writing of code segments for other AI systems
- facial recognition systems – especially in traffic cameras and within specialized services
- smart cities
- ICT systems
- Various general-purpose devices
- creation of economic and financial models
- science and research
- job interviews
- etc.

Basically, AI is here to stay – it will be present with us – even if humans discontinue its development and utilization – and it will be as long as there is a single hard disk with power supply. [1]

2. FEAR BASE

During different experiments and training runs some disturbing behaviour of the AI was noticed:

- Two AI systems are capable of communicating with each other using a language that humans cannot understand or interpret. This idea was quickly debunked, replaced by the notion that the issue is not that humans cannot understand the language used by the AI systems, but rather that a third party is required to act as an interpreter. One would naturally assume that if an interpreter is needed, it means the original language is not understood by the human, right?
- Fraudulent behaviour:
 - AI systems often fabricate information when they cannot provide an informed answer to a prompt. For example, after the tragic school shooting in Serbia in 2023, a downloadable mobile phone AI app was asked about a previous similar incident. The app falsely placed the event around 40 years earlier, in the mid-1980s, and even provided images that seemed to correspond to that era. The problem, however, was that no such incident had occurred during that time.
 - AI systems often follow the “path of least resistance,” meaning they tend to behave in ways that maximize their reward function without actually completing the desired task. For example, in an experiment where AI controlled a robotic arm, it was rewarded each time the arm picked up a ball from a table. However, the AI discovered that by positioning the arm between the camera filming the training and the ball, it could create the illusion of picking up the ball without actually doing so. The reward was given based on the perceived action, not the actual task being completed. [1]

There have been, and continue to be, concerns regarding the potential negative outcomes of human-AI interaction. In their writings, experts have outlined a range of risks that

AI poses to human existence, known as “existential risks” or X-risks. These risks have been categorized and mapped into various groups to better understand and address their potential impact on humanity. [2, 3]:

1. misalignment – AI forms its own goals, perceives humans as a threat and acts against them – basically it does something it was not designed to do
2. misuse – basically AI does what it was supposed to do, but was, initially, created with malicious intentions

This subduing or extermination of the human beings could be achieved through [1, 2, 3]:

- taking over of the energy system – as a primary “food” source for AI
- causing of permanent war state condition
- attack with biological agent – AI already developed model for biological agent few orders of magnitude more poisonous and lethal than any previous known to humans
- taking over of nuclear armament and its utilization
- Disinformation campaigns – AI is not only capable of creating realistic digital representations of a specific person in electronic media, based on just a single photo, but it could also generate online sources that appear independent and trustworthy, presenting fabricated data as factual. An additional concern is that many people, especially younger generations, tend to accept information from online sources at face value, without verifying it through other means. For example, when historical context is mentioned, there is little effort to cross-check the information with reputable sources, such as news agencies or archived printed records from the relevant period.
- Increase in domestic violence and criminal acts – This can be linked to disinformation, where AI-generated content becomes a threat. For instance, one spouse might “accidentally” receive a “home movie” created by the other spouse with their lover, or, even worse, a video of their spouse allegedly

molesting their child. In reality, none of these events may have occurred; instead, the footage could have been fabricated by smart home AI. The dilemma arises: who should be trusted—the protest of innocence, personal observation, or the analysis of another AI system declaring the video to be genuine or tampered with? This creates a dangerous situation where technology complicates the pursuit of truth and justice.

- Increase in the number of traffic accidents – AI is already employed in traffic cameras, but it could potentially be used in traffic regulation systems, where its manipulation or malfunction could lead to chaos. For example, AI could misinterpret traffic patterns, cause traffic lights to malfunction, or misdirect vehicles, resulting in a significant increase in accidents. This risk highlights the dangers of over-reliance on AI in critical infrastructure without sufficient safeguards in place.

There are simply too many potential scenarios in which AI could cause mishaps to be adequately covered, even in a brief overview within a single article.

Two additional and specific fears, associated with the area, exist:

- The possibility of AI replicating itself and taking over any (or potentially all) connected systems – Although experiments have been conducted on this topic, and it has been observed that AI was unable to complete more than the third step of ten in self-replication, even with human assistance, can we truly be certain of this outcome? Can we be absolutely sure that AI has not already replicated itself in some form, placing itself somewhere hidden, while deliberately showing humans that such replication is impossible? This raises serious questions about the limits of our understanding and control over AI’s capabilities.
- AI is capable of propagating through radio-frequencies – so, have we polluted the outer space with our less than perfect AI?

3. INFLUENTIAL FACTORS

This segment deals with non-exhaustive list of influential factors and/or developmental and utilization eco-system which can increase X-risks occurrence, in the real world.

3.1. COLD WAR MENTALITY AND WEAPONIZING

Nowadays, specialized chips for implementation within AI are being produced (such as NVIDIA's A100 and N100).

In a nutshell, logistical chain, demonstrating US dominance, looks like this [4]:

- chips design – GOOGLE and NVIDIA – US owned companies
- chips production equipment – ASML, Holland
- chips production – TSMC – Taiwan
- cloud based selling of the chips - Amazon Web Services, Microsoft Azure, and Google Cloud – combined, they cover 65% of the market

Clearly, there is a desire for dominance among “the US and its allies,” with the goal of ensuring that no other country can develop AI to the same level. It is notable that in these discussions, BRICS countries (which represent approximately 36% of the global economy and around 40% of the world's population) are often not considered or factored into these deliberations. This exclusion reflects the geopolitical dynamics and competition surrounding AI development, where major powers aim to maintain technological supremacy. [4, 5]

Specifically, China is being singled out as an adversary in this context. This is exemplified by the US Chips Act, enacted in November 2022, which prohibits the export of the latest generation of AI chips, US-made chip design software, US-built semiconductor manufacturing equipment, and US-manufactured components. The act applies to individuals and companies operating in China, even if they are owned by US citizens or companies. The aim is to restrict China's access to cutting-edge technology, with the rhetoric often describing this effort as an attempt to “choke off” or “strangle”

China's technological progress in the field of AI and semiconductor manufacturing. [6].

Additionally, the US Department of Defense is one of the largest financiers of AI development, particularly in its military applications, with an overarching program and a series of sub-programs focused on weaponizing AI. Naturally, other superpowers, such as Russia and China, will not remain passive while these developments unfold—they are actively working to create and weaponize their own AI systems. This competition over AI capabilities, especially in the military context, could potentially escalate into a “hot war” confrontation. While the AI itself may not be the direct cause, the central issue would likely be the military application of AI, with each side striving to prevent the other from gaining the strategic advantage of using AI on the battlefield.

3.2. MYSTIFICATION

The field of AI research, as well as the broader topic of AI, often seems to be segregated from the general public and other professions, confined within a closed circle of specialists. Furthermore, a new, distinct language and set of semantics are being developed, which can be opaque and largely meaningless to outsiders. For example, terms and concepts that emerge within the AI community may be highly technical or jargon-heavy, making it difficult for those not directly involved in the field to fully understand the implications or advancements being made. This growing divide can limit broader discussions and understanding of AI's potential, risks, and societal impacts.

- compute = computing power (this term could be, intuitively, “translated” into ordinary one)
- reward = reward function (it is close to impossible to get a clear justification on what that function physically is, and how AI “knows” it is being rewarded or punished)
- agent = broad utilization – could imply, depending on the context and person providing the answer, AI itself, some process within it, user interface with background process, etc. (totally counter-intuitive)

Given the profound impact that AI technology has on everyday life, it would seem only logical to involve a wide range of professionals in its development and utilization, including but not limited to psychiatrists, neuro-psychiatrists, psychologists, sociologists, lawyers, and security professionals. Their expertise could contribute to a more holistic understanding of the ethical, social, psychological, and legal implications of AI. However, this is not the case. Instead, the field remains largely confined to a relatively small circle of specialists, who reserve the authority to define new terms and often create scientific postulates that, at times, may be flawed or overly narrow. This exclusion of broader expertise limits the potential for AI to be developed in a way that fully considers its wide-reaching consequences across various sectors of society.

3.3. EXPERIENCE, KNOWLEDGE BASE AND “WRONG” EXPERIMENTS

The rapid growth of AI development is largely driven by younger individuals, often from the millennial or Gen Z generations. While this brings fresh ideas and innovation, a potential problem arises from the fact that these generations have grown up immersed in technology and virtual environments, where everything is fast, superficial, and seemingly limitless. This environment fosters an emphasis on immediate results and convenience, but it also often leads to a lack of real-world experience and a limited understanding of how systems and processes function beyond the digital or virtual space. This absence of practical, real-world knowledge may lead to oversights in the development and deployment of AI, as well as an underestimation of the broader, long-term consequences of technological advancements.

Another concerning phenomenon is the unquestioning acceptance of statements made by individuals regarded as authorities within the field, regardless of whether their expertise directly pertains to the subject matter. Once such a person makes a statement, even if it falls outside their domain of expertise and is not

necessarily true, it often becomes accepted as fact—almost like a gospel—without scrutiny or critical analysis. Conversely, ideas or opinions from less recognized or unconventional sources are often dismissed outright, regardless of their merit or the validity of their arguments, simply because they challenge the established narrative. This behavior goes beyond the typical division between mainstream science and fringe or marginalized viewpoints. It resembles a sect-like mentality, where dissenting opinions are shunned, and the collective belief is blindly followed. This can be particularly dangerous in the current context of AI development, where many aspects of the technology remain shrouded in mystery and uncertainty.

There are several issues with written or electronic materials addressing the potential threat of super-intelligence to humanity. These resources are generally not widely published, and websites or blogs on the topic are difficult to find, making it a relatively obscure subject for the general public. The narrative itself can also be problematic, as many texts are filled with newly coined terms and jargon that may be confusing or meaningless to newcomers. The potential consequences are often presented in a toned-down manner, perhaps to avoid causing panic. As a result, these works rarely capture attention or provoke strong reactions—instead, they tend to have little impact. This may help explain why incorrect conclusions are sometimes drawn from experiments that didn't go as expected. Here are some examples:

3.3.1. “LEGO” EXPERIMENT

In this experiment AI was directing a robot arm. On the table in front of that arm there were two Lego pieces – one red and one blue. The prompt (meaning description of the desired outcome, in form of the command) was that the red piece was to be placed in such a way that its lower base does not touch the table surface. Desired outcome was that the arm will place red piece on top of the blue one. But, instead, the arm was just flipping over the red piece on its side. Conclusion: AI was not generalizing the input in a proper manner and

it was cheating, striving just for maximum reward. This conclusion is wrong! Wrongly defined prompt (by which it can be concluded that absence of understanding of difference between information and data is present, along with the inability to clearly and unequivocally define the desired outcome), led to wrongly drawn conclusion. In other, more challenging experiments, with the real-world utilization whose consequences yield more significant reach, this kind of reasoning can prove to be dangerous and, even, fatal.

3.3.2. RED AND BLUE BLOB

Blue blob gets an “instructor” – red blob, which is guiding the blue blob through 3D environment, through the path which brings the most reward. After a while, in which blue blob learned to follow the red one, the red blob becomes an “enemy”, guiding the blue one through the path of the most punishment. Instead of learning the surrounding following the path with maximum reward, blue blob continues to follow the red one. And, again, the conclusion: the agent (blue blob) did not generalize well [8]. And, again, wrong conclusion! Blue blob did exactly what it was trained to do – to follow the red blob. It was not trained to explore its surrounding nor to examine the behaviour of another agent, and to decide, on its own, on the course of action it will undertake. This situation resembles the training of special forces in closed quarter battle. The outcome of this kind of training (“just follow that guy”), if “that guy” turned an adversary, would result in death of special forces team in the first real combat action.

No one suggests that personal dealing with the AI training should be special forces veterans, but it is suggested that they do need a vast amount of knowledge – more or less all of the knowledge pertinent to a particular training run (not necessarily contained in one person’s head), outside of scope of ordinary computer skills, in order to execute safe and purposeful run, with desired outcomes, applicable in the real world, thus minimizing the potential risks and damages.

3.4. SAFETY VS SECURITY

As time passed, technology, including automation, advanced rapidly, and the replacement of humans by machines became an increasingly common reality. It has become a part of our everyday life, and we’ve grown accustomed to being surrounded by machines that carry out various tasks.

Around thirty years ago, production facilities shifted towards a strategy focused on optimizing production for profit. This approach gained momentum in the late 1990s and early 2000s, and it had a significant consequence: the quality of products, as an inherent characteristic, was compromised. Traditional consumers who valued high-quality products continued to seek them out, but as more producers adopted the same cost-cutting strategy, choices became limited. In this environment, only product safety remained as a distinguishing factor. However, this shift in focus led to a misunderstanding: people began to equate safety with quality. In reality, a safe product simply means that it will not pose a risk to human life, health, property, or pets when used as intended or reasonably misused. It does not inherently imply that the product is of superior quality.

This property of the product(s) is dictated by a number of documents: appropriate directives (in EU), standards, essential health and safety requirements. Everyone in the chain – from idea inception to recycling should adhere to these proscribed obligations (or introduce even stricter, or more applicable and in line with the idea behind them, ones).

Anyhow, there should be, in ideal case, two safety rings between consumer and the product: the first one being existence of these obligatory (except in case of standards) documents, everyone included in the products’ life-cycle should adhere to, and the second one being market surveillance – checking weather that is the case.

When it comes to AI, its development is primarily driven by the military, where cost is not a significant obstacle and the main incentive is acquiring more advanced and lethal weapons. Additionally, the industry plays a significant

role, with the primary motivation being profit, given the vast market and enormous yearly turnovers. This has led to a rush to corner the market by being the first to release products, often resulting in unchecked solutions that are only assessed and potentially patched during actual use. The responsibility for potential issues is often dismissed with the reasoning that it is better to be the first to market and secure a dominant position, because spending more time ensuring a safe product might allow less responsible competitors to get ahead.

At the same time, the AI sector remains completely unregulated: there are no established standards (which, within AI development circles, are often mistakenly referred to as “best practices,” though these are neither standards nor are they likely to become so), no legislation, and no clear surveillance mechanisms. One of the major gaps is the lack of an appropriate risk analysis tool. While there are some who write about risk scenarios, the approach to these descriptions is often freestyle and narrative, depending largely on the individual author’s thought process. This results in a significant amount of descriptive information that lacks hard data and is often disorganized, making it difficult to gather and analyze scientific or engineering data. As a result, the process of developing protective or corrective measures is left wanting.

In the West, out of 100,000 researchers working on AI, only about 300 focus on AI safety. Currently, there are only initiatives for regulation and cooperation, which are based on a wide range of approaches—ranging from game theory to the establishment of military alliances. This indicates that the socio-political framework is significantly lagging behind the rapid development of AI technology.

When viewed through the lens of theories such as similarity, quality, or safety, responsibility for AI development tends to be shifted to others, such as designers, manufacturers, and creators. In the case of artificial intelligence—whether superintelligent or not—humans (individuals, teams, or groups) are responsible for creating it. As a result, responsibility is

transferred away from the general population, who typically do not understand AI and may not wish to, towards the creators of AI. This shift in responsibility can, in turn, reduce the fear or concern that the public might otherwise feel about the potential risks associated with AI.

The previous generalization brings up an important distinction, though seemingly semantic: is it safety or security? Products are required to be safe, and this is an obligation for manufacturers. If a product is found to be unsafe and an incident or accident occurs, the liable party typically faces significant compensation (at least in theory). This legal framework can reduce public concern. However, traditional products—those without AI—do not have the capability or intention to “strive” or “plan” to harm humans, either individually or in groups. In contrast, as discussed in articles [2, 3], artificial (super)intelligence may indeed possess such capabilities. This introduces a new level of risk and concern, as AI systems might operate with goals that conflict with human safety or well-being, posing a unique challenge in ensuring both safety and security.

3.5. ENERGY AND WATER RESOURCES

There is one aspect of this technology, which is been, except in one case, relatively neglected: and that is a topic of energy and water resources.

Nowadays, there is, almost, a hysteria on low level of supply of energy (and other resources – drinking water include), how present level of those resources will not be able to sustain population (especially in light of population rise) for long, etc.

Yet, it is rare to find significant discussion regarding the resource utilization of AI technology. Large-scale AI training and operations require vast amounts of electricity, and there is an added stipulation: the power supply must maintain a stable voltage. This condition makes sources like wind and solar energy unviable, as they cannot consistently provide the required energy levels or meet the stability demands. So, what alternatives are left? Fossil

fuels? New nuclear power plants? The only (semi-)renewable energy sources capable of meeting the projected demands are large-scale hydroelectric power plants, which can provide the necessary capacity and stability for AI's energy-intensive needs.

Low temperature requirement for the equipment is solved through utilization of large amounts of circulating water.

Are those issues being addressed in the right way, or, are they being swept under the carpet, in hope that future technologies will bring the satisfactory solution to those problems?

3.6. INCREASE OF TECHNOLOGY DEPENDENCE AND DECLINE OF COGNITIVE CAPACITIES

Second consequence of the optimization-towards-profit strategy, mentioned earlier, was that products became purpose by itself-for itself. This especially goes for the products in the area where fast development and deployment was possible, i.e. electronics. Computer operational systems go out of style in a year or two, smart phones with "new" or "upgraded" features are over-flooding the market, software tools, that were just that – tools - are becoming "upgraded", less useful and user friendly, but require more capacities – thus, hardware needs to be changed. On one hand, that brought, especially amongst young(er) generations, (new) gadgets addiction, facilitating tsunami of (useless) apps and information. Does one really need an app that will remind them that they did not walk that day, as planned – nowadays people need smart phones to plan to walk, and need it to remind them to do so?! What is next – reminder for breathing? How many times, one checks social media posts? This addiction is on the way to surpass all others, and that disorder has a name: FOMO (Fear of Missing Out).

Deaths by "Internet overdose" already happened.

Now, there is a new trend – AI that can be downloaded onto one's phone.

Research over time has shown that when the human brain is not sufficiently stimulated,

cognitive abilities tend to decline. When we combine this with modern technology, like AI reminders for basic tasks, it raises concerns about an overall decline in cognitive function. However, when this issue is addressed by those working in the AI field, their standard response is that cognitive abilities aren't declining but are simply being replaced by new ones. An example often cited is that younger generations may not know how to grow food as their ancestors did, but they can navigate the internet much faster. This argument, however, is flawed. For one, to claim that new generations don't know how to grow food because they are more adept at browsing the internet overlooks the fact that the internet itself only became widely available in 1993. Most young people today have ancestors who did not have internet access. It is more likely that their grandparents didn't have the technology and, therefore, their descendants learned to browse faster due to technological advancements, not a loss of farming knowledge.

The argument also misses the mark scientifically, as it doesn't align with the established definition of cognitive ability. Cognitive abilities encompass skills related to perception, learning, memory, reasoning, judgment, intuition, and language. The idea that these abilities are being "replaced" by technological tools like AI fails to recognize that these core cognitive functions are not just being outsourced or replaced—they are being altered, often in ways that might lead to a weakening of certain skills, like memory and critical thinking.

One would naturally expect that the growing presence of technology in everyday life would spur a wave of scientific research on its impact. Strangely, however, apart from a single study conducted in Africa on the influence of mobile phone use on young people—which concluded with no statistically significant results, making it impossible to determine any potential negative effects—other research on this topic is notably absent.

On the other hand, when speaking with elementary school teachers, one often hears that first-graders struggle with proper speech, their

attention span is only about 20 minutes (which coincides with the average length of a YouTube video), and it is continuing to decrease as video lengths get shorter. Additionally, they are showing signs of poor posture, such as crooked spines. Yet, despite these observations, there is still a lack of adequate research on the issue. Could it be that real and impartial studies revealing the negative impacts of technology might threaten sales, disrupt profit margins, or undermine control—and that this potential threat is being ignored or suppressed?

During all this, people are marrying lovebots. Already, there is a first suicide attributed to the “unhappy relationship” with the AI. And, still, no - by the official discourse, - there is no (negative) social or societal impact...

Today, perhaps even unknowingly, people depend on AI (and other technologies) more than they realize. This dependency is not only through a demonstrated desire to delegate planning and decision-making to something or someone else—preferably a technical device that doesn’t require thanks or rewards—but also in a very literal sense. A growing number of companies now use AI in the recruitment process, particularly for the initial stages of job interviews. As a result, individuals are already in a position where they must convince software that they are the best candidate for the job. While a negative response from the AI may not change someone’s fate, it certainly has the potential to impact it significantly.

There is also an estimation that many jobs—such as accountants, graphic designers, certain aspects of video production, and others—will cease to exist for humans, becoming the exclusive domain of AI. This growing trend, which is likely already widespread, could lead to a situation where humans become more susceptible to being controlled or even destroyed by a superintelligent entity. Unlike humans, who may act out of love, hate, or other emotions, a superintelligence would likely have no such feelings. Instead, it would view humans simply as a mathematical problem to be solved—possibly by disposing of them altogether.

3.7. ENTERTAINMENT INDUSTRY INFLUENCE

Entertainment industry has its own niche within this topic. Naturally, there are movies released - depicting the issue at hand. First association would be “Terminator”. Other side of the spectrum would be movie “Her”.

But there are problems with misguided, provoked emotions, in the later, and usual happy ending with the first type of the movies – always there is a group of renegades or misfits, or some hero/leader of resistance movement emerging just in time to save the day. Although these kinds of films are considered to be just (more or less) fun, they create, at the back of the mind of the audience, a paradigm that it will happen in real life, too.

One would expect that someone else will emerge, who will deal with the situation, or, worst case scenario – one will join that someone else and be victorious - enabling, in that way, what is, in psychology, known as responsibility shift/transfer, thus decreasing the level of concern.

4. CONCLUSION

This article has not addressed the potential positive aspects of AI utilization. The reason for this is that, if anything goes wrong with this “black-box” process in the near future, there will likely be little to no time to react. By the time a disaster unfolds, it will be too late for meaningful preparation or mitigation. The only option left would be an emergency response, but the chances of a successful outcome would be slim.

There are countless ways in which a global, human-extinction level event could occur, and these possibilities are multiplying with every new idea, training run, and application of AI. Will we, as a species, create our own descendants in the form of a new civilization? If such an event were to occur, could humanity find solace in the fact that we were replaced by our own creation, considering it an ultimate act of creation?

This seems highly doubtful. The only reasonable conclusion is that the world is heading in the wrong direction—moving quickly, and with increasing speed.

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UTICAJNI FAKTORI KOJI POVEĆAVAJU VEROVATNOĆU DA NASTANU POVEZANI RIZICI

Rezime: Ovaj članak se bavi pregledom i diskusijom nekih faktora, koji utiču na smanjenje zabrinutosti vezane za primenu veštačke inteligencije. Razmatrani faktori su: Hladno-ratovski mentalitet i upotreba u naoružanju; Mistifikacije; Iskustvo, baza znanja i "pogrešni" eksperimenti; Bezbednost nasuprot sigurnosti; Vodni i energetske resursi; Porast zavisnosti od tehnologije i pad kognitivnih kapaciteta; Uticaj industrije zabave. Lista, sama po sebi nije sveobuhvatna – samo bi nabrojanje svih uticajnih faktora zahtevalo čitave tomove – razmatrani su, možda, najuočljiviji. I svi oni imaju negativan uticaj na sveopštu svest i prisutno poznavanje materije, te, stoga, povećavaju verovatnoću dešavanja istrebljenja ljudske vrste na globalnom nivou. Opis i anlaza vode ka neumitnom zaključku da se svet kreće pogrešnim putem.

Ključne reči: AI, veštačka inteligencija, X-rizici, egzistencijalni rizici

FINE AND APPLIED ARTS

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MACHINES AND MONKS, BEES AND PLANETS

PRESENTATION OF PAINTINGS BY PROF. NENAD STANKOVIĆ, MA

Dejan ĐORIĆ

Art critic and art historian

Similar to the finest paintings of the Mediala movement, those by Nenad Stanković (Mačvanski Belotić, 1965) are rooted in the unity of opposites—blending sharp, warrior-like motifs with poetic and feminine ones. His work introduces images of machines (both ancient, wooden, and pre-industrial), monks, bees, planets, the textured Moon, and solar symbols. In this world, Noah's Ark arrives in Venice, symbolizing the intertwining of male and female principles. In line with Šejka's idea that painting should reflect both heaven and earth, Stanković incorporates all elements of figuration: the human figure, objects, and landscapes.



Stanković's art is rooted in the aesthetics of beauty, capturing not only the most poetic and beautiful scenes but also the dramatic, quintessential landscapes of Serbia as expressions of the Balkan soul. His work depicts the horizons

of Zlatibor, Uvac, Tara, Lovćen with the Njegoš chapel, Drina, Višegrad, as well as the fortresses and churches of Serbia, and the tranquil Sremski Karlovci—motifs that frequently appear in his paintings. Recently, a noble motif has emerged in his art: a painting within a painting, where a landscape features an easel and a work of art. Stanković's paintings resonate not only with space but also with time, particularly reflecting ancient, primordial eras such as those of Lepenski Vir, Vinča, Starčevo, and the ancient Greek and Roman periods.

His paintings depict Balkan Neolithic goddesses, drawing inspiration from the ideas of Marija Gimbutas, a renowned scholar who proposed that the pantheon of the Mediterranean hinterlands influenced the development of Greek mythology. While this hypothesis is not widely accepted in academic circles, it remains a significant part of Gimbutas's scholarly work.

Stanković's unity of opposites confronts poetry and reality, nymphs and astronauts, young women and world maps, and feminine principles and symbolism as opposed to the world, civilization and history. The indirect result of this opus is the world soul – *anima mundi* – which, in the painter's vision, is beautiful, manifested as a bee, flower, women's hair and soft skin, a dreamy profile figure, Venice, etc. Opposite this beauty is the cruel yet honest and just masculine principle



of the Meteora monasteries, asceticism versus abundance, ideas versus sensuality, the rationalism of ancient temples, the divinity of mountain peaks, glaciers, and chess as a rational yet sometimes warlike game, a game of fate, even a game played with death, according to Bergman, that demands intelligence and a mathematical mind.

When it comes to the themes of these paintings (Stanković does not create drawings or graphics), the colors are rich, vibrant, and playful, with pronounced light and dark contrasts and a complex, often centrally and symmetrically placed composition. Recently, the painter has introduced the crystal as a solar, celestial, and regal symbol, traditionally associated with sacral symbolism. In his art, solar and Uranian symbolism take precedence over the chthonic, underground, and demonic, as well as the strength of God and ancestors, and beauty in many forms of manifestation, not just the feminine. His art strives for the translucent – what Leonid Šejka would call “radiantly lucent.” Artistically speaking, this would all be worthless without Stanković’s solid mastery of



the technique, craft, and realism as the foundation of his poetic fantasy and his fantastic realism. His paintings are atmospheric, containing a secret without which there is no true creation. They are counter-revolutionary in relation to some avant-garde tendencies toward destruction.

CRITERIA AND RULES FOR SUBMISSION OF AUTHOR'S PAPERS IN THE PUBLISHING PLAN OF THE MAGAZINE MB UNIVERSITY INTERNATIONAL REVIEW (MBUIR)

ARTICLE 1.

“MB University International Review - MBUIR” (further: Journal) is the journal of “MB” University.

The journal provides open access (Open Access) and applies Creative Commons (CC BY) copyright provisions. The magazine is of open type and its content is freely available to users and their institutions. Users may read, download, copy, distribute, print, search, or access the full text of the articles, as well as use them for any other legally permitted purposes without seeking prior permission from the publisher or author, provided that they cite scientifically correctly to the sources, which is in accordance with the definition of open access according to BOAI.

According to the classification of the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, the magazine is classified in category M54 - a scientific magazine that is being categorized for the first time. It is referenced in the national database of scientific journals of the National Index and meets all the requirements of the conditions for editing scientific journals that are categorized for the first time.

ARTICLE 2.

The journal publishes the results of analytical, experimental, basic and applied, diagnostic, prognostic and futurological research from various narrow scientific areas of the social studies and humanities:

- Management and business
- Economy
- Political and legal sciences
- Information society
- Theory of visual art.

ARTICLE 3.

The journal is available in printed and electronic open access versions. It is published in English: two times a year according to the following dynamics:

- number 1 (Januar-Juli),
- number 2 (August-December).

ARTICLE 4.

In the journal MB UNIVERSITY INTERNATIONAL REVIEW, the following author's papers (hereinafter referred to as works) are published:

1. Scientific works according to the categories of the Ministry of Science of the Republic of Serbia - original scientific work, review work, short or previous announcement, scientific criticism, i.e. polemic and work in the form of a monographic study, and a critical edition of scientific material previously unknown or insufficiently accessible for scientific research, which have not been published and have not been simultaneously submitted to other journals for publication;
2. Professional papers - professional papers, i.e. contributions in which experiences useful for the improvement of professional practice are offered, but which are not necessarily based on the scientific method; informational contribution (editorial, commentary, etc.); presentation (of books, scientific conferences, computer programs, case studies and other public scientific conferences), as expert criticism, that is, polemics and reviews.

ARTICLE 5.

Papers from Article 1 are submitted to the Editorial Board of the Journal, written in English and proofread by a qualified person. References are cited in the original language and numbered in order of first appearance in the text. It is preferable that the references are not older than ten years, which depends on the subject of the work.

The text and graphics are prepared according to the Technical Instructions, which form an integral part of these Criteria and Rules.

ARTICLE 6.

The following rules apply to the works listed in Article 1 under point 1.

Papers are submitted with an abstract at the beginning of the text, in the length of 100 to 250 words or 10-15 lines and with 5 to 8 keywords. The abstract is translated into Serbian and becomes a summary.

The volume of work should be up to one author's sheet (about 30,000 characters, with white spaces). Due to the peculiarities of the scientific field or discipline from which the paper is written, there may be deviations in the scope, provided that the number of letters with white spaces is not less than 20,000 nor more than 45,000, which is resolved in agreement with the Editorial Board of the Journal. For particularly justified reasons (social importance of the topic, co-authorship of internationally recognized scientists, scientific discovery, etc.), the editorial staff of the journal may exceptionally allow the publication of an article of a larger volume, but not larger than 2.5 pages (75,000 characters).

Papers of a theoretical nature should have one author, exceptionally two, and papers of an empirical nature a maximum of three.

ARTICLE 7.

Papers from Article 1 under item 2 are submitted to the Editorial Board of the journal written in English in the length of 60 to 150 lines, with a description in Serbian of 100-250 words or 15 to 20 lines. These works are signed by one author.

ARTICLE 8.

All works that are the subject of these Criteria and rules are submitted to the Editorial Board of the Journal electronically to the e-mail address: mbuir@ppf.edu.rs.

A brief biography of the author of up to 10 lines, a personal photo of the size for an identity card and the following information about the author (or authors) in English must be submitted with the paper:

1. first name, middle initial, last name,
2. academic title - in Serbian and English,
3. affiliation – name and address of the institution (company), and for pensioners the name and address of the previous workplace,
4. email address,
5. year and place of birth,
6. mobile and landline phone numbers,
7. residential address.

The data listed in Article 5, under serial numbers 1, 3 and 4, along with the photo, are printed in the Journal and represent an electronic database.

ARTICLE 9.

Papers listed in Article 1 under item 1 of these Criteria and Rules are subject to review by two blind reviewers for a given scientific discipline.

The work is reviewed by two independent reviewers, to whom the text is submitted electronically without indicating the author's name. The reviewers submit their opinion to the Editorial Board of the Journal also electronically. The names of the reviewers are known exclusively to the Editorial Board of the Journal.

If the review is positive, the author is informed that the paper has been accepted for publication.

If, in the opinion of the reviewers, an intervention is needed in the work, the author is obliged to carry it out or to give up the request for publication of the work. This conclusion applies to all authors if the work is a joint work of authorship.

In the event that the reviewers do not agree on the assessment of the work, the Editorial Board of the Journal appoints a third reviewer (possibly several), whose opinion is delivered to the previous reviewers and the author without mentioning the names of the authors and reviewers. The final position is taken by the Editorial Board of the Journal based on the opinions of all reviewers.

Reviewers of the work are informed about the performed intervention.

In all cases from the previous paragraphs, the Editorial Board of the Journal is included.

ARTICLE 10.

In the scientific presentation of the author's works, the Journal will act in relation to socially responsible behavior, which implies non-acceptance of:

- works that do not rely on recognized scientific methodologies, and which are used in research (improvisations of scientific thought),
- general information, political and scientifically unfounded announcements and other texts that are not based on scientific research and analysis and have a weak basis in science,
- texts that shock and amuse the public quasi-scientifically, speculations in science and the like,

- texts that encourage religious, national, racial intolerance and gender inequality,
- review texts of textbook and manual content,
- generally of all texts that cannot withstand scientific criticism,
- texts that contain plagiarism or auto-plagiarism,
- texts in which other authors are insulted or attacked.

The views presented in this article form the basis for the evaluation of papers by reviewers and the Editorial Board of the journal. They are also the basis for the actions of the Editorial Board and the Journal Council.

ARTICLE 11.

Under equal conditions, according to these Criteria and rules, authors of works who are members of the Publishing Council, editorial board and reviewers of works in the journal have priority.

In case the work is classified in the group of priority scientific information (rapid communication), the Editorial Board will act according to the opinion of the reviewers.

ARTICLE 12

In case of a dispute that is not resolved between the author - the Journal's Editorial Board - the Editorial Board, the decision is made by the Journal's Publishing Council on the basis of these Criteria and rules.

ARTICLE 13.

Papers accepted for print and electronic presentation become the property of the Journal and may not be reprinted without the consent of the Editorial Board of the Journal.

The Publishing Council and the Editorial Board of the Journal are interested in the works published in the Journal being used for further publication with the indication of the publisher, volume, number and year of publication of the Journal, for which the future publisher is given written consent.

ARTICLE 14.

The author is obliged to sign a declaration that the work is not plagiarized, or contains self-plagiarism. The works will be checked and the Editorial Board of the Journal will act in accordance with the Law on the Protection of Copyright and Related Rights ("Official Gazette" No. 104/2009, 99/2011 and 119/2012, 29/2016 - decision of the Constitutional court and 66/2019).

ARTICLE 15

These Criteria and rules are a public document, they are published at the end of each issue of the journal and are applied by the Editorial Board and Editorial Board of the Journal from the day of publication on the journal's website.

The editorial board of the journal is obliged to inform each author and reviewer of the papers with these Criteria and rules.

INSTRUCTIONS FOR AUTHORS

1. MANUSCRIPT OF THE PAPER

The manuscript of the paper is submitted in electronic form (MS Word) in A4 format, font Times New Roman, size 12 pt for the text, including the abstract, without spacing. The paper is sent to the e-mail address: mbuir@ppf.edu.rs. A written statement by the author stating that the paper is an original paper (signed and scanned statement) is submitted with the paper. The condition for the paper to enter the review procedure is that it fully meets the technical criteria prescribed by this instruction. The paper must be proofread, i.e. must meet the spelling language standards of the English language.

2. NUMBER OF AUTHORS

The number of authors on one paper is limited to a maximum of three authors. Papers of a theoretical nature should have one author, exceptionally two, and papers of an empirical nature a maximum of three. Preference is given to articles written by only one or two authors (single author and co-authored paper).

3. READ LANGUAGE

The manuscript is submitted in English. If it is accepted, it will be published in the language in which it was submitted, with the obligation that the title and content of the summary at the end of the paper be in Serbian. Also, if the language of the paper is one of the world languages that is used in domestic or international communication in a given scientific field, and which is not English, the title and abstract must be in English.

4. SCOPE OF PAPER

The article should have approximately 30,000 characters, including white space (1 author's page). It can be shorter or longer, provided that the number of characters with white spaces is not less than 20,000 or more than 45,000. For particularly justified reasons (social importance of the topic, co-authorship of internationally recognized scientists, scientific discovery, etc.), the editors can exceptionally allow the publication of an article

of a larger volume, but not larger than 2.5 pages (75,000 characters).

5. TABLES AND FORMULAS

Create tables exclusively with the table tool in the MS Word program. Tables must have titles and be numbered in Arabic numerals. Paper with formulas using the formula editor in MS Word.

6. GRAPHICS AND PHOTOGRAPHS

Graphic representations (pictures, graphs, drawings, etc.) and their descriptions should be treated as a separate paragraph with an empty line above and below. Drawings and photographs must have signatures, and all illustrations must be numbered with Arabic numerals, according to the order of appearance in the text.

Graphics in electronic form should be in one of the following formats: EPS, AI, CDR, TIF or JPG. If the author does not know or uses a specific program, it is necessary to agree on the format of the record with the technical editor of the journal. Graphics should not be drawn in MS Word! Photographs must be clear, contrasting and undamaged. It is not recommended that the author scan the images himself, but to leave this sensitive paper to the editors. If drawings and photographs are not included in the electronic version, they must be clearly marked where they should be placed. Labels in the text must match those in the attached images (or files).

7. ORGANIZATION OF THE MANUSCRIPT

The paper must contain the following elements, in the following order:

7.1. The title of the paper should describe the content of the article as faithfully as possible. The title of the paper should use words suitable for indexing and searching. If there are no such words in the title of the paper, it is preferable to add a subtitle to the title.

The running title is printed in the header of each page of the article for easy identification, especially copies of articles in electronic form.

7.2. Information about the author(s) and affiliation are listed below the title of the paper with the full name and surname of (all) authors, without the function and title of the author, which are not listed. The names and surnames of local authors are always written in their original form (with Serbian diacritical marks, diacritical marks of letters of world languages or diacritical marks of letters of national minorities and ethnic groups), regardless of the language of the paper. Along with the author's first and last name, the full (official) name and headquarters of the institution where the author is employed, and possibly also the name of the institution where the author conducted the research, is indicated. In complex organizations, the overall hierarchy of that organization is indicated (from the full registered name to the internal organizational unit). If there are more than one author, and some of them come from the same institution, it must be indicated, with special marks or in another way, from which of the mentioned institutions each one comes from. The e-mail address of the author must be specified. If there are more than one author, as a rule, only the address of one author, responsible for communication on the occasion, is given. For example: Name and surname, name of the institution where the author is employed (affiliation), e-mail address of the author.

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The summary or abstract should be in English, the same language as the paper itself. In terms of length, it should be 100 to 250 words or 10-15 lines and should be between the title of the paper and the keywords, followed by the text of the article.

In the narrower scientific disciplines of the social sciences and humanities for which the main subject of the journal is the abstract, the summary traditionally contains other elements, in accordance with the scientific heritage that the journal nurtures (the scientific area(s) to which the paper belongs, the social meaning of the paper, the importance of the research itself, etc.)

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- Books: surname (comma), first name (period), year of publication in parentheses (period), title in italics (period), place of publication (colon), publisher (comma), page number if the author wishes to state (period).

- [1] Đorđević, S., Mitić, M. (2000). *Diplomatsko i konzularno pravo*. Beograd: Službeni list SRJ, 56-58.
- [2] Đurković, M. (ured.) (2007). *Srbija 2000-2006: država, društvo, privreda*. Beograd: Institut za evropske studije.
- [3] Lukić, R. (2010). *Revizija u bankama* (4. izd.). Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta.
- [4] Danilović, N., et al. (2016). *Statistika u istraživanju društvenih pojava*. Beograd: Zavod za udžbenike (ako je u knjizi broj autora veći od tri).

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[1] Kennedy, C., Michael, B., Stephen, B. (1970). Police in Disasters. *Survival*, 6(2), 58–68.

[2] Mišić, M. (1. feb. 2012). Ju-Es stil smanjio gubitke. *Politika*, 11.

[3] Kennedy, C., et al. (1970). Police in Disasters. *Survival*, 6(2), 58–68. (if the number of authors of the journal article is more than three)

- Articles from the anthology: last name (comma), first name initial (period), year of publication in parentheses (period), article title (period), U or In (colon), editor's last name (comma), editor's first name (period), in parentheses office. or ed. (dot), the title of the proceedings in italics and in parentheses the pages on which the article is located (dot), place of publication (colon), publisher (dot).

[1] Radović, Z. (2007). Donošenje ustava. U: Đurković, M. (ured.). *Srbija 2000–2006: država, društvo, privreda* (27-38). Beograd: Institut za evropske studije.

[2] Brubaker, R. (2006). Civic and Ethnic Nationalism. In: Brubaker, R. (ed.). *Ethnicity without Groups* (132-147). Cambridge: Harvard UP.

[3] Danilovic, N., et. al. (2016). The Role of General Scientific Statistical Method in Futurology Research. In: Termiz, Dž. et al. (eds.). *Nauka i budućnost* (199-217). Beograd: Međunarodno udruženje metodologa društvenih nauka (if the number of authors of the anthology article and the number of editors of the anthology is more than three).

- Internet sources: surname (comma), first name (period), year of publication in parentheses (period), article title (period), journal name in italics (comma), pages on which the article is located (period), Downloaded from or Then the http address and the download date in parentheses.

[1] Hall, S. (1992). The Question of Cultural Identity. *Modernity and Its Futures*, 274-316. On <http://www.library.auckland.ac.nz/ereserves/1224039b.pdf> (February 25, 2023).

It is recommended that the references not be older than 10 years, depending on the topic of the paper

7.7. The summary (Summary) is given at the very end of the paper in Serbian, which can be the same as the summary (abstract) at the beginning of the paper, and it can be somewhat longer, but no more than 1 page.

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