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## **A SOCIAL SCIENCES**

AA	PHILOSOPHY AND RELIGION
AB	HISTORY
AC	ARCHAEOLOGY, ANTHROPOLOGY, ETHNOLOGY
AD	POLITICAL SCIENCES
AE	MANAGEMENT, ADMINISTRATION AND CLERICAL WORK
AF	DOCUMENTATION, LIBRARIANSHIP, WORK WITH INFORMATION
AG	LEGAL SCIENCES
AH	ECONOMICS
AI	LINGUISTICS
AJ	LITERATURE, MASS MEDIA, AUDIO-VISUAL ACTIVITIES
AK	SPORT AND LEISURE TIME ACTIVITIES
AL	ART, ARCHITECTURE, CULTURAL HERITAGE
AM	PEDAGOGY AND EDUCATION
AN	PSYCHOLOGY
AO	SOCIOLOGY, DEMOGRAPHY
AP	MUNICIPAL, REGIONAL AND TRANSPORTATION PLANNING
AQ	SAFETY AND HEALTH PROTECTION, SAFETY IN OPERATING MACHINERY

## ANALYSIS OF ENVIRONMENTALLY SUSTAINABLE PROJECTS IN THE FIELD OF GREEN ARCHITECTURE: USE OF NATURAL MATERIALS AND RENEWABLE ENERGY SOURCES

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**Abstract:** The article explores contemporary architectural trends focused on the establishment of sustainable and ecologically responsible environments. It scrutinizes projects incorporating natural building materials and renewable energy sources, evaluating their environmental impact and discerning their role in fostering sustainable development. Additionally, the article delves into alternative approaches for the utilization of materials during both the construction and operational phases of green buildings. A comprehensive analysis is presented, elucidating the intricacies of the "green building" concept, notable for its pronounced benefits in curtailing energy consumption for heating purposes. The salient characteristic of such structures lies in the integration of green design strategies and cutting-edge building materials. The article meticulously examines the efficacy of energy utilization within the context of a "green" architectural paradigm. Emphasis is placed on technologies and solutions conducive to diminishing energy expenditure, particularly in the domain of heating. This encompasses the deployment of renewable energy sources, optimal architectural configurations, and innovative engineering systems. The investigation reveals that the integration of green methodologies in construction is contingent not solely upon the reduction of energy consumption but also on the adoption of environmentally friendly and sustainable materials. Such materials not only serve to ameliorate the structural quality but also enhance the comfort of indoor spaces. The findings proffered by the analysis hold the potential to unveil novel avenues for the progressive refinement of green architecture and its application in construction

**Keywords:** Trombe wall, PV panels, Green building, Heat transfer, Energy efficiency.

### 1 Introduction

In recent years, the significance of green buildings has escalated concomitant with heightened interest in environmental concerns. Notably, both developed and developing nations have formulated distinct green building assessment systems and qualification methodologies. This trend signifies the pervasive adoption and acknowledgment of sustainable development principles within the construction industry. The concept of green building represents a contemporary approach in the construction, retrofitting, and operational phases of buildings, with a primary focus on leveraging advanced architectural solutions, engineering systems, and materials to curtail energy and material consumption. The primary objective involves the optimization of architectural structures to enhance the comfort and quality of indoor environments within buildings, concurrently mitigating impacts on the health of occupants. An integral consideration is the minimization of environmental ramifications throughout all phases of the life cycle of building structures. Broadly, green construction endeavors to diminish the aggregate environmental footprint of the construction industry. The advocacy for green building necessitates the formulation of guidelines and strategies to propel the development of the construction sector as a pivotal agent for transformative change.

The significance of construction and architecture in establishing conditions conducive to sustainable development is paramount, given their substantial influence on the configuration of our living spaces. The alignment of architecture with the natural environment is deemed an indispensable element in urban planning and architectural design. The escalating demand for housing engenders the intensive utilization of energy, resources, and raw materials, thereby contributing to heightened carbon emissions detrimental to the environment and human health. In the contemporary milieu, the multitude of adverse environmental effects necessitates the adoption of new technologies and materials in construction to mitigate the overall environmental impact. The preservation of urban ecology and the prudent

utilization of finite energy resources are assuming growing significance. Developers are mandated to adopt enhanced and more sustainable building design methodologies to attenuate the deleterious environmental repercussions of construction activities. It is imperative to incorporate more sustainable and environmentally friendly materials into the building process to foster a more promising environmental future. The article systematically examines five eco-friendly building materials, presenting a comprehensive analysis of their advantages, disadvantages, service life, and economic considerations within the construction industry. These materials are posited as viable alternatives to traditional counterparts.

The study endeavors to elucidate the theoretical and methodological underpinnings, along with practical resolutions, directed towards establishing a sustainable architectural environment. By accentuating the facets of harmonizing architecture with the natural environment, the investigation seeks to discern how buildings can be seamlessly integrated into the natural landscape without compromising its ecological integrity. The research objectives encompass the formulation of concepts conducive to the creation of architectural solutions that explicitly consider the tenets of sustainability. The inquiry delves into the fundamental principles and concepts of sustainable architecture, with the methodological dimension elucidating approaches to implementing these principles in specific projects. In its practical dimension, the study entails an examination of extant instances of sustainable construction and the formulation of novel architectural solutions designed to foster equilibrium between development and nature conservation.

### 2 Literature Review

The imperative of sustainable development is gaining prominence in the formulation of contemporary architectural and urban planning solutions (Zhang et al., 2019). Sustainable progress, as conceptualized, entails a form of development that can persist without disrupting the ecological and social equilibrium over a relatively indefinite period. Within the European Union, the principles and policies of sustainable development stand as a primary objective, constituting a pivotal area of study. The forefront involvement of national and local authorities is evident in steering the development of urban planning, architecture, and construction systems management programs (Abyzov et al., 2023). This active engagement serves to facilitate the implementation of sustainable policies and strategies, fostering the creation of architecturally balanced and socially responsible solutions with enhanced environmental considerations.

Building standards oriented toward the reduction of energy consumption are characterized by their convenience, versatility, and environmental friendliness (Tran et al., 2022). The notion of a green building transcends being merely a commercial brand; it embodies a comprehensive design concept. These buildings exhibit the capability to achieve remarkable energy savings, surpassing 90% in comparison to conventional building standards and exceeding 75% for typical new constructions. Demonstrations of such notable energy savings have been particularly evident in warm climates, where energy consumption is predominantly allocated to cooling rather than heating (Veselka et al., 2020). The utilization of environmentally friendly materials in construction has emerged as a highly significant aspect of contemporary practices, particularly in the early 21st century. Rapid technological advancements, increased vehicular growth, and intensive production have collectively propelled humanity away from the traditional conditions that marked the inception of civilization. The selection of new housing is increasingly intertwined with considerations of environmentally friendly technologies, materials, and location. An examination of the literature underscores key arguments highlighting the significance of constructing green buildings,

with an emphasis on the utilization of environmentally friendly building materials (Sangmesh et al., 2023). A primary argument centers on the utilization of environmentally benign materials, exemplified by wood, bamboo, and clay. These materials contribute to a diminution of the depletion of non-renewable resources, including metals and synthetic materials (Han et al., 2020). Eco-friendly materials exhibit commendable insulation properties, resulting in decreased energy consumption for heating and air conditioning purposes (Patel et al., 2021). Notably, the contemporary generation of building materials is characterized by the absence of toxin emissions, thereby promoting a healthful indoor climate. They refrain from emitting toxic gases, thereby averting allergic reactions in residents. Prevalent trends in green building and sustainable construction are observed in several countries, including Sweden, the Netherlands, Denmark, Germany, and Canada (Sinha et al., 2013). These nations actively engage in the implementation and development of green building projects, with many of them instituting certification programs and schemes such as BREEM, LEED, and DGNB to advocate and advance green building practices.

Global experience underscores the promising trend in green and environmentally friendly construction through the utilization of building materials crafted from hemp. Hempail UA has innovated an environmentally friendly material named Hempail Mix, formulated based on industrial hemp. Its composition encompasses lime and a proprietary substance developed by the company. Hempail Mix serves as both an independent insulation material and a foundation for building blocks. Noteworthy for its environmental friendliness, this material exhibits a versatile array of applications in construction, rendering it an innovative choice for green building projects (Krueger et al., 2019). The terms "green" construction and "passive" construction, while not synonymous, are frequently employed within the realm of sustainable construction and may encompass analogous principles. A green building is defined as a structure that incorporates environmentally friendly technologies and materials with the objective of mitigating the environmental impact associated with construction activities (Mokal et al., 2015). Characteristics of green buildings may encompass the utilization of renewable energy sources, high energy efficiency, adoption of environmentally friendly building materials, water management, and air quality enhancement, among other aspects.

Passive house: a structure meticulously engineered with a heightened level of insulation and airtightness to efficaciously retain heat indoors, leveraging natural heat sources like solar radiation and minimizing internal heat loss. Passive buildings harness the thermal and light attributes of the surroundings to stabilize internal temperatures without relying on active heating or air conditioning systems. While these concepts maintain distinctions, it is noteworthy that a green building may integrate passive elements in its design. Conversely, a passive building may incorporate green technologies to ensure heightened levels of energy efficiency and sustainability (Sabadash, 2023). The windows in a passive house are constructed with high-quality insulation, and these residences feature well-insulated exterior walls, roofs, and foundations. This design ensures heat retention within the building during winter and inhibits heat escape during summer (Yang et al., 2022). The ventilation system is engineered to provide fresh air without inducing drafts, thereby ensuring low radon levels and enhancing overall health conditions. Furthermore, a highly efficient heat recirculation system facilitates the reuse of heat contained in the exhaust air. The imperative to conserve energy and mitigate greenhouse gas emissions is increasingly applicable not only to small but also to large buildings. Achieving high efficiency involves the implementation of robust insulation and airtight design, strategically applied to eliminate "weak spots" throughout the entire building and mitigate heat loss (Klassen-Wigger et al., 2018). Passive buildings are characterized by minimal consumption of primary energy, thereby ensuring adequate resources for future generations and averting environmental damage. The energy expended in constructing passive buildings, often referred to as embodied energy, is minimal when

juxtaposed with the energy reserves stored for future utilization (Nguyen & Macchion, 2023). Decisive actions regarding sustainable facility design are most efficaciously made in the initial stages of design and preceding the commencement of construction. However, conventional planning and construction methodologies do not inherently support a cohesive early decision-making process. Integration of sustainable considerations into design processes is imperative to preclude ineffectual adjustments and foster the realization of a sustainable environment during the construction phase (Zhou et al., 2023).

A "Passive House" emerges as a financially sound investment due to its enduring advantages, notably the absence of long-term heating and cooling costs. Furthermore, financial support is available for the construction of Passive Houses, aligning with the approach's emphasis on long-term perspectives, where conventional houses entail lower restoration costs in comparison to Passive Houses (Yuan et al., 2017). In the selection of construction materials, it is crucial to contemplate carbon dioxide emissions. Wood emerges as a preferable option, supported by studies across multiple countries demonstrating its significantly lower carbon dioxide emissions. This phenomenon can be attributed to the minimal energy consumption involved in the production of forest products and the potential substitution of fossil fuels with wood during the manufacturing process. Research indicates that the utilization of wood is more carbon-efficient compared to the application of reinforcing steel in aerated concrete or reinforced concrete. Opting for wood is also more environmentally prudent, given that wood residues can be repurposed in production processes (Ragheb et al., 2016).

Nevertheless, it is imperative to acknowledge the diversity among wood types. To achieve optimal results, numerous studies have been undertaken to ascertain the wood type that emits the least carbon dioxide (CO<sub>2</sub>) across the construction, operation, and use phases. Bearing this in mind, the effective use of wood involves its combination with other materials like aerated concrete, clay plaster, or solid brick to ensure comprehensive insulation of building structures.

In the construction sector of India, escalating environmental concerns are driven by rapid urbanization. The heightened demand for housing results in the extensive consumption of energy, resources, and raw materials, thereby contributing to increased CO<sub>2</sub> emissions and adverse effects on human health and ecosystems (Wang et al., 2021). In this context, the use of suitable building materials becomes crucial to diminish the ecological footprint. Urban areas bear the brunt of climate change, experiencing elevated temperatures, abbreviated winter periods, and unpredictable alterations in monsoon precipitation. Developers should prioritize the advancement of improved and more sustainable design methodologies to mitigate the adverse environmental impact of their buildings. Utilizing environmentally friendly materials with a minimal ecological footprint is imperative (Reijenga & Kaan, 2011). Central to achieving this objective is the flexibility to employ locally available materials. The passive house concept delineates insulation standards for both new and existing buildings. This comprehensive concept incorporates not only thermal insulation but also ventilation standards, forming a robust foundation for achieving low energy consumption (Gu & Ma, 2023). Before the widespread application of the passive house concept, it is essential to scrutinize the environmental and health aspects of the insulation materials integral to the concept (Taner et al., 2021).

Hence, the primary research inquiries aimed to juxtapose the thermal and physical properties of insulation materials concerning the energy efficiency of green buildings, considering both technical and environmental dimensions. Upon assessment, expanded polystyrene emerged as the most suitable insulation material for passive use and home renovation. This preference stems from the availability of multiple recycling methods for expanded polystyrene. The study also conducted tests on plant fibers.



## 2.1 Examples of green construction projects: Chocolate Ecodom

The walls of the dwelling are constructed with sheet wood utilizing a distinctive technological approach, a design choice made to avoid complications and preserve the clarity of lines by eliminating intricate angles. To mitigate the impact of intense summer sunlight, a ventilated facade, also constructed from wood, is implemented. Insulating the structure is a polyvinyl chloride membrane coupled with hemp technical wool, reflecting a commitment to environmentally friendly construction materials. The overarching principle guiding this construction is the pursuit of maximal comfort for residents while minimizing environmental impact. Considerable emphasis was placed on the design quality of the residence. The house features an abundance of electrical access points and is outfitted with sensors, lighting controls, radio dispatchers, and remote control systems to facilitate efficient management of artificial lighting. The fireplace, aside from delineating spatial divisions, serves the dual purpose of providing supplemental heating to the room when needed. Primary heating of the house is accomplished through a surface heating system, complemented by integrated backup radiators. The water supply is sourced from a well. Additionally, an air conditioning and mechanical ventilation system has been incorporated to uphold comfortable conditions within the building.

The construction exclusively employs natural materials and Ecotech technology. This distinctive technology is grounded in a dual wooden frame structure known as Larsontimber, complemented by the application of an ecological mixture derived from industrial hemp, acknowledged as an optimal environmentally friendly material. The Ecotech technology utilized is subject to a patented status.

A distinctive feature is the implementation of the Ecodom radius roof, renowned for its elevated strength and a comprehensive reduction in structural load attributed to the integrated tie-in system.

Advantages:

- Substantially reduced roof area in comparison to traditional roofs, accommodating high loads efficiently.
- Prevents the accumulation of snow.
- Facilitates the elimination of additional space (attic), resulting in the creation of supplementary internal volume.
- Contributes to the formation of a distinctive silhouette for the house.

A passive house model incorporating a Trombe wall represents a distinctive construction engineered to optimize the efficient utilization of solar energy and enhance the overall energy efficiency of the building. The Trombe wall serves as a system enabling the harnessing of solar heat to warm and regulate the temperature within the structure.

The principal features of a passive house model incorporating a Trombe wall are outlined as follows:

- **Solar Trombe Wall:** Positioned on the south or southwest facade of a building, the Solar Trombe wall serves as a substantial structure designed for the storage of heat derived from solar radiation. The intricacies investigated in this study pertain to structural enhancements and technological advancements within Trombe walls. Various dimensions of these walls, including energy efficiency, exergy (the available energy for use), economic viability, and environmental impact (4E), are scrutinized from four distinct perspectives. Ultimately, the study concludes by summarizing the findings and providing insights into challenges and future opportunities within the realm of Trombe walls (Wang et al., 2020).
- **Heat Storage Material:** Typically, materials possessing high heat storage capacity, such as aerated concrete or wood, are employed to retain heat for prolonged durations.

- **Ventilation System:** A ventilation system is implemented to disperse the heated air. Warmed air, interacting with the solar wall, is introduced into the house.
- **Temperature Control:** Automated and manual temperature control systems are utilized to optimize energy utilization and regulate temperature.
- **Effective Insulation:** Complementing the solar wall, the residence incorporates efficient insulation to minimize heat loss, thereby reducing energy costs.

The Trombe wall passive house model exemplifies an innovative approach to green construction. Through the incorporation of solar energy utilization and efficient heat management, this model plays a pivotal role in diminishing energy consumption and enhancing the environmental sustainability of the building.

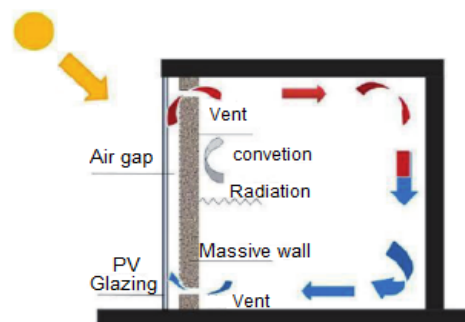


Figure 1. Schematic Representation of the Trombe Wall (Taner, et al., 2021)

A model of a passive house with a Trombe wall is presented, simplified to a basic room featuring a Trombe wall on the south side with dimensions of width 5050 mm × depth 6050 mm (plus 350 mm for the Trombe wall) × height 3000 mm. The building parameters are tailored for Kyiv, factoring in meteorological conditions.

The Trombe wall comprises:

- 4 mm window glass;
- 150 mm air layer;
- 2 mm black paint coating;
- 200 mm aerated concrete wall.

The absorptive capacity (and emissivity) of both the aerated concrete wall and black paint is set at 1.0, as per the material characteristics.

### 3 Research Methods

Various scenarios, each with distinct boundary conditions and configurations, were simulated to ascertain the temperature distribution within the room and the optimal utilization of the ventilation damper. The modeling encompassed scenarios with the vent dampers closed within the aerated concrete core, considering both steady-state and transient modes. To comprehensively evaluate the advantages and drawbacks of the investigated system over a year, three representative days in different seasons were selected, specifically: January 1 in winter, April 1 in spring, and July 1 in summer.

The following test conditions were simulated:

- **Closed Configuration:** This involved a closed setting with closed air ventilation valves (Variants 1 and 2).
- **Open Air Ventilation Valves:** Another scenario was simulated with the air ventilation valves open (Variant 3).
- **Transitional Period (April 1):** This variant accounted for the transitional period between winter and summer, with the flaps in the aerated concrete core in an open position (Variant 4).

- Average Summer Day (PV Panels): Variant 5 was considered on an average summer day, incorporating openings in the exterior glass and photovoltaic (PV) panels along the glass designed to prevent room overheating (Wang et al., 2020).
- For each of the options, turbulent heat transfer regimes were taken into account, utilizing the Navier-Stokes equations, the Reynolds-Averaged Navier-Stokes (RANS) turbulence model, and a radiation model. Both the liquid and air were treated as ideal gasses, and all differential equations were formulated as second-order. The model was visualized using Comsol Multiphysics Version 6.1.

Cases 1, 3, and 5 were concurrently examined at a specific time, precisely at noon. To ensure a precise simulation of heat accumulation, certain cases were evaluated during the transitional period of the day, commencing from 9 am to 8 pm (cases 2 and 4). This approach considerably extends the computational time and necessitates increased computing resources. However, it provides a more nuanced comprehension of the data, unattainable in steady-state simulations, and is imperative for a precise assessment of the system (Pryhara et al., 2022).

The k-ε equation model was employed in the analysis. The impact of radiation was investigated utilizing the Discrete Ordinates (DO) radiation model. The DO radiation model facilitates the determination of radiation considering translucent walls and surface-to-surface radiation issues. Additionally, the sun position vector and lighting parameters were established.

To assess the dynamics of changes in outdoor air and ground temperature throughout the day, an analysis was conducted using the Climate Data Store - Copernicus environment.

Table 1. Material properties

Material	Density [kg/m <sup>3</sup> ]	Heat capacity [J/(kg·K)]	Thermal conductivity [W/(m·K)]	Absorption coefficient [m <sup>-1</sup> ]	Refractive index [-]
Air	1.006.43	0.0242	0	1	-
Aerated concrete	2000	960	1.5	1.7	0
Black paint	2100	1050	1.6	1.7	0
Glass	2500	840	0.81	200	1.5
Wood	700	2310	0.173	0.4	0

**4 Research Results**

The steady-state simulation was executed for a representative winter day, specifically January 1 at 13:00. During this simulation, the valves in the aerated concrete core were in a closed position. Figure 2 illustrates the temperature field within the Trombe wall.

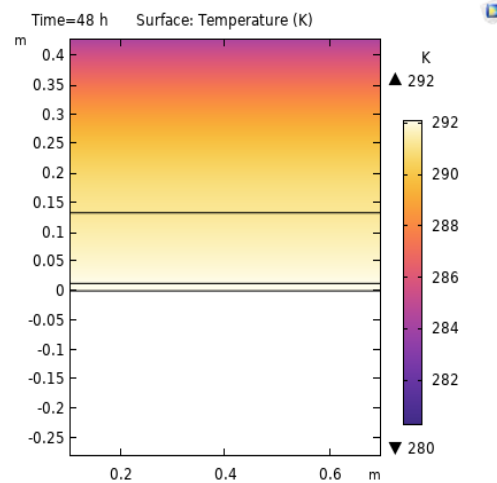


Figure 2. Temperature Field in the Trombe Wall for Variant 1

The average indoor temperature for Case 1, characterized by low cloudy weather conditions (Sun direction vector: -0.301014, Y: 0.311061, Z: 0.788119, and solar coefficient 0.71), is 19 °C.

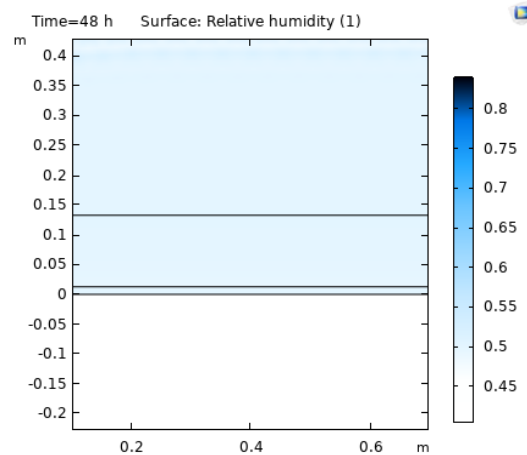


Figure 3. Relative Humidity of the Trombe Wall

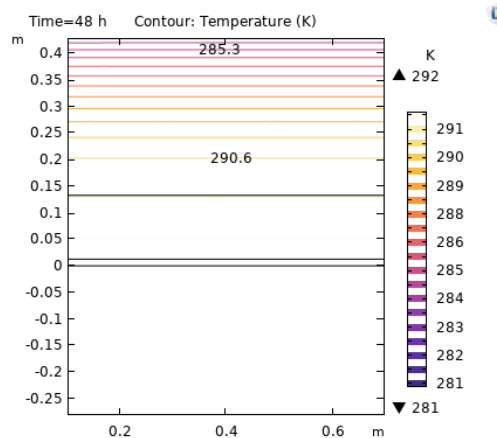


Figure 4. Radiation Heat Flux in Case 1

The average radiation heat flux measures approximately 68.5 W/m<sup>2</sup>.

*Variant 2:*

The simulation was executed as a transient analysis for January 10 throughout the day, spanning from 9 am to 8 pm, with the valves in the aerated concrete core closed. The average temperature within the Trombe wall fluctuated from -5 °C at 20:00 to 4.7 °C at noon.

### Variant 3:

The steady-state simulation was conducted for a typical winter day, specifically January 10 at noon, with the valves in the aerated concrete core open. Figure 2 depicts the temperature field in both the Trombe wall and the room.

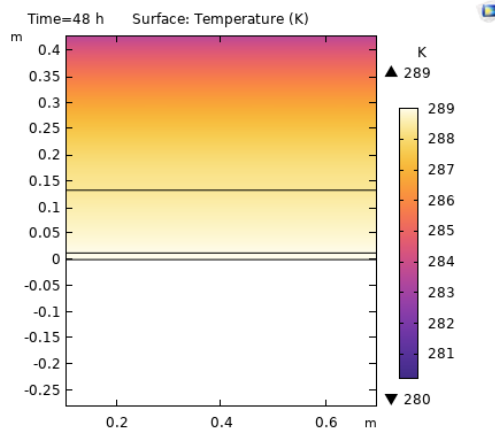


Figure 5. Temperature Field in the Trombe Wall (Case 3)

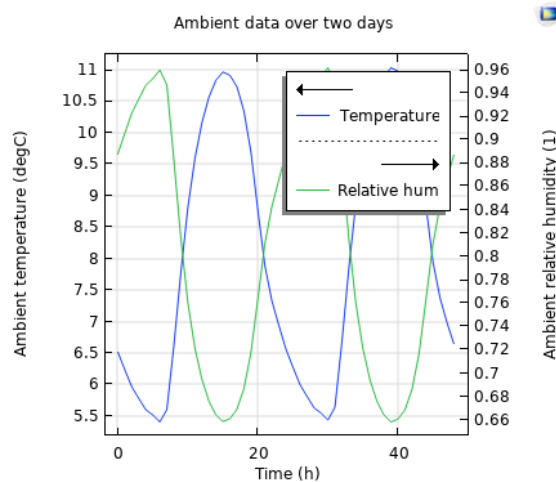


Figure 6. Temperature and Humidity Variations in the Trombe Wall (Case 3)

The average indoor temperature registers at 15.9 °C.

Transient simulations were also conducted during the winter-summer transition of 2023, specifically on April 1, throughout the day from 9 to 20 hours, with the valves in the aerated concrete core open. The average temperature within the Trombe wall fluctuated from 14.32 °C at 20:00 to 25.41 °C at noon. The maximum average temperature attainable in the room reached approximately 20.59 °C. Based on these findings, it is advisable to close the dampers in the aerated concrete core from 4 p.m. to 9 a.m. to prevent the room from cooling.

### Case 5:

This scenario represents a typical summer day (July 1 at noon), where the sashes in the aerated concrete core are closed to prevent the room from overheating.

The simulation was conducted under stationary conditions and revealed that PV panels exert a significant impact on preventing overheating. The average temperature at point C is 25.8 °C. It is noteworthy that photovoltaic solar panels (PV panels), responsible for electricity generation, play a crucial role in the effective operation of cooling systems. Specifically, approximately 60% of energy is consumed during summer days, amounting to 3 kWh/m<sup>2</sup>, with an average capacity of 1 kWh for cooling devices operating for an average of 36 hours per week. The velocity field in the Trombe wall was simulated under the assumption of a wind speed of 0.5 m/s at the inlet. Lastly, the

radiative heat flux [W/m<sup>2</sup>] on the inner surface of the aerated concrete core was determined for the summer building with PV panels.

The mean value of the radiation heat flux amounted to approximately 24.2 W/m<sup>2</sup>, attributable to the substantial influence of the PV panels serving as external protection against direct sunlight.

## 5 Discussion

In the architectural domain, the integration of green building principles is achieved through the adoption of advanced architectural solutions, the utilization of innovative engineering systems and materials aimed at diminishing energy and material consumption, enhancing structural quality, optimizing internal environment comfort, and mitigating adverse impacts on residents' health throughout the entire life cycle of building structures (Tran, et al., 2022). This strategy aims to advance green building practices in Ukraine by establishing novel standards and fostering awareness of sustainable construction within the country. The integration of eco-technologies into residential construction is gaining prominence globally, offering an efficient alternative to conventional building methods. Green building standards encompass the establishment of a comfortable indoor climate, emphasizing that the quality of the living environment is intricately linked to the environmental safety of building materials (Reijenga & Kaan, 2011).

The primary tenet of green construction is to mitigate the environmental impact of a product over its complete life cycle. Building materials should be ecologically sound, devoid of emitting toxic substances that could detrimentally affect human health over an extended duration. This approach facilitates the creation of living spaces that are not only energy-efficient but also environmentally friendly.

The conceptual framework outlined in this study was developed to enhance a holistic comprehension of building materials, contribute to the realization of sustainable development goals, and illustrate how the judicious selection of suitable building materials can yield enduring sustainability outcomes within the realm of green building (Abyzov, et al., 2023). A diverse array of factors, encompassing environmental, economic, and social dimensions, were taken into account, influencing the sustainability of material choices in construction and their repercussions on the environment and society.

## 6 Conclusions

The modeling showcased a substantial influence of the Trombe wall on the internal temperature of the model house employing meteorological data for Kyiv. Under winter conditions, the Trombe wall exerted a notable impact on indoor temperatures, averaging 14.7 °C for case 2.

However, during summer conditions, the Trombe wall functions as an additional heat load. The integration of PV panels enables them to serve as a supplementary cooling resource. It is noteworthy that PV panels, producing electricity, become an essential component for the effective functioning of cooling systems. Specifically, about 60% of energy is utilized on summer days, equivalent to 3 kWh/m<sup>2</sup>, with average power consumption for cooling devices of 1 kWh and an average operational duration of 36 hours per week.

Hence, within the Ukrainian climate conditions, the Trombe wall emerges as a viable solution. Nevertheless, to address the ultimate inquiries regarding system efficiency, it becomes imperative to optimize energy consumption. Additionally, considering the potential requirement for supplementary energy for cooling is crucial to determining the cost-effectiveness of utilizing primary energy for heating.

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**Primary Paper Section: A****Secondary Paper Section: AL, EH**

## ANTI-CRISIS MANAGEMENT STRATEGIES IN THE CONDITIONS OF ECONOMIC AND SOCIAL TURBULENCE

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**Abstract:** The relevance of the research on anti-crisis management is determined by the rapid changes in the global economic and social context. In this context, the development and implementation of effective anti-crisis strategies are extremely relevant for organizations of various levels and activities. The purpose of the present research is to provide an in-depth analysis of various anti-crisis management strategies used by modern organizations to effectively respond to a wide range of crisis situations. Particular emphasis is placed on the analysis of the impact of technological innovations, leadership styles and organizational culture on anti-crisis management processes. A structural-functional analysis and a systemic analysis formed the methodological basis of the research. These methods made it possible to comprehensively assess the interrelationship between internal organizational processes and the external environment, as well as the impact of individual elements of the organizational structure on the company's ability to respond effectively to crisis challenges. The obtained results indicate the importance of implementing modern technological solutions to increase efficiency and flexibility in crisis management. The analysis showed that effective leadership, able to quickly adapt to changing conditions and motivate the team to innovate, is crucial in creating a sustainable and flexible organizational structure. Special attention is paid to the role of organizational culture, which should promote openness, collaboration and readiness for change. It has been revealed that the need for adaptation and a flexible approach to management becomes of particular importance in the context of uncertainty caused by factors such as global financial crises, political conflicts and pandemics. These findings are of significant practical importance since they provide organizational leaders with the tools and insights to develop and implement effective crisis management strategies.

**Keywords:** Crisis management, Management strategies, Economic turbulence, Social change, Technological innovation, Leadership, Organizational culture.

### 1 Introduction

In the modern, rapidly changing world, organizations often face unforeseen challenges that can have far-reaching consequences. Economic and social turbulence, such as financial crises, political changes, globalization, technological innovations and environmental threats, require companies to develop effective crisis management strategies. The present academic paper examines crucial aspects and approaches to crisis management based on the hypothesis that adaptability and flexibility are critical success factors in the face of uncertainty.

The main objective of this research is to study crisis management strategies that can be applied in different contexts. Using an interdisciplinary approach, we analyze the theoretical pillars and practical examples of effective crisis management, with an emphasis on balancing short-term reactions with long-term strategic planning. The research focuses on developing comprehensive strategies that take into account various aspects of crisis situations, including economic, social, technological and environmental factors.

This scientific article is aimed at understanding how organizations can both survive and develop during and after crisis periods using various crisis management techniques and tools. We explore how adapting to changing conditions can become the basis for innovation and sustainable development, and analyze the role of leadership and corporate culture in shaping effective crisis response strategies.

### 2 Literature Review

The analytical review of the literature in the field of anti-crisis management strategies starts with the work of A. A. Adamu, S. H. Raza, and B. Mohamad (2023), who explore the interaction between mindfulness and internal listening in the context of internal crisis management. Particular attention is paid to the role of emotional burnout, which is important for understanding the psychological aspect of crisis management.

This theme was developed by S. S. Akhshik and R. R. Beglou (2023) in their systematic review of crisis management in libraries, with a focus on preparation for crises. Their study emphasizes the need for practical measures and strategies to effectively respond to crisis situations in specific conditions.

Subsequently, the study by S. Alakal (2023) analyzes the importance of public relations in crisis management, comparing the approaches of Turkey and Jordan during the coronavirus crisis. This exploration highlights the role of effective communication and public relations strategies in responding to crises. By the way, the contribution of M. Alberghetti (2023) is also of particular importance. The scholar explores the use of social media in crisis management, focusing on best practices during the COVID-19 crisis. This study reveals the significance of digital platforms for the rapid and effective dissemination of information and crisis management. The scientific work of M. A. J. A. Alblooshi, A. M. Mohamed, and M. M. Yusr (2023) focuses on the role of leadership in crisis management and business continuity. The authors emphasize the importance of effective leadership and strategic planning for leading organizations through crisis periods.

E. Alibašić (2023) further extends this topic by exploring the ethics of resilience in crisis management. This aspect is important to ensure long-term success and responsible management, including ethical considerations and sustainability principles. It is worth noting the research of E. Anderson and S. Burrell (2023), exploring the crucial skills required by healthcare leaders to successfully manage crises. This study combines key aspects of leadership, ethics and practical skills that are crucial for effective crisis management. The study by L. Andor, T. Beck, S. Goulard, and C. R. McNamara (2023) focuses on crisis management and catastrophic risk allocation. This research is important for understanding the ways in which organizations and governments can jointly manage risk and respond to crises. B. Anggriyani (2023) in his study examines crisis management strategies in corporate communications. This review emphasizes the role of communication in crisis management, complementing previous studies focusing on the effectiveness of communication strategies during crises.

A. Boin & Rhinard (2023) analyze the effectiveness of crisis management and the European Union on the example of COVID-19. This study makes an important contribution to the understanding of the role of international organizations and governmental structures in crisis management. K. Buhagiar and Anand (2023) in their work consider the synergistic triad of crisis management: leadership, knowledge management and organizational training. The authors emphasize the interaction of these three elements for effective crisis management. T. Christensen and P. Lægred (2023) examine the management of the COVID-19 crisis, in particular, the "Nordic way" and "Swedish exceptionalism". This analysis offers a unique perspective on different approaches to crisis management at the regional level.

S. Curnin, B. Brooks, K. Owen, & O. Brooks (2023) investigate the perception of strategic decision-making by crisis management teams. Their research identifies key dimensions of decision-making in crisis situations. R. Danielson, E. Eriksson, & H. Schongin (2023) analyze the strategies and crisis management associated with the culture of cancellation in influencer marketing. This study reveals how influencers strategically prevent and address the phenomenon of a culture of cancellation.

H. Garavello (2023) focuses on crisis management in public administration, bridging the gap between management and leadership. This research emphasizes the importance of integrating management and leadership skills in crisis management. The explorations outlined collectively form a

broad overview of contemporary strategies and approaches to managing economic and social turbulence, emphasizing the diversity of contexts in which crisis management is applied, from corporate communications to international relations and public administration. The study by N. Hossameldin (2023) focuses on the role of media discourse in the management of international economic crises. The author analyzes how the media can influence the perception and management of crisis situations at the international level.

S. Hruschka and T. Rohmann (2023) investigate how crisis management can lead to the exclusion of certain groups, in particular in the context of legislative hyperactivity in Germany after 2015. This study emphasizes the need for a balanced approach to crisis management to avoid negative social consequences.

B. G. Jeong and J. Yeo (2023) consider the role of the UN and its partners in crisis management in humanitarian situations. The authors analyze how international organizations and networks can interact to respond effectively to humanitarian crises. S. Kiraz (2023) explores digital public diplomacy in the context of crisis management. This conceptual overview shows how digital technologies and social media can be used to manage international relations and crises.

I. L. Lai and W. Cai (2023) propose to increase employees' resilience in the hospitality industry after COVID-19 using a micro-level crisis management framework. This research is important for understanding how organizations can adapt to the new reality and support their employees in the face of uncertainty.

S. Leachu, J. Janssen, N. Gdanitz, M. Kirchhefer, S. Janzen, and W. Stich (2023) have developed a cascading scenario technique that enables automated and situational crisis management. This approach provides new tools for forecasting and responding to crisis situations.

A. Lenz and S. Eckhard (2023) conceptualize and explain flexibility in administrative crisis management by analyzing different districts of Germany. This study highlights the significance of adaptability in governance structures during crises.

J. E. McKenna and V. S. Polka (2023) develop a comprehensive framework for crisis management, focusing on the approaches of education leaders who have successfully managed crises. This approach shows how education management can adapt to complex challenges.

J. Moon, F. Sasangohar, S. S. Perez, and K. Song (2023) study the interaction of multilevel teams in crisis management through naturalistic observations. This study opens new perspectives for understanding cognitive processes in crisis management teams. J. Motarjemi (2023) in his work on food safety management considers crisis management, emphasizing the importance of responding to crises in this area. This research is important for understanding the specific challenges and strategies for crisis management in the field of food security.

A. Oleksiyenko, P. Mendoza, F. E. S. Riano, O. P. Dwivedi, A. H. Kabir, A. Kuzhabekova et al. (2023) explore global crisis management and higher education in the context of the complex challenges of COVID-19. This scientific work analyzes how higher education institutions have adapted to the challenges posed by the pandemic. L. D. Parker (2023) examines crisis management and resilience in the third sector, providing an overview and recommendations for additional studies. This article is important for understanding the unique challenges faced by nonprofit organizations in times of crisis.

P. M. G. Peter and D. M. Placido (2023) study the impact of transformational leadership style and technological innovation on crisis management. This research points to the importance of leadership and innovation in responding to crises. L. Petitta and M. Martínez-Córcoles (2023) propose a conceptual model of

mindful organization for effective security and crisis management, emphasizing the role of organizational culture. This survey points to the importance of cultural aspects in crisis management.

D. Rubens (2023) focuses on strategic risk and crisis management, offering practical tools for modeling and managing complex risks. This approach is useful for risk management at the strategic level.

F. Sanfilippo, K. Pomeroy, and D. N. Bailey (2023) provide an overview of crisis management in their publication, emphasizing the importance of leadership and inspiration. This study is important for understanding the role of leadership in effective crisis response. H. Voicescu, M. Linty, L. G. Ler, S. Kaufmann, & F. Della Corte (2023) explore the results of a foresight exercise that evaluates future threats and trends in crisis management. This research is crucial for predicting future challenges and developing relevant response strategies.

K. R. Yeager and A. R. Roberts (2023) analyze the interconnection of past, present and future in crisis intervention and management. This scientific work is important for understanding the historical context of crisis management and its development. H. Zhang, F. Li, & J. Guan (2023) investigate crisis management and organizational training of local travel agencies using lessons gained from the COVID-19 pandemic. This study demonstrates how organizational learning and change can be driven by crises.

L. Zhang, S. Sindakis, N. Dhaulta, and S. Asongu (2023) examine the management of the economic crisis during the COVID-19 pandemic, with a focus on the role of entrepreneurship in improving the Nigerian mono-economy. This scientific paper highlights how innovative entrepreneurial approaches can help manage crises.

The studies outlined make a significant contribution to understanding the dynamics of crisis management by demonstrating how foresight analysis, historical context, organizational learning, and entrepreneurial strategies can be used to respond to current and future crises in various fields.

### 3 Aims

The purpose of this research is a comprehensive analysis of crisis management strategies in the context of economic and social turbulence. Special emphasis is placed on studying innovative approaches, leadership effectiveness and the impact of organizational culture on successful crisis management. The aim of this academic paper is to identify the key factors that contribute to the adaptation and resilience of organizations in the face of uncertainty and rapid change.

The following tasks have been set to fulfill the purpose outlined:

1. To conduct an analysis of modern approaches to crisis management, including an evaluation of various strategies and techniques used by organizations to manage crises. This includes studying the impact of technological innovations, the use of social media, and the role of flexibility and adaptability in crisis situations.
2. To reveal the role of leadership and organizational culture in crisis management, including the study of how leadership styles and aspects of organizational culture influence the effectiveness of crisis management. We will analyze how leaders can contribute to the creation of sustainable and flexible organizational structures.
3. To study the impact of economic and social turbulence on crisis management; this includes an evaluation of how global challenges, such as economic crises, pandemics and social change, affect crisis management approaches and strategies. This task involves analyzing case studies and examples from various industries and regions.



## 4 Methods

The systemic and structural-functional methods of analysis are used in the present research. These methods make it possible to deeply study and evaluate crisis management strategies, organizational behavior and leadership in the context of economic and social turbulence.

The systemic approach to management enables us to consider the organization as an open system that interacts with the external environment. This approach involves a comprehensive analysis of internal and external factors that influence organizational behavior and strategic management during crises. Within the framework of the systemic approach, we study how various components of the organizational system (human resources, management processes, corporate culture, technology, etc.) interact and adapt to changing conditions.

Structural-functional analysis focuses on studying the structure of organizations and their functions in the context of crisis management. This method makes it possible to identify the role and importance of individual elements of the organizational structure (departments, teams, individual roles) in the crisis management process. In this way, we will analyze how different parts of the organization influence the overall ability of the organization to respond effectively to crisis challenges, ensuring its resilience and flexibility.

## 5 Results

### 5.1 Analysis of modern approaches to crisis management

This section explores modern crisis management strategies and techniques used by organizations to effectively manage in the conditions of economic and social turbulence. The primary focus is on analyzing the impact of technological innovation, the role of social media, and the flexibility and adaptability of organizations.

The modern world is characterized by the rapid development of technology, which opens up new opportunities for crisis management. Innovative technological solutions, such as artificial intelligence, machine learning, and block chain, are making significant changes in the way we detect, analyze, and respond to crises. These technologies enable organizations to quickly identify potential threats, analyze large amounts of data in order to make sound decisions, and effectively manage resources during crises.

Social media has become an integral part of crisis management. They provide platforms for rapid dissemination of information, interaction with stakeholders, and monitoring public opinion. Organizations use social media to communicate with customers, partners, and employees, as well as to collect feedback and monitor crisis situations in real time.

Flexibility and adaptability of organizations are key factors of success in crisis management. This includes the ability to quickly adapt to changing conditions, review and adjust strategies, and respond flexibly to unforeseen challenges (Pylypenko et al., 2019). Effective crisis management requires organizations to be able to quickly change their plans and strategies using adaptive approaches and innovative solutions.

Analysis of modern approaches to crisis management shows that successful crisis management requires the integration of technological innovations, effective use of social media, and the development of flexibility and adaptability of organizations. Consideration of these aspects helps organizations respond effectively to challenges and ensure their sustainability in a complex and changing environment.

### 5.2 The role of leadership and organizational culture in crisis management

This section focuses on the role of leadership and organizational culture in the context of crisis management. It analyzes how different leadership styles and elements of organizational culture influence the ability of organizations to effectively manage crises, as well as how leaders can create resilient and flexible organizational structures.

Leadership is a critical factor in crisis management. Various leadership styles, such as transformational, authoritarian, democratic, and situational leadership, have different impacts on the way an organization is managed during crises. Transformational leadership, in particular, is considered to be effective in crisis conditions since it facilitates innovation, change and adaptation. The importance of leaders who can inspire and motivate teams cannot be underestimated, especially in situations that require quick and decisive action.

Organizational culture has a significant impact on how organizations respond to crises. A culture that supports openness, flexibility, and rapid adaptation can significantly improve the effectiveness of crisis management. On the other hand, a culture characterized by rigidity, resistance to change and centralized decision-making can make it difficult to adapt to crisis conditions. Therefore, analyzing organizational culture is crucial to understanding how organizations can optimize their responses to crises.

Leaders play an important role in shaping resilient and flexible organizational structures that can effectively adapt to crisis situations. A leader's ability to implement changes, inspire the team, and ensure effective communication is vital for ensuring a quick and effective response to a crisis. It is also significant that leaders are able to create an environment where employees feel confident and supported, which promotes flexibility and innovation in responding to crises.

In summary, it can be concluded that leadership styles and aspects of organizational culture influence the effectiveness of organizations' response to crises. Effective leadership and an adaptive organizational culture are essential in creating resilient and flexible organizational structures that can effectively cope with crises.

### 5.3 The influence of economic and social turbulence on crisis management

This section focuses on analyzing the impact of economic and social turbulence on crisis management. It examines how global challenges, such as economic crises, pandemics, and social change, shape approaches and strategies for crisis management in different industries and regions.

Economic crises, such as financial collapses and recessions, have a significant impact on crisis management in organizations. During such crises, it is important to respond quickly to changes in the financial environment, rethinking budgets, investment strategies and development plans. The analysis of the cases shows how organizations have successfully adapted to economic turbulence by implementing strategies for cost reduction, restructuring business processes and developing alternative sources of income.

The COVID-19 pandemic has become a vivid example of the impact of global health crises on organizations. This section considers how pandemics influence crisis management, including the need to make prompt decisions, adapt to new workflow realities, and ensure employees' safety. Special attention is paid to changes in work processes, including the transition to remote work and the use of digital technologies.

Social changes, including demographic shifts, political events, and changes in consumer behavior, also influence crisis management strategies. Organizations should be prepared to

quickly adapt their strategies and approaches to respond to social challenges, including the need for a more flexible workforce, adaptation to changes in legislation and reputational risk management (Nahorny et al., 2022).

Thus, our research demonstrates that effective crisis management requires a flexible and adaptive approach capable of responding to a wide range of economic, social and other challenges. Organizations that can quickly adapt and rethink their strategies have a better chance of successfully overcoming crises.

## 6 Discussion

Determining the best leadership style is one of the most contentious topics in the field of crisis management. According to a study by K. R. Yeager and A. R. Roberts (Yeager & Roberts, 2023), transformational leadership can be especially important during crises; however, other researchers emphasize the importance of adaptive or situational leadership. This raises the debate about what specific leadership qualities can be most beneficial for effective crisis management.

The use of the latest technologies, such as artificial intelligence and machine learning, for crisis management is another controversial issue. Although I. L. Lai and W. Cai (Lai and Cai, 2023) note that technology can significantly improve the effectiveness of crisis response, there are concerns about the dependence on technological systems and potential risks to data privacy and security.

There are also discussions about how organizational culture influences an organization's ability to manage crises effectively. Some researchers, such as L. Petitta and M. Martínez-Córcoles (Petitta and Martínez-Córcoles, 2023), argue that a culture of mindfulness and flexibility is critical. At the same time, there is a belief that excessive flexibility can lead to a loss of focus and efficiency in crisis management.

Ultimately, there is a significant discourse on how global economic and social challenges influence crisis management. F. Sanfilippo, K. Pomeroy, and D. N. Bailey (Sanfilippo et al., 2023) emphasize the importance of flexibility in these circumstances. At the same time, there is a debate about the ability of traditional approaches to crisis management to adapt to the rapidly changing conditions of the globalized world.

Discussions in crisis management reflect the diversity of viewpoints on the effectiveness of particular strategies and approaches. An important aspect is achieving a balance between technological innovation, effective leadership, flexible organizational culture, and adaptation to global challenges. This area requires further studies and analysis for developing comprehensive and effective strategies.

## 7 Conclusions

As a result of the research conducted, it has been revealed that the integration of innovative technologies, especially artificial intelligence and machine learning, plays a crucial role in improving the effectiveness of crisis management. The use of these technologies facilitates prompt data analysis and decision-making, which is especially important in conditions of rapid change and instability. However, concerns about data privacy and security arise that require further exploration and development of corresponding protective mechanisms.

Effective leadership, including transformational leadership, is crucial for successful crisis management. Leaders who demonstrate flexibility, adaptability, and quick decision-making are better able to respond to crisis challenges. At the same time, the role of organizational culture in shaping the response to the crisis is inseparable from leadership qualities, especially in the context of creating an adaptive and flexible work environment.

Global economic and social challenges, as shown by the results, require organizations to be able to quickly adapt and rethink their strategies. This is especially applicable to responding to events such as pandemics, which require immediate and effective action in order to ensure safety and business continuity.

Therefore, we recommend developing more flexible and adaptive anti-crisis strategies that take into account both technological innovations and human factors, including leadership and organizational culture. Subsequent studies should focus on studying the impact of global trends on crisis management and on developing new tools and methods for effective crisis management.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, AH**

## APPLICATION OF THE MOODLE LEARNING PLATFORM IN TEACHING FOREIGN LANGUAGES

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**Abstract:** The topic of using the Moodle learning platform in teaching foreign languages has become increasingly important in the context of the development of digital technologies in education and their integration into the learning process. The issue of teaching a foreign language lies in the effectiveness of learning activities by using verbal and non-verbal means of communication. The article aims to analyze the advantages and quality of using the Moodle learning platform for teaching a foreign language and the possibility of its further development in a dynamic educational environment. The research methodology is based on a critical analysis, evaluation of statistical information on using the digital learning platform, as well as the introduction of various deductive research methods on the prospects for further development. The paper analyzes theoretical approaches to foreign language teaching. The authors carried out a statistical analysis of the platform's global development and possible prospects for its further expansion. In addition, they outlined the factors of usage and spread of digital technologies as a plug-in for learning a foreign language. The study revealed the main benefits of using the Moodle digital learning platform as an interactive tool for teaching a foreign language. It also suggested key aspects of its improvement and possible ways of further development. The article focused on the issues of using digital platforms for remote communication between students and teachers to maintain the effectiveness of the educational process and the possibility of further improvement by introducing this platform into the educational process. The obtained research findings describe the current state of the platform's use along with its technological capabilities and advantages for teaching foreign languages.

**Keywords:** Distance education, Communication Channels, Interactive technologies, Moodle platform, Digital technologies, Foreign languages, Pedagogical activity.

### 1 Introduction

The implementation of relevant teaching technologies becomes crucial in the context of contemporary foreign language development and the proliferation of digital technologies. The latter can enhance both foreign language proficiency and the role of digital literacy. Specifically, in today's conditions, the improvement of the Moodle learning platform serves as a source of practical skills acquisition for both students and teachers, it contains a range of valuable materials for learning.

The trend of using digital learning platforms is also essential since the tuition fees for educational services are constantly growing all over the world. The possibility of implementing digital courses and accessing global platforms is a qualitative tool for acquiring high-level knowledge and enhancing professional skills. Due to the unstable socio-economic situation globally in 2022 and 2023, the demand for digital services related to learning foreign languages and using educational platforms such as Moodle has practically doubled compared to 2020 and 2021. This trend is driven by its simple accessibility and the ability to exchange information, as well as apply real-life foreign language learning best practices when interacting with international students or interacting with teachers.

The main advantage of modern learning platforms is the ability to disseminate scientific projects and use them to enhance professional competencies, as well as stimulate practical knowledge among students. Digital technologies are rapidly popularizing such platforms, and their worldwide expansion is forming a global educational network. Such technologies can create a database of courses, training materials, practical guides, and other helpful digital resources.

Another critical issue is the effectiveness of foreign language teaching and the possibility of using various interactive technologies during this process. In addition, this educational platform is aimed at improving students' knowledge. It can provide them with a range of valuable and practical tasks. For teachers, it can aid them in enhancing their own level of competence by interacting with both the instruction and learners audiences. Thus, the current practice of spreading Moodle is an essential tool for enhancing the level of teachers' qualifications and students' knowledge by using this learning platform.

### 2 Literature review

Teaching foreign languages is a subject of debate among scholars. The importance of learning a foreign language enables the exchange of experiences, enhances personal competence, and constitutes a significant aspect of international and diplomatic cooperation. Bondar (2021) believes that contemporary processes of globalization contribute to the spread and learning of languages from different cultures, efficiently improving international cooperation. According to Hontarenko (2022), the proliferation of languages from abroad in today's globalized society is driven by the redistribution of commodity markets and the need for their mastery.

Medina (2018) notes that information exchange and global digitalization influence modern practices of studying foreign languages in the academic environment. As Karkach (2023) mentioned, the Moodle platform is one of the most compelling examples of modern society's digitalization. According to Asieieva (2022), learning a foreign language is an effective tool for enhancing professional competence and competing in the educational environment.

Nalyvaiko (2021) believes that foreign language teaching should include grammar study, listening skills, and vocabulary acquisition. Safonov (2021) agrees with this view but emphasizes the importance of applying practical knowledge to specific situations and incorporating new vocabulary during language learning. Huzairin (2020) asserts that the application of quality technologies is crucial in modern development. It improves both the teacher's professional competence and students' knowledge.

According to Poláková (2021), this process requires the application of several interactive technologies, team projects, and opportunities for their dissemination based on the most popular foreign language teaching practices. As per Vojtovych (2019), teaching a foreign language involves a range of verbal and non-verbal communication tools. Therefore, when using digital learning platforms, it is essential to configure them to maximize learning efficiency according to traditional methods.

Usov (2020) suggests that the use of digital platforms and tools in education will continue to expand as it reduces the cost of educational services, making education more accessible. According to Oleksienko (2020), among the countries that digital education technologies, the largest number are those with either the highest level of development or those that are still developing.

Kalimullina (2021) argues that this practice confirms the issue of education accessibility and the possibility of learning a foreign language. It requires qualitative improvement in the modern world. Wang (2021) conducted analytical research, identifying that after 2019, due to the global pandemic, the trend of education globalization and the use of digital tools increased significantly, creating favorable conditions for teaching.

However, Yurieva (2021) believes that modern educational institutions need more clarity regarding the quality of such education, the possibility of its further development. Kononchuk

(2022) suggests that future research prospects in using educational platforms in the context of teaching foreign languages should be based on adding additional functionality and the ability to improve the level of students' professional knowledge and teachers' competencies. Thus, scholars' perspectives indicate the need for analytical research on the use of digital platforms in teaching foreign languages and possible ways to improve them.

### 3 Aims

The article aims to analyze the current features of using the Moodle learning platform in teaching foreign languages. Besides, the paper provides an overview of the possibilities for further improvement of technological solutions for both teachers and students. An important research area is to offer key factors for improving the level of foreign language proficiency by using digital platforms and possible integration of digital technologies most closely related to the Moodle learning platform. The main goals of the study include:

- to outline the current state of use of the Moodle platform;
- to identify opportunities for improvement in foreign language learning;
- to highlight the main problematic aspects of distance teaching;
- to provide suggestions for their solution.

The research findings can have practical value for modern foreign language teachers from the perspective of effective use of the Moodle platform, as well as courses and workshops.

### 4 Materials and Methods

During the research on using the Moodle learning platform in teaching foreign languages, theoretical and practical methods of analysis were employed. The theoretical methodology involved an exploration of contemporary perspectives on foreign language instruction, as well as the utilization of various methods and techniques. The authors examined different scholarly views on implementing problem-based learning methods and interactive technologies. Based on the methodological analysis of the modern development of foreign language teaching, the popular trends in the educational services market were analyzed, and further development prospects were identified. The methodology of applied analytical research relied on the use of graphical and statistical research methods, leveraging the database of the Moodle learning platform. An analytical method was employed to analyze the dynamics of the platform's usage among registered sites worldwide. The authors determined a cause-and-effect relationship between the utilization of the learning platform in the studied countries and the prospects for their further development.

While using a graphical method, the evolution of the Moodle plugin was analyzed, showing its potential as an effective educational tool that can be integrated into a broad spectrum of learning sites. Implementing this research method allowed for creating a diagram outlining the formation and utilization of the plugin in the context of promoting the learning of foreign languages.

An essential focus of the study involved the analysis of current practices and peculiarities in teaching foreign languages that align with the contemporary digital environment. Also, it may offer advantages over traditional teaching methods. Through the analysis of these aspects, the authors identified further prospects for the development of the Moodle learning platform's usage. The research methodology is rooted in a critical analysis of contemporary scientific sources regarding the opportunities of foreign language use in varied digital learning platforms, outlining their advantages and drawbacks. The proposed research methodology enables the presentation of a series of obtained results.

## 5 Results

The trend towards distance education and the rapid development of digital technologies in the field of education occurred during 2019 and 2020. It was driven by the spread of the coronavirus pandemic, and it is expected to persist in the future. According to researchers' estimates, the trend of digitizing education will continue to grow each year. It will require an innovative approach from educational institutions and instructors in organizing the learning process. The use of educational platforms is one of the outcomes of such initiatives. They were created to enhance and strengthen the role of digital education in the face of geopolitical challenges.

In particular, the creation of the Moodle platform did not gain such popularity until 2019. However, its usage has attracted many visitors and users in contemporary times. A range of technological innovations is actively implemented, such as a plugin that can be utilized to integrate the site with the educational platform. This plugin is often used in the context of teaching foreign languages, providing capabilities for inputting information into the platform, performing translations, etc.

Let us take a closer look at the features of using this plugin in Figure 1.

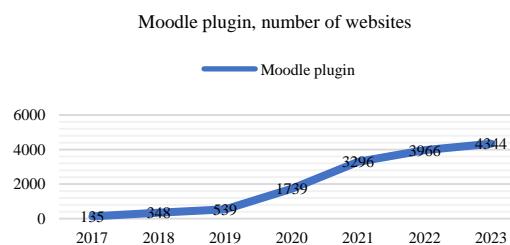


Figure 1. The dynamics of implementing a plugin from Moodle  
Source: compiled by the authors based on stats.moodle.org

Based on the chart, we can see active popularization of this technological solution from 2019 to 2020, which actually increased from 539 to 1739 installations. Such a trend indicates the rapid spread of distance education and demand among the population. The importance of further development can be analyzed with the continuously growing dynamics in 2021 - 2023, where the peak usage of this plugin reaches 4344 sites connected to it.

Teaching foreign languages is a complex process that involves enhancing lexical, grammatical, and verbal communication skills. Therefore, the use of the Moodle platform should be based on the following aspects:

- the ability to obtain the most optimal information;
- the presence of digital technologies in the form of interactive tools;
- constant communication between the teacher and the student.

The proliferation of such an educational platform in the modern world is happening quite rapidly, as it is budget-friendly and can be applied to achieve various educational goals among teachers and students. Additionally, the educational platform offers options for creating custom courses and uploading various methodological and practical materials for use in the learning process. The digital platform facilitates experience exchange and allows discussions on different pedagogical teaching methods and their improvement.

The implementation of the educational platform in general access has several competitive advantages, such as efficiency, interactivity, and innovation. Furthermore, the necessity distance learning has become a key factor in popularizing this platform. However, even after the pandemic receded in 2019-2020, a

combined education system, including traditional and remote learning has been embraced globally to spread and improve digital skills. Employing this blended approach can assist students in mastering their chosen field by leveraging modern technologies and accessing high-quality education. Learning a foreign language is a multifaceted endeavor that entails the integration of the cultural and mental values of a nation. Moreover, any foreign language contains complex semantic and lexical phrases that require exploration and can pose difficulties in learning. Interactive technologies are commonly used to solve

these issues. The Moodle learning platform offers various services aimed at using such technologies. Moreover, they can qualitatively improve the current state of foreign language learning among students. Additionally, the creation of such a service is also beneficial for teachers. A significant amount of material can be employed to reinforce knowledge. The main features of using the Moodle learning platform are depicted in Figure 2.

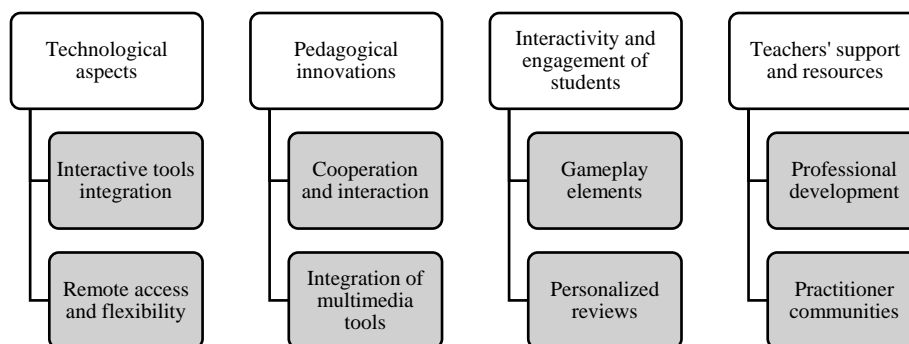


Figure 2. Specifics of using the Moodle platform in teaching foreign languages  
Source: compiled by the authors

Referring to the structural-logical diagram in Figure 2, it's possible to assert that the Moodle platform is effective for learning a foreign language. It encompasses the following advantage blocks:

- Technological aspects.
- Pedagogical innovations.
- Interactivity.
- Teachers' support.

Each of these aspects can be subcategorized into a series of structured elements containing competitive advantages that align with traditional educational practices. Sometimes, they offer significantly greater benefits due to globalization.

A key factor contributing to Moodle's advantages is its popularity in the educational services market, accessibility in the most developed countries worldwide. This allows the platform to be combined with academic and pedagogical experiences and be popular among representatives of different cultures. Currently, Moodle is implemented and operates in 237 countries worldwide, continuously evolving and updating, which can be advantageous in relation to its effectiveness (Pidubna et al., 2022).

The graphical scheme regarding the features of using the educational platform in teaching foreign languages includes a list of technological capabilities. They include the use of media resources, automated solutions for conducting classes, a range of archival practical documents and courses that can serve as valuable aids for teachers.

Let us examine the countries where the Moodle platform is most integrated, based on the quantity of sites that use it. More details shown in Table 1.

Table 1. Implementation of the Moodle platform in 2023

Country	Registered websites
Spain	13,601
United States	12,999
Germany	10,186
Mexico	8,925
Brazil	8,176
France	6,289

Indonesia	6,257
India	5,259
Colombia	4,816

Source: compiled by the authors based on stats.moodle.org

The data in Table 1 characterize the educational platform's implementation level and the potential market for learning foreign languages among students. It is important to note that the leaders include countries with the most developed economies, such as the aforementioned United States, Germany, and France. However, a significant integration of the platform is present in Mexico, Brazil, Indonesia, and Colombia. Such a practice indicates the potential for education development in economically developing countries. It provides the chance to improve their understanding of the acquisition of foreign languages. The prospects of implementing the Moodle platform will have strategic significance in the education services market. It provides practical tools for conducting and organizing the learning process for educators, along with enhancing their professional competence. The improvement of professional competence remains a crucial factor for pedagogical activities. Languages are constantly evolving, and the ability to exchange experiences and knowledge among teachers, in addition to the creation of their own community, will be an effective means of conducting educational activities.

For students, the platform serves as a means of obtaining quality education. It offers a range of elective courses and the chance to exchange experiences with other students. The practice of using the Moodle educational platform will continue to grow steadily because of the increased demand and widespread use of distance learning services.

## 6 Discussion

Drawing conclusions from the conducted research, it can be inferred that using modern digital tools in education is an effective means of enhancing professional competence, acquiring new skills, and attracting new students. The research findings (Shalatska, 2020) indicate a growing global demand for the use of digital tools and platforms in education. They can help streamline the learning process and automate many processes, which is a crucial priority for educational institutions in the era of globalization. In this context, the development of additional features in educational platforms remains a debated issue, including services such as automated testing, analysis of



homework performance, etc. The implementation of computerized technologies in education is a widely discussed topic among researchers. It requires a comprehensive examination of both the advantages and drawbacks.

While the Moodle learning platform is effective and beneficial for studying foreign languages, its optimization requires considerable resources, leading to technical challenges (Semigina, 2023). According to Semigina, learning foreign languages necessitates knowledge of grammar, vocabulary proficiency, empathy, and the ability to understand a conversation partner.

Although modern platforms often include listening, testing, and grammar problem-solving elements, they may lack features for additional tutoring sessions or addressing specific language issues. Further research should be conducted analysis of current technological capabilities for incorporating additional functions into educational platforms like Moodle or others. The development of such platforms has the potential to improve professional competence and enhance the level of education digitization in a globalized context.

An essential factor in teaching foreign languages, regardless of platforms, methods, and implementation specifics, is the use of interactive technologies. Therefore, it is crucial to conduct research on the specifics of teaching foreign languages that will be most effective. Scholars often discuss issues related to problem-based learning, using varied methodologies and tools for word memorization, improving grammatical skills, etc.

The evolution of such practices stimulates the creation of an effective learning platform that can include these practices in their more modern digital form. Therefore, an essential task for further research and discussion should be the possibility of digitizing the already acquired technologies of interactive foreign language classes that are really successful and can be beneficial for learning.

## 7 Conclusion

Overall, using modern learning platforms is a prerequisite for the efficiency and digitalization of education globally. The Moodle platform has numerous applications and has been implemented in most developed countries worldwide. In recent years, the platform has been integrated into more than 210 countries and can provide an effective educational tool for users. Essentially, it is a distance communication channel to achieve academic goals for both students and teachers. Utilizing this platform can enhance digital skills, provide more effective control over the learning process, and stimulate the development of fresh skills.

Moreover, employing the learning platform in the globalized world opens up the possibility to gain access to educational materials with high intellectual value among educators. The availability of certain interactive technologies, lesson delivery tools, and archives of specific disciplines adds to its appeal. Such a platform is highly relevant in a dynamic educational environment. A crucial factor in the development of modern learning platforms is the construction of suitable digital infrastructure and the presence of software supported both globally and at the level of educational institutions using this platform (schools, universities, colleges, private educational institutions, and any other educational entities).

The continued development of digital technologies must also be considered. Besides, a unified, integrated platform aiming to improve the quality of teaching disciplines can ensure a high level of competence. Teaching foreign languages through the Moodle learning platform has several undeniable advantages, including speed, quality, accessibility, and adaptability.

The further development of this platform will continue as the processes of digitization in education are ongoing. This will influence the continued expansion of the functionality of this platform and the creation of new tools for learners, teachers of

foreign languages. Therefore, the emergence of the modern digital Moodle platform contributes to the improvement and development of professional competence in foreign languages. Moreover, its widespread adoption worldwide can facilitate the exchange of educational experience and the enhancement of current teaching methodologies.

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## CORPORATE SOCIAL RESPONSIBILITY AND ITS IMPACT ON BUSINESS SUSTAINABILITY

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**Abstract:** This article substantiates the relevance of developing a model of professional competence for future skilled workers with a focus on ensuring sustainable development. The analysis of factors influencing the formation of professional competence serves as the basis for this research. The primary objective of the article is to systematically structure and analyze the factors contributing to the development of professional competence in future specialists with an emphasis on sustainable development. The article specifically outlines the stages involved in the model's development, utilizing professions within the food production sector in the European Union as a case study. The intent is to adapt the insights gained from this examination to the national system of vocational education. The theoretical framework of the article is grounded in established methods, including analysis, synthesis, interpretation, abstraction, generalization, analogy, and comparison, employed to effectively structure and analyze the factors influencing competence formation in future professionals. The authors employ modeling methods to elucidate the stages involved in the development of the model and utilize comparative methods to contextualize and adapt the European experience to the national system of vocational education. Systematic structuring and analysis of factors influencing the formation of professional competence in future specialists with a focus on sustainable development are carried out by the authors. This analytical approach enables the identification of distinct levels of competence distribution across various dimensions of sustainable development, including international, national, regional, sectoral, and institutional (enterprise-vocational education institution) levels. Additionally, the article presents the stages involved in the development of a competence formation model, using professions related to food production in the European Union as a case study.

**Keywords:** Corporate social responsibility (CSR), Sustainable development, Business, Business sustainability, CSR driver model, Corporate ethics, Social impact, Entrepreneurship, Small and medium business, Management strategy, Development management.

### 1 Introduction

In the contemporary landscape, corporate social responsibility (CSR) is progressively assuming significance, evolving into an integral component of sustainable business development. The deepening interconnection between society and business necessitates a systematic examination of the ethical, environmental, and social dimensions of management. Within this framework, the article endeavors to scrutinize the influence of corporate social responsibility on the sustainability of business structures. Engaging in commerce within today's global community mandates a comprehensive consideration of sociocultural, environmental, and ethical facets, thereby delineating a novel facet of responsible corporate governance (ElAlfy et al., 2020). Enterprises, through the expansion of their operations and the creation of employment opportunities, significantly contribute to socio-economic development and the generation of wealth within society. However, regrettably, in the absence of a responsible approach to corporate activities, enterprises may pose potential threats to the environment and societal well-being (Dhar et al., 2022).

CSR acknowledges the imperative for businesses to conduct themselves in a socially responsible and environmentally sustainable manner. This objective can be realized through the execution of a CSR plan that outlines a strategic framework for upholding socioeconomic and environmental sustainability via stakeholder management and engagement (Mariani et al., 2023). In an era marked by critical challenges like climate change, businesses must contemplate CSR not merely within a local purview but also in a global context. Given their operational

interdependence with the world, the immediate actions of enterprises can exert a substantial influence on the environment, social sphere, and economy.

Emphasizing the long-term perspective of CSR is emerging as a crucial element, not solely for the prosperity of enterprises but also the enduring preservation and well-being of our planet. Businesses are compelled to acknowledge their societal and environmental responsibilities, actively engaging in the establishment of a sustainable and ethical business environment. Corporate accountability for actions is increasingly pivotal in ensuring sustainable development, not confined to individual countries but extending to the global scale. As businesses strive to address potential risks and emergencies, the realization that the implementation of effective risk management tools yields benefits not only for the corporations themselves but also for the broader societal well-being has become evident (Zhao et al., 2023).

Corporate social responsibility (CSR) has been a longstanding and influential presence in the business realm, pre-dating the onset of the pandemic. Over the years, companies have devoted resources to socially responsible programs rooted in ethical, philanthropic, and financial objectives (Gupta & Deb, 2023). Nevertheless, the systematic development of these plans has not been universal, with numerous companies attempting to effect change within localized contexts, constrained by their knowledge and capabilities (Fatima & Elbanna, 2023). This study presents the concept of a methodical approach to CSR by utilizing the sustainable development goals (SDGs) formulated by the United Nations. Sustainable development, as articulated by the UN, involves advancement that satisfies present needs without jeopardizing the capacity of future generations to fulfill their requirements. The foundation for crafting CSR plans is grounded in the 17 development goals established for the period 2015-2030. These goals encapsulate the contemporary and prospective challenges faced by the world, garnering annual funding and achieving global recognition.

This research highlights that employing the SDGs as a framework for CSR has the potential to yield shared benefits for humanity, the planet, and corporations. Corporate contributions to the SDGs have been disclosed through reporting mechanisms provided by institutions such as the Global Reporting Initiative (GRI), the Community Development Program (CDP), the International Integrated Reporting Council (IIRC), and the Climate Disclosure Standards Board (CDSB). These entities have collaborated to develop a comprehensive report on corporate sustainability and responsibility, underscoring their dedication to advancing the principles of CSR (Lee et al., 2023).

The concept of "sustainable development" has evolved into a pivotal economic category experiencing active development over recent decades. However, despite its prominence, the mechanisms for managing sustainable development are inadequately implemented in contemporary business practices. The principal catalysts for the incorporation of these mechanisms are government policy and market globalization. In its pursuit of European Union membership, Ukraine is aligning itself with foreign practices, notably within the business sector, as part of its adaptation efforts (Sarfraz et al., 2023).

Specifically, commencing in 2019, Ukrainian medium and large enterprises have initiated the adoption of a novel form of non-financial reporting known as the Management Report. The primary objective of this reporting mechanism is to divulge the company's developmental trajectories and potential risks, supplementing the conventional financial indicators. Notably, the Ministry of Finance recommends a heightened emphasis on environmental and social indicators, underscoring their significance in the reporting framework (ElAlfy et al., 2020).

An additional substantial impetus for the integration of sustainability management mechanisms is the strategic aspiration of enterprises to enhance their competitive advantage and attain a prominent position within the globalized market. The adoption of sustainable development strategies has the potential to address numerous environmental and social challenges. Nevertheless, for many entrepreneurs, the financial aspect remains paramount. Consequently, the matter of implementing the concept of sustainable development and incorporating sustainable development management mechanisms in Ukrainian enterprises persists as a pertinent concern.

## 2 Literature Review

Contemporary businesses operate within a globally competitive environment, where nuanced factors play a decisive role in establishing their competitive edge and ensuring sustainability. Corporate social responsibility (CSR) and human resource management (HRM) have evolved into potent tools within modern organizations. Nevertheless, the potential, development, and quantification of CSR and HRM represent relatively underexplored facets. While numerous case studies in the literature delve into CSR and HRM, along with their correlations with economic, environmental, and social sustainability, a definitive foundation for studying the new roles of CSR, HRM, and sustainable business management is yet to be established. It is noteworthy that the definitions of CSR and HRM, as well as their interrelationships, remain subject to diverse interpretations. The distinctive feature of the work by Herrera and de las Heras-Rosas (2020) lies in its delineation of clusters of issues arising from a specific perspective, encompassing areas such as "green management," "stakeholders," "commitments," "competitive advantage," "satisfaction," "productivity," "sustainability," and the research methods of analysis. These dimensions warrant further investigation to address the exigencies imposed on business organizations within this context and to facilitate the comprehensive integration of diverse approaches to CSR and HRM. Noteworthy foreign resources, including The National Institute of Standards and Technology (NIST), Maryville University, and Harvard Business Publishing, have undertaken significant research on the advantages associated with the implementation of sustainability strategies in the business environment (Sichel & de Oliveira, 2023). While the generalized conclusions of these studies engage with the Ukrainian context, they retain their distinct characteristics. Consequently, it is imperative to scrutinize the Ukrainian experience, delineate its idiosyncrasies, and ascertain the economic benefits attainable by domestic businesses through the adept implementation of sustainable development management mechanisms (Rodrigues & Franco, 2019). The concept of CSR was formulated comprehensively in the 1950s and underwent expansion in the 1960s (Banik & Lin, 2019). A protracted discourse persists regarding whether corporations should transcend shareholder interests to address societal needs, raising questions about their responsibility in this regard. The efficacy of CSR necessitates the amalgamation of theoretical principles with practical application. It is noteworthy that since the 1960s, both corporations and researchers have played pivotal roles in the evolution of corporate social responsibility (CSR). CSR is intricately connected to a spectrum of terms and concepts that have undergone development over time, including corporate sustainability, corporate citizenship, corporate responsibility (Braun, 2020), corporate social performance (Beyer & Arnold, 2022), corporate reputation, business ethics (Nguyen et al., 2023), and corporate philanthropy. However, this article will concentrate on the original concept. Certain companies have opted to employ sustainable development goals (SDGs) as a framework to harmonize their interests with societal well-being (Herrera & de las Heras-Rosas, 2020). Numerous companies are contending with supply chain disruptions, order cancellations, payment delays, diminished sales, and financial challenges (Sichel & de Oliveira, 2023). In such circumstances, corporations may allocate a segment of their corporate social responsibility (CSR) budget to assist their supply chain partners through loans or charitable contributions, providing significant support during the crisis. In response, corporations foster the

retention of dependable suppliers, mitigating the costs and risks associated with supplier switching. Another illustration involves corporations bolstering the health and financial well-being of their employees by facilitating remote work infrastructure. Consequently, there is an increase in employee satisfaction and trust, while the risk of employee turnover diminishes. In this unprecedented period, companies continuously reassess their CSR strategies to align with societal expectations (Braun, 2020).

## 3 Research Object and Methods

*Research Object:* The subject of investigation encompasses information sourced from the official websites of various domestic organizations, including SCM, 1+1 Media, AB InBev Efes Ukraine, Air France-KLM Ukraine, Arricano, Carlsberg Ukraine, Corteva, Favbet, IDS Borjomi, L'Oréal, Moneyveo, Nestlé Ukraine, PepsiCo Ukraine, Syngenta, WOG, ATB-Market LLC, Darnytsia Pharmaceutical Company, EVA, Interpipe, Kyivstar, Metinvest, PJSC MHP, PUMB, TEDIS, Farmak, and Foxtrot<sup>1</sup>.

*Methods:* The return on equity per share ( $ROE_{it}$ ) ratio is formulated to assess a company's profitability on a per-share basis, providing insights into the financial strength of the company. ROE serves as a paramount indicator of a company's capacity to optimize returns on invested capital (Toppinen, et al., 2019). In empirical studies investigating the correlation between corporate social responsibility (CSR) and corporate financial performance (CFP), control variables denoted as S and L are frequently employed. Consequently, the specification of the following econometric equation is articulated (refer to Table 2 for variable explanations):

$$ROE_{it} = \alpha_0 + \alpha_1 + CSR_{it} + \gamma_2 \cdot S_{it} + \gamma_3 \cdot L_{it} + \varepsilon_{it} \quad (1)$$

Where:

$ROE_{it}$  represents the company's return on equity per share at time t;

$CSR_{it}$  - denotes the corporate social responsibility indicator at time t;

$S_{it}$  - signifies the value of the control variable S at time t;

$L_{it}$  - represents the value of the control variable L at time t;

$\alpha_0, \alpha_1, \gamma_2, \gamma_3$  - are model parameters;

$\varepsilon_{it}$  - stands for the random error term.

## 4 Results

Obtained results present the outcomes of a comprehensive information retrieval process that forms the cornerstone of our investigation. The methodology involves a meticulous and systematic collection and analysis of data sourced directly from the official websites of a carefully selected group of Ukrainian companies. The primary focus of this endeavor is to delve into the initiatives undertaken by these entities, both executed and slated for implementation, with a specific emphasis on their impact on the external environment. Our examination employs content analysis, wherein we conduct an in-depth scrutiny of the informational content available on the official websites. This critical analysis zeroes in on projects explicitly designed to influence and contribute to the external environment. The aim is to unravel the strategic initiatives and commitments of the chosen enterprises in fostering external development. Furthermore, this results encompasses the process of systematization and comparison of the gathered information. We categorize and organize the data related to various projects, delineating their objectives, extent, and the degree of emphasis placed on environmental development. This systematic approach enables a comprehensive understanding of the diversity and scope of initiatives undertaken by the companies under study. As we progress, our focus shifts towards generalization. Through summarizing the outcomes of our study, we aim to discern predominant trends that emerge from the collected data. This step is crucial in painting a holistic picture of the interaction

<sup>1</sup> <https://www.dsnews.ua/ukr/reitingi/top-25-luchshih-programm-kso-29062021-429340>

between the chosen pharmaceutical companies and the external environment. By distilling the essence of our findings, we contribute to a nuanced understanding of the strategic directions and commitments of these organizations, fostering insights into their role in shaping and responding to the external landscape. The results presented in this chapter thus lay the groundwork for a comprehensive comprehension of the overarching themes that permeate the external projects undertaken by the selected Ukrainian enterprises. The provided information (Table 1) appears to be the result of an investigation or analysis of Ukrainian organizations. These indicators provide a snapshot of the age, financial performance (ROE), financial metrics (S and L), and CSR of the investigated Ukrainian organizations. The standard deviation gives an idea of the variability or dispersion of the data around the mean. These results can be useful for comparing and analyzing the performance and characteristics of different organizations in the dataset.

Table 1. Summarizing the input data

Indicators	Notes	Mean value	Standard deviation	Minimum	Maximum
Age	0	24.93333	13.4989	8	63
The year of observation.	90	2020	0.8210708	2019	2022
ROE	90	0.1029456	0.4736007	-3.674	1.4148
S	90	1.692032	2.206606	0.1548	16.6705
L	90	1.692032	2.206606	0.1548	16.6705
CSR	90	1.188889	0.3936132	1	2

Table 2 furnishes a comprehensive depiction of the data amassed for the examination of several previously mentioned companies. To estimate the panel data, both a fixed effects model and a random effects model have been applied. The outcomes of the study have been scrutinized utilizing these two models. If the analysis substantiates the presence of statistical significance and underscores the importance of the relationship between corporate social responsibility (CSR) and corporate financial performance (CFP), the selection of a more optimal model will ensue.

The summarized results reveal that the independent variable, corporate social responsibility (CSR), does not exhibit a correlation with the dependent variable, return on equity (ROE), in both the generalized least squares (GLS) regression model with random effects ( $P > |z| = 0.762 > 0.05$ ) and the regression model with fixed effects ( $P >= 0.553 > 0.05$ ). In essence, there is no statistically significant impact or correspondence between CSR and CFP as measured by ROE.

Supplementary findings from the initial stage and historical quantitative testing data corroborate the absence of correlation between CSR and CFP concerning ROE. These conclusions align with the prevailing state of acceptance of CSR ideas, concepts, and implementation, which persist as highly relevant and are still regarded as relatively novel within the context of Ukraine. The outcomes of the generalized least squares (GLS) regression analysis with random terms are presented below.

Number of observations: 90

Group variable: macty1

Number of groups: 30

R<sup>2</sup>:

- for the internal model = 0.6091,

- for the intergroup model = 0.6379,

- total R<sup>2</sup> = 0.8501

Observations per group: minimum = 3, mean = 3.0, maximum = 3

Correlation between random effects (u<sub>i</sub>) and variable (x) = 0 (assumed)

Walid  $\chi^2(4) = 87.06$

$P > \chi^2 = 0.0000$

Table 2. Panel data of companies

Indicator	Coefficient	Error	z	P > [z]	Confidence interval at 95% level
ROE	-0.0225728	0.1073922	-0.30	0.762	[-0.2430576, 0.1779119]
CSR	-0.0188483	0.0231473	-1.25	0.213	[-0.0742162, 0.0165196]

L	-0.1558886	0.0180249	-9.20	0.000	[-0.2012168, -0.1305603]
Age	-0.0035294	0.0028671	-1.34	0.182	[-0.0094488, 0.001791]
_cons	1.102651	0.6090064	2.14	0.032	[0.1090209, 2.496282]

sigma\_u = 0.07125273

sigma\_e = 0.27746426

$\rho = 0.06186624$  (is the share of variance associated with u<sub>i</sub>)

Examination of the regression table, as presented through the method of GLS regression with random effects:

Number of observations and groups:

The analysis incorporates 90 observations distributed across 30 groups.

With each group consisting of 3 observations, there is an indication of homogeneity in the study scope across the various groups.

Coefficients of determination (R<sup>2</sup>):

The R<sup>2</sup> for the internal model (within groups) is 0.6091, signifying the adequacy of the model within groups.

The R<sup>2</sup> for the intergroup model is 0.6379, denoting a noteworthy impact of intergroup variation on the variable.

The total R<sup>2</sup> is 0.5080, indicating that the model elucidates a substantial percentage of the variance.

Regression Coefficients:

The coefficients for CSR, S, L, and Age do not achieve statistical significance at the 0.05 level of significance, except for the coefficient of L.

The coefficient of L (CSR) is highly significant ( $P < 0.000$ ), signifying that the variable L has a substantial impact on ROE.

Interpretation of Results:

The incremental addition of each year (Age) demonstrates a marginal impact on ROE.

CSR and the control variable S do not attain statistical significance in elucidating the variations in ROE.

Other Parameters:

The correlation matrix between random effects and variable x equals 0 (assumed).

The  $\chi^2$  test establishes the statistical significance of the model.

In summary, the model exhibits certain limitations, necessitating a meticulous consideration of the results, with emphasis placed on the statistical significance of the coefficients and the disaggregation of variance.

Results of a fixed-effects regression analysis:

Number of observations and groups:

A cumulative total of 90 observations were scrutinized across 30 groups.

The mean number of observations per group stands at 3.

Coefficients of determination (R<sup>2</sup>):

The R<sup>2</sup> for the internal model (within groups) is 0.6797, signifying a substantial explanatory power of the model within groups.

The R<sup>2</sup> for the intergroup model is small (0.0117), suggesting a weak influence of intergroup variations on the variable.

The total R<sup>2</sup> is 0.0326.

Statistical Significance of the Model:

The F-statistic for the model exceeds 29.71 and attains statistical significance.

Testing all u<sub>i</sub> for zero also yields statistical significance ( $F(29,56) = 2.57, (P > F = 0.0012)$ ).

Regression Coefficients:

The coefficients for CSR, S, L, Age, and the constant are statistically significant at the 0.05 level of significance.

The coefficient of L (CSR) is highly significant ( $(P < 0.000)$ ), signifying a substantial impact of the variable L on ROE.

Other Parameters:

The correlation matrix between random effects and variable x is -0.9729.

Both the F-statistic and  $\chi^2$  are statistically significant. In summary, the fixed effects model is also deemed adequate and statistically significant in elucidating the variations in the ROE variable.

## 5 Discussion

One crucial aspect highlighted by the study is the imperative to enhance awareness and education in the realm of social responsibility. Nations stand to gain from a proactive campaign aimed at fostering awareness among entrepreneurs regarding the advantages and significance of socially responsible business practices (Bonuedi, et al., 2020). It is underscored that the absence of stringent regulations in the domain of social responsibility may pave the way for opportunistic behavior among enterprises. The discussion can center on strategies for states to enhance their policies and establish effective incentives for businesses that prioritize social and environmental considerations (Bonuedi, et al., 2020). Research suggests that in numerous countries, economic criteria often take precedence over social and ethical considerations (Carmagnac, 2019). The discourse can expand its focus on altering approaches to value formation and corporate objectives, particularly through the development of initiatives that promote socially responsible entrepreneurship (Sabadash & Lysko 2023). The discussion can center on the impact of major global corporations on the formulation of CSR standards (Orazalin, et al., 2020). It can explore how these corporations act as agents of positive change, fostering the adoption of socially responsible practices among smaller enterprises (Ciccullo, et al., 2020). Additionally, the discourse may encompass an examination of the role of the public in advocating for social responsibility from businesses, delving into how citizens can shape corporate behavior by generating demand for ethical and socially responsible practices.

A comparative analysis of international experiences in CSR development can assist in identifying best practices. Notably, recent years have witnessed heightened attention to the nexus between business, ethics, and economic development, emphasizing that enterprises are accountable not only to shareholders but also to the broader society. The escalating power and influence of emerging economies have sparked heightened scholarly attention toward China, seeking to scrutinize the domestic political dedication to corporate social responsibility (CSR) strategies and their potential contributions to the ambitious Silk Road initiative and the sustainable development goals (SDGs) (Sabadash, 2023). The article delves into the factors shaping CSR strategies and performance, investigating whether there is a discernible evolution toward a novel manifestation of social responsibility among Chinese enterprises that places a premium on sustainable development. The findings from numerous studies conducted by research centers on corporate social responsibility across various global regions substantiate the veracity of the aforementioned facts. These investigations span both developed and developing countries. The results consistently indicate that enterprises in developing countries frequently prioritize profits, positioning economic criteria and indicators ahead of social and ethical norms in their development strategy and corporate value system (Banik Lin, 2019).

More critically, a substantial number of small and medium enterprises (SMEs) in developing countries consistently partake in opportunistic behavior throughout their business operations, conducting commercial activities primarily in their self-interest with a focus on rapid profit generation. This tendency is, in part, arguably attributed to the lax legal framework concerning social responsibility and macro policies. In many instances, these policies and measures in the realm of social responsibility are deemed insufficiently rigorous and strict to penalize and dissuade enterprises from engaging in heedless and unsustainable behavior (Novitasari, et al., 2023). Numerous studies have demonstrated that enterprises in developing countries place significant emphasis on profit-related criteria within their corporate goal framework (Jusuf, 2023). The notable economic growth and the pursuit of quick and cost-effective

profit, particularly during the conceptual stages of the market economy with less competitive pressure and an unstable legal system, constitute primary factors contributing to this phenomenon (Nguyen et al., 2023). In countries undergoing economic transition, CSR issues play a pivotal role in modernizing governance and aligning business practices with market requirements (Ye, et al., 2020). However, there is often insufficient attention directed towards CSR standards and regulations, as the priority remains on profit, especially during the early stages of economic transition (Meiryani, et al., 2023).

Moreover, the assertion that only businesses from affluent countries can adhere to high ethical standards does not comprehensively capture the reality. There are businesses capable of actively contributing to addressing social problems if they are furnished with the requisite resources and support.

## 6 Conclusions

The article emphasizes the proactive involvement of enterprises in addressing social and humanitarian issues amidst the backdrop of war, underscoring their responsibility to both society and the state. Within the context of economic development, the social responsibility of enterprises emerges as a pertinent subject necessitating attention and further research. The analysis results identify several crucial aspects that should be considered to enhance the level of social responsibility in these countries. A primary challenge lies in the limited awareness and understanding among entrepreneurs regarding the concepts and significance of social responsibility. The conclusion posits that an active awareness-raising campaign could constitute a significant step in ameliorating the situation. A crucial aspect involves the establishment of stringent regulations and effective incentives to compel businesses to prioritize social and environmental considerations. Active engagement from the public and support from major corporations can establish new benchmarks and expedite the adoption of socially responsible practices. It is imperative to address the deficiency in ethical considerations related to social and environmental responsibility within business philosophy and culture. The conclusion underscores the necessity to implement clear standards and foster a positive corporate culture. Social responsibility should be actively integrated as a strategic component of corporate governance, necessitating collaborative efforts from the public, business, and government to attain sustainable and responsible economic development.

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**Primary Paper Section: A**

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## CURRENT TRENDS IN LABOR POTENTIAL MANAGEMENT: THE ROLE AND IMPACT OF TECHNOLOGIES AND CHANGES IN THE WORKING BUSINESS ENVIRONMENT

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**Abstract:** In the course of writing the scientific article, the essence and role of modern trends in the management of labor potential were investigated, the implementation of which becomes an important strategic goal for enterprises in the modern business environment. The study of this topic made it possible to reveal the influence of the latest approaches to personnel management. In particular, the analysis of trends indicates changes in the structure of organizations, moving from hierarchical models to teamwork and emphasizing the importance of cooperation. The emergence of a large number of leaders and an emphasis on corporate culture are becoming key features of the new management approach. The conducted research shows that technology currently plays a decisive role in the modern business environment, providing automation of routine tasks, increasing efficiency and productivity. The use of electronic platforms and online courses makes training and development more accessible and personalized, contributing to the continuous development of personnel.

**Keywords:** Labor potential, Business environment, Trends, Potential, Enterprise, Development, Personnel-technologies, Innovation processes.

### 1 Introduction

In the area of labor potential management, modern businesses face both new opportunities and challenges due to the rapid advancement of technology and ongoing changes in the work environment. Changes in the role of technologies, determined by the speed of their implementation and impact on labor processes, as well as the growth of competitive tension and flexibility of the labor market, are aimed at rethinking strategies for human resources management.

The key aspects that require special attention include understanding the impact of digitalization on work processes, rethinking the education and development system in the context of extremely rapid changes in skills and knowledge, and developing flexible and innovative organizational cultures.

The scientific article is aimed at a detailed analysis of current trends in labor potential management, with special attention to the role of technologies in this process. The study of changes in the business environment and their impact on human resource management strategies will help determine the best ways to adapt the enterprise to new conditions and ensure the effective use of human potential in the era of technological innovation.

### 2 Literature Review

In the course of the research, Kilnitska, O., Yareмова, M., Sushitska, O. (2023) noted that labor potential and the mechanism of its formation are characterized by quantitative and qualitative factors. The authors determined that quantitative indicators, including the size of the working-age population, working hours, unemployment, employment structure, and birth rates interact with qualitative aspects, such as the psychophysiological capacity of the population, education levels, moral and cultural levels, the mobility of employees, labor migration, and activity.

In their scientific work, Bodenchuk L.B., Chebanu M.P. (2022) focused on the consideration of labor resources in terms of their internal content and determining their role and importance in the development of the enterprise's economy. They systematized and classified labor resources according to a two-component structure, identifying a close interrelation between the levels of concentration of these resources at different levels, such as country, region, industry and enterprise. Particular attention is paid to the role of labor resources in the enterprise's production activities, where they determine the improvement of production and economic indicators, quality and quantity of products, as well as competitiveness in the market. The authors also examine the impact of changes to labor legislation under martial law on the efficiency of labor resources and identify the risks related to the misuse of new legislative norms and restriction of employees' rights in the context of deregulation of labor relations.

In addition, Savchenko V., Kononenko L., Karnaushenko A. (2023) devoted their study to a thorough consideration of the issues of assessing and forming labor potential. In their study, the authors highlighted the major challenges that arise in the process of forming labor potential and identified the prospects for this process in the context of implementing a system of lifelong learning. The authors analyzed the interaction between education and labor potential, in particular, paying attention to the significance of training for improving employees' skills and the impact of this process on the overall development of the enterprises' labor potential. They also explored trends and innovations in the field of lifelong education that can help optimize the formation and use of labor potential at different stages of employees' career development.

In her academic paper, Kobeleva T.O. (2021), provides an important contribution to understanding and assessing the labor potential of an enterprise or an organization. The author emphasizes the crucial role of human resources in this potential and determines that the efficiency of an enterprise depends on the workforce, its composition, qualifications and productivity. According to this study, the labor force is the primary element of labor potential that determines its efficiency. The author focuses on the importance of a high level of qualification and the ability of employees to work productively, emphasizing that these aspects related to human resources determine the performance level of an industrial enterprise. The author's research also emphasizes that labor potential management should focus on human resources, taking into account their skills, competencies and active contribution to the production process. This approach is recognized as crucial for achieving a high level of efficiency and competitiveness of the enterprise.

### 3 Methods

The following methods were used in the course of the research, namely:

- literature review was conducted to analyze the existing theoretical approaches and scientific studies on labor potential management, the role of technologies and changes in the business environment;
- the method of generalization was applied to systematize and draw conclusions about the role and impact of technologies and changes on the management of labor potential;
- comparative analysis was used to determine the impact of changes in the working business environment on labor potential.

### 4 Research Results

In the current business environment, characterized by rapid changes in technologies, economic and social-cultural transformations, human resources management is becoming an

essential component of enterprises' success. An increase in competition, the introduction of digital innovations and changes in the way we think about workflow are setting new requirements for human resources strategies.

Kara N.I., Yarmus T.B., Stetskiv A.R., Butelskyi Y.Yu., Sadovyak M.B., Pyatnochka B.V. (2023) define labor potential as the total capabilities of employees to actively or passively interact in the production process within a specific organizational structure, taking into account material, technical, technological and other parameters. On the contrary, Murskyi D., Fak D., Bilyak T., Bilyk V.-L., Teslia S. (2023) argue that the labor potential of an enterprise is the limit of possible participation of employees in the production process, taking into account their psychophysiological features, level of professional knowledge and work experience under relevant organizational and technical conditions.

In addition, Kilnitska O., Yareмова M., Sushitska O. (2023) note that the labor potential of an enterprise includes the integral characteristics of all employees that can be effectively directed to achieve the enterprise's strategic goals in the context of permanent development.

The external and internal environments play a significant role in shaping the labor potential of an enterprise, interacting and determining favorable or challenging conditions for the development of labor resources. The external environment, represented by conditions of the labor market, government regulation, quality of life, educational level, culture and other social-economic conditions, initiates and models conditions for the formation of labor potential (Vodolajska, 2021).

The internal environment, in turn, is determined by management principles, personnel policy, production and labor discipline, organizational culture, the system of employee's incentives, and other internal factors. The interaction of these components creates substantiated conditions for the effective use of the company's labor potential (Balatska, 2022).

The factors outlined influencing the formation of labor potential can be divided into several key categories. Scientific and technical factors determine an innovative approach to organizing production and introducing advanced engineering. Social-economic factors include remuneration, forms of labor organization, social protection and quality of working life. Political and legal factors are determined by organizational and administrative documents and regulations. Natural and climatic aspects include the creation of comfortable working conditions, taking into account climatic conditions. Cultural factors determine the level of organizational culture (Lukyanikhin, V.O., Lynok, D.I., 2023).

At the same time, factors influencing the development of labor potential include professional aspects, physiological parameters, structural and organizational conditions, technical and technological components, as well as socio-psychological aspects. This combination of factors necessitates a systematic and integrated approach to managing the labor potential of an enterprise (Kozak, K.B., Korsikova, N.M., Petrenko, Yu.O., 2022).

The labor potential of an enterprise is determined by quantitative and qualitative structural parameters that are in dialectical unity. Quantitative indicators, such as resource, reserve, and future capabilities, reflect the basic parameters of a quantitative nature, while other features, such as property (attribute aspect) and performance, characterize its qualitative composition. Analyzing the structural components of the labor potential problem is essential to accomplish the study of the issue. This approach involves taking into account not only the essential content of labor potential but also its complex aspects, covering the entire set of social-economic conditions in which the full reproduction of labor potential takes place (Dolyna et al., 2022).

The system of ensuring the quality of labor potential covers various subsystems, including natural and regulatory, economic, organizational and social. Such an integrated combination of structural components of the labor potential is intended to ensure the functioning in order to respond to the needs of both the individual and society arising from the division of labor, specialization and professionalization of the personality (Gavrylenko, 2023).

The labor potential is formed at different levels, taking into account vertical and horizontal aspects, as well as the industry context. Three key levels of labor potential have been investigated, namely: individual labor potential of an employee, organizational labor potential of an enterprise, and general social labor potential. Optimization of this potential, as a criterion of efficiency, can be achieved by increasing the level of labor potential of a particular employee through the effective use of the emergent effect and improving all stages of reproduction of labor potential at all levels (Mitsenko et al., 2022).

Thus, the company's labor resources are the driving force of production and service delivery. In the face of constant changes, the composition, qualifications and effective use of these resources, as well as the attitude of employees to their work, play a crucial role. The formation of the enterprise's labor potential is significantly determined by various factors, such as political, economic, technological, environmental and spiritual aspects (Lukyanikhin, et al., 2023).

In addition, it is worth noting that one of the priority areas of managerial influence on the development of labor potential focuses on the educational component. The educational component of developing labor potential is defined as a set of processes in the field of education and training aimed at improving the qualitative characteristics and quantitative indicators of this potential (Kachan et al., 2021).

Currently, successful Ukrainian enterprises are implementing their own systems and programs for developing labor potential. For instance, "Guala Closures Technologica Ukraine" LLC and "Aeroc" LLC possess their own unique systems of formation and development of labor potential, which includes modern personnel technologies and defines a strategy for ongoing professional development of the personnel. This system is aimed at forming and developing intellectual potential, knowledge management and implementing a strategy for accelerated evolutionary development of the enterprise. The goal is to create an intelligent, self-learning elite organization for achieving competitive production at the global level (Skybinska et al., 2022).

However, there are complex general problems in the current system of managing the labor potential of domestic enterprises that basically arise due to insufficient understanding of the staff's needs and irrational use of labor potential. The solution to these problems requires not only the use of the internal experience of previous years but also the application of international best practices in the formation and regulation of personnel relations (Muterko et al., 2023). The analysis of this aspect should take into account the unique features of each national lifestyle, which influences the perception of work and labor potential management. Cultural and historical contexts also play a crucial role in determining effective strategies for human resources management. In addition, it is important to harmonize approaches to managing labor potential with the current business environment in order to take into account new trends and challenges emerging in the business environment. Flexibility in using management methods and considering the dynamics of changes in society is a key factor in the success of strategies for managing the labor potential of national enterprises (Table 1).

Table 1. Modern trends in the field of labor potential management

Trend	Features
Changes in the structure of the organization	Shift from a hierarchical model to teamwork, emphasizing the importance of cooperation
Emergence of a large number of leaders	Any employee can become a leader, regardless of age, status or education
The influence of culture on business	Corporate culture as a competitive advantage, focuses on creating a representative image of the company
The need to involve employees in the work process	Employees are voluntarily involved in projects; the emphasis is on understanding the meaning of work and developing practical skills
Redistribution of responsibility in the field of personnel training	Employees' self-directed professional development, transition from traditional schemes to self-organization
Implementation of design thinking	Providing a creative workspace that meets the employees' needs in order to increase productivity
Improving the organizational skills of HR specialists	Focus on business, innovative solutions, and the use of analytics for effective human resources management
The use of HR analytics	Formation of analytical teams for effective management and making informed personnel decisions
The use of digital technologies in HR	Implementation of digital solutions to optimize processes of human resources management and improve communication
Development of gig economy	The use of short-term forms of employment and engagement of specialists for project work

Source: Compiled by the author based on (Markina et al., 2021)

Thus, the management of an enterprise's labor potential is determined by a set of tasks aimed at improving various aspects of corporate life. Key areas of focus include increasing productivity, effective training and development of staff, improving working relationships and fostering a creative environment (Kuchina, 2022). In addition, its primary goal is to improve the quality of working life, stimulate creative ideas and free managers from monotonous tasks. It also aims to balance the interests of the company and its employees. Implementation of this approach helps attract and retain staff, as well as increases their readiness and adaptability to innovations while forming team relationships.

Modern technologies are becoming a significant catalyst for changes in the field of labor potential management. They are essential for the effective and strategic management of the company's labor potential, and also influence all aspects of organizational life, ensuring increased productivity, staff training

and development, flexible working models, improved communication and stimulating working conditions. Technologies are setting new standards and are the key strategic partner in achieving the company's goals (Shatalova, 2023).

The intensification of innovation processes in all spheres of an enterprise's activity has led to the development of technologies aimed at improving the efficiency of operations based on the advancement of internal business processes, in particular, labor potential management processes (Table 2). The latest technologies are transforming workforce management, creating new opportunities and identifying key trends. This impact encompasses several aspects that define modern organizational dynamics: efficiency, productivity, learning, innovation, engagement, flexible working models, collaboration and communication (Voloshyn, 2023; Nazarchuk, 2023).

Table 2. Modern technologies in labor potential management

Name of the technology	Features of the technology	The subsystem of control
Technologies of agency labor		
Leasing of personnel	Temporary or fixed-term staff engagement is a strategic solution to solve the outlined problems of the enterprise. This method is effective in the context of changes in strategic priorities and the need to optimize personnel costs. At the same time, it guarantees the right amount of labor to successfully complete tasks, which is becoming increasingly important in today's dynamic business environment.	Personnel analysis, recruitment, hiring, appraisal and rotation processes
Outsourcing	Decentralization of tasks, functions and processes within an enterprise involves the transfer of particular, sometimes non-core, responsibilities to specialized companies. This strategy is based on the recognition that specialized information, marketing, financial and other professionals can perform these tasks reliably and efficiently.	
Outstaffing	Human resources that previously belonged to the customer's staff are transferred to the patronage of an organization specializing in outstaffing. That is, this organization actually assumes formal responsibility for the company's personnel, including their registration in its internal staff, which allows solving the issue of temporary suspension of employees who are currently unemployed	
Training technologies		
Coaching	Implementation of the method of indirect training, which involves the transfer of extensive experience from highly qualified employees to less experienced workers during their interaction; it is determined by mentoring and consulting. This process, acting as an effective tool for personal and professional development, helps maximize the use of the individual's internal potential, which increases overall labor efficiency	Training of the staff, motivation of the staff
Technologies for recruiting and hiring staff		
Headhunting	Recruitment agencies search for highly qualified experts of the most advanced level, taking into account the client's unique characteristics, requirements for candidates and work environment. In order to achieve this goal, they use direct and specific search methods aimed at ensuring an optimal match between candidates and the client's needs	Recruitment and hiring of personnel
Recruiting	Recruitment agencies search for highly qualified middle-level specialists. They ensure a high-quality selection of candidates that meet all the needs of their clients by using their existing	

	candidate databases and effectively placing advertisements in the media.	
Screening	Recruitment agencies systematically recruit low-level support and service personnel based on formal criteria such as gender, age, education, and work experience. They receive resumes of potential candidates and pass them on to the customer, who makes an independent decision on the selection of the necessary personnel.	
“Weaving networks” and direct search	The consultant uses his or her own resources and networks to effectively search for a suitable candidate. In another case, the consultant, together with the client, identifies a company where the required employee can work, establishes his or her possible position, and submits a business offer to a potential applicant	
Technologies for improving the efficiency of staff		
Reengineering	A fundamental reorganization (redesign) of the company’s business processes is aimed at achieving significant improvements. It helps improve human resources management and opens up opportunities to increase the efficiency of the team (productivity, quality, etc.).	Creating working conditions
Technologies for incentivizing the staff		
Internal marketing	The implementation of the marketing approach to human resources management covers the formation, stimulation, coordination and integration of the team in order to satisfy the customer through interaction, motivation and customer focus; this implies that the staff knows its strategic importance in achieving the goals of the enterprise and shows great commitment to their work	Motivation of the staff
Technologies for monitoring the work of the staff		
Mystery shopper	Using the method of disguised surveillance of personnel activities, conducted in the form of a client, is an effective tool for assessing employees’ compliance with the established rules, regulations and standards related to the performance of professional duties and servicing customers. This approach makes it possible to determine the level of competence and professional skills of the staff in real conditions.	Evaluation of personnel
Information technologies		
Automated information system for personnel management	The use of specific software and advanced technologies makes it possible to automate and optimize business processes in human resources management. This ensures the creation of an effective and modern system for managing the company’s labor potential, contributing to increased productivity and expanding opportunities in human resource management	All subsystems of management
An automated workplace of the employee	A specialized software package designed to perform professional tasks, including technical means of automation and optimization of organizational processes. Such a workstation provides a highly efficient solution to the employee’s tasks directly at his or her workplace, which contributes to increased productivity and convenience of performing work duties	Legal and information support for human resources management

Source: Compiled by the author based on (Vdovichena et al., 2022)

Thus, modern technologies in the management of the enterprises’ labor potential have become an important catalyst for change, increasing productivity, facilitating staff training and development, introducing flexible working models and improving communication. Innovative processes, such as agency work, outsourcing, training technologies, etc., help optimize labor management, ensuring that companies remain competitive and flexible in a changing business environment (Piwowar-Sulej, 2021; Nazarchuk, 2022).

For the purpose of conducting further research, it should be noted that situations inevitably arise that require enterprises to adapt and implement changes in the light of the rapid development of the modern business environment. Changes in the working business environment can have a significant impact on the labor potential of an enterprise, opening up new opportunities and challenges for it (Havrysh, 2021). Consequently, it is expedient to analyze the positive and negative effects of changes in the working business environment on labor potential (Table 3).

Table 3. Positive and negative effects of changes in the working business environment on labor potential

The direction of changes	Positive effects	Negative effects
The use of technologies	Increasing the efficiency of personnel management by automating and optimizing business processes	Possibility of losing jobs due to automation and robotization, which can cause social and economic problems
Flexible working models	Creating conditions for flexible work schedules and remote work, which helps improve work-life balance	Lack of work-life balance, which can cause stress and reduce the quality of life of employees
Development and training	Providing opportunities for lifelong training and development of staff, which increases their skills and engagement	Difficulties in implementing new technologies and employees’ resistance to training, which can limit their professional development
Innovative business processes	Implementation of innovative approaches in business processes, which helps increase creativity and improve working methods	The cost and time to implement innovations can be high, especially for small and medium-sized enterprises
Efficiency of communication	Enhancing internal and external communication through the use of modern communication tools and collaborative platforms	Challenges in understanding and interaction due to remote work and dependence on electronic communication

Source: Compiled by the author based on (Khromushyna, 2023)

Thus, the processes of development and renewal do not bypass human resources management systems and require the search for more effective methods and tools. The employee himself, once

considered as an object of management, has now become an object of study, which opens up new opportunities for the

development and implementation of innovative technologies (Levchenko et al., 2021).

In the modern environment, it is important to focus on technologies that provide optimal conditions for developing employees' potential and meeting their expectations and needs. Therefore, the need arises to intensify the use of advanced personnel technologies that not only meet the modern requirements of the business environment but also provide an opportunity to effectively solve the current tasks of personnel work. Such technologies act as a catalyst for improving the efficiency of human resources management and contribute to the achievement of the organization's strategic goals.

## 5 Discussion

We share the viewpoint of Kilnitska O., Yaremova M., Sushitska O. (2023) that labor potential and the mechanism of its formation cover qualitative and quantitative aspects. Numerical parameters include indicators such as the number of working-age population, total working hours, employment structure, birth rate and unemployment. At the same time, qualitative characteristics, such as psychophysiological readiness, level of education, moral and cultural development, mobility and labor activity, also play a significant role in the formation and evaluation of labor potential.

We partially agree with the authors Bodenchuk L.B., Chebanu M.P. (2022) since they define the concept of labor resources from the standpoint of internal content and present a classification of these resources according to their two-component structure; however, the context of the external environment is also an important aspect in this matter. At the same time, this approach makes it possible to consider labor resources as a complex system, the interconnection between which determines the level of concentration at different levels – in the country, region, industry and enterprise. According to their studies, the role and importance of labor resources in the production activities of an enterprise are determined by the employees' qualifications and the organization of their work, which influences production and economic performance and competitiveness. In addition, the scholars consider changes to labor legislation under martial law, which may affect the efficiency of labor resources, and identify risks of misuse of new norms and restriction of employees' rights.

We agree with Savchenko V., Kononenko L., Karnaushenko A. (2023) because their study highlights significant aspects of labor potential assessment and formation. The authors not only thoroughly analyze the major challenges in the process of forming labor potential but also determine the prospects for this process, in particular in the context of implementing a system of lifelong learning. Their observations on the interaction between education and labor potential reflect significant relationships, especially in the context of advanced training and its impact on the development of the labor potential of enterprises. In addition, this study also takes into account current trends and innovations in the field of lifelong learning, which can contribute to the effective formation and use of labor potential at all stages of employees' career development.

We support the conclusions of Kobeleva T.O. (2021) since her research proves that human resources are the basis of the labor potential of an enterprise or organization. This study states that the workforce, its composition, qualifications and efficiency determine the success of an enterprise. The author considers the labor force as the main element of labor potential and determines that it forms the efficiency of this potential. It is noted that a high level of qualification, the ability to work productively, and other aspects related to human resources determine the performance of an industrial enterprise. This study emphasizes that labor potential management should focus on human resources, taking into account their skills, competencies and active contribution to the production process. This approach makes it possible to achieve a high level of efficiency and competitiveness of the enterprise.

## 6 Conclusions

Current trends in labor potential management indicate profound changes in approaches to personnel management at enterprises. Labor potential is a complicated system of quantitative and qualitative criteria that is influenced by both quantitative and qualitative parameters. Its quality is determined by structural components, including natural and regulatory, economic, organizational and social subsystems.

Technologies are becoming a key catalyst for change in this context, offering a variety of tools and approaches to optimize labor potential. The use of modern HR technologies allows businesses to increase productivity, improve staff training and development, implement flexible working models, and improve the quality of communication.

It is crucial to keep in mind that the optimization of labor potential includes different levels, such as the labor potential of the employee, the enterprise and society. Managing this potential involves developing strategies aimed at improving all aspects of corporate life, including increased productivity, effective training, a creative environment, and a higher quality of working life.

In general, modern technologies are becoming not only a tool for achieving the strategic goals of enterprises but also a key element in managing labor potential, which ensures their competitiveness and adaptation to changes in the business environment.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, BC**

## DEVELOPMENT OF INSTRUMENTAL AND PERFORMING ARTS IN UKRAINE

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**Abstract:** The study of the development of the national instrumental and performing arts is conditioned by the necessity of modern scientific comprehension of the history of Ukrainian music, a deeper understanding of the poorly studied pages of national musical history. The purpose of the present research is a comprehensive analysis of the historical development of instrumental and performing arts from ancient times to the present, in the context of synergy with the academicization and formation of genre and style specificity of the original repertoire. The phased development of instrumental and performing arts from ancient times to the contemporary period has been described. The features of the process of academicization of folk-instrumental art of Ukraine have been analyzed; the social-cultural evolutionary basis in the historical and chronological context has been identified. The basic stages of the formation of Ukrainian folk-instrumental performance have been highlighted. Its position as an optimal form of national art that shapes Ukrainian music as an original phenomenon and as an integral part of European culture has been emphasized.

**Keywords:** Musical toolkit, Traditional, Folk and academic musical instruments, Genre and style features, National musical culture, Evolutionary development.

### 1 Introduction

The musical art is a significant part of the culture, regardless of its national features, and spiritual and material heritage. It reflects a considerable part of the cultural and national heritage, its historical origins, as well as the specifics of the development of musical art genres. It is the national identity that is the source of formation and development of the entire cultural heritage, and especially of musical art.

The issues of the establishment and evolutionary development of instrumental and performing arts of Ukraine in various aspects and conceptual approaches are important research objects in the scientific space of national art history. Researchers of this phenomenon have focused mainly on the historical preconditions of its gradual formation (Vereshchahina-Biliavska et al., 2021), as well as theoretical and performance aspects (Ekonomova & Harkusha, 2021). The prerequisites for the formation and development of folk musical instruments, their characteristic design solutions, acoustic characteristics, and methods of use are reflected in the scientific works of many scholars (Paliichuk, 2019; Sheremet, 2021; Krul, 2019). The studies of (Vashchenko et al., 2022; Dushniy et al., 2022) are the most comprehensive ones of the recent period are. They present the concept and characteristic features of the functioning of the Ukrainian instrumental and performing music direction based on exploring the historical aspect. Particular contemporary studies have analyzed the compositional work of national cultural figures for folk instruments, as well as its characteristic genre and style features (Yakovlev et al., 2020). The conceptual principles of the work of leading Ukrainian performers and groups are reflected in the publications of several scholars (Dovzhynets et al., 2022; Loktionova-Oitsius et al., 2022).

However, despite the significant achievements of scientific explorations, a lack of studies in Ukrainian art history is observed in which the instrumental and performing arts of Ukraine should be considered as a systemic formation in the time aspect of development, with an individual coordinated

structure. Some aspects of the issue under study remain insufficiently examined and require further research.

The purpose of the academic paper is to analyze the major stages of formation, development, and popularization of Ukrainian instrumental and performing arts.

### 2 Literature Review

A significant scientific and theoretical base has been formed in the field of instrumental and performing arts of Ukraine. It includes monographs, dissertations, studies, textbooks and manuals, and scientific publications in professional journals.

The scientific and methodological groundwork for the issue under study was laid by researchers whose works focus on aspects of establishing the peculiarities of national instrumental and performing arts, as well as the problem of factors influencing the process in the historical context (Lisniak et al., 2022; Novakovych, 2021).

In particular, scientists have formed a theory on the concept of performing skills (Malakhova, 2022), folk instrumental ensemble performance (Oliinyk, 2021), folk orchestral performance (Murza, 2021). A number of studies by Ukrainian scholars are devoted to the historical development of musical instruments and particular genres of folk-instrumental art (Dovzhynets et al., 2023; Berehova et al., 2020). The scientific work "History of Performance on Folk Instruments" by Davydov M. is a unique encyclopedia of instrumental and performing arts. It covers in detail the compositional, performing, scientific, theoretical and pedagogical achievements in the field under study (Davydov, 2005).

At the same time, none of the cited authors has analyzed the instrumental and performing arts in the social-cultural context. Consequently, it's quite difficult to comprehensively reveal the nature of the phenomenon under study, identify causal links and historical logic in the sequence of certain trends. In this regard, it seems promising to study the historical and cultural aspects of the evolution of instrumental performance in Ukraine in chronological and functional contexts.

### 3 Materials and Methods

In the course of the research, several general scientific methods of cognition were used, in particular, methods of analysis, synthesis, abstraction, induction and deduction, comparison, specification and formalization.

The theoretical and methodological basis of the research is made up of publications in professional journals, materials from scientific conferences, monographs, and results of practical and analytical developments of contemporary scholars.

The research was carried out taking into account the principles of comprehensive studies and a systematic approach. The principle of comprehensiveness made it possible to analyze the object of research as a system, with a corresponding set of interconnections. The methods of the systematic approach were applied to study the instrumental and performing arts of Ukraine in the context of the overall national musical system. The analysis of the functioning of the instrumental and performing arts of Ukraine in the synergy of its constituent functional parts was implemented with the help of the structural-functional approach.

The methods of analysis and synthesis were used in the course of the research to identify the factors and stages of developing the object under study, its defining elements. The method of comparison was applied to highlight the specific features of the formation of instrumental and performing arts in Ukraine in the historical context. The deductive method was used in the process

of formulating proposals for implementing an approach to the formation of instrumental art in Ukraine as a holistic artistic phenomenon. Induction was used to identify prognostic indicators of the development of the object under study.

The method of abstraction was applied in the research to formulate theoretical generalizations, highlight the main concepts and categories, and draw conclusions. The general scientific method of formalization was used to identify priority vectors of studying the system of formation and influence of factors of development of the national instrumental and performing arts (Murza, 2021). Additionally, this approach made it possible to structure the goals, priorities, and functions of Ukrainian instrumental and performance music direction.

The method of concretization was applied to prove the feasibility of applying a systematic integrated approach to studying and analyzing the instrumental art of Ukraine as an integral artistic phenomenon, as well as positioning national historical prerequisites as a determining factor in the formation of musical cultural heritage.

#### 4 Results

The retrospective analysis of musical culture is represented, primarily, by its ethnic essence, which is a determining factor in the further specificity, features and means of its functioning. Cultural and material achievements, including the musical art of Ukraine, are not an autonomous, abstract phenomenon. The prerequisites for its development are revealed in the aspects of spatial and historical analysis of national features of establishing the direction of instrumental and performing arts.

Traditional forms of national musical art are the genotype of Ukrainian instrumentalism. In the sphere of musicological research, traditional musicianship is seen as a distinct aspect, positioned as an archetype of national identity (Lisniak et al., 2022; Novakovich, 2021). Its functioning is a significant factor in the creation of a model of national musical culture with its peculiar, individual features.

In the course of the evolutionary paradigm, the musical toolkit has undergone significant modifications. The history of the

development of instrumentology includes a list of theories and concepts for the classification of the musical toolkit. However, the only basis for all of them is a specific conceptual system, which includes the historical period, regional conceptualization, and practical ways of applying the toolkit (Paliichuk, 2019).

The set of scientific approaches to the systematic classification of Ukrainian musical instruments forms the prerequisites for their rethinking and transformation. It is obvious that the rational and analytical classification of the musical toolkit can be implemented only as an abstract phenomenon, outside of a specifically identified context.

The instrumental and performing arts of Ukraine has its own path of development, during which its varieties have been formed, as well as a system of strong interconnections (Sheremet, 2021; Krul, 2019). Such prerequisites position the systematic factor as a priority in the functioning of the musical direction under study as an original phenomenon.

The national musical toolkit is the primary component in the structure of the instrumental and performing arts of Ukraine and it forms its basis. At the same time, the historical aspects of the formation and evolution of the folk musical toolkit are in assimilation with the general process of development of Ukrainian musical culture in the historical and chronological context (Malakhova, 2022).

Compositional creativity is another component in the structure of the instrumental and performing arts of Ukraine; it is initially actualized as a formation in European musical culture and directly forms the basic professional component of the national musical tradition.

It should be emphasized that each chronological stage of the establishment and development of instrumental and performing music is characterized by particular historical prerequisites and is in close connection with them (Oliinyk, 2021). The basic historical steps in the development of instrumental and performing arts in Ukraine are summarized in Table 1.

Table 1. Instrumental and performing arts of Ukraine in the historical context

The historical era in terms of music development	Characteristic features	Representatives
Primary forms of musical performance	Performance in the context of ceremonial, religious and household music	
Ancient period and the Middle Ages	Development within the framework of cult music, the emergence of elements of syncretic vocal and instrumental performance in musical art	Strolling musicians, wandering minstrel-cum-clowns (skomorokhs), trio of musicians (troisty muzyky)
Renaissance	Development of polyphonic art, musical instruments, liberation of professional music from the dominant influence of the church	Regimental military musicians, kobzars - bandura players
The Baroque era	New instrumental genres, high technical and artistic level of organ, keyboard and lute performance	The works of M. Berezovskiy, D. Bortnianskiy and A. Vedel
The period of classicism	The development of instrumental virtuosity, the completion of the formation of the symphony orchestra, the specifics of the great genre forms of classicism.	The works of D. Bortnianskiy, choral works of S. Detkhiatrev, instrumental works of I. Khandoshko
XIX century	Division of labor between composer and performer. Formation of a new type of performer-interpreter and performer-virtuoso. Creation of a number of new musical instruments.	The works of M. Lysenko
XX century	Interaction of European and non-European musical cultures, emergence of new musical trends and instruments	B. Liatoshynskiy, L. Revutskiy, V. Kosenko, M. Verykivskiy
The period of modernity, the beginning of the XXI century	Integration of folk instruments into chamber music, combining elements of style systems of different eras and using new musical and expressive means, genres of entertainment music and avant-garde	A. Beloshytskiy, A. Haidenko, V. Zubytskiy, Yu. Shamo

Source: developed by the author based on (Vereshchahina-Biliavska et al., 2021; Novakovich, 2021; Davydov, 2005).

Analyzing Table 1, it is worth noting some historical features and patterns that had a significant impact on the formation of the art and music movement under study.

A secular kind of musicianship emerged in the national culture as a result of the incorporation of Byzantine culture, and this is seen as the source of professional instrumentalism in contemporary national performance, or the art of *skomorokhs*. *Skomorokhs* have established themselves as a strong trend since the XVI century; they have become the basis for the formation of craft music workshops, the foundation of professional instrumental performance (Yakovlev et al., 2020). The *skomorokhs*' repertoire was a poly-genre plane, the artistic and aesthetic uniqueness of which was determined by comedy, song-language, and theatrical style of performance. At the same time, the performing style is characterized by the unity of words, music, motor-plastic and theatrical-dramatic components.

Small ensemble-instrumental forms or the trio of musicians (*troisty muzyky*) was another form of traditional musical art in Ukraine. The standards of contemporary folk-instrumental performance were shaped by the skill of *troisty muzyky* (Vereshchahina-Biliavska et al., 2021).

The establishment of the Ukrainian Cossack-Hetmanate (1654–1764) led to the development of networks among regimental military musicians. Special consideration should be given to the *kobzars-bandura* players, who were predominantly blind performers and constituted an important element of military regimental music. This type of musicianship existed until 1775 when the decree on the liquidation of the Hetmanate was issued (Yakovlev et al., 2020).

After the introduction of serfdom for peasants, the era of noble enlightenment began. It is defined as the era of manor culture in the cultural and artistic historical context, during which music schools were established and functioned. Consequently, the development of musical and instrumental art was observed, which undoubtedly stimulated national cultural processes (Vereshchahina-Biliavska et al., 2021). They were focused on raising the professional level of musicians, synthesizing Ukrainian folk and amateur art with the achievements of European countries with a high musical culture. Thus, the estate culture is a crucial period in the formation of a new page of national performance.

Analyzing the main structuring factors of the development of instrumental and performing arts in Ukraine, it is necessary to distinguish a list of those that have become the conceptual driving force of cultural and artistic transformation. It is crucial to differentiate the functioning of particular organizations, groups, associations, and unions among the elements that either directly or indirectly influenced the adaptation of music-making forms to the circumstances of the Ukrainian culture.

The second half of the XIX century is considered to be a significant period in the formation and development of Ukrainian musical art, when significant steps were taken in the reform of the music and educational system of Ukraine, the transformation of the processes of professionalization and academization. The establishment of the Music and Drama School in Kyiv by M. Lysenko in 1904 and the Kyiv Conservatory in November 1913 was the decisive step in this process. After all, it formed the concept of developing chamber, instrumental, and orchestral art in Ukraine (Novakovych, 2021). Due to the nationalist paradigm's establishment, there was a surge in spiritual and ideological activity in the second half of the century. In the practice of Ukrainian instrumentalism, specific artistic trends were being formed, such as folk-instrumental performance, European-style symphonic orchestral performance with numerous modifications of collective performance forms, vocal and instrumental groups of academic and traditional formats, eclectic forms of collective music making.

The XX century was a turning point in the history of instrumental performance in Ukraine. A characteristic feature of this period was the formation of a new model of the cultural and educational system, which actualized the creation of the art movement, its popularization and improvement. The beginning of the XX century shaped the basic stereotypes of the instrumental and performing arts of Ukraine, highlighting the conceptual priorities of its evolution and functioning (Vashchenko et al., 2022).

Musical instruments have been used in modern musical performances; these instruments have been upgraded during the course of the XX century and are still being improved now. Such trends reflect the current cultural needs of the society, which is positioned as a consumer and connoisseur of the musical results. The creative activity of contemporary Ukrainian artists for instrumental and performing music has been developing in the aspect of postmodernism trends. It is characterized by the restoration of historical achievements, creative experiments, and the search for new means of expression.

The academic direction of folk-instrumental performance is a relatively young phenomenon of national musical culture, the process of formation of which has covered almost the entire XX century. The gradual penetration of elements of Western European academic music, the improvement and reconstruction of folk musical instruments, and the creation of repertoire for national instruments contributed to the successful combination of particular pop styles with performance on improved or authentic folk instruments (Dushniy et al., 2022).

The turn of the XX-XXI centuries is characterized by active processes of integration of folk instruments into the instrumental space of chamber music. Composers working in other academic genres begin to create music for advanced folk instruments, which indicates the successful establishment of the status and aesthetic image of folk instruments in the field of contemporary academic music. In particular, the musical works of contemporary Ukrainian composers include a significant number of pieces for chamber ensembles with folk instruments combined with academic ones, as well as compositions for string quartets, chamber and symphony orchestras with solo folk instruments. Creative experiments of this kind are identical to the postmodern tendency of style synthesis, providing optimal prerequisites for revealing new possibilities of the improved national musical toolkit (Vashchenko et al., 2022).

Contemporary instrumental and performing music is characterized by a combination of style elements from different historical eras and the involvement of new musical and expressive means, *avant-garde*, and genres of entertainment music. In particular, this concept was vividly reflected in the compositions of the pop-jazz direction and synthesized modernism (musical works by V. Vlasov, V. Zubytskyi, A. Stashevskyi, A. Biloshytskyi, A. Haidenko) (Berehova & Volkov, 2020). The stylistic features of neo-folklorism, neo-baroque, and jazz music are combined in synergy in several works (musical works by H. Matviiv, Y. Oliinyk, V. Zubytskyi, and R. Stakhniv) (Havrylenko et al., 2022), jazz-rock and blues (music by A. Biloshytskyi, B. Myronchuk, Y. Shamo) (Dovzhynets et al., 2023).

Therefore, musical works of contemporary composers for the instrumental and performing arts demonstrate innovation in the field of modern ideological searches and compositional techniques. They reflect the general tendency to identify advanced folk instruments as the property of academic music. After all, composing and performing creativity are closely interconnected and appear as a consistent act of musical activity.

## 5 Discussion

The issue of the development of instrumental and performing arts in Ukraine is addressed by many scholars of the modern scientific school. Scholars of current research directions (Kravchenko, 2019; Havrylenko et al., 2022) argue that

analyzing the process of formation of the music direction under study in the historical aspect makes it possible to reproduce the multifactorial nature of the formative concept in a wide range.

Some scientific works consider the need to actualize modern scientific approaches to studying the dynamics of the development of instrumental and performing arts in order to expand the possibilities of its prognostic advancement (Oliynyk & Umrykhina, 2021). The studies of contemporary scholars represent a symbiosis of traditional and innovative means and methods of scientific research for identifying the artistic trend under study as original, relevant and synergistic to the national historical plane (Ohanezova-Hryhorenko et al., 2021).

According to the results of scientists' studies (Koehn, 2019), the area of musicianship studied in the current research is positioned as a complex system that manifests successful functioning in harmony of instrumental, performing and compositional components. The publications of scholars (Cherevko et al., 2020) draw attention to the need to give equivalence to the outlined components of the music creation process, without prioritizing any of them. According to some scientists (Karas et al., 2021), this concept should level the imbalances in the perception of the composer's and performer's segments of the process implementation.

According to contemporary studies, the identification of the national concept of Ukrainian music's identity in harmony with pan-European development tendencies is an important component of scientific inquiries (Zhukova, 2020). The researchers (Novakovykh et al., 2021) focus on the need to study the phenomenon of instrumental and performing arts as a prerequisite for the artistic revival of the nation and the cultural development of modern society.

In addition, scientists are considering the possibility of using the musical trend under study as an effective tool for the creative development of young people. After all, it can provide systematic monitoring of the level of cultural and artistic development of future generations in terms of ethnic self-identification (Volodymyrivna, 2021).

Therefore, the scientific viewpoint of most contemporary scholars is identical in the axiom that the instrumental and performing arts of Ukraine are positioned as an integral system containing a set of components (instruments, compositional creativity, performance, professional music education, and art history). Its functionality is implemented in the concept of synergy and a set of interconnections, thereby shaping the process of creating, disseminating and using the results of creative activity in the instrumental and performing arts.

Based on the results obtained in the present research and the authors' conclusions of the works analyzed above, it is possible to predict the growing role of national instrumental and performing arts in the process of cultural transformation of society. Such an approach will make it possible to considerably increase the level of significance of the artistic direction under study in the process of popularizing cultural national identity, as well as contribute to the formation of a consistently high value of the artistic revival of the Ukrainian nation in future generations.

## 6 Conclusions

The artistic direction presented for consideration and analysis in the present research plays a significant role in the process of formation and prioritization of the development of Ukrainian musical art, focusing on the synthesis of numerous trends into a single cultural national concept.

The academic paper has analyzed the historical aspects of the development of instrumental and performing arts from ancient times to the contemporary period. In the course of the research, the features of the process of academization of folk-instrumental art of Ukraine have been analyzed; the main stages

of the evolution of Ukrainian folk-instrumental performance have been highlighted. In addition, the identification of the social-cultural context of the evolution of the artistic movement under study in the historical context is an important achievement of the present research.

The research has examined the development of instrumental and performing arts in Ukraine, which is one of the powerful links in the contemporary national artistic space. It has also studied the aspects and contradictions of its evolution and functioning, as well as highlighted the major structural and creative factors of instrumental performance in Ukraine in its historical and chronological sequence. It is worth noting that the academic paper presents some materials from archival sources that provide an opportunity for a deeper and more rational analysis of the topic under study.

Based on the research findings, there is no doubt that instrumental and performing music is one of the optimal forms of Ukrainian art that positions national music as an original phenomenon, which is at the same time an integral part of pan-European cultural traditions. Based on the results obtained in the scientific work, it is possible to propose priority vectors for further studies on the topic, arguing that they are necessary to actualize the role of instrumental and performing arts in the current conditions of development of Ukrainian musical culture.

In addition, the need for further study of the possibilities of reviving national artistic values, which will contribute to the cultural development of society, is apparent. Further theoretical comprehension of the instrumental art of Ukraine as a holistic artistic phenomenon in the process of identifying the identity of national music is also relevant.

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## DIALECTOLOGY IN MODERN LINGUISTIC RESEARCH: THEORETICAL APPROACHES AND METHODS

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**Abstract:** In the context of modern dialectology, we are observing the influence of a wide range of new theoretical approaches and technological innovations that are changing the traditional understanding and study of linguistic dialects. The development of digital technologies, especially in the areas of machine learning and big data processing, opens up new opportunities for analyzing language structures and the interaction between different dialects. This allows researchers to study and understand language differences in more detail and assess their impact on social and cultural processes. Modern dialectology also integrates cognitive and socio-linguistic approaches, enabling a more complete consideration of language as a complex system that reflects not only communicative but also cognitive and sociocultural aspects of human life. Expanding the availability of language data, in particular, through online platforms and social networks, opens up new perspectives for studying the dynamics of language dialects in the modern world. This requires us to rethink traditional approaches and adapt them to rapidly changing socio-cultural conditions. The research shows how the use of synchronic, diachronic and cognitive approaches enriches the understanding of linguistic variations. Particular attention is paid to the influence of cognitive linguistics on the perception of linguistic dialects, as well as the role of structural approaches and diastystems in understanding the interrelationships of different dialects. The conclusions of the academic paper emphasize the need to integrate various approaches in modern dialectology. The combination of traditional and innovative methods makes it possible to gain a deeper and more comprehensive understanding of language differences and their role in social and cultural processes. The success of modern dialectology lies not only in the preservation and use of traditional methods but also in the active incorporation of the latest research strategies that reflect the rapid changes in the linguistic and sociocultural landscape.

**Keywords:** Dialectology, Synchronic and diachronic approaches, Cognitive dialectology, Perceptual dialectology, Lemki dialect.

### 1 Introduction

Dialectology, as one of the most exciting and dynamic fields of linguistic research, occupies a unique place in studying language variations. This discipline has emerged in response to the need to understand the diversity of language forms arising in different geographical and social contexts. Since its origins in the XIX century, when linguists started systematically documenting language differences between different communities, dialectology has come a long way.

Dialectology originally focused on the descriptive study of geographic language variation, using field studies to collect data. However, the approach to this discipline has transformed significantly over time. Modern dialectology includes a wide range of methods and approaches, from quantitative analysis of corpus data to deep structural analysis of language differences, thanks to modern technologies and theoretical advances in linguistics.

Currently, dialectology not only helps understand how language variation reflects cultural, historical, and social influences but also plays an important role in preserving linguistic diversity. In the era of globalization and rapid social change, the study of dialects is becoming especially relevant, enabling the preservation of unique linguistic features that may disappear.

In the proposed academic paper, we try to cover a wide range of theoretical approaches and methods in modern dialectology, reflecting the versatility of its methodological tools, on the one hand, and its importance in linguistic research, on the other hand. We would like to draw attention to the importance of integrating traditional methods with the latest technologies and

theoretical innovations, which opens up new perspectives for understanding the complexity and diversity of language variation.

### 2 Literature Review

The study of dialects unites the scientific efforts of scientists on both sides of the Atlantic Ocean. N. J. Albury and M. Diaz (2021) consider the transition from traditional perceptual dialectology to perceptual multilingualism on the example of Hong Kong. Their study reveals how language stereotypes and perceptions influence language behavior in a multilingual environment. On the other hand, L. Anderwald and B. Szmrecsanyi (2009) examine corpus-based approaches in dialectology. They emphasize the importance of using corpus data to analyze language variations, emphasizing the possibilities and limitations of this method.

G. Aurrekoetxea et al. (2013) present "DiaTech" – a new tool for dialectological research that integrates different technological approaches for collecting and analyzing language data. This expands the possibilities of dialectologists in using computer technologies. G. Aurrekoetxea et al. (2021) apply fuzzy logic in their next study to analyze transition zones in dialectology, demonstrating how quantitative methods can help identify complex language interactions.

The topic of historical dialectology is explored by B. Bába (2021), analyzing sources in historical dialectology and their importance for understanding language evolution. E. J. Benson & A. Williams (2022) focus on the impact of boundary representation in perceptual dialectology, exploring how the representation of geographical boundaries influences language perception.

W. Bisang (2004) proposes an integrative approach, combining dialectology and typology. This scientific work is important for understanding the common trends and features of different language systems, pointing out the connection between geographical and structural aspects of language. C. Boberg, J. Nerbonne and D. Watt (2018) provide a broad overview of theories and methods in dialectology, considering various aspects from phonology to sociolinguistics, as well as modern technological approaches in the field. D. Watt, M. E. Renwick, and J. A. Stanley (2023) explore the interconnection between sociophonetics and dialectology, considering their role in the study of language variation and changes.

V. Wolfram and N. Schilling-Estes (Wolfram & Schilling-Estes, 2017) study dialectology and linguistic spread, analyzing how historical and contemporary processes influence the development of linguistic differences. The contribution of J. K. Chambers and P. Trudgill (1998) is also important in their scientific work, where they thoroughly examine both traditional and modern approaches to dialectological studies, noting the importance of integrating different methods for full understanding of language differences.

Another important contribution to the understanding of perceptual dialectology is made by J. Cramer (2021), who explores mental maps and their importance in studying the perception of dialects. This helps reveal how people represent and categorize language variations. M. Crivelli (2021) focuses on the issues of structural dialectology, emphasizing the difficulties related to the analysis of language structures in different dialects and identifying opportunities for further development of this field. V. de Andrade Aguilera (2022) explores the interrelation between dialectology and linguistic geography, analyzing the importance of spatial differences in linguistic diversity.



The research of J. A. A. de la Fuente (2021) ranges from macro-etymology to micro-etymology, highlighting key aspects of diachronic dialectology and their importance for studying historical language differences. M. Díaz-Campos and S. Sessarego (2021) explore various aspects of the dialectology of Spanish in Latin America in their scientific article, emphasizing its importance and diversity.

The latest approaches and methodologies are gaining importance in the modern study of dialectology. A. Dinkin (2021) analyzes the importance of acoustic sociophonetics in the study of dialects of New England, pointing to the growing role of large-scale acoustic studies in modern dialectology. An innovative approach to dialectology is presented in the work of J. Dunn (2022), who studies the correlation between cognitive linguistics, computational linguistics and dialectology, especially through the prism of constructive grammar. This shows how the integration of different fields can enrich the understanding of linguistic diversity.

The study of J. Ellis (2021) extends this context by proposing general comparative linguistics that connects dialectology to the broader field of linguistic studies. This publication emphasizes the importance of an interdisciplinary approach to studying language variations. Historical aspects of dialectology are covered in the project of J. Fisiak (2011), which focuses on regional and social dialects, emphasizing the significance of historical context in understanding language evolution. K. Franco (2022) examines how cognitive linguistics can interact with dialectology, drawing attention to the synergies between these fields and the mutual enrichment of each other.

V. Garnett and S. Lucek (2021) explore the interconnection between linguistic and political borders in Ireland, revealing the complexity of perceiving dialects in the context of political divisions. J. Goldshtein and L. M. Ahlgren (2021) examine ideologies of language and place in their scientific article, highlighting conflicts in expectations of dialect speech between informants and dialectologists. R. Hickey (2017) connects dialectology, philology, and historical linguistics, showing how these fields can complement each other to better understand language transformations. P. Jeszenszky, K. Steiner, and A. Leemann (2021) propose a new methodological approach based on clustering.

In modern studies of dialectology, special attention is paid to researching dialect zones and contact dialectology. P. Jeszenszky, A. Hasseb, and P. Stöckle (2023) analyze dialect areas and their impact on language contact, emphasizing the importance of geographical and social factors in the development of languages. B. Jones (2021) focuses on the spatiality of perceptual dialectology in his study, exploring how the perception of dialects varies depending on geographic location and social context. A. Kim (2022) studies historical dialectology and language contact in the case of Marchfeld in Lower Austria, demonstrating how historical events influence language change and development.

A. Magidow (2021) examines Arabic historical dialectology, pointing out the importance of integrating old and new approaches for a deeper understanding of linguistic history and development. A. F. Pinget and K. K. Voeten (2023) investigate social factors in accent perception by conducting a large-scale study in the field of perceptual dialectology. K. Poletto (2012) considers the role of dialectology in contrastive linguistics and micro-variation, demonstrating the importance of dialect studies in comparative linguistics. Finally, D. R. Preston (2011) analyzes perceptual dialectology by examining non-linguistic perspectives on regional linguistics and their implications for understanding language differences.

It can be concluded that modern dialectology encompasses a wide range of methods and approaches, which is reflected in the diversity of studies in this field. The general trend is to integrate traditional dialectological methods with the latest technologies and theoretical concepts from other fields of linguistics. The

proposed academic paper also belongs methodologically to the general trend aimed at enhancing the methodological tools of dialectology.

### 3 Purpose

The purpose of the present academic paper is to systematically analyze current trends and methods in dialectology in order to identify key areas of development in this field and their impact on understanding language variations. We seek to integrate approaches from different fields of linguistics, including cognitive linguistics and sociolinguistics, in order to better understand the ways in which linguistic dialects interact with social, cultural, and cognitive processes. A specific aim of this research is to identify new directions and opportunities in studying dialectology, given the rapid development of digital technologies and data processing methods.

The methodology of this research is based on three main approaches: the conceptual approach is dialectical, which is complemented by the systemic method, as well as analysis and synthesis.

The core of the research is based on a dialectical approach that makes it possible to consider dialectology in all its complexity and diversity. This approach includes not only the study of contradictions, changes and development of language dialects in different social and geographical contexts, but also the analysis of transformations and development of the history of understanding the subject of dialectology. The dialectical analysis can be used to identify the interconnections between different aspects of language variations and influential factors such as historical development, social processes, and cultural influences. A systematic approach is used to complement the dialectical vision, which enables to consider linguistic dialects as part of a larger language system. This approach involves analyzing the structural connections between different elements of the language, considering linguistic variations as an integrated part of the general language system. Thus, the study of the interaction between dialects, social groups, and cultural contexts takes place within the framework of a holistic system of language relations. Methods of analysis and synthesis are applied to ensure the depth and completeness of the research. The analysis makes it possible to disassemble complex linguistic phenomena into simpler elements, revealing basic properties and dependencies. Synthesis, in turn, helps combine these elements into a coherent picture, providing a comprehensive understanding of dialectological processes.

The application of this toolkit facilitates a comprehensive analysis of dialectological phenomena, allowing for new perspectives and a deeper understanding of language variations and their interrelationships.

### 4 Results

The methodology of dialectology has undergone several transformations over time. The initial focus of dialectology was on the descriptive study of geographic linguistic variation, using fieldwork to collect data. Over time, dialectology began to take on a more modern scientific identity due to the impact of linguistics, which provided a variety of methodologies and approaches that dialectology adopted. Borrowing synchronic and diachronic approaches can be considered one of the forms of such convergence. The synchronic approach developed by Ferdinand de Saussure focuses on studying a language at a certain point in time, enabling the analysis of dialectal differences and their functioning in modern society. The main goal of synchronic dialectology is to study and describe the allocation of linguistic variations in geographical and social contexts at a given point in time, without delving into the historical changes that may have caused these variations. The synchronic approach makes it possible to analyze the diversity of dialects, their features, and the interaction between them, as well as to study how social and cultural factors influence language use in different communities. It can also include analysis of

language interaction and dialect mixing, especially in multilingual or linguistically diverse regions.

A conditional drawback of the synchronic approach in dialectology is its limitation in studying the historical development and origin of language variations. Given that synchronic dialectology focuses on describing linguistic differences at a particular point in time, it is unable to take into account historical processes that may have influenced the formation of these dialects. This means that the synchronic approach may not be able to fully explain why certain linguistic features or differences exist since it does not analyze the historical changes that may have caused them. Thus, although the synchronic approach is effective for describing the state of linguistic dialects at a particular point in time, it may not provide a complete picture of their development and evolution.

By contrast, the diachronic approach considers the evolution of a language over time, helping understand how dialects have changed and developed to reflect historical and cultural shifts in society. It should be viewed as a dialectical opposite and, at the same time, a complement to the synchronous approach, but in no way as an alternative to the latter. However, a conditional drawback of the diachronic approach in dialectology is its focus on the historical development of linguistic differences, which is less concerned with the current state of linguistic dialects and their functioning in a real social context. The primary focus of the diachronic approach is to examine how dialects have developed and changed over time, which can detract from understanding current language practices, social identities, and interactions between dialects in the modern world. This means that the diachronic approach may not always adequately reflect current linguistic diversity and dynamics (which is not its purpose, after all) since it focuses on historical aspects.

At the same time, both of these approaches are crucial for a deep understanding of the dynamics and diversity of language forms, and their use has become axiomatic in dialectology.

Dialectology has made significant progress in methodological terms under the influence of structural linguistics. Structural linguistics is characterized by an approach to language that focuses on the analysis of its structural elements and the ways in which they are organized. This approach assumes that language consists of different levels, such as phonetics, phonology, morphology, syntax, and semantics, each of which has its own internal organization and rules. Structural linguistics emphasizes the systemic nature of language, believing that each element of language functions in the context of other elements and interacts with them.

One of the main ideas of structural linguistics, which is crucial in the context of our research, is that language has an internal hierarchy of rules that determines how words, sentences, and phrases are formed. Binary opposition is a central concept that makes it possible to analyze linguistic units through their differences and interrelationships. The concept of a phoneme as a minimal unit of the sound system of a language is also important since it distinguishes the meaning. Structural linguistics seeks to study language objectively, separating it from cultural, historical, or individual factors influencing language communication. According to it, language can be learned as an independent system that has its own internal organization and patterns.

We owe the very idea of combining structural linguistics and dialectology to Uriel Weinreich, a scholar, whose work was far ahead of its time and set a number of trends in both linguistics and dialectology. In his famous scientific work dated 1954, Uriel Weinreich argued that traditional dialectology often treats language forms in isolation, not as part of a larger system (Weinreich, 1954). In the light of the aforementioned, the scientist proposed an approach that allows taking into account partial similarities and differences between different dialects, forming so-called "diasystems".

The diasystem according to Uriel Weinreich is a concept in structural dialectology that describes a system integrating several dialect systems to analyze their partial similarities and differences. It makes it possible to see systematic connections between different dialects and analyze linguistic variations at a higher level, illustrating how different language forms interact and influence each other within this integrated system.

We can use the situation where two dialects have different phonemes that perform similar functions in the language as an example of the diasystem defined by Uriel Weinreich. For instance, let's imagine that one dialect has separate phonemes for "a" and "o", while another has only one phoneme that covers both of these sounds. These differences are combined into one larger system in the diasystem, which allows us to analyze and compare these varieties on a more abstract level, identifying both common and different elements in their phonological systems. For instance, British and American English have different pronunciations of words with the root "bath". It is pronounced [ba:θ] in British English and it is pronounced [bæθ] in American English. The diasystem in this case integrates both of these variants, allowing them to be considered as different expressions of the same phonological system. This provides a deeper understanding of the functionality and interrelation of these pronunciations in the context of the larger language system.

The criticism of Uriel Weinreich's approach and his introduction of diasystems in dialectology cover several key aspects. One of the main problems is the difficulty of identifying and isolating individual phonemes within different dialects. Phonemes that appear identical on a superficial level can often have different functions or meanings in different dialects, making it difficult to create an accurate diasystem.

Another challenge is the limitation of the approach to certain levels of language. Weinreich's approach focuses more on the phonological and phonetic aspects of language, while other important aspects such as morphology, syntax, and vocabulary may be insufficiently considered. This creates particular difficulties when trying to universalize the approach and apply it in different language contexts since each dialect has its own unique features and differences.

Problems also arise in defining the meaning of a "system" in a language. Different dialects may have different systemic organizations, which makes it difficult to define one unified diasystem. In addition, the practical implementation of diasystems requires significant resources and voluminous data, which can be difficult to achieve in explorations of poorly studied or rare dialects.

In general, Weinreich's approach, although certainly innovative and an important step in the development of dialectology, has certain limitations and challenges that should be taken into account when applying it.

The study of linguistic phenomena from the perspective of the recipient, called "perceptual dialectology", should be considered one of the newest trends in dialectology. The idea of perceptual dialectology is methodologically related to rethinking language, speech, and such a linguistic phenomenon as a text. In the second half of the XX century, a refusal to comprehend the traditional idea of the functioning of language was observed. For instance, it was described in the well-known communication model of P. Grice, where an intention initially originates, which is formalized in a certain language code to be communicated to the recipient, who interprets in the form of an inversion of the process of understanding (the movement of thought goes from the language message to the author's intention). Reconsideration touched upon such a fundamental concept as the author of a message (or a text). For instance, R. Barthes declared the death of the author, and M. Foucault argued in a similar methodological vein that the author of a text is not a specific subject, but his concept is reduced to the semantic function of the text. Therefore, many dialectological studies have gradually shifted their focus from intentions to the reader's response. This

methodological metamorphosis led to the emergence of perceptual dialectology.

Currently, perceptual dialectology is a branch of dialectology that focuses on people's perceptions and ideas about linguistic dialects. It studies how people identify, categorize, and evaluate different dialects, and how these perceptions influence their language preferences and behavior. This field is of particular importance for understanding the sociolinguistic aspects of language since the perception of dialects is closely related to social, cultural, and identity aspects. It helps identify stereotypes, prejudices and ideologies influencing linguistic behavior, and can also point to social barriers and inequalities related to linguistic diversity.

One of the examples of using perceptual dialectology can be found in the study of language stereotypes and social prejudices related to different dialects. Let's take, for example, the scheme of a study that examines how different dialects of English are perceived in the United States. In this study, respondents may be provided with audio recordings of various dialects, such as Southern, Mid-Atlantic, New England, and others. Following the listening session, participants may be asked to rate the dialects on criteria such as attractiveness, intelligence, reliability, or friendliness. It is also possible to study how accurately participants can identify the geographical origin of dialects. The results of this study reveal the stereotypes and prejudices that exist about different dialects and how this influences people's perceptions and behavior. For instance, it may turn out that the southern dialect is perceived to be friendlier but less intelligent compared to dialects from other regions. Such findings help understand how language variation is perceived in social contexts and what impact it can have on interpersonal relationships and social interaction.

At the same time, perceptual dialectology faces several problems. Firstly, it is often based on subjective assessments, which can be unstable and context-dependent. Secondly, there is a risk of bias in assessments, especially when it comes to social stigmas or stereotypes related to certain dialects. However, in general, perceptual dialectology opens up an important perspective in understanding linguistic dialects, making it possible to see not only their structural features but also their social and cultural influence.

Another important aspect of modern dialectology is the integration of the tools and methods of cognitive linguistics. In the context of our research, a distinctive feature of cognitive linguistics is its focus on the internal cognitive processes underlying language expression and perception. It studies how people form the concepts and categories they use in language, and how language structures reflect the ways people think. Metaphor is one of the key concepts in cognitive linguistics, which is considered not just a linguistic device but the main mechanism through which language reflects and structures our thinking. Cognitive linguists also study how conceptual schemas and frames influence linguistic organization and expression.

The cognitive approach to dialectology focuses on the study of how the human mind perceives, processes, and uses dialectal variations in language. It integrates the findings of cognitive linguistics into dialectology, treating dialects not just as a set of sound and grammatical differences but as part of a larger cognitive system that includes perception, speech habits, and social aspects of language.

The main aspects of the cognitive approach in dialectology include the study of how people identify and categorize different dialects, paying attention to language stereotypes and prejudices. This is complemented by an analysis of how individuals mentally map the geographical arrangement of linguistic variations and how this influences their understanding of linguistic communities and identities. In addition, the cognitive approach seeks to understand how the brain processes information about language differences, including phonetics, grammar, and vocabulary.

The cognitive approach allows for a deeper understanding of the internal mechanisms of perception and use of dialects, as well as the interconnection between language variations and social, cultural and cognitive processes. Finally, the last modern methodological trend in dialectology, which we will discuss below, is the use of modern digital technologies.

For instance, B. Szmrecsany and L. Anderwald consider the use of corpora-based methods in the study of dialects (2016). This methodology allows analyzing linguistic phenomena and variations based on a large amount of data collected from various sources. The authors emphasize the heuristic potential of this approach, which makes it possible to identify geographical and social variations in language. They note that this approach differs from traditional methods of dialectology in its ability to process large amounts of data and provide deeper analysis. This methodology includes the collection and analysis of language data from various dialect corpora. This enables researchers to uncover variations and structural features of a language based on a large amount of data. The methodology described above is used to analyze the grammar, morphology, syntax, and discourse of various dialects. At the same time, corpora may contain both written and oral sources, but most modern corpora contain written material. In our opinion, this methodology has considerable potential for detecting deep structural differences in language and can reveal both quantitative and qualitative variations in language. In contrast to traditional methods, corpora-based dialectology allows the processing of large amounts of data and provides a deeper analysis of grammatical and lexical features of dialects.

This discipline initially focused on a purely descriptive approach, which included the collection and analysis of dialectal features. This approach involved documenting phonetic, grammatical, and lexical variations in different geographical regions. Using field studies and surveys, the researchers recorded dialectal features, creating detailed cartographic representations of linguistic differences. This methodological approach made it possible to identify historical and geographical influences on the language. With the development of technology and changes in the socio-cultural context, dialectology has begun to incorporate quantitative methods such as big data analysis and computer modeling. This provided a deeper analysis of linguistic variations and an understanding of the interconnections between language, culture, and society (Hnatyuk et al., 2021).

The peculiarity of the development of dialectology methodology in modern conditions is the integration of traditional approaches with the latest technologies and theoretical concepts that open up new possibilities for analyzing language variations. On the one hand, a deep and detailed description of dialectal features at the levels of phonetics, grammar, vocabulary, and semantics remains relevant. On the other hand, new approaches are being added to this. In particular, modern dialectology is increasingly using computational linguistics methods, including big data processing and machine learning, to analyze language differences and model language changes. An important role in modern dialectology is played by the study of social factors, such as identity, status, age, and gender, which influence language use and dialect development. In addition, the development of the methodology also includes integration with other fields of knowledge, such as cognitive science, anthropology, history, and cultural studies, which allows for a deeper understanding of the context and functions of dialects. Particular attention is paid to the perception of dialects (perceptual dialectology), exploring how people understand and evaluate linguistic variations that affect their attitudes toward different language groups. Finally, considering the fact that modern digital technologies are changing the ways of communication and language interaction, this poses new challenges for dialectology in studying the impact of digital media on linguistic dialects.

Thus, it can be concluded that modern dialectology is developing toward greater complexity and interdisciplinarity, using the latest technologies and theoretical approaches to gain a deeper

understanding of language variation and its interaction with social and cultural factors.

## 5 Discussions

There are several debatable issues in modern dialectology concerning approaches to the study of language variations. One of the main issues is the choice between synchronic and diachronic analysis. The synchronic approach focuses on studying language structures at the very moment, while the diachronic approach examines how language forms have changed over time. Some linguists argue that historical context is necessary to fully understand language differences, making diachronic analysis indispensable. Others argue that modern linguistic forms can be effectively analyzed without immersion in the history of the language, which makes the synchronic approach more suitable for certain studies. Nevertheless, in our opinion, this discussion is scholastic in nature since a comprehensive analysis of language variations requires both synchronic and diachronic approaches, which form the so-called circle of complementarity, expanding our understanding of dialects and their components.

Criticism of using the structural approach is another aspect that we would like to draw attention to in the context of current discussions. One of the arguments against this approach is that it may concentrate too much on the formal aspects of language, ignoring the social, cultural and functional aspects of language use. In addition, it may be difficult to define the boundaries of the diasystem, especially in the context of the diversity of language variations. Despite these challenges, we are convinced that the structural approach remains valuable for in-depth analysis of language systems and their components. It can play a crucial role in understanding the structural relations between different dialects, as well as in identifying common patterns and structures in the language. In this context, Weinreich's ideas about diasystems provide a particularly useful perspective that makes it possible to combine a deep understanding of language structure with a broader study of language variation and its social and cultural aspects.

Another significant discussion is related to the influence of cognitive linguistics on dialectology. In this case, the disputes center on the importance of taking cognitive processes into account in the analysis of language dialects. Some researchers believe that the cognitive aspects of language are essential to understanding how people use and perceive language variations, while others dispute the need for such integration, believing that language differences can be studied independently of cognitive processes.

We believe that both of these approaches – cognitive and more traditional – will make an important contribution to the development of dialectology. They are not mutually exclusive but rather complement each other, offering different perspectives on language learning. The integration of cognitive linguistics into dialectology can enrich the understanding of linguistic phenomena by providing insights into how language structures are influenced and shaped by human perception and thinking. At the same time, the traditional approach continues to be the cornerstone for ensuring the most objective analysis of language forms.

## 6 Conclusions

In summary, it can be emphasized that modern dialectology is developing in the context of constant interaction between traditional methods and innovative approaches. This is conditioned, on the one hand, by the need to document and analyze linguistic variations in their social and cultural context, and, on the other hand, by the necessity to respond to the modern challenges posed by the rapidly changing world.

The integration of cognitive approaches and perceptual dialectology opens up new possibilities for a deeper understanding of the interaction between language and

perception, providing valuable tools for studying social identities and cultural processes shaped by language. At the same time, structural approaches and concepts, such as diasystems, broaden the scope of analysis, allowing us to consider linguistic variation within a broader language system.

The role of technological advances is also important, enabling dialectologists to use the latest data collection and analysis tools, including machine learning and big data processing. This contributes to a better understanding of language changes and their impact on social processes.

However, these new opportunities also pose particular challenges. The integration of different approaches requires dialectologists not only to possess deep knowledge in their field but also to be open to new research methods and ready to work interdisciplinarily.

In general, modern dialectology is facing an opportunity to significantly expand its understanding of linguistic phenomena, while maintaining a critical view of the use and implementation of new methods and theoretical approaches. The attitude toward these new challenges and opportunities will determine the future development of dialectology as a discipline.

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**Primary Paper Section: A**

**Secondary Paper Section: AI**

## EFFECTIVENESS OF MECHANISMS OF ANTI-CORRUPTION MANAGEMENT IN MODERN CONDITIONS

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**Abstract:** The relevance of the issue of anti-corruption management in the modern world cannot be overestimated. Corruption has a direct impact on economic development, political stability and social justice in different countries, creating obstacles to effective governance and undermining public trust in state institutions. The development and implementation of effective anti-corruption strategies is a key factor in strengthening democracy and supporting sustainable development, and it plays an important role in preventing economic and social losses related to corrupt practices. The research results emphasize that the effectiveness of anti-corruption management to a large extent depends on the implementation and adherence to key principles such as transparency, responsibility and active participation of civil society. These principles contribute to the creation of trust and openness in government, which is essential for combating corruption. The cultural features of each country are crucial in the development of effective anti-corruption strategies since they determine the perception and reaction of society to corrupt practices. The academic paper also draws attention to the need to strike a balance between strict anti-corruption measures and ensuring respect for human rights, emphasizing that the effectiveness of the fight against corruption should not be at the expense of fundamental human and civil rights and freedoms.

**Keywords:** Anti-corruption management, Transparency, Human rights, Cultural peculiarities, International cooperation, Civil society.

### 1 Introduction

Corruption is one of the biggest threats to effective governance, sustainable economic development and social justice in the modern world. The impact of corruption covers a wide range of aspects: from reducing public trust in state institutions to distorting market mechanisms and hindering economic growth. In view of the foregoing, the search for effective anti-corruption governance mechanisms is an urgent task for many countries.

The present academic paper aims to analyze the current mechanisms of anti-corruption management, with a focus on their effectiveness and impact on various aspects of public life. We consider different approaches to combating corruption, from legislative initiatives to institutional reforms, and analyze how these measures influence the overall picture of corruption in the world. Particular attention is paid to the comparative analysis of international practices and identification of the most effective strategies.

The research is intended to determine the key factors that contribute to the successful implementation of anti-corruption measures, as well as to identify potential obstacles and challenges faced by different countries in this area. Therefore, the paper makes an important contribution to understanding the complexity and multifaceted nature of the issue of corruption and searching for effective ways to overcome it.

The purpose of the present research is to analyze the effectiveness of modern anti-corruption management mechanisms, with a special emphasis on their influence on various socio-economic aspects. The research is aimed at identifying key factors that contribute to the successful implementation of anti-corruption measures, as well as identifying potential challenges and obstacles faced by different countries. Special attention is paid to the role of innovative technologies, international standards and institutional reforms in

strengthening anti-corruption strategies. The aim also includes analyzing the impact of cultural, historical and political factors on the effectiveness of anti-corruption initiatives.

### 2 Analytical review of the literature on the research topic

The issue, indicated in the title of the research, is of interest to various fields of humanitarian knowledge, uniting scholars on both sides of the Atlantic Ocean. For instance, B. Bakken and J. Wang (2021) analyze the variable forms of corruption in China in their scientific work. This study is important for understanding how corruption evolves in different cultural and political contexts, which is crucial for developing effective anti-corruption strategies. M. Kryshtanovych, N. Oliinyk, T. Skliaruk, O. Voityk, & I. Doronina (2021) focus on the problems of forming a business environment in transition countries, with a special emphasis on anti-corruption aspects. Their findings show how corruption affects the business climate and economic development.

The study by B. S. Ngcamu and E. Mantzaris (2023) highlights the problem of corruption in South African universities, focusing on corruption detection systems and the impact on employee retention. This research provides insight into how institutional mechanisms can influence the detection and prevention of corruption in the academic environment. In a similar vein, the scientific work by K. K. Ibodullaevich and W. G. K. Kizi (2021) examines in detail the different types and forms of corruption, its causes and the effects it has on society. The authors emphasize the complexity of corruption processes and the need for a deep understanding of their dynamics for effective management.

B. A. Mukhtarov (2022) explores the manifestations of corruption in society, complementing previous studies with a broader social context. This article helps understand how corruption influences various spheres of public life. In addition, the study by J. Kaur, T. S. Kochhar, S. Ganguli, and S. S. Rajest (2021) covers the evolution of governance systems, which is crucial for comprehending the historical development and changes in approaches to corruption management. The scientific work of G. Karimova (2022) focuses on the historical roots of corruption and ways to overcome it, which makes it possible to understand the duration and complexity of the fight against this phenomenon.

The publication of F. Monteduro, J. D'Onza, and R. Mussari (2023) explores the phenomenon of "contagion" of corruption among organizations in municipal governments. This research is important for understanding how corrupt practices can spread between different organizations and institutions. E. K. Owusu, A. P. Chan, and T. Wang (2021) focus on the fight against corruption in urban infrastructure provision, especially on the dynamics of critical constructs and anti-corruption measures. Their approach demonstrates the importance of adaptability and flexibility in anti-corruption strategies.

P. J. Lassou, T. Hopper, and T. Soobaroyen (2021) investigate the impact of financial control on corruption in an African country, considering the role of "internal experts" in an environment that is conducive to corruption. Their findings point to the need to strengthen internal control systems.

The study by D. Jancsics and J. Costa (2023) analyzes the organizational forms of corruption networks on the example of the case of Odebrecht-Toledo. This provides a deeper understanding of the structure and dynamics of corruption networks. A. Noor (2022) draws attention to corruption in the field of land relations in Indonesia, especially in the context of infrastructure development. This research highlights how corruption can affect large infrastructure projects and land relations.

The scientific article by Y. Hao, L. Xu, Y. Guo, & H. Wu (2022) explores the factors that cause environmental emergencies, with a special focus on environmental decentralization and regional corruption. These findings demonstrate the interconnection between corruption and environmental risks. N. Campos, E. Engel, R. D. Fischer, and A. Galetovic (2021) analyze in detail the mechanisms of corruption in infrastructure projects, using the case of Odebrecht as an example. Their results provide important lessons for preventing and detecting corruption in large-scale infrastructure projects.

The study by J. Rahman and Y. Jin (2023) focuses on the control of tax corruption, especially in the context of the market for irreplaceable tokens in China. This provides insights regarding the impact of the latest technologies on the mechanisms for revealing and controlling corruption. P. Zarfpeykan and K. Akroyd (2022) analyze the factors that influence the integration of sustainable development indicators into the company's management system. Their findings are important for understanding how sustainability can be an effective means of combating corruption.

A. Androniceanu, E. Nica, I. Georgescu, and O. M. Sabie (2021) conduct a comparative analysis of the impact of ICT on corruption control in public administrations of EU member states. Their research reveals the potential of technologies for improving anti-corruption mechanisms. P. Skrynkovskyy, A. Kataiev, O. Zaiats, G. Andrushchenko, and N. Popova (2021) examine the competitiveness of companies in the market by analyzing the phenomenon of corruption in Ukraine. This scientific work is significant for understanding the link between corruption and market efficiency.

The research of K. K. Rodrigues and A. Barros (Rodrigues & Barros, 2022) highlights the transition from traditional forms of corruption to the so-called "second-order corruption". This helps understand the evolution of corruption practices in modern conditions. I. Adam and M. Fazekas (2021) examine how new technologies help fight corruption, providing an overview of current evidence. Their findings emphasize the potential for innovation in anti-corruption activities.

V. Teremetskyi, Y. Duliba, V. Kroitor, N. Korchak, and O. Makarenko (2021) focus on corruption and strengthening anti-corruption efforts in the health care sector during the COVID-19 pandemic. This makes it possible to determine how emergency conditions influence corruption risks. L. Amelia and D. Hartanti (2023) study the effectiveness of the management system in the Indonesian Anti-Corruption Agency from the point of view of "control levers". Their conclusions provide valuable insights into management practices in the fight against corruption.

The exploration of K. M. Alam, J. A. Rahman, A. Tasnim, and A. Akther (2022) examines the development of the blockchain-based system of managing land rights for Bangladesh. This is crucial for understanding the potential of new technologies in solving problems related to corruption in the field of land relations. D. Wenzel (2021) investigates the link between droughts and corruption, emphasizing how natural disasters can facilitate corrupt behavior. This helps understand how environmental factors affect socio-economic processes.

The scientific work of N. Siawsh, K. Peszynski, L. Young, & H. Vo-Tran (2021) explores the role of power in procurement and supply chain management systems in a humanitarian organization from a sociotechnical perspective. This is essential for assessing the impact of internal organizational structures on corruption risks. L. Karpenko, M. Izha, D. Verbitsky, and O. Burdeinyi (2023) offer an international retrospective analysis of the development of anti-corruption standards in the economic security system of Ukraine. Their study emphasizes the historical development and significance of standards in the fight against corruption.

F. Xue, C. Chen, C. S. Chan, & Z. Yi (2022) analyze whether corporate social responsibility is valuable in the context of an

anti-corruption campaign. This research makes it possible to understand the interrelation between corporate ethics and anti-corruption activities. The publication by Ya. Leonov (2020a) focuses on a modern approach to managing the sports industry in the face of uncertainty. This study is important for understanding how management strategies in the sports sector are changing in response to modern challenges, especially in the context of economic and social instability. A subsequent study, also authored by Y. Leonov (2020b), analyzes global trends and Ukrainian practice of developing the sports industry in the context of the crisis. The scholar explores how crisis situations influence the sports industry and what adaptation strategies can be used to support and develop it in such conditions.

A. Arwani, S. Vijaya, M. F. Lightupa, M. S. Mustafa, M. H. R. Chakim, E. M. Pattinaja, and A. Andiyan (2022) investigate the contribution of the features of Shariah accounting to anti-corruption culture. This scientific article emphasizes the importance of cultural and religious aspects in the development of anti-corruption strategies. A. Dismukhamedov, L. Mukhiddinova, and A. Saidov (2023) consider the issue of corruption risk management and its digitalization. This study is significant for understanding the potential of digital technologies in the fight against corruption.

Ya. Fahed-Sreih (2023) offers new perspectives on corruption, bringing together a variety of studies and theoretical approaches. This makes it possible to understand current trends and challenges in studying corruption. The research by S. Cevik and J.T. Jalles (2023) analyzes the global impact of corruption on the consequences of natural disasters. This publication highlights the lethal effects of corruption and its impact on the effectiveness of crisis response.

I. Yatsyna and I. Kudinov (2023) consider innovative analytical and statistical technologies as a tool for combating corruption, offering a conceptual analysis. Their approach opens up new opportunities for improving anti-corruption mechanisms. V. Tawiah (2023) examines the impact of the implementation of the International Public Sector Accounting Standards (IPSAS) on corruption in developing countries. This makes it possible to assess the role of accounting standards in the fight against corruption.

A. Maulidi and J. Ansell (2022) consider corruption as a separate crime, pointing to the need to rethink internal control to combat bureaucratic corruption crimes. This emphasizes the importance of effective internal control systems in preventing corruption. P. J. Lassou, T. Hopper, and C. Ntım (2021) analyze how the colonial past forms public audit institutions in Benin that fail to effectively combat corruption. This study reflects the influence of historical factors on contemporary anti-corruption efforts.

The presented literature review reflects a wide range of studies covering various aspects of corruption and its impact on society. These studies highlight the difficulty of the fight against corruption and the significance of a comprehensive approach to understanding and combating it, ranging from technology breakthroughs to historical and accounting techniques.

### 3 Methodology

The methodology of the proposed research is theoretical in nature and it is based on a comprehensive analysis of the scientific literature. The research is based on a systematic review of scientific sources to identify and synthesize important theories, concepts and studies covering various aspects of anti-corruption management, with a special emphasis on innovative approaches and strategies. Particular attention will be paid to analyzing innovative technologies in the context of anti-corruption management, studying the impact of political, cultural and economic factors on the effectiveness of these mechanisms.

The methodology also involves the use of comparative analysis to compare different international practices and approaches to anti-corruption management. This will help identify both

common and unique elements that influence the success of anti-corruption measures in different countries.

The final stage of the research will be the synthesis of the information obtained to formulate conclusions and recommendations aimed at improving the effectiveness of anti-corruption management. This theoretical approach will allow for a deeper understanding of how different methodologies and strategies can be applied to effectively combat corruption in the modern conditions.

#### 4 Results

Anti-corruption management is a set of measures and strategies used at different levels (from local to international) to prevent, detect, investigate and counteract corruption. This includes the creation and implementation of effective legal frameworks, control mechanisms, transparency and accountability policies, as well as initiatives to raise public awareness and participation in combating corruption.

The conducted analysis of the scientific literature makes it possible to identify the following basic principles of anti-corruption management:

- *transparency*, which means open access to information about the activities of the government and its bodies, allowing the public to control the actions of officials and prevent corruption;
- *responsibility*, that is, the creation of a system in which each agent (actor or official) is responsible for his or her actions, including those that may be considered corruption-related;
- *legitimacy*, that is, the strict adherence to laws and regulations intended to combat corruption and their ongoing updating to effectively reflect changing conditions and challenges;
- *public participation*, that is, the involvement of citizens in the process of combating corruption, including education, awareness and active participation in the disclosure of corruption;
- *international cooperation*, that is, cooperation between countries and international organizations to effectively combat corruption, which is often transnational in nature.

Anti-corruption management requires a comprehensive approach that includes a variety of tools and methodologies adapted to the specific conditions and challenges in a particular country or sector. It also implies strict adherence to ethical standards and constant monitoring and adaptation of strategies to ensure their effectiveness.

The effectiveness of anti-corruption management in modern conditions is measured by a number of indicators and methods that allow assessing the success of implemented measures and strategies. The importance of such assessment lies in ensuring transparency, responsibility and effectiveness of the fight against corruption, as well as the ability to adapt and improve approaches to changing conditions.

The effectiveness is assessed by analyzing various aspects, including the reduction of corruption, changes in public perception of corruption, and improvements in the legal and institutional framework. One of the key indicators is the change in the country's position in international corruption rankings, such as the Corruption Perceptions Index published by Transparency International. Such ratings reflect the general perception of the corruption level in the country and are an important indicator of the effectiveness of national anti-corruption measures.

In addition, the number and effectiveness of investigations, trials and convictions in corruption cases is an important metric of the anti-corruption management efficiency. This demonstrates the activity and effectiveness of law enforcement authorities and the judicial system in the fight against corruption.

The effectiveness of anti-corruption initiatives is also measured through the implementation and functioning of institutional control mechanisms, such as independent anti-corruption agencies, e-procurement systems, and transparency of budget processes. An analysis is conducted of how effective these systems are in identifying and preventing corrupt practices.

Another important aspect of the assessment is the analysis of changes in public awareness and attitudes toward corruption. Public opinion polls, media monitoring, and analysis of public debate can provide information on the extent to which people are aware of corruption and their willingness to counter it.

While assessing the effectiveness of anti-corruption management, it is also important to take into account contextual factors, such as political stability, economic development and cultural features that may influence the implementation and outcomes of anti-corruption initiatives. This helps ensure a comprehensive approach to analyzing and understanding the effectiveness of anti-corruption management in modern conditions.

In order to illustrate the effectiveness of anti-corruption management, one can use studies and data from the Corruption Perceptions Index (CPI) for 2022, published by Transparency International. This index ranks countries and territories according to the level of perceived corruption in the public sector, using a scale from 0 (high corruption) to 100 (low corruption). The global average has remained unchanged for a decade, at only 43 out of 100. More than two-thirds of countries have scores below 50, and 26 countries have reached their lowest scores. CPI data can be used to assess progress in the fight against corruption at the global level and to analyze the effectiveness of various anti-corruption strategies.

The Corruption Perceptions Index (CPI) by Transparency International measures the level of corruption in the public sector of countries based on the perceptions and experiences of experts and businesspeople. The score ranges from 0 (highly corrupt) to 100 (minimally corrupt). For instance, the graph below shows the changes in Ukraine's score from 2012 to 2022, which demonstrates small fluctuations in the score with an improving trend, indicating changes in the country's anti-corruption policy and their impact on the overall level of corruption (Figure 1).



## UKRAINE

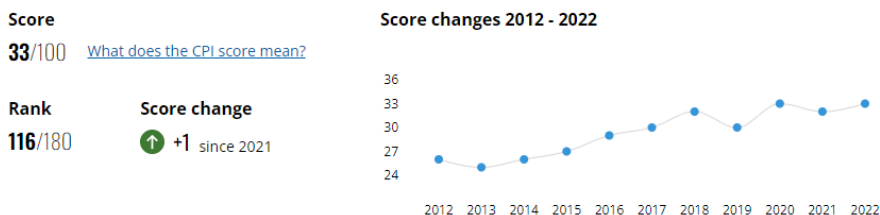


Figure 1. Score changes  
Source: (Transparency International, 2022).

The use of innovative technologies plays a pivotal role in strengthening anti-corruption efforts. These technologies provide opportunities to increase transparency, ensure traceability of transactions, and support more effective audit and control procedures.

In this regard, blockchain technology is among the most promising. This technology makes it possible to create immutable and fully transparent digital records, which significantly complicates the possibility of manipulation and corruption. For instance, the application of blockchain in land registries can help prevent illegal real estate fraud by ensuring transparency and integrity of transactions.

Artificial intelligence (AI) and machine learning also open up new opportunities for fighting corruption. These technologies can analyze large volumes of data to identify atypical patterns or suspicious transactions that may indicate corrupt practices. Such analysis can greatly contribute to the prevention and detection of corruption in public procurement, financial institutions and other key sectors.

Digitalization and automation of processes also play an important role in combating corruption. Automation of routine procedures reduces the human factor and the possibility of corruption manipulation. For instance, the introduction of electronic procurement systems can reduce the risk of bribery and fraud by ensuring greater transparency and fairness in the supplier selection process.

It is also worth noting that technological innovations should be accompanied by relevant legislative and regulatory changes. The legal framework should support the use of new technologies in the fight against corruption, ensuring data protection, privacy and other key aspects.

In general, innovative technologies have the potential to radically transform approaches to combating corruption, making it more efficient, transparent and less vulnerable to human error or deliberate abuse.

Although innovative technologies are generally an important tool in the fight against corruption, they can also carry certain risks that could potentially undermine these efforts. The main challenges are data security, privacy, and unintended consequences of automation and artificial intelligence.

On the one hand, the introduction of innovative technologies requires the collection and analysis of large amounts of data, which can lead to privacy and personal data protection issues. If such data ends up in the wrong hands, it can lead to information leaks, blackmail or other forms of fraud.

In addition, artificial intelligence and automated systems, while beneficial in identifying suspicious patterns, can also be used to create complex corruption schemes that are more difficult to detect. For instance, algorithms can be distorted or hacked to conceal corrupt activities.

Another aspect is the excessive dependence on technology, which can lead to a decrease in the role of the human factor and professional judgment. This dependence can make it difficult to understand the context and nuances underlying corrupt practices, especially in complex or unusual situations.

Furthermore, it is important to note that innovative technologies can be expensive and require significant resources to implement and maintain. This can create barriers for less developed countries, limiting their ability to use these technologies in the fight against corruption.

Overall, while innovative technologies have great potential to increase the effectiveness of anti-corruption measures, it is also necessary to consider the potential risks and challenges related to their implementation and use. The balance between the application of technologies and ensuring sufficient security, privacy and ethical standards is crucial to ensure their effectiveness and positive impact on the fight against corruption. Now let's turn to the issue of anti-corruption management models. The latter may be of a centralized or decentralized nature. The centralized model involves the creation of specialized bodies that concentrate powers and resources to combat corruption. The decentralized model, in turn, distributes responsibilities among different agencies and levels of government, which promotes greater accountability and public participation. There are also mixed models that combine elements of both approaches to create a more flexible and adaptive system. Anti-corruption management models are constantly evolving, integrating the latest technologies and international standards to improve the effectiveness of anti-corruption measures.

Examples of anti-corruption management can be found in various countries that have established unique systems to fight corruption. For instance, Singapore and Hong Kong have established effective centralized anti-corruption agencies, such as the Corruption Commission of Singapore, which have wide-ranging investigative and prosecutorial powers. In countries with decentralized models, such as the United States, anti-corruption functions are distributed among various agencies, including the Department of Justice and the Federal Bureau of Investigation.

### 5 Discussions

The topic we have chosen, given its multifaceted and complex nature, raises a number of issues that have not been fully addressed in the literature yet. Thus, discussions often draw attention to the problem of the lack of a unified universal model capable of effectively combating corruption in all countries. This question remains open due to differences in cultural, economic and political conditions. The idea that the solution to this problem may lie in a flexible combination of centralized and decentralized elements, taking into account the specifics of each country, is being actively discussed. The discussion also touches upon the need to strengthen the legal framework and ensure

effective interaction between civil society and state institutions to create an effective anti-corruption system.

In discussions on anti-corruption governance, it is important to consider the effectiveness of law enforcement measures, the impact of corruption on the investment climate and economic development, and the role of civil society in monitoring state institutions. Debates are underway about balancing the fight against corruption and the protection of human rights, especially in the context of anti-corruption investigations that may affect fundamental freedoms and privacy. International cooperation in this area is also discussed, especially in the context of globalization and transnational corruption.

The limits of anti-corruption measures and human rights are one of the most hotly debated topics in the scientific literature. For instance, Singapore has an effective anti-corruption system, which is sometimes criticized for restricting civil rights and freedoms. Harsh laws and stiff penalties create an environment where corruption is rare, but this can also affect human rights. The introduction of such methods in countries with established traditions of human rights and the rule of law may cause conflicts with fundamental freedoms. Therefore, when applying the Singaporean experience, it is necessary to seek a balance, adapting the severity of measures to the requirements and standards of human rights to avoid leveling them.

## 6 Conclusions

The relevance of the topic of anti-corruption management is undeniable nowadays since corruption poses a serious threat to the stability and development of societies around the world. It undermines democracy, slows down economic growth and reduces trust in state institutions. In this regard, the fight against corruption is a key factor in ensuring sustainable development and social justice.

The principles of anti-corruption management include transparency, responsibility and legitimacy, which form the basis for the effective fight against corruption. Transparency provides the public with access to information about government activities, which allows detection of corruption schemes. Responsibility makes officials accountable for their actions, and legitimacy implies compliance with strict anti-corruption laws.

Different models of anti-corruption management, including centralized and decentralized, demonstrate various approaches to addressing the issue of corruption. Centralized models concentrate resources and powers in one agency, which facilitates concentration of efforts. For instance, Singapore's experience shows that such models can be extremely effective, but are often followed by restrictions on rights and freedoms.

Consideration of cultural differences in the development of anti-corruption strategies is essential for their success. Different societies may perceive corruption differently, which requires individualized approaches and strategies. It should also be borne in mind that the effectiveness of anti-corruption initiatives is closely linked to the level of public trust in the government and law enforcement agencies.

The protection of human rights in anti-corruption policy is one of the most controversial issues. On the one hand, it is necessary to effectively combat corruption; however, on the other hand, it is important not to violate the rights and freedoms of citizens. Singapore's experience shows that harsh measures can be effective, but at the same time pose the risk of restricting democratic rights. The application of such methods in countries with established democratic traditions requires a cautious approach to ensure a balance between the effectiveness of the fight against corruption and respect for human rights.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, AH**

## EFFICIENCY OF PUBLIC-PRIVATE PARTNERSHIP IN INFRASTRUCTURE DEVELOPMENT: ANALYSIS AND PROSPECTS

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**Abstract:** In 2022, the magnitude of investments in Public-Private Partnerships (PPP) within the infrastructure sector demonstrated a gradual resurgence. Beyond the well-established practice of attracting significant PPP investments in developed nations, there has been a notable increase in the engagement of middle-income countries in the utilization of public-private collaborative mechanisms for the advancement of their infrastructure. Among the sectors, transportation, and communications have consistently maintained a prominent position in terms of both investment influx and the quantity of successfully executed infrastructure projects on a global scale. Quantitative performance indicators within the sphere of PPP projects, encompassing metrics such as the count, monetary volume, and the proportion of different agreement types, manifest encouraging trends in the execution of infrastructure PPP initiatives. Conversely, the qualitative outcomes of this investigation reveal a spectrum of issues that are intrinsically linked to CSFs. These CSFs represent the principal benchmarks that exert a direct influence on the efficiency of PPP projects concerning their established objectives, processes, and management framework. The research undertaken by the authors has successfully identified a range of disparities in the challenges faced during the implementation of PPP projects across diverse nations, notwithstanding the similarity in the underlying mechanisms of cooperation.

**Keywords:** Public-private partnership, Infrastructure projects, PPP projects, PPP efficiency, Efficiency assessment methods.

### 1 Introduction

In the year 2022, there witnessed a resurgence of private sector involvement in the execution of global Public-Private Partnership (PPP) projects. During this period, private sector commitments to PPP investments reached a total of \$91.7 billion, channeled into 263 projects. This represented a notable 23% upswing in comparison to the preceding year, and a 4% increment when compared to the average of the previous five years (2017-2021). Predominantly, these investments were concentrated in the transportation and infrastructure sectors. Notably, this shift in the dynamics of PPP investments is also reflected in regional investment patterns for private-sector project implementation. In 2022, countries within the Asia and Pacific region recorded substantial investments, amounting to \$43.4 billion in PPPs, signaling a 17% rise when contrasted with the period from 2017 to 2021. In stark contrast, the Europe and Central Asia region experienced a relatively meager investment of \$3.3 billion, marking the lowest sum observed from 2012 to 2022, representing a significant 77% reduction in comparison to prior years (The World Bank, 2022).

Investments in infrastructure, with a particular emphasis on transportation, play a pivotal role in delivering social and economic advantages that extend to the general public, the private sector, and the broader society. Infrastructure development catalyzes augmenting productive capacity, bridging connectivity disparities, mitigating trade and distribution expenses, and promoting the equitable sharing of advantages across various sectors. In a broader perspective, the implementation of infrastructure projects through PPPs exhibits a propensity to alleviate poverty and enhance the accessibility of public services within communities (Singh & Kathuria, 2016). Furthermore, infrastructure development contributes substantially to the attainment of inclusive growth at regional levels, both within and between nations, a pursuit that invariably necessitates substantial investments (Llanto, 2016). Given these considerations, it is imperative to undertake a comprehensive evaluation of the efficiency and effectiveness of PPPs in the context of infrastructure development.

The primary objective of this article is to conduct an in-depth analysis of the efficacy of PPPs in the sphere of infrastructure development. Furthermore, the article endeavors to delineate the potential avenues for enhancing the socio-economic and environmental outcomes resulting from such collaborative ventures.

### 2 Literature Review

The intricacy inherent in the assessment of the efficiency of PPP projects can be attributed to the varying political and economic conditions that exert influence on their execution. Additionally, distinctions arise from the diverse project structures and the variations in planning and implementation approaches. The World Bank has outlined a comprehensive framework that encompasses key structural components within the project cycle, aimed at facilitating the effective implementation of PPPs:

1. Implementation policy, institutional framework, and legal structure, which includes methodologies for the evaluation and management of fiscal risks and liabilities.
2. A curated list of PPP projects deemed suitable for execution and financing, determined through well-defined procedures and processes for the selection of priority projects.
3. Project structuring, involves a meticulous preparation that takes into account commercial feasibility, viability, government support, risk allocation, and affordability.
4. The capacity for contract management and the provision of transaction support for project financing (The World Bank, 2023a).

The effective structuring of PPP projects is pivotal in influencing their financing, the judicious allocation of risks among stakeholders, and ensuring the dependability of managing both public and private investments. Conventionally, the legal framework and institutional capabilities have been regarded as primary factors contributing to the successful execution of PPPs. However, the World Bank has determined that various other performance factors also exert a significant influence. In addition to a well-established primary and secondary PPP legal framework, it is imperative to adopt a holistic approach to establishing a conducive environment for project implementation. It is noteworthy that the impact of PPP legislation and governing bodies may vary among different countries. The successful realization of projects hinges upon a confluence of factors, including the adherence to investment commitments by both the public and private sectors. Moreover, it necessitates the reformation of governance institutions, the formulation of sectoral development strategies, and a comprehensive consideration of political and macroeconomic variables. To this end, the establishment of effective institutional mechanisms is imperative, fostering harmonious coordination and oversight among key entities such as the Ministry of Finance or the relevant public authority, PPP implementation units (inclusive of staffing and the provision of requisite resources), procurement organizations, and the general public.

Drawing from the experiences of both the Philippines and Indonesia, it is evident that a series of reform initiatives have been undertaken to address the challenges associated with the execution of infrastructure projects within the framework of PPPs. In the case of the Philippines, these reforms encompass the reconfiguration of budgetary processes, enhancements in the fiscal and regulatory environment, the refinement of the PPP mechanism, and the bolstering of political coordination to mitigate issues linked to the expansion of communication and infrastructure projects (Llanto, 2016). Similarly, Indonesia's experience underscores the imperative of addressing problems linked to government regulation and elevating policy coordination as essential steps toward promoting increased investments in infrastructure development through PPPs (Sandee, 2016).

The assessment of Public-Private Partnership project performance assumes a pivotal role in advancing the objectives and interests of stakeholders. This is especially salient within the context of contemporary strategies that underscore sustainability and sustainable development, encompassing economic, social, and environmental dimensions (Liang & Wang, 2019).

Consequently, the evaluation of PPP performance is founded upon the utilization of indicators, methodologies, and approaches aimed at comprehensively scrutinizing all facets of sustainable development.

The framework for measuring the performance of PPP should be designed to account for disparities in the assessment of productivity and efficiency, as well as the incorporation of Critical Success Factors (CSFs) and project performance criteria. CSFs, as recognized in the literature (Zhang, 2005; Cui et al., 2019), represent the principal indicators that exert direct influence on project performance concerning their established objectives. Extensive research on the CSFs of PPP projects has unveiled a plethora of success indicators spanning various dimensions, including political, technical, financial, managerial, human, environmental, and cultural factors (Liu et al., 2015; Yuan et al., 2018). Many of these studies underscore the significance of both identifying and effectively managing CSFs during the initial phases of PPP design (Liu et al., 2015; Liu et al., 2018).

The efficacy of PPP projects is contingent upon the synchronization of project objectives with the interests and expectations of relevant stakeholders and participants. The following fundamental principles are to be applied when ascertaining the effectiveness of PPP projects:

1. During the project's preparatory and rationale stage, it is imperative to conduct a comprehensive evaluation, encompassing revenue assessment, expenditure projection, and the forecasting of future cash flows throughout the project's entire life cycle. The development of a financial model for the project is essential in this context.
2. A comparative analysis of alternative project options is indispensable to facilitate informed decision-making.
3. The exploration of potential positive economic, social, environmental, and community impacts should be conducted, with active engagement of public opinion.
4. Time considerations must be factored into the assessment of economic efficiency and financial viability of the project, recognizing the temporal dynamics.
5. The assessment should also incorporate the evaluation of market conditions and major risks, to achieve their optimal distribution among the involved stakeholders.

Within the global context, the assessment of the effectiveness of PPP projects is informed by various prevalent approaches (Dutko, 2020):

1. One such approach is the utilization of the Value for Money (VFM) indicator, which provides a comprehensive means to gauge the project's overall cost, the quality of delivered goods and services, the alignment of price and quality, adherence to predefined objectives, and the efficient utilization of resources (Helby Petersen, 2019). It is noteworthy that the interplay of VFM factors significantly influences the enhancement of PPP project VFM. Moreover, the financial stability or sustainability of a project serves as a pivotal determinant influencing both its efficiency and cost-effectiveness. The broader cooperative environment also exerts a notable impact on the efficacy of public-private collaborations, and macroeconomic indicators have a comprehensive influence on cooperation in the broader context (Cui et al., 2019).
2. The utilization of the Public Sector Comparator (PSC) indicator plays a pivotal role in evaluating the feasibility of implementing Public-Private Partnership (PPP) projects. This approach involves a comparative analysis of the methods for executing investment projects, making a contrast between traditional public procurement and PPP implementations.
3. A methodological approach grounded in the analysis of revenues and benefits relative to costs, known as Cost-Benefit Analysis (CBA), has been well-established (Nasto & Sulillari, 2021).

4. An alternative methodological approach rooted in cost-effectiveness analysis (CEA) is employed to select the optimal alternative based on the costs associated with producing a unit of a product or service.
5. A methodological approach founded on multi-criteria analysis (MCA) is used to consider qualitative consequences that may not be comprehensively captured through cost-based indicators.
6. The evaluation and analysis of risks constitute a critical dimension of PPP projects, where the judicious allocation of risks between the public and private sectors holds substantial influence over the augmentation of VFM in infrastructure development (Wibowo & Sundermeier, 2020). The formulation of effective risk-sharing strategies in public-private collaborations for PPP projects serves to enhance the efficiency of the contract negotiation process and concurrently curtails the incidence of disputes throughout the concession period (Ke, Wang & Chan, 2010).
7. The assessment of residual value risk (RVR) assumes significance when contemplating the transfer of PPP assets to the public sector upon the conclusion or premature termination of a PPP contract. This risk pertains to the possibility that upon project completion, the asset, be it tangible or intangible, may deviate from the initially estimated value assigned by the government at the time of transfer to the private sector. Consequently, the public sector may incur a loss in terms of residual value, while private partners may encounter losses necessitating compensation from the government to account for variations in residual value (Yuan et al., 2015).
8. The evaluation of the private sector's financial capacity, financial feasibility, project viability, profitability, and overall project attractiveness represents a pivotal factor in ensuring the successful implementation of PPP projects (Nguyen et al., 2020).
9. Additional approaches encompass both general and specialized analytical methods, including ecological analysis, the Quality Function Deployment (QFD) method, multimodal analysis, resolution factor assessment, and resolution index measurement (Tsimoshynska et al., 2021).

### 3 Methods and Data

To assess the effectiveness of Public-Private Partnerships (PPPs) in the domain of infrastructure development, an analysis of investment dynamics within the transport sector was undertaken, stratified by project types. These project types include management and lease contracts, operation and management contracts entailing significant capital outlays, and new facilities projects that encompass the construction or operation of new assets, either by the private sector or through collaborative efforts in the public-private domain. The indicator utilized to gauge public-private partnerships within the transport sector serves as a metric to estimate commitments made to infrastructure projects related to transportation, which are utilized for public benefit and have secured the requisite funding for their realization. It is important to note that this indicator does not encompass movable assets or financing arrangements for small-scale projects, commercial initiatives, or projects slated for subsequent sale (The World Bank, 2023b).

The analysis encompasses a focus on China, examining the elements contributing to the efficiency of PPP in infrastructure development. This study extends to a consideration of the principal risks associated with project implementation and their allocation between the public and private sectors. Further, recognizing the burgeoning implementation of PPP projects in middle-income and upper-middle-income countries, the investigation extends its purview to encompass additional nations. Specifically, Bulgaria, Serbia, and Albania were selected for a detailed examination of PPP efficiency. These European countries have demonstrated a positive trajectory over the past two decades about infrastructure investments, and PPP projects have proven to be particularly effective within their contexts. Moreover, these countries have established and

cultivated comprehensive frameworks for PPP project implementation and have devised methodologies for assessing their efficiency during the preparatory phase.

#### 4 Results and Discussion

From 1990 to 2022, the transportation sector observed the most substantial inflow of financing via Public-Private Partnerships (PPP) in upper-middle-income and middle-income countries, accumulating USD 565.144 billion and USD 424.870 billion, respectively. Notably, the most significant investments in PPP projects within this timeframe were allocated to specific countries, as follows: China with USD 155.646 billion, Brazil with USD 145.811 billion, India with USD 130.217 billion, Turkey with USD 79.145 billion, Mexico with USD 40.672

billion, Colombia with USD 32.060 billion, Indonesia with USD 22.278 billion, Malaysia with USD 18.411 billion, Peru with USD 16.739 billion, Philippines with USD 14.522 billion, and Argentina with USD 14.383 billion (The World Bank, 2023b).

Between 1990 and 2022, there has been a notable increase in the number of countries engaging in infrastructure development projects, with a pronounced impact on the attainment of financial objectives and the realization of project goals (Table 1). Notably, Brownfield and Greenfield projects dominate the landscape of PPP project types, constituting a significant share of between 40% to 65%, contingent upon the nature of the infrastructure. In terms of project volume, Brownfield and Greenfield projects similarly hold sway among PPP types, representing a share ranging from 56% to 75%.

Table 1. Private Sector Investment in Global Infrastructure Development Projects, 1990-2022.

Indicator	Airports	Seaports	Railroads	Roads
Number of countries making private investments	52	71	44	38
Projects that have reached funding closure	208 The investment totaled \$137.724 million.	495 The investment totaled \$96,933 million.	157, The investment totaled \$146,531 million.	1 318, The investment totaled \$415,036 million.
Regions with the highest share of investment	Europe and Central Asia (44.13%)	Latin America and the Caribbean (26.77%)	Latin America and the Caribbean (43.22%)	Latin America and the Caribbean (33.11%)
PPI type with the highest share of investment	Brownfield project (42.75%)	Greenfield project (57.82%)	Greenfield project (64.65%)	Brownfield (50.71%)
PPI type with the highest share of projects	Brownfield project (64.71%)	Greenfield project (56.05%)	Greenfield project (74.04%)	Brownfield project (70.93%)
Canceled projects, units, and %.	15 or 4.77% of the total investment	13 or 1.73% of the total investment	20 or 13.42% of the total investment	72 or 8.45% of the total investment

Source: compiled by the author based on data from The World Bank (2023m).

Commencing from the early 1990s, China has embarked on an extensive and substantial investment drive within the realm of transportation infrastructure. This undertaking has yielded substantial consequences for the nation's connectivity with other countries. The growth of infrastructure investment has been markedly expedited by an array of project financing mechanisms, stemming from the national government, private sector, and local authorities. Empirical investigations have substantiated the efficacy of PPP investments and mechanisms. They have demonstrated the affirmative contributions of PPP initiatives to economic growth, their influence on the distribution of economic activities, their role in poverty reduction, and their impact on economic integration (Qin, 2016).

Simultaneously, the proliferation of PPP in China has engendered fervent discussions regarding their underlying objectives and efficacy. Notably, Tan and Zhao (2019) have meticulously examined the fluctuations in the volume of PPP investments and their pivotal role within China's infrastructure investment landscape, primarily as a response to the challenges posed by budget deficits and mounting public debt. The overarching aim of PPP projects in the country is twofold: firstly, to address the infrastructure development gap and secondly, to mitigate the adverse ramifications of escalating local debt. However, it is essential to acknowledge that in many instances, the anticipated objectives of these partnerships have not been fully realized (Tan & Zhao, 2019). In 2021, the aggregate volume of public and publicly guaranteed debt service in China amounted to UAH 49.83 billion. This encompassed both the repayment of principal amounts and the actual interest paid in foreign currency, goods, or services, about long-term obligations of public debtors and long-term private obligations guaranteed by public organizations (The World Bank, 2023c).

The inability to attain PPP objectives in China can be attributed to the fundamental reliance on state-owned enterprises as the cornerstone of China's collaborative ventures. This reliance results in investment obligations that impose an increasingly burdensome financial strain on the government. In response to

this challenge, the central government has initiated measures to stimulate private sector investments, with a particular focus on mitigating financial risks. Nonetheless, the future trajectory of PPP development in China remains marked by uncertainty (Tan & Zhao, 2019). It is noteworthy that China has assumed a leadership position in terms of investments in transportation development through PPPs. Nevertheless, the rapid expansion of PPPs in the country has been accompanied by several instances of cost overruns and project failures. These occurrences stem from unforeseen conflicts between the public and private sectors during project operations, unpredictability, and the inadequacy of risk mitigation measures (Liang & Wang, 2019).

Empirical investigations focusing on the risks associated with PPP implementation have highlighted certain key factors as most significant. These factors include government interference, governmental corruption, and deficiencies in government decision-making processes. In the context of China's infrastructure development, the primary impediments to PPP effectiveness are recognized as government interference and corruption. The underlying reasons for these risks can be attributed, in part, to the ineffectiveness of the legislative and supervisory framework governing the implementation of PPP projects within China (Chan et al., 2011).

Furthermore, studies examining risk allocation strategies in China and Hong Kong have demonstrated that the public sector exhibits a preference for retaining a majority of political, legal, social, micro-level, and force majeure-related risks. In contrast, the public sector in the United Kingdom tends to be more inclined to transfer risks to the private sector when executing PPP projects (Ke, Wang & Chan, 2010).

Concurrently, empirical findings on risk allocation within the Chinese context between the public and private sectors substantiate a consensus between these entities regarding the majority of recognized risks. Notably, the public sector has assumed ownership of systematic risks, with a pronounced focus on political, legal, and social dimensions. In contrast, the private

sector has taken on the responsibility for project-specific risks, particularly those associated with construction, operations, relational aspects, and economic considerations within the category of systematic risks. Risks related to ecology and the environment are seen to be more effectively distributed across both sectors (Chan et al., 2011). It is noteworthy that within the European context, the implementation of Public-Private Partnership (PPP) projects in Bulgaria, Serbia, and Albania has demonstrated a notable degree of effectiveness. The cumulative investment in these countries over the period spanning 1990 to 2022 stood at USD 1.507 billion, USD 1.118 billion, and USD 769 million, respectively (The World Bank, 2023d). Furthermore, research conducted by Nasto and Sulillari (2021) underscores the substantial scale of investments in PPP projects within Albania during the years 2004 to 2020, with these investments accounting for a significant portion of the nation's Gross Domestic Product (GDP). Notably, in 2020, PPP investments constituted 35% of Albania's GDP. Commencing in 2004, and in line with its pursuit of alignment with the European Union, Albania has introduced new legislation governing PPP development and has established a dedicated state entity known as the Concession Agency (Keçi, 2020). However, it is important to recognize that challenges persist in achieving the intended goals of PPP initiatives, particularly in the context of sustainable development objectives. These difficulties are exemplified by issues related to the cost of energy borne by the Albanian population (Nasto & Sulillari, 2021).

In Albania, among the infrastructure projects deemed highly effective, two prominent examples include the Dures port project (The World Bank, 2023e) and the concession about the development of the international airport in the capital, Tirana. The overall investment in Tirana Airport reached USD 308 million, with private investment accounting for 79% of this total. The concession agreement was executed under the framework of the Brownfield contract type, specifically the subtype Build, Rehabilitate, Operate, and Transfer (BROT). This contract encompassed improvements in runway and terminal technology. The contract was awarded via a competitive bidding process and entailed a twenty-year duration. It was supported by a national grant agreement for financing. Upon the conclusion of the project, ownership was transferred to a consortium comprising the Albanian-American Enterprise Fund (22% ownership, USA), the German Deutsche Investitions und Entwicklungsgesellschaft (31% ownership), and the German Hochtief AG (47% ownership). The project also secured multilateral financing in the form of a \$76 million loan in 2005 and a \$16 million loan from the European Bank for Reconstruction and Development (EBRD) in 2008 (The World Bank, 2023f).

Albania exhibits a commendable level of efficiency in PPP implementation for infrastructure projects, as underscored by the benchmarking scores provided by the World Bank. The project preparation stage garnered a rating of 65 points, the procurement stage received 86 points, the contract management stage earned 66 points, and the supplementary proposals stage was accorded 75 points. In the context of deciding whether to advance with a PPP project in Albania, a series of performance evaluations were undertaken, as outlined by The World Bank (2023g):

1. Socioeconomic Analysis: This involved a comprehensive evaluation encompassing revenue and benefit analysis along with cost analysis. The objective was to gain insights into the PPP project's influence on the socioeconomic landscape within the region of its implementation.
2. Financial Affordability Assessment: This evaluation was geared towards ascertaining the financial feasibility of the project, which included the determination of the necessary long-term public commitments, both direct and contingent, explicit and implicit. It is worth noting that a specifically developed methodology was not employed in the assessment process.
3. Risk Identification and Assessment: This aspect entailed the identification and evaluation of potential risks, culminating in the creation of a risk matrix. It is important to note that no distinct methodology was employed in this process.
4. Comparative Analysis and Evaluation: This involved a comprehensive comparative assessment of the PPP project concerning other potential alternatives, encompassing methodologies such as the "public sector comparator" and "value for money analysis." A specialized methodology was employed for this comparative evaluation.
5. Financial Viability Assessment: This evaluation was directed at assessing the financial feasibility and profitability of the project.
6. Market Assessment: A comprehensive examination of the market landscape, encompassing market research, probing, and an analysis of the potential interests of private sector entities and contractors, as well as an assessment of market capacity.
7. Environmental Impact Assessment: This evaluation included the application of a developed methodology for the assessment of environmental impacts. It should be noted that the results of public consultations with communities were incorporated into this assessment.
8. Social Impact Assessment: A systematic methodology was employed for conducting consultation processes with the relevant communities to assess the social impact of the project.

In comparison to Bulgaria and Serbia, Albania employs a more comprehensive approach when evaluating the performance of Public-Private Partnership (PPP) projects, even though the funding levels are lower (refer to Table 2). Nevertheless, in a broader context, Bulgaria has garnered higher scores about the effectiveness of the different project implementation stages. Specifically, Bulgaria's performance ratings are as follows: 54 points for the project preparation stage, 87 points for the procurement stage, 84 points for the contract management stage, and 83 points for the supplementary bids stage. This indicates that, given the substantial disparity in PPP investments between Bulgaria and Albania, the stages of procurement, contract management, and supplementary proposals assume greater importance than the preparatory stage of evaluation. Serbia, on the other hand, exhibits slightly lower scores across the project implementation stages: a rating of 48 points for the project preparation stage, 90 points for the procurement stage, 68 points for the contract management stage, and 67 points for the supplementary proposals stage.

Table 2. Methods of performance evaluation for project selection at the stage of preparation and decision-making on PPP contracting in Albania, Bulgaria, Serbia

Evaluation method	Albania	Bulgaria	Serbia
Socioeconomic analysis (CBA or other methods)	+	+	+
Assessment of financial inclusion	+	+	+
Risk identification and allocation	+	+	+
Comparative assessment (with other projects)	+	-	+
Financial solvency	+	+	+
Market research tailored to meet the needs of private investors	+	-	-
Market research of technological solutions	-	-	-
Environmental impact assessment	+	-	+
Social impact assessment	+	+	+

The volume of PPP investments in the transport sector infrastructure, USD billion.	0,769	1,507	1,118
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Source: compiled by the author based on data from World Bank (2023g; 2023h; 2023i; 2023j).

Within the landscape of Public-Private Partnerships (PPPs) in Albania, the identification and selection of the appropriate PPP project emerge as critical Critical Success Factors (CSFs) (Berisha, Kruja & Hysa, 2022). Specifically, the Public Sector Comparator (PSC) indicator and the methodological approach grounded in cost-effectiveness analysis (CEA) play pivotal roles in assessing project performance during the preparation stage. Other identified CSFs in PPPs encompass factors such as trust, financial solvency, transparency, and fairness between the involved parties, as well as the negotiation process and the estimation of revenue and expense values, and cash flows (Berisha, Kruja & Hysa, 2022). The study outcomes emphasize the necessity of establishing an accountability mechanism for the public sector to ensure the fulfillment of public requirements (Berisha, Kruja & Hysa, 2022). Consequently, in alignment with the benchmarking of PPP implementation in Albania (The World Bank, 2023g), none of the results derived from the evaluation of project performance have been disseminated or made publicly accessible.

In spite of the successful execution of PPPs in Albania, the practical implementation of such partnerships is not without its challenges. These issues encompass the infringement upon free market principles and the necessity to uphold principles of competition. Moreover, they involve the management of diverse risks and the challenge of ensuring the quality of public services. It is notable that the revenues generated from service provision often fall short of covering financial and operational costs and may not adequately ensure a satisfactory return on investment. Furthermore, unfavorable factors have been identified in Albania's PPPs, including the subpar quality of the organizational structure within the public partner. Inadequate communication, a dearth of internal capacity, a lack of clarity, suboptimal PPP structuring, deficient planning, and a limited understanding of the concept of "value for money" contribute to the complexities surrounding PPP implementation in Albania (Spahiu, 2020).

In Bulgaria, an example of a PPP project is the concession agreement for the enhancement of the Oryakhovo ferry crossing. This project was initiated in 2005 and involved an investment of USD 2.12 million, entirely funded by private capital. The concession agreement was established for 25 years, with the primary objective of advancing port terminal technologies within the transportation sector. This particular PPP project adheres to the Brownfield PPP type and operates under the subtype of "Rehabilitate, Operate, and Transfer" as outlined in the contract. The agreement was formalized following a competitive tender process (The World Bank, 2023k).

In practical scenarios, a variety of methodologies are employed to evaluate the effectiveness of PPP projects. The implementation of concession agreements in France illustrates the utilization of the following performance assessments at the PPP preparation stage (The World Bank, 2023l):

1. An economic analysis-based assessment, conducted without the application of a dedicated methodology.
2. A risk identification assessment, performed without reliance on a specialized methodology.
3. A comparative assessment of PPPs and traditional public procurement, executed without the application of a specific methodology.

It is noteworthy that during the preparation stage of concession agreements in France, assessments pertaining to fiscal affordability, financial capacity, and market analysis were not incorporated into the evaluation process. However, during the public procurement phase in France, a financial model for the PPP project is constructed and subsequently presented (The World Bank, 2023l).

The management of PPP contracts in France encompasses the following structural components (The World Bank, 2023l):

1. Absence of a dedicated PPP contract performance management system.
2. Implementation of a monitoring and evaluation system, which includes periodic updates provided by the private partner regarding the status of the PPP project, data collection by the contracting authority, the presence of risk mitigation mechanisms, and the availability of information related to the effectiveness of the PPP project on the Internet.
3. Establishment of procedures and a system to regulate changes in the structure, specifically in terms of the shareholder composition of the private partner, following the legal qualifications mandated for such organizational modifications.
4. There is a structured procedure for overseeing changes or renegotiations of the PPP agreement after its signing. It is important to note that constraints are imposed on modifying the scope and/or the object of the contract and on altering the distribution of risks.
5. A well-defined procedure exists for regulating situations that may arise during the duration of the PPP agreement. Such situations include force majeure events, substantial adverse actions by the government, and changes in relevant legislation.
6. Established dispute resolution mechanisms are integrated into the contract, governing how disputes are to be addressed.
7. There are stipulated grounds for the termination of the PPP agreement, with clear regulations outlining the consequences of such termination.
8. Provisions are in place to enable creditors to become involved in PPP financing.

## 5 Conclusions

Quantitative metrics reflecting the performance of PPP initiatives, such as the number, volume, and distribution of various agreement types, reveal favorable trajectories in the execution of infrastructure-related PPP projects. Conversely, the qualitative findings of this investigation have highlighted several issues related to CSFs within various nations. Notably, these findings underscore disparities in the challenges encountered during the implementation of PPP projects across different countries, even though they employ similar collaborative mechanisms.

China has grappled with the escalating fiscal responsibilities of the government, a consequence of extensive participation by state-owned enterprises in PPP initiatives. Furthermore, project execution challenges in China encompass issues like cost overruns, conflicts between public and private sectors during operational phases, unpredictability, and inadequacy in risk mitigation measures. In this context, key risks affecting PPP implementations in China encompass government interference, corruption within the government, and suboptimal quality in government decision-making processes. In contrast, when considering the implementation of PPP projects in Albania, essential CSFs include the identification and selection of suitable PPP projects, fostering trust, ensuring financial capacity, promoting transparency and equity among stakeholders, meticulous negotiation, and the meticulous evaluation of revenue and expense projections, and cash flow assessment. Despite the overall success of PPP endeavors in Albania, practical challenges persist, such as infringements on principles of competition, issues in managing risks effectively, concerns regarding the quality of public services, and shortfalls in generating revenues from service provision that adequately cover financial and operational costs, thereby jeopardizing return on investment.



In practice, Albania, Bulgaria, and Serbia have adopted a comprehensive approach, utilizing various methodologies to assess the effectiveness of PPP projects at the preparatory stage. However, as observed from Albania's experience, this approach has not contributed significantly to an increased number of projects or their financing, nor has it proven effective in resolving issues encountered during subsequent stages. On the other hand, Bulgaria's experience underscores the critical importance of the procurement and contract management stages in PPP implementation. The effectiveness of these stages can be measured by their ability to achieve the predetermined goals at each phase. It is worth noting that existing methodologies for assessing PPP project effectiveness during the preparatory phase do not adequately quantify the socio-economic impacts of project implementation. In light of these observations, it is advisable to reconsider the quantitative performance indicators for PPP projects at each stage of implementation, while also considering contemporary influencing factors, their potential fluctuations, and existing risk factors. This comprehensive approach is expected to provide a more holistic understanding of project performance and its socio-economic consequences.

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## IMAGOPOETICS AS AN IMAGOLOGICAL VISION OF A CONTEMPORARY MUSICAL WORK

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**Abstract:** The academic paper considers the imagological approach to musical works, characterized by priority attention to the identification of stereotypes used by the author. Imagology entered the postmodern discourse in the middle of the XX century; however, it was limited to the literary sphere for a long time. The present research explores the possibility of applying an imagological approach to musical art and its specifics. In contrast to literature, music operates with its own semiotic system based on intonation, a complex of pitch, rhythmic, and other features that determine the semantic content of musical constructions. This feature suggests supplementing the transduction of the concept of "imagology" with the transduction of the literary concept of "poetics" to the immanent features of a musical composition. From the perspectives outlined, the definition of the concept of imagopoetics in relation to musical art is derived in the academic paper. It is revealed that both the author's European audience's perception of non-European musical cultures and a wider range of images, which in the imagological discourse are called "imagothemes" and "imagotypes", can be considered as stereotypes in the modern scientific discourse. At the same time, the issue of the correlation between the author's authentic immersion in the relevant figurative sphere and the orientation to the stereotypical perception of the relevant figurative spheres by the author's audience is actualized for each "imagotheme" and "imagotype". The author also touches upon the controversial issue of the possibility of using the imagological approach to deny the existence of an objective difference between artifacts of different peoples, which is most clearly manifested in the musical art.

**Keywords:** Imagopoetics, Imagology, Music, Postmodernism, Musical intonation, Modern music, Classic music.

### 1 Introduction

Imagology as a separate field of scientific inquiry has not only gained a foothold in scientific discourse in recent decades but also shows a tendency to expand its scope. Having originated in the bosom of literary studies as a discipline that explores the images of a particular ethnic group in the literature of another nation, imagology quickly acquired an interdisciplinary character, developing at the intersection of cultural studies and ethnography, sociology and political science, and attracted researchers of various art forms, from fine arts to cinema and music.

The terminological apparatus of imagology is also constantly increasing, due to both the expansion of the methodological base and the objects studied. The diversification of approaches has also led to the emergence of various terms that describe different imagological approaches to studying cultural phenomena, such as image semantics and imagopoetics. The definition of such terms is still characterized by the pluralism of approaches. Moreover, in our opinion, this is due to the immanent pluralism of postmodern worldview, which avoids generally accepted determinants and, therefore, leads to the diversification of the terminological apparatus and semantic fields of most definitions.

The foregoing fully applies to the attempts of the imagological approach in the field of musicology, which has only been actualized in recent years in scholars' research activities. The concept of "imagopoetics" is being actualized in the context of art historical studies, which involves the synthesis of imagological and immanent art historical approaches. We believe that this concept seems to be promising for studying the phenomena of musical art and allows us to outline at least the intention of defining the objective features of musical works that give grounds to consider the imagological processes in musical creativity.

### 2 Literature Review

An analysis of recent publications shows that the field of imagological research has expanded in both disciplinary and geographical aspects. At the same time, we will focus on studies relating directly to music.

In fact, the first imagological study that directly examined a musical work was the article by the Polish researcher Regievicz A. (2018), which examines the joint album of the Ukrainian band "Haydamaky" and the Polish writer Andrzej Stasiuk "Mickiewicz. Stasiuk. Haydamaky..." The scholar considers this album in the context of stereotypes of Polish-Ukrainian relations from the Polish side, which mostly seem to be unattractive and boil down to the perception of Ukrainians by Poles in the context of "trade, economic immigration and low-skilled labor or illegal business on the territory of the Polish state" (Regievicz, p.112). Meanwhile, according to the scientist, the authors managed to find an approach that helps overcome negative stereotypes and, alternatively, find common features: "after all, both peoples were enslaved and colonized, struggling against imposed cultural hegemony, both are fighting against a negative foreign narrative (Russia and the European Union) and both are creating a hyper-positive image based on values that are status-based for both peoples".

At the same time, O. Berehova's monograph (2020) is the first study that provides a thorough and comprehensive study of the imagological discourse in music. The researcher distinguishes musical imagology for the first time as an independent "section of musicology and musical cultural studies that explores the images of the "I" and the "Other" in works of musical art in order to reveal their identity, originality and specificity, common and distinctive features". The author explores Ukrainian composers' creativity and she interprets it as the category of "I", and foreign (for a Ukrainian researcher) music as the category of "Other".

The dissertation by Chinese researcher Wang Yu (2021), which examines Puccini's opera Turandot from the standpoint of imagology, also draws our attention. The special interest of this study lies in the fact that the scientist is in the cultural field of the "Alien" for the composer of the opera, while the opera character, "Alien" for the composer, turns out to be "Go-to person" for the scientist. Deep understanding of Chinese culture allowed the researcher to identify and substantiate the "fairy-tale-romantic, state-imperial, scenic, harem, and feminine imago of the heroine" with femme fatale features that "create the central ethnic imago of China" and "form the leading musical markers of Turandot".

At last, the concept of "imagopoetics" was introduced by the Russian researcher V. Trikov (2015). The researcher criticizes imagology for the uncertainty of the methodology and terminology, as well as its use for political purposes, namely, attempts to "de-ideologize national consciousness in order to develop a pan-European civilization". At the same time, V. Trykov recognizes the relevance of the problem of studying the image of the "Other" and proposes to use the term "imagopoetics" to refer to the field of poetics that "studies the image of the "Other" [...] not from the standpoint of postmodernist discourse analysis but by turning to the comparative historical method and traditions of historical poetics".

I. Purpus attaches a slightly different meaning to the term "Imagopoetics" (2018). In her opinion, the term "Imagopoetics" "seems to be more relevant to the imagological tools of comparative studies". The researcher believes that imagopoetics includes "geocultural imago" and "decorative imago" but refrains from defining both concepts. Both terms are considered as components of "imagopoetics". Along with this, "geocultural

imago” in the above-mentioned dissertation by Wang Yu is defined by the scholar as “understanding and perception of the primary origin of the Other”, “decorative imago” – “author’s textual strategy towards the Other”.

The geographical boundaries of the adults also show a tendency to expand. For instance, the following cultures act as a pair of “I – Other”: Romanian and English (Colipcă-Ciobanu, 2014), Czech and Slovak (Zelenková, 2016), Ukrainian and Polish (Regievicz, 2018), Russian and German (Zhdanov, 2018), French and Lithuanian (Dručkutė, 2020), Crimean Tatar and Ukrainian (Kocherha, Visych, 2023), etc. However, these works relate to fiction, while in music, according to our analysis, the imagologic approach has been developed to a much lesser extent. This circumstance prompts us to consider the prospects of an imagological vision with a focus on contemporary musical art.

### 3 Methodology

Imagology has developed its own method of research, which distinguishes it from other humanities disciplines. One of the founders of imagology, Hugo Dyserinck, noted its method as follows: “Comparative imagology primarily seeks to explore and comprehend certain forms of image manifestation, as well as the moment of their origin and their existence. In addition, it wants to contribute to illuminating the role that such literary images play when individual cultures encounter each other” (Dyserinck, 1977). Schwiderska M. (2001) defines the imagological method as “a hermeneutical method of interpretation (“explanation”) of the “deep semantics” of the phenomenon of the cultural, national or ethnic “other” that manifests itself in the world of literary texts”. Kozlova (2015) sees the analysis of stereotypes as the basis of the imagological method, which simultaneously characterizes both the object and the perceiving subject, reflecting the features of national consciousness and the national value system. The comparative-typological method is significant for this study since it made it possible to find similarities and analogies between the musical works under study. Wang Yu considers discourse analysis to be the leading imagological method, in which “the emphasis is on identifying the sources of the image of the “Other” (Wang, 2021). Tymofiyenko (2018) notes that “the imagological method is aimed at identifying the elementary units of the national image in the minds of other nations’ representatives”.

Finally, the most specific method for analyzing the musical features of the works under study is the method of analyzing intonation practices, in the implementation of which we rely on the works of Yu. Chekan (2009), which opens the key to understanding the immanent musical interpretation of the images of the “I” and the “Other” in the prism of the author’s vision. The methodology of intonation analysis makes it possible to reveal the correlation between the intonation constants of three categories: the intonation thesauri of the culture to which the author belongs, the culture the author studies and perceives as “Alien” and, finally, the third – the resulting intonation sphere, which is a syncretic alloy of the author’s specific and the intonation spheres studied by the author and is determined by their interaction. Such an approach provides the key to understanding the composer’s interpretation of foreign cultural phenomena in the complex interaction of objective and subjective factors of intonation processes.

### 4 Results

The study of musicological literature indicates the possibility of an imagological vision for a wide range of musical works that have the following features to a greater or lesser extent:

1. The composer refers to a literary source, which is associated with an appeal to the cultures of countries that are distant from the author’s country in the geographical and cultural sense. Most often, we are talking about the appeal of authors from Western Europe to the culture of Asian countries; however, in the light of recent studies, the imagological vision can also extend to the discourse between two

neighboring European countries, the relations between which are characterized by ambiguity and stereotypes regarding each other.

2. The composer refers to the intonational sphere of the musical culture of a country other than his country of origin. Similarly to the previous case, the most prominent examples are related to Western European composers’ references to the musical culture of Asian countries (especially China and Japan).
3. The composer refers to the subcultures that function within his native country but are perceived by the author as “Aliens”.

Within the framework of the criteria outlined above, the level of involvement of a given composition in the imagological discourse can vary widely, depending on the specific historical era, genre, and the composer’s worldview.

European composers’ references to non-European subjects before the beginning of the XIX century were mostly sporadic, with the exception of some biblical stories set in Asia Minor. The most famous examples of such appeals are G.F. Handel’s oratorio “Samson” (as well as the lost opera of the same name by J.F. Rameau) and “Deborah” Nevertheless, both works are sustained in the baroque style typical for G.F. Handel, avoiding allusions to certain characteristic features of the ethnic groups of the Asia Minor region, which does not provide sufficient grounds for their consideration from the imagological point of view.

There are some references to non-European traditions in W. A. Mozart’s famous “Turkish Rondo” from Piano Sonata No. 11 in A major, K. 331 (namely, the third part), the musical language of which has certain associations with the military music of the Ottoman Empire. In this case, we have a conscious attempt of W.A. Mozart to address the intonational features of Turkish military music (Ferenc, 2007). Actually, the allusion to Turkish music is most evident in the left-hand part of the refrain – the arpeggiated first beat and the subsequent pulsation with eighths in 2/4. Nevertheless, from the perspective of imagology, the question should be posed in a different way: how objectively does Mozart reflect the Turkish musical environment, or is it rather a personal vision of Ottoman culture? And, if the latter is true, to what extent was W.A. Mozart influenced by certain stereotypes of European perceptions of the Ottoman Empire? By the way, an interesting observation should be added: Turkish rhythmic formulas are present only in the refrain of the above-mentioned part of the Sonata, while the episodes contrast in both the modal relativity (minor instead of major) and rhythmic terms. Such a contrast indicates a particular intonational dichotomy of two spheres – Ottoman (refrain) and European (episodes), which oppose each other. The presence of this designation indicates at least the emergence of prerequisites for the formation of a future imago position in the musical sphere.

There are numerous references to foreign cultures in the works of L. van Beethoven. These are primarily the cycles as follows: Opus 108: Twenty-five Scottish Songs, Opus 152: Twenty-five Irish Songs, Opus 153: Twenty Irish Songs, Opus 154: Twelve Irish Songs, Opus 155: Twenty-six Welsh songs, WoO 156: Twelve Scottish songs, WoO 158b: Seven British songs, WoO 158c: Six songs of different nationalities, WoO 158a: Twenty-three songs of different nationalities and WoO 157: Twelve songs of different nationalities.

In the listed cases, L. van Beethoven refers to the original themes of folk songs, using an arsenal of classical arrangement tools, including harmonization, selection and variation of musical texture (mainly homophonic-harmonic type), the inclusion of dynamic means of expression, etc.

Let’s take one of the most popular songs from WoO 158 №16 as an example, labeled by the author as “Schöne Minka, ich muß scheiden”. The author used the melody of the Ukrainian song “A Cossack Went across the Danube” and the poem “Schöne Minka, ich muß scheiden” by Christoph August Tiedge and added an

accompaniment performed by violin, cello and piano. The arrangement is characterized by a chordal pulsation performed on the piano, as well as the inclusion of a lamentation intonation (*e - f - e*), which appears alternately in the parts of all instruments. The popularity of this composition in contemporary Ukraine, evidenced at least by the large number of its performances published on YouTube, indicates that the composer managed to deeply feel and convey the Ukrainian spirit, at least to a sufficient extent in order to find a response in the circles of its natural environment. Nevertheless, can we talk about a certain stereotyping of the image of a girl who, according to the plot of the song, is abandoned by a Cossack who goes to war? Focusing exclusively on the analysis of musical material, it can be assumed that such typification took place to a certain extent. It is precisely about the above mentioned lamentation, which is not in the original version of the song; it was added by L. van Beethoven in accordance with the traditions of Viennese classicism in depicting sad (lamentation) images. It appears three times in one sentence (for instance, bars 1-11) - in bars 1, 3, and 5, where it is developed. The inclusion of the lamentation element actualizes the discourse about a particular stereotype of Ukrainian song being generally lamentative, which probably prompted the author to emphasize this lamentation element by means familiar and characteristic of its intonation field, namely, the inclusion of a descending second intonation.

The most striking examples of European composers' references to Eastern cultures belong to G. Puccini, and the operas "Turandot" and "Madama Butterfly" are the first to be mentioned. In contrast to the examples of G. F. Handel, W. A. Mozart, and L. van Beethoven discussed above, both operas rely on literary sources that reveal the contradictory relationship between the Western and Eastern worlds.

From the standpoint of musical imagopoetics, the question should be asked: to what extent did Puccini use the Chinese intonation sphere to embody Chinese images in this opera? The above-mentioned musical work by Wang Yu draws attention with its avoidance of musical examples or references to the composer's use of authentic Chinese musical materials. The author, on the contrary, refers to the observation of Raiche J. (2003), who testifies to the conscious refusal of the contemporary composer Gerald Freed to use Hong Kong authenticity in film music and the decision that "music should be made more exotic than it really is" as an illustration of Puccini's approach.

In general, there is a certain stereotype of Chinese music in Europe as music based on pentatonic. Wang Yu notes that "not all Chinese music is associated with these 5-step modes and they rather represent a decorative China in the imagination of Europeans" (Wang, 2021). Pentatonic modes are found in the music of G. Puccini; however, the composer uses them within the framework of classical Western European tonal harmony and not within the harmonic intonation systems of Chinese music, which inspires the researcher to speak of the representation of the Chinese figurative sphere as stereotypical.

A similar question is relevant to Puccini's "Japanese" opera "Madama Butterfly". The Japanese researcher Kunio Hara (2003) demonstrates "close relationship between some of the Japanese melodies that Puccini adopted in his opera Madama Butterfly" (Hara, p.75) and, in particular, the use of the gagaku mode. The modes of Japanese music are also characterized as pentatonic, and, according to Kawase (2013), more than 70% of Japanese songs are based on the yo sound system (on which the *gagaku mode* is based), which, from the standpoint of modern European music theory, is an anhemitonic pentatonic (for instance, *d-e-g-a-h*).

The composer subordinates the modes of Japanese folk music to the logic of Western European tonal thinking, applying "Western harmonization" to them (Hara, p.45). This gives grounds for an imatological vision of this opera and an emphasis on the perception of Japanese folk music by Europeans from the standpoint of European listening experience.

Modern musical works have a much more diversified intonation base, driven by two reasons. On the one hand, the arsenal of musical means of the beginning of the XXI century reveals a much greater polymorphism compared to previous eras. Europeans gained experience in tonal, modal, and atonal logics of organizing musical material, as well as experience in going beyond the twelve-step sound system. The expansion of intonation possibilities is largely due to the emergence of electronic instruments, the technical capabilities of which are rapidly developing. On the other hand, the possibilities of familiarizing Europeans with the achievements of non-European musical cultures have also increased thanks to modern methods of communication.

Let's take a look at contemporary works that have already appeared in musicologists' studies of imagology. The analysis of the literature makes it possible to distinguish several groups of such works.

1. Musical works related to the use of "imagotypes". According to the viewpoint of O. Berehova, this is "Moses" by M. Skoryk, in which the images of Moses, Jehovah, and the Poet are "imagotypes" and correspond "to the key qualities of Ukrainian mentality and national character, such as high spirituality, piety and the fear of God, patriotism, and cordocentric (heart-oriented) philosophy, as well as a lyrical, poetic attitude to the world" (Berehova, 2022). The other examples of operas with existing imagotypes associated with historical figures, according to the researcher's viewpoint include "Echnaton" by F. Glass, "Iyov" by I. Razumeiko and P. Hryhoriv, "Satyagraha" by F. Glass, "Nixon in China" by J. Adams, "Einstein on the Beach" by F. Glass and "Doctor Atomic" by J. Adams.
2. Musical works related to the use of "images". According to the standpoint of O. Berehova (2020), the examples of such works are as follows: "City Noir" by J. C. Adams (jazz stylistics as an image), the Fourth Symphony by A. Khodosk (Belarusian melos as an image), "Styx" by G. Cancelli (a combination of literary and musical images), Schnittke's Third Symphony (images of Austro-German symphonism), Concert № 3 for piano and orchestra by I. Shcherbakov ("Revolution of Dignity" in Ukraine (2014) as an image), a number of musical works by V. Silvestrov (images are music by European composers of the XIX-XX centuries).
3. Conceptual music albums. In addition to the aforementioned, "Mickiewicz – Stasiuk – Haydamaky" was the first and so far the only music album to fall within the circle of the imagological vision. Regievicz emphasizes the presence of purely musical means of expression associated with folklore sources, namely, the use of Ukrainian folk instruments (drymba, sopilka, nay, and bandura), and the use of Balkan rhythmic structures and solo episodes of brass instruments, which determine the emotional structure of the compositions. The scholar's attention is also drawn to the melodic declamation: "Stasiuk's male, no longer young, voice, somewhat hoarse in some parts, makes the statement more lyrical and authentic. The listener hears the story of an experienced person. [...] The method of declamation makes it possible to reveal the depth of reflection on the world, transience and nature" (Regievicz, p. 116).

Musicals are the least studied group of works. According to the viewpoint of A. Bondarenko (Bondarenko, 2022), the originality of the musical genre lies primarily in the peculiar intonation practices, which are more focused on entertaining intonation. At the same time, the focus on spectacularity creates a prerequisite for authors to search for exotic subjects, which in turn will correspond to stereotypical ideas about the exotic rather than modernity. For instance, the musical "Equator" by Zlotnyk, based on the journey of ethnographer Miklouho-Maclay, is such an example. Despite several attempts to use the intonation thesaurus of the countries visited by the protagonist in the musical, the composition as a whole is characterized by "commonality with Russian Soviet intonation practice" (Bondarenko, p. 83).

## 5 Discussion

Imagopoetics, as an integral part of imagology, has been only recently distinguished as a separate concept, and, consequently, its field of application is subject to debate. The imagological vision of a contemporary musical work involves the author's appeal to certain stereotypes about another culture (in relation to the culture of the author's audience). At the same time, the issue of defining stereotypes remains debatable, or, in each case, the question of whether the author's appeal to another culture is deep penetration into its essence or remains its representation, which is inherent in the culture in which the author's worldview was formed and the culture of the target audience for which this work is intended.

The answer to this question, when it comes to a piece of music, should be sought in two planes – cultural and poetic. The first involves analyzing the circumstances of the composition, literary sources and other non-musical information. The second, poetic, involves analyzing the immanent musical features of a particular work, namely, its intonational nature, features of musical harmony, texture, and the means of expression used. It is the second plane, the poetic one, which we call imagopoetics, which forms the basis for the imagological vision and analysis of musical works.

The results of our research show that the imagological vision is only rarely applied to the music of the past centuries, while it is widely used in contemporary works. There are both subjective and objective reasons for this. The subjective ones lie in the fact that the works of the past were thoroughly studied during the last century before the formation of imagology as a specific vision, and, therefore, few researchers dare to re-analyze or re-examine them from new perspectives. There are also objective reasons for this, involving the spread of the postmodern paradigm, which has had a particularly significant impact on musical creativity since the 1960s. The postmodern paradigm implies the artists' appeal to other cultures, other epochs, and the inclusion of their intonational baggage as an element of their own style, as an immanent component of the latest work.

A separate discussion is required to criticize imagology as a kind of "ideology aimed at erasing national identity" (Trykov, p.126). In our viewpoint, this accusation can apply to individual works (for instance, Leerssen, J., 2007, who uses such an illogical construct as "anecdotal belief in different national characters"), but not to imagology as a whole. At the very least, musical imagology cannot deny the existence of different musical modes, different acoustic systems, and, finally, the existence of different musical instruments peculiar to a particular musical culture. On the contrary, musical imagopoetics should take into account the achievements of musical organology and folklore, as well as the musical-theoretical and musical-acoustic fundamentals of music of different peoples, and compare them with the constructive features of the imagotypes under study.

## 6 Conclusion

In the field of musicology, imagopoetics is considered as a method that allows analyzing the immanent musical features of the author's appeal to the intonational spheres of others in relation to his native culture and the culture of his target audience of musical cultures, which he presents not so much in an authentic as in a stereotyped form, that is, in a form closer to his target audience.

Imagopoetics is applicable to individual musical works of past eras; however, it is more widely used in relation to works of contemporary art developing under the postmodern sign. It is the postmodern paradigm, which implies the authors' appeal to the cultural layers of different epochs and countries creating the basis for the authors' appeal to the imagothemes and imagotypes that form the framework of the imagological approach.

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**Primary Paper Section: A**

**Secondary Paper Section: AL**

# INFORMATION TERRORISM AND ITS PREVENTION IN THE GLOBAL POLITICAL ENVIRONMENT IN THE 21ST CENTURY

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**Abstract:** The manifestations of information terrorism can be realized concerning the subjects of the global political sphere. Preventing and countering its consequences is a difficult task, primarily due to the multiple directions of modern threats, as well as the complexity of selecting and implementing measures to be taken to counter such manifestations of information danger. The study aims to analyze the trends in the development of measures to counter information terrorist attacks that have been and are being carried out against the targets of the global political sphere in the XXI century. The research was carried out using the methods of sequential analysis of the peculiarities of development and systemic description of information terrorism. In addition, the article provides a comparative assessment of related concepts. The descriptive method, comparison, analysis and synthesis of information were used to assess the content, methods of counteraction, principles and measures to counter information threats. According to the research results, the key features of countering information terrorism today include the formation and improvement of the regulatory framework based on global cooperation, openness, transparency, increased responsibility and proactive state policy to counter information terrorist attacks.

**Keywords:** Countering disinformation, Global political sphere, Information space, Information terrorism, Information threat, Means of protecting public political space.

## 1 Introduction

Information terrorism is a socio-political phenomenon and a threat to the interests of the individual, society, state in the global space. The use of science and technology by terrorists in the political space is aimed at spreading disinformation (biased, false, distorted) to manipulate public consciousness and intimidate for political purposes. Countering information terrorism in the political space is a complex global problem, often due to the existing asymmetry of threats and countermeasures. The Center for Countering Disinformation at the National Security and Defense Council of Ukraine (2022) defines disinformation as false information of a manipulative nature. Among the technologies is artificial intelligence, which is both a tool for malicious creation and large-scale dissemination of disinformation and an effective tool for detecting fakes and disseminating reliable information. Disinformation is not a new phenomenon in the information space. The use of propaganda and manipulation of facts originated with the first states and even then served as a weapon in political battles. Together with the evolution and globalization of information technologies, the loss of monopoly on information and the restructuring of the classical news hierarchy in favor of the Internet media, disinformation activities pose an even greater threat to the public consciousness, especially in the countries of “young democracy”.

On January 29, 2019, the European Commissioner for Digital Economy and Society M. Gabriel during the presentation of the first report on the elimination of political disinformation on the eve of the elections reported that the fight against disinformation and propaganda in the EU's cooperation with Facebook, Google or Twitter has a number of shortcomings. Among the shortcomings, it was found that: 1) disinformation knows no borders, so a pan-European approach is needed, according to which all EU countries should cooperate in this area; 2) there is a delay in the reaction aimed at preventing disinformation, i.e. it is important that plans are implemented quickly enough; 3) it is necessary to expand the “field of action” in the field of transparency on the Internet in order to identify advertising that pursues hidden political goals. The above indicates the growing problems of countering information terrorism and the need to analyze the state of such counteraction.

The aim of the article is a comprehensive analysis of countering information terrorism in the global political space of the XXI century on the example of Ukraine.

## 2 Literature Review

In the work of Arquilla, Ronfeldt & Zanini (1999) the phenomenon of terrorism is considered as a shadow way of conducting asymmetric warfare by weak political leaders, for instance, religious fundamentalists, racist opposition, ethnic nationalists. Terrorism is a way of violence to achieve a new world order through the destruction of the existing one. In the information age, the motives of terrorism are similar, but its characteristics are different: the way of organization, doctrine, strategy, technology of use. Information terrorism is present in information networks through decentralized schemes to create arrays of transnational Internet groups. The doctrine and strategy involves moving into the information space and conducting tactical “information operations”, using a rotation approach to information campaigns (Kravchenko et al., 2022; Kostetska et al., 2021). Advanced information technologies are used to conduct operations and support the organizational structure. Hence, Arquilla, Ronfeldt & Zanini (2000) described the concept of information terrorism. It has evolved into “network warfare” which is part of hybrid warfare (Post, Ruby & Shaw, 2000). Such warfare can be countered by creating inter-organizational networks within the armed forces and government. To counter it, it is advisable to create information weapons that will symmetrically respond to the threats of information terrorism at different levels of the global political space.

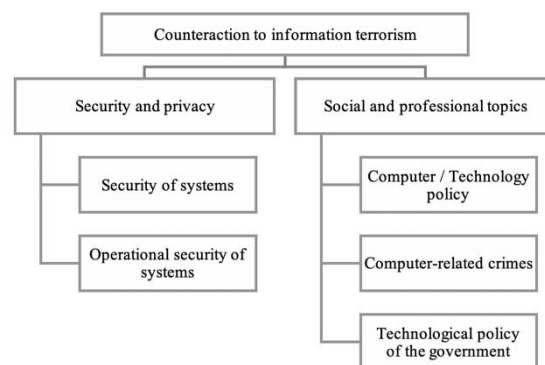


Figure 1. Countering terrorism through information technology. Source: (Popp et al., 2004; Swire, 2006).

Countering information terrorism involves providing truthful, reliable, objective information about the possible risks of existing threats (Lemyre et al., 2006). For effective counteraction, a system of stakeholder interaction should be established to highlight the actual level of threats to different segments of the target audience (Lemyre et al., 2006). Countermeasures include analyzing the content of information, identifying weaknesses (vulnerabilities) in information delivery technologies, and developing appropriate responses to identified disinformation messages (Oh, Agrawal & Rao, 2011). As shown in Figure 1, countering terrorism through information technology includes: 1) security and privacy of information through security systems, including operational ones; 2) highlighting social and professional topics based on the developed policy of truthful information dissemination.

## 3 Research Methods

The article uses a mixed design to conduct a comprehensive study of countering information terrorism in the global political space. The mixed design included the following methods to fully cover the problem:



1. Sequence method for dividing the study of countering information terrorism into stages, each of which is based on the previous one. At the first stage, the legal framework for countering information terrorism in Ukraine and basic concepts and countermeasures have been studied. At the second stage, the key subjects of counteraction to information terrorism in Ukraine, their tasks and measures, principles and mechanisms of work have been investigated. At the third stage of the study the concept of information terrorism and its semantic field have been suggested.
2. The descriptive design was used to describe and collect additional information and answers to the questions of what constitutes "countering information terrorism"; where, when and how countering information terrorism takes place.
3. The systematic review was used to collect facts, evidence on countering information terrorism. Furthermore, it helped to analyze the available data on the strategy, principles, tasks, measures, tools, mechanisms of counteraction on the example of Ukraine.
4. The case method is used to analyze the counteraction to information terrorism on the example of Ukraine.

The source base of the research included materials, data and information of the Verkhovna Rada of Ukraine, the Ministry of Justice of Ukraine, the Center for Countering Disinformation, the National Security and Defense Council of Ukraine, the Ministry of Culture and Information Policy of Ukraine, the Center for Strategic Communications and Information Security.

## 4 Results

### 4.1 National legislation and information policy of countering terrorism

Regulatory legal acts in the information sphere of Ukraine, which are the basis of information policy and counter-terrorism, include Laws, Decrees of the President, Resolutions and Orders of the Cabinet of Ministers of Ukraine.

The Laws include the following:

- "On Information";
- "On Access to Public Information";
- "On Citizens' Appeals";
- "On Television and Radio Broadcasting";
- "On Printed Mass Media (Press) in Ukraine";
- "On Information Agencies";
- "On state support of mass media and social protection of journalists";
- "On the procedure for covering the activities of state authorities and local self-government bodies in Ukraine by the mass media";
- "On peculiarities of the state policy on ensuring the state sovereignty of Ukraine in the temporarily occupied territories in Donetsk and Luhansk regions";
- "On ensuring the rights and freedoms of citizens and the legal regime in the temporarily occupied territory of Ukraine";
- "On the adjacent zone of Ukraine";
- "On ensuring the rights and freedoms of internally displaced persons";
- "On Public Television and Radio Broadcasting of Ukraine" (Ministry of Justice of Ukraine, 2022).

The key strategic documents in the information sphere are the Presidential Decrees "On the Information Security Strategy" of 15 October 2021 and "On the Communication Strategy on Euro-Atlantic Integration of Ukraine for the period up to 2025" (Verkhovna Rada of Ukraine, 2022a; 2022b).

The Information Security Strategy (hereinafter – the Strategy) identifies current challenges and threats to the national security of Ukraine in the information sphere. It outlines strategic goals and objectives aimed at countering such threats, protecting the rights of individuals to information and personal data protection. The goal will be achieved by taking measures to deter and counter threats to the information security of Ukraine. In

addition, it is important to neutralize information aggression, including special information operations of the aggressor state aimed at undermining the state sovereignty and territorial integrity of Ukraine. Therefore, it is necessary to ensure the information stability of society and the state, to create an effective system of interaction between public authorities, local governments and society. Attention should be paid to the development of international cooperation in the field of information security on the basis of partnership and mutual support.

Table 1. Challenges and threats to information security of Ukraine at the global, national levels

Challenges and threats	The list
Global challenges and threats	<ul style="list-style-type: none"> <li>- Increasing number of global disinformation campaigns</li> <li>- Information policy of the Russian Federation is a threat not only for Ukraine, but also for other democratic states</li> <li>- Social networks as subjects of influence in the information space</li> <li>- Insufficient level of media literacy (media culture) in the context of rapid development of digital technologies</li> </ul>
National challenges and threats	<ul style="list-style-type: none"> <li>- Information influence of the Russian Federation as an aggressor state on the population of Ukraine</li> <li>- Information dominance of the Russian Federation as an aggressor state in the temporarily occupied territories of Ukraine</li> <li>- Limited capacity to respond to disinformation campaigns</li> <li>- Unformed system of strategic communications</li> <li>- Imperfection of regulation of relations in the field of information activity and protection of journalist professional activity</li> <li>- Attempts to manipulate the consciousness of Ukrainian citizens regarding the European and Euro-Atlantic integration of Ukraine</li> <li>- Access to information at the local level</li> <li>- Insufficient level of information culture and media literacy in society to counter manipulative and informational influences</li> </ul>

Source: (Verkhovna Rada of Ukraine, 2022a).

Countering disinformation and information operations in Ukraine includes the following tasks:

1. Creation of a system for early detection, forecasting and prevention of hybrid threats, in particular, creation of a system for countering disinformation and information operations aimed at preventing, detecting and responding to information threats as quickly as possible;
2. Taking measures to prevent and counteract the spread of disinformation and destructive propaganda regarding Ukraine's European and Euro-Atlantic integration;
3. Development of the capabilities of the components of the defense forces to counter threats in the information space;
4. Preparation and conducting of information and psychological operations and other measures aimed at preventing, deterring and repulsing the armed aggression of the Russian Federation against Ukraine by the components of the defense forces;
5. Strengthening responsibility for the dissemination of false information (disinformation);
6. Introduction of effective mechanisms for detecting, fixing, restricting access to and/or removing from the Ukrainian segment of the Internet information, the placement of which is restricted or prohibited by law;
7. Effective interaction of state bodies, local self-government bodies and civil society institutions in the formation and implementation of state policy in the information sphere;

8. Preventing the distribution and demonstration of information and audiovisual products (products), holding touring events that popularize or promote the aggressor state and its authorities, representatives of the authorities of the aggressor state and their actions that create a positive image of the aggressor state, justify or recognize the legitimacy of the occupation of the territory of Ukraine, contain calls to overthrow the constitutional order, violation of the territorial integrity of Ukraine, propaganda of war, extremism, separatism, communist and/or national socialist (Nazi) totalitarian regimes and their symbols, violence, cruelty, incitement of national, interethnic, racial, religious enmity and hatred, committing terrorist acts, encroachment on human and civil rights and freedoms, etc;
9. Counteracting information campaigns aimed at attracting and/or involving Ukrainian citizens, including children, in paramilitary or armed groups not provided for by the laws of Ukraine.

To counter disinformation in Ukraine, national legislation also defines a number of prohibitions, requirements, and liability for violations of the law. Part two of Article 6 of the Law of Ukraine "On Television and Radio Broadcasting" (Verkhovna Rada of Ukraine, 2022c) prohibits the use of television and radio organizations, in particular, for unreasonable depiction of violence. It bans the spread of propaganda of exclusivity, superiority or inferiority of persons on the basis of their religious beliefs, ideology, belonging to a particular nation or race, physical or property status, social origin. Furthermore, broadcasting programs or their videos that can harm the physical, mental or moral development of children and adolescents, if they have the opportunity to watch them is forbidden. Distribution and advertising of pornographic materials and items is also against the law. One cannot spread the propaganda of narcotic drugs, psychotropic substances for any purpose of their use. The dissemination of information that violates the legitimate rights and interests of individuals and legal entities, infringes on the honor and dignity of a person; committing other acts that entail criminal liability is also against the law of Ukraine. Article 62 of the same Law establishes requirements for television programs and broadcasts to protect public morality and ensure the rights of minors and youth. According to Article 71 of this Law, responsibility for violation of the legislation on television and radio broadcasting is borne by television and radio organizations, program service providers, their managers and employees, other economic entities, officials of state authorities and local self-government bodies. Those guilty of violations bear civil, administrative and criminal liability in accordance with the legislation of Ukraine. The measure of responsibility and appropriate sanctions for violation of the legislation on television and radio broadcasting is established by the court. In cases specified by the Law, sanctions for violation of legislation on television and radio broadcasting are established by the National Council of Ukraine on Television and Radio Broadcasting. Decisions of the National Council on the application of penalties may be appealed in court.

Liability for violation of legislation on television and radio broadcasting is established on the basis of documentary evidence, acts of inspection of television and radio organizations, appeals of the state authorities defined by this Law.

Article 3 of the Law of Ukraine "On Printed Mass Media (Press) in Ukraine" (Verkhovna Rada of Ukraine, 2022d) also prohibits the use of printed mass media in Ukraine to disseminate information the disclosure of which is prohibited by Article 46 of the Law of Ukraine "On Information". It prohibits the dissemination of calls for the seizure of power, violent change of the constitutional order or territorial integrity of Ukraine. Propaganda of war, violence and cruelty; incitement of racial, national, religious hatred is prohibited. The distribution of pornography and the use of disinformation for the purpose of committing terrorist acts and other criminal acts are not allowed. Part one of Article 41 of this Law stipulates that editorial offices, founders, publishers, distributors, state bodies, organizations and

associations of citizens are responsible for violation of the legislation on print media.

According to part one of Article 15 of the Law of Ukraine "On the Protection of Public Morality", state supervision over compliance with the requirements of this Law and current legislation in the field of protection of public morality is carried out within their competence by the Ministry of Culture and Tourism of Ukraine, the Ministry of Health of Ukraine, the Ministry of Justice of Ukraine, the Ministry of Education of Ukraine, the Ministry of Internal Affairs of Ukraine, the Prosecutor General's Office of Ukraine, the State Customs Service of Ukraine, the State Committee for Television and Radio Broadcasting of Ukraine, the National Council of Ukraine (Verkhovna Rada of Ukraine, 2022e).

Based on the analysis of these provisions of the legislation, it can be concluded that today at the legislative level there is already a ban on the dissemination of "negative information" (i.e. information containing propaganda of violence, disinformation, other criminal acts), as well as responsibility for its dissemination.

In view of the above, the issue of ensuring the dissemination of "positive" information by the media can be solved in the following ways:

- ensuring coverage of the directions of the state information policy in the state mass media;
- formation, placement and execution of the state order for "positive" news, TV programs and broadcasts;
- ensuring public access to a wide range of mass media (domestic and foreign);
- bringing to responsibility for the content of TV programs and broadcasts that unreasonably show violence, contain videos that may harm the physical, mental or moral development of children and adolescents, including revocation of licenses.

#### 4.2 Subjects of counteraction to information terrorism in Ukraine

The Center for Countering Disinformation (CCD) is a working body of the National Security and Defense Council of Ukraine (NSDC). It was established in accordance with its decision of March 11, 2021 "On the Establishment of the Center for Countering Disinformation", enacted by the Decree of the President of Ukraine of March 19, 2021 No. 106. The Center ensures the implementation of measures to counter current and projected threats to national security and national interests of Ukraine in the information sphere, ensuring information security of Ukraine, detecting and countering disinformation, effectively countering propaganda, destructive information influences and campaigns, preventing attempts to manipulate public opinion, and preventing the spread of false information. In its activities, it covers trends in informing about the state of military affairs, defense industry, the fight against crime and corruption, foreign and domestic policy, economy, critical infrastructure, ecology, healthcare, social sphere, formation of public consciousness, scientific and technological direction, etc. The main focus is on counteracting the spread of false information and combating information terrorism (Center for Countering Disinformation, 2022a).

In order to counteract information terrorism, the CCD performs a number of main tasks:

1. Analysis and monitoring of events and phenomena in the information space of Ukraine, the state of information security and Ukraine's presence in the world information space.
2. Identification and study of current and forecasted threats to the information security of Ukraine, factors that influence their formation, forecasting and assessment of consequences for the security of national interests of Ukraine.
3. Provision of the National Security and Defense Council of Ukraine, the Chairman of the National Security and Defense

Council of Ukraine with information and analytical materials on ensuring information security of Ukraine, detection and counteraction to disinformation, effective counteraction to propaganda, destructive information influences and campaigns, prevention of attempts to manipulate public opinion.

4. Preparation and submission of proposals to the National Security and Defense Council of Ukraine, the Head of the National Security and Defense Council of Ukraine on:
  - 4.1. Defining conceptual approaches in the field of countering disinformation and destructive information influences and campaigns;
  - 4.2. Coordination of activities and interaction of executive authorities on national security in the information sphere, ensuring information security, detection and counteraction to disinformation, effective counteraction to propaganda, destructive information influences and campaigns, prevention of attempts to manipulate public opinion;
  - 4.3. Implementation of systemic measures aimed at strengthening the capacities of the security and defense sector entities and other state bodies to ensure information security, detect and counter disinformation, effectively counter propaganda, destructive information influences and campaigns, prevent attempts to manipulate public opinion, and develop national infrastructure in the relevant area;
  - 4.4. Improvement of the system of legal and scientific support of information security, detection and counteraction to disinformation, effective counteraction to propaganda, destructive information influences and campaigns, prevention of attempts to manipulate public opinion.
5. Participation in the development of the strategic communications system, organization and coordination of measures for its development.
6. Participation in the development and implementation of the Information Security Strategy of Ukraine, analysis of its implementation, in particular on the effectiveness of measures to counter disinformation.
7. Participation in the creation of an integrated system of information threat assessment and rapid response to them.
8. Development of a methodology for identifying threatening information materials of manipulative and disinformation nature.
9. Promoting cooperation between the state and civil society institutions in countering disinformation and destructive information influences and campaigns, organizing and participating in information and educational activities to increase media literacy of the society.
10. Study, summary and analysis of the experience of other states and international organizations in countering disinformation and preparation of proposals for its use in Ukraine.
11. Participates in determining priorities for attracting international technical assistance on information security, detection and counteraction to disinformation, effective counteraction to propaganda, destructive information influences and campaigns, prevention of attempts to manipulate public opinion.

The Ministry of Culture and Information Policy of Ukraine (2022) (MCIP) is a central executive body whose activities are directed and coordinated by the Cabinet of Ministers of Ukraine. The MCIP is the main body in the system of central executive bodies that ensures the formation and implementation of state policy in the spheres of information sovereignty of Ukraine (in terms of powers to manage the integral property complex of the Ukrainian National News Agency "Ukrinform") and information security. MCIP is the main body in the system of central executive authorities that ensures the formation and implementation of state policy in the information and publishing sphere, in the field of television and radio broadcasting (Chyzhmar et al., 2019).

In March 2021, the Center for Strategic Communications and Information Security (CSCIS) was established at the MCIP. The work of the Center is focused on countering external threats, combining the efforts of the state and civil society organizations

in combating disinformation, prompt response to fakes, as well as promoting Ukrainian narratives (2022a). Key tasks of the Center (2022a) are: 1) development of strategic communications (development of counter-narratives to the Russian Federation, conducting information campaigns, inclusion of Ukrainian narratives in the daily communication of the Government); 2) countering disinformation and building resilience to it. Constant notification of information attacks against Ukraine on the resources of the Center, in particular on the web portal, FB page, and Telegram channel; 3) raising awareness of hybrid threats (development and conducting trainings for civil servants, in particular for representatives of communication units); 4) regular reporting on hybrid aggression by Russia at the international level, development of mechanisms to counter disinformation together with international partners.

CSCIS (2022b) is one of the mechanisms to counter disinformation by joint efforts of the state and civil society. The Center's work is focused on communication counteraction to external threats, in particular - information attacks of the Russian Federation. The main principles of the Center's activity include constant cooperation with the public sector, the impossibility of political pressure, responsibility and openness. The main areas of work include (CSCIS, 2022b):

1. Development of strategic communications.
  - 1.1. Developing narratives to strengthen Ukraine's position on the issues that are most targeted by the aggressor.
  - 1.2. Development of messages for coordinated state communication.
  - 1.3. Combining the efforts of the state and the public sector for coordinated counteraction to disinformation.
2. Countering disinformation and building resistance to it.
  - 2.1. Creation of an online resource that will provide: response to information threats, a single database of the aggressor's information presence, access to tools for building resilience, support for Ukrainian narratives.
  - 2.2. Conducting information campaigns.
  - 2.3. Formation of a public platform for discussing problems and developing solutions to counter disinformation
3. Joining forces with the world.
  - 3.1. Regular informing about the hybrid aggression of the Russian Federation
  - 3.2. Building cooperation with countries that have the same information threats as Ukraine.
  - 3.3. Development of mechanisms to counter disinformation together with partners.

For different types of target audiences, the CSCIS (2022b) carries out the following measures:

1. For the state: conducting trainings on raising awareness of hybrid threats, developing proactive narratives for state communications, proposals for mechanisms of systematic information on state counteraction to disinformation.
2. For citizens: reporting on information threats and mechanisms of malicious influence; providing tools to increase resilience to disinformation; highlighting Ukraine's victory in the information war.
3. For civil society organizations (CSOs): strengthening the voices of relevant CSOs by promoting their work; jointly conducting information campaigns and trainings; ensuring dialogue between the state and CSOs in the development of the legal framework.
4. For international partners: regular informing about the malicious activities of the aggressor; sharing the rich Ukrainian expertise in detecting and countering disinformation; joint development of recommendations on countering disinformation and building resilience to it.

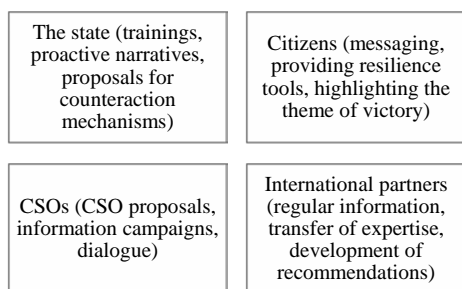


Figure 2. Target audience of the CSCIS.

Source: formed by the author based on the data from CSCIS (2022b).

The system of counteraction to information terrorism and ensuring information security in Ukraine and abroad of the CSCIS includes the following key tools: analytics, monitoring, research and coverage of disinformation, its narratives and truthful information through various communication channels (official website, social networks, radio, television).

As a result of the study of information terrorism, the authors of this article propose the concept of information terrorism and the semantic field of disinformation. This concept defines the key notions related to information terrorism:

1. Propaganda – dissemination of political knowledge through various forms of communication to form the necessary worldview in the political space.
2. Disinformation narrative – a set of interconnected distorted, false facts, events, impressions, presented and ordered in a certain way to manipulate consciousness.
3. Disinformation – false, biased, distorted information of a manipulative nature to create reality.
4. Fake is an imitation of news, distorted presentation of information in order to manipulate consciousness.

These concepts are both similar and differ from each other in a number of characteristics, forming the concept of information terrorism at their intersection.

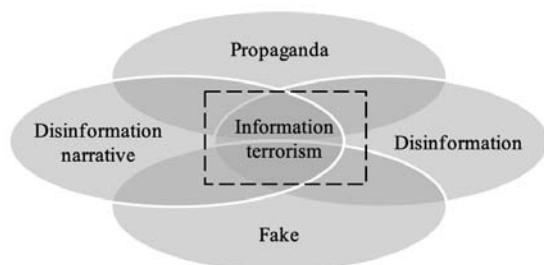


Figure 3. The concept of information terrorism and the semantic field of disinformation

Source: developed by the author.

## 5 Discussion

Powers of the security sector bodies of Ukraine to counter disinformation. There are reasons for this. Firstly, disinformation messages (fakes) are not illegal in essence. Secondly, disinformation is a term and method that was inherent in the activities of special services during the Cold War. Thirdly, the legislation of Ukraine is based on the fundamental principle of freedom of speech and does not criminalize the deliberate dissemination of false information to achieve political, economic, military and other goals by state and non-state actors. Finally, the recently established Center for Countering Disinformation at the National Security and Defense Council of Ukraine (NSDC) will soon establish cooperation with state authorities, law enforcement and intelligence agencies in order to implement the relevant Regulation.

The well-established scheme of information processing, distortion and manipulation of facts allows to hyperbolize or bring to absurdity important issues and facts for the society, forcing the population to reorient to local problems and eliminates any attempts to find alternative data. It is quite obvious that in order to establish communicative interactions, to secure the information space, the authorities need to work equally with both classical media and Internet resources. Improvement of the legislative framework and borrowing the experience of European countries will allow to more effectively implement the policy of countering information aggression. In our opinion, a necessary step is also to comprehensively inform the society about the basics of fact-checking, to interact with leading European media to borrow their experience and, in the long run, to create a specialized agency for information control. Regarding the latter, it would be advisable to inform the public in advance and coordinate actions with the media to avoid conflicts of interest and infringement of press freedom.

## 6 Conclusions

In Ukraine there is a dynamic development of the legal framework for the protection of the information sphere based on the principles of cooperation, responsibility, openness and transparency. This is the basis of information policy and counter-terrorism. Counteraction is carried out to overcome key global and national risks in close cooperation with international partners. The following components have been identified within the counteraction system: systems of early detection, forecasting and prevention of hybrid threats; measures to prevent and counteract the spread of disinformation; preparation and conduct of information and psychological operations by the components of the defense forces; strengthening responsibility for the spread of disinformation. Four target audiences and relevant tools for countering disinformation were identified: 1) the state (trainings, proactive narratives, proposals of countermeasures); 2) citizens (messages, provision of resilience tools, coverage of the topic of victory); 3) public organizations (CSO proposals, information campaigns, dialogue); 4) international partners (regular information, transfer of expertise, development of recommendations). As a result of the study of information terrorism, the authors of the article proposed the concept of information terrorism and the semantic field of disinformation. This concept defines key concepts related to information terrorism: propaganda – the dissemination of political knowledge through various forms of communication to form the worldview required in the political space; 2) disinformation narrative – a set of interconnected distorted, false facts, events, impressions, presented and ordered in a certain way to manipulate consciousness; disinformation – false, biased, distorted information of a manipulative nature to create reality; fake news is an imitation of news, a distorted presentation of information in order to manipulate consciousness.

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**Primary Paper Section: A****Secondary Paper Section: AD, AJ, BD**

## MANAGING CONFLICTS WITHIN A TEAM: CONFLICT RESOLUTION STRATEGIES AND EFFECTIVE COOPERATION

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**Abstract:** Managing conflicts and developing their resolution strategies are among the leading topics in modern management. The studies aimed at improving and understanding the connection between management styles and conflicts, strategies for coordinating cooperation, and increasing team productivity are becoming relevant. This research aims to determine the effectiveness of training professionals in conflict management and resolution strategies within a team, enhancing productivity through cooperation and project effectiveness. Also, the authors present a study of how team effectiveness depends on the ability to manage conflict by mediating the level of team coordination. The study employs various methods. The experiment method is the main one in this paper. The study results were evaluated using a survey and observation conducted by stages. The research hypothesis asserts that studying conflict resolution principles and employing various conflict avoidance strategies are positive components of contemporary management practices. The research results indicate that conducting a conflict management training course based on cooperation positively impacts project team productivity and managerial preparedness. There are prospects for continuing experimental research on considering and analyzing conflict management styles as they develop and determine the connection between team performance and conflict management skills.

**Keywords:** Motivation, Conflict resolution, Conflict, Conflict management, Cooperation strategy, Effectiveness.

### 1 Introduction

The need for developments in conflict studies that consider modern society's needs and its activities has been highly relevant for many centuries.

A conflict, in a range of studies, has been defined as a process where one party perceives the actions of others as negatively impacting cooperation and its own interests (Chen et al., 2016). A conflict is a process involving multiple individuals or groups in which neither side wants to accept the actions and decisions of the other side, as they believe such actions contradict their interests (Wall, Callister, 1995; Levytska et al., 2020).

Several researchers argue that conflict is a characteristic feature of team activities and inherent in daily human interactions (Müller et al., 2016; Jia et al., 2011). It has been established that team effectiveness also depends on how the team manages conflicts (Liu, Cross, 2016; Prieto-Remón et al., 2015). There is also a hypothesis that a conflict not only brings harm but also benefits teamwork, as it can be constructive for project activities. Team members' perceptions of the rightness and harmfulness of approaches influence the nature of interaction and the final outcome in cooperation and conflict management (Li et al., 2009).

One distinct aspect of creating conflict situations is the presence of cultural differences between the conflicting parties. Moreover, different cultures employ different methods for resolving conflict situations and have their own styles of cooperation (Mitkus et al., 2014).

Examining conflict management and cooperation, specifically how a team can effectively manage conflict, indicates the effectiveness of such a group (Tjosvold, 2008). The methods of team coordination can influence cooperation and conflict management strategies within a team.

In the study, it is noted that most recent studies conduct research in a Western context (Popovych et al., 2020). It has been identified that the level of coordination and cooperation in the context of the overall project performance affects work performance (Tabassi et al., 2019).

The research aims to determine the influence of the choice of management and conflict resolution strategies within a team on the quality of collaboration and the effectiveness of group work on a project, namely:

- To establish the main hypothetical models of conflict prevention and cooperation to be considered within the scope of the new educational course "Philosophy of Conflictology: Project Activities."
- To evaluate the acquisition of conflict resolution knowledge and readiness for productive collaboration on the project.
- To determine participants' assessment of the introduction of the new educational course regarding the investigation of the leader's role in choosing conflict resolution strategies and facilitating effective group cooperation.

### 2 Methods

Descriptive methods, analysis, and synthesis were employed to study the theoretical and methodological aspects of the research problem. The experiment also involved the application of empirical methods, such as questionnaires, observations, and conducting pedagogical experiments. Statistical methods were used to evaluate the experiment's results.

The experiment was conducted at several institutions of postgraduate education: the Postgraduate Institute of Kyiv University, named after B. Hrinchenko (Ukraine), and the Municipal Institution "Institute of Postgraduate Pedagogical Education" of the Zhytomyr Regional Council (Ukraine).

The study lasted during the 1st semester of the 2022-2023 academic year in groups studying the basics of management, project activities, and conflict resolution. The participants were divided into two groups: Group 1 (28 individuals) and Group 2 (30 individuals), totaling 58 students who studied the new discipline "Philosophy of Conflictology: Project Activities" within the framework of professional development courses in the field of management.

Throughout the experiment, opportunities for learning and project activities were provided to the participants in the experimental groups under the guidance of their supervising educators. The main focus was on improving group work skills, conflict management, and conflict resolution methods.

The experiment was designed to be implemented in three stages. The preparatory (Stage 1) and final (Stage 3) stages involved:

- Surveying the respondents.
- Shaping and correcting the content of the educational course.
- Organizing learning activities.
- Extracurricular and independent work of the participants.

The second stage involved active work with the educational course and testing to assess the participants' knowledge of conflict resolution and readiness for productive cooperation on the project.

The control tests were organized at the beginning and end of the project. The questions and practical tasks were presented in 2 blocks, consisting of 25 questions in the first block and the implementation of project work opportunities in the second block. The results determined levels of knowledge acquisition and self-assessment of cooperation and conflict management skills. Also, the effectiveness

of the methodology implemented during the experiment was analyzed.

Further calculations indicated the participants' success level and their evaluation of working with the new educational course, "Philosophy of Conflictology: Project Activities."

The research involved students and teachers who voluntarily agreed to participate in the experiment. The research team prepared all the questionnaire materials and adhered to respect, dignity, and privacy principles. The educational and methodological complex did not use any measures that would affect the honesty and accuracy of the results and assessments of the participants.

### 3 Literature Review

Correlative relationships existing between conflict management skills and group productivity also determine the opportunities to enhance cooperation effectiveness.

Modern conflict research has examined the implementation of conflict management strategies at a group and individual levels and the means of mediated moderation (Zhang et al., 2011). It primarily includes the model of differentiated conflict impact on task orientation and creative ability within the group. The researchers have found that emotional exhaustion due to a conflict significantly reduces individuals' creativity within the group.

Examining the influence of conflicts and functional confusion within a team reveals decreased productivity and job dissatisfaction. Internal conflict and negative individual emotions within the team can be reduced through supportive leadership. High leadership support mitigates conflict within the team and minimizes its negative impact on performance and job satisfaction (Greenwood, Haar, 2018). Moderation is essential in conflict model development, where conflict management is represented through the mediation function (Li et al., 2019). Additionally, conflicts in production industries, particularly in complex, sometimes multicultural projects, are individually studied. These include inter-organizational disputes and their management models and approaches to their resolution (Hu et al., 2017; Wu et al., 2017). Destructive and constructive leadership styles are examined within the context of project performance evaluation, the nature of conflict, group members' perception of conflict prevention actions, and other factors that significantly influence cooperation within large project teams (Wu et al., 2017; Iatsyshyn et al., 2020).

Several studies are dedicated to managerial conflict resolution styles, primarily examining the peculiarities of business and interpersonal relationships (Wang, 2017), ways to enhance conflict resilience within the group (Wu et al., 2017), and the search for effective methods to cultivate a sense of importance and productivity among team members while minimizing conflict occurrence, which is a prerequisite for sustainable financial growth (Chiocchio et al., 2011).

The examination of the positive impact of conflict and conflict management styles also touches upon the issue of competitive conflict research. Independence among team members and a competitive style lead to the implementation of confrontational approaches, where one wins while others capitulate (Yang et al., 2013). Such tactics as constant disagreement, maintaining one's own position, and attempts to control communication within the group and others are considered.

The development of effective and contemporary conflict management models should be based on extensive educational work and support for conflict research projects. It will allow project team leaders and employees to navigate conflict models and choose the correct management and cooperation style.

### 4 Results

An awareness of the crucial interaction between management, conflict prevention, and team productivity in a project depends on the leadership management style, the types of conflicts that

arise during a project, and the coordination and productivity of team members.

During the initial stage of the project, the focus was on refining the examined and tested strategies for conflict avoidance and collaboration. The research group conducted a preliminary survey of teachers and students planning to work on the project. The permission was obtained from the management of postgraduate education centers, and an agreement on maintaining respondent anonymity and confidentiality of personal information beyond the scope of the study was signed.

During the preparatory stage (Stage 1), the mechanisms of coordination in conflict management and the mediating role of such mechanisms were examined.

A conceptual approach to studying conflict prevention models is presented as a diagram in Figure 1. The modeling of strategies is focused on three central interrelationships:

- the link between leadership approaches and conflict management, the coordination of actions within the team;
- the link between collaboration skills and team productivity;
- the link between conflict management approaches and group performance under the coordination of "leader-team."

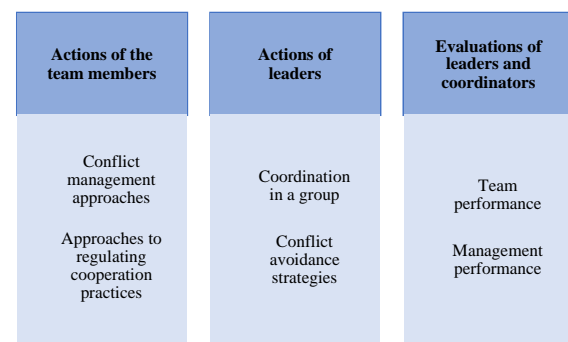


Figure 1. Hypothetical models of conflict prevention and cooperation

The presence of a correlation between conflict management approaches, team interaction level, and team productivity depends on the coordination of actions and resolution of conflict situations within the group. Such a model indicates the presence of two behavior models within the group, where cooperation and coordination of actions positively influence project implementation productivity. Collaboration within the team correlates with the approaches to conflict avoidance in the team and the team's performance in project activities.

The researchers grouped the students into two experimental groups, which were taught using an updated course program called "Conflictology Philosophy: Project Activities," dedicated to project activities, cooperation, and conflict management. The respondents analyze their activities. Based on this analysis, they develop models of their own behavior regarding conflict management within the team and fostering positive cooperation within the group for the project.

The experimental groups had an equal number of learning hours. Also, both groups had subjects introduced, such as "Conflict Resolution: Theory and Practice" and "Conflictology Philosophy: Project Activities." Two curators were selected for each group, responsible for coordinating practical work and organizing a series of events related to project management.

At all stages of the experiment, surveys were conducted in the groups (at the beginning, middle, and end), which included assessing knowledge and acquired skills and readiness to apply the obtained management, organization, and group management knowledge in projects.

In the 2<sup>nd</sup> stage of the experiment, students were tested to determine their level of cooperation skills and ability to prevent conflicts during the project. The first part of the knowledge and skills assessment included theoretical questions from the course, while the project block assessed their ability to work with the project group. The results are presented in percentages.

Table 1. Overall evaluation of knowledge in conflictology and readiness for effective cooperation on the project

Control block number		Assessment of acquired knowledge and skills			Number of students per group	
		High	Average	Low	EG1	EG2
Question block 1	EG1	26	59	15	28	30
	EG2	23	59	18		
Project block 2	EG1	25	52	17	28	30
	EG2	24	58	17		
Total per block	EG1	51	111	32	56	60
	EG2	47	117	35		

Source: author's elaboration.

A group of researchers identified the content, methodology, and approaches to modeling conflict prevention strategies, developing skills in planning and collaborating in the context of studying a new conflictology course. Measurements of the formation and readiness of managers to coordinate project cooperation and team performance improvement were the main indicators evaluated during the experiment and the main factor in verifying the course's efficiency.

In the 3<sup>rd</sup> (final) stage, the survey results of students' survey were analyzed, and an evaluation of the respondents and the teachers involved in the experiment was determined regarding the feasibility of implementing the new course "Philosophy of Conflictology: Project Activities." The students and educators were asked to assess their increase in proficiency in conflict management and increased productivity in the group work on the project, if applicable, on a 10-point scale.

Table 2. Indicators for evaluating the feasibility of introducing the course "Philosophy of Conflictology: Project Activities"

Evaluation results	Experiment stage	Group 1	Group 2
Minimum score (from 1 to 6)	Initial	6	9
	Final	4	5
Average score (from 6,1 to 8)	Initial	17	13
	Final	8	11
Maximum score (from 8,1 to 10)	Initial	5	8
	Final	16	12

Source: author's elaboration.

Table 3. A general assessment of conflict resolution knowledge formation and readiness for effective cooperation during the project

Control unit number		Assessment of acquired knowledge and skills			Number of students per group	
		High	Average	Low	EG1	EG2
Question block 1	EG1	32	58	10	28	30
	EG2	31	60	10		
Project block 2	EG1	28	55	11	28	29
	EG2	30	60	9		
Total per block	EG1	60	113	21	56	59
	EG2	61	120	19		

Source: author's elaboration.

At the final stage, the students were given a final test, with blocks of questions and project activities representing the levels of respondents' success in terms of acquired knowledge and skills in conflict resolution and management.

According to the experiment results on introducing the new course, it was found that managers and administration representatives in educational activities learn to collaborate on a group project and manage a conflict after completing the new training course. The high level of academic performance in the experimental groups increased by 7%. The average level increased by 3%, while the low level of performance decreased by 15%.

## 5 Discussion

The effective models of conflict prevention, conflict management, and cooperation are considered a part of effective management policies, crucial for successful business operations, institutional work, etc. The issue of finding effective cooperation algorithms within a group requires scientific attention. The research on matters of social responsibility, the formation of functioning skills within civil society, and the basics of cooperation have been addressed in a series of studies (Popovych et al., 2020; Wang, 2017). It has been established that an active civic position and cooperation in international projects motivate dynamic professional growth, effective group work search, and increased productivity (Fernández-Manjón et al., 2007; Akimova et al., 2022).

In our research, the respondents also positively assessed the proposed program for qualification enhancement in conflictology and group work within the project. The positive evaluation of conflict prevention skills by participants increased on average by 37% during the final stage of the project, while project success improved by 7%.

In the theoretical dimension of conflictology, the interrelation between team conflict, group work productivity, and conflict management models has been examined (Luo Ying, Lu Lei, 2020; Bakhov, 2021). Primarily, this involves the examination of mediating factors and moderation. Conflict formation and transformation are studied from the standpoint of conflict management theory. However, researchers have proposed considering conflicts from a linear causality aspect and as dynamic systems with a complex set of variables. The course's practical components were considering a conflict as a dynamic system and the ability to work in groups on a project.

A study of team coordination and conflict management models in a multicultural group (Tabassi et al., 2019) was conducted to identify the ways to improve team effectiveness by increasing its coordination. A total of 126 managers and supervisors and 378 members of construction industry groups working on multicultural projects were surveyed. The obtained results indicated that the choice of conflict avoidance strategy positively influences the productivity of multicultural groups within the project.

The results obtained during our research confirm a similar thesis. Regulating conflicts and collaborating on a project enhances the leader's success and self-confidence. High success rates during training and practical work on the project increased by 7%, and the average level of proficiency increased by 3%. Overall, the majority of respondents (47 out of 59) positively evaluated the introduction of the course, which aims to provide theoretical and practical training in conflict settlement strategies and effective cooperation in project activities.

## 6 Conclusion

The results obtained during the project implementation have shown that improving management effectiveness in the project is associated with managing conflict, enhancing team productivity, and making the right choices regarding collaboration and project management models.



The introduction of educational programs that include the study of conflict prevention and practical cases of project work is a vital component of a manager's modern and effective management and is positively accepted by the project participants.

Therefore, project activities involve the presence of clear goals for team members and project goals that should be achieved through mutually beneficial results based on fairness and normative communication. The ability to find the right balance within the project group, manage conflict effectively, and work productively on the project is a valuable skill for a leader. It allows not only for conflict resolution but also for prevention. This is a positive outcome for individuals within the working group and the project in general.

The impact of team interaction, the ability to avoid or effectively neutralize conflicts, and attention to team conflict are crucial components of the project's financial success. The rapid development of the global economy, science, and technological advancements present increasing challenges for modern managers.

Hence, it is essential to continuously research conflict management styles within the dynamics of their development and explore the correlation between team productivity and the ability to manage conflicts and make the right choices in management styles.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, BC**

## METAMORPHOSES OF PERSONALITY IN THE INFORMATION SOCIETY: EDUCATION, CULTURE, IDENTITY

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**Abstract:** The relevance of the topic is determined by the rapid development of digital technologies and their impact on all spheres of human life. The current reality requires analysis and understanding of how these technologies change the perception of education, the formation of cultural environment and identity. The purpose of the research is to systematically study and analyze in depth the interaction of the information society with the spheres of education, culture and identity. The primary objective is to thoroughly identify and disclose the complex interrelationships arising from this interaction, in particular, the impact of information technologies on educational practices, the formation of cultural space, and the transformation of the individual. In addition, the research aims to reveal not only changes in the field of personal development under the influence of the information society but also to identify positive or negative trends that may arise as a result of these processes. The object of the research is the dynamics of transformations in the spheres of education, culture and identity arising in connection with the development of the information society. The obtained results of the research are of great practical importance for adapting to the challenges of the information society. It has been determined that educators and students need to establish digital capabilities since this can provide the basis for creative teaching methods. The key factors of cultural transformation are identified in the aspect of culture, which creates the basis for strategies aimed at preserving cultural heritage and developing new forms of cultural interaction. The impact of the information society on the development of personal identity is examined in terms of identity, and this research might provide a foundation for psychological support initiatives in the digital sphere.

**Keywords:** Information society, Culture, Education, Personality, Transformation, Identity, Technology, Digital transformation, Metamorphoses of personality.

### 1 Introduction

The information society, with its rapid changes and extraordinary speed of information exchange, has become an arena for profound transformations in both technology and, more crucially, human nature itself. In this context, understanding the transformation people go through when interacting with the information environment is crucial. The information society, which is currently based on the development and use of high-tech communication tools, influences all aspects of our lives, from economics and science to culture and education. The present academic paper will examine how these transformations impact our personalities, focusing on key areas: education, culture, and identity formation.

A leading aspect is the role of education in fostering flexible and adaptive individuals who are able not only to assimilate information but also to critically evaluate and creatively use it. The cultural transformation brought about by the high-tech revolution is also contributing to the formation of our personality by expanding the cultural spectrum and creating new values.

The most interesting and difficult study for us is the metamorphoses of identity in the digital space. The Internet, social networks, and virtual communities are defining new ways for shaping our subjective realities, changing traditional notions concerning our identity and self-perception in the world. We will examine the dynamics of these processes in the present academic paper, focusing on the key aspects and interaction of education, culture and identity in the information society.

The purpose of the research is to reveal how individuals adapt and transform in the face of the unrestrained flow of information surrounding us every day.

### 2 Literature review

The analysis of literary sources on the issues of the personality's metamorphoses in the information society reveals the diverse aspects of this topic. The scientific work of Kseniia Androsovykh (2023) "Social Development of the Personality in the Society of Information Technologies" highlights the interaction between the individual and the information society, focusing on social aspects. The publication of Svitlana Artemenko et al. (2023) "The Influence of Media Culture on the Socialization of the Individual in the Modern Information Society" analyzes the impact of media on the process of socialization in the information society.

The scientific article by Raisa Bohacheva et al. (2022) "Paradigm of Development of Socio-Humanitarian Knowledge and Education in the Information Society" examines the paradigms of education development in the information society. Larysa Bronnikova (2023) examines forecasts and real transformations in the information society in her study "Information Society: Forecasts of Social Transformations and Reality". The anthropological perspective on Ukrainian philosophy is examined in the publication "Ukrainian Philosophical Anthropology: Metamorphosis of Modern Socio-Cultural Reflection" by S. Vilchynska (2014).

Mykola Vitiuk et al. (2021) analyze the ways of humanizing technical progress in the information society in their study "Ways of Humanizing Technical Progress in the Information Society". O. V. Vozniuk and O. A. Dubaseniuk (2009) consider the target aspects of personality development in the education system in their scientific article "Target Orientations of Personality Development in the Education System: Integrative Approach". Ihor Dovzhuk (2022) analyzes the issue of digital inequality in the modern information society in his exploration "Digital Inequality in the Information Society".

A. S. Doroshkevych and O. M. Karina (2011) study the model of education in the information society in the scientific work "Model of Education in the Information Society". Yu. Zavhorodnia (2022) considers cyber conflicts as part of political technologies in the information space in her research "Cyber Conflicts as an Element of Political Technologies in the Information Space". O. Zaporozhchenko (2021) discusses the basic principles of education in the information society in the scientific article "Basic Principles of Education in the Information Society". L. F. Kompantseva (2009) analyzes the destructive influences of the information society on the consciousness in her study "Destructive Influences on the Consciousness of the Information Society".

M. O. Kyrychenko (2017) studies the formation of the ideology of the information society in the context of global informatization in his publication "Formation of the Ideology of the Information Society in the Context of Global Informatization". M. Lipin (2018) explores the transformations of memory in the information society in his scientific work "Transformations of Memory in the Information Society".

### 3 Results

The dynamic development of technology is profoundly transforming all areas of our existence in the information society we are experiencing nowadays. Based on the rapid exchange of information and the use of digital technologies, this society is defined by high accessibility and permanent connection to the global network.

The central element of a participatory information society is access to information. Every individual is becoming an active participant in information exchange due to the widespread adoption of the Internet and mobile technologies. Accordingly,

the amount of information we consume on a daily basis is reaching record levels, and the speed of its dissemination is unprecedented in history (Sandiuk L. O., 2014).

Modern technologies facilitate interaction and exchange of views at the international level. Communities are formed not only on the basis of geographical or social-cultural features but also on the basis of common interests and ideas. Virtual communities, social networks, and other online platforms allow people from different parts of the world to unite and exchange ideas without depending on spatial restrictions (Vilchynska S. V., 2014).

The structure of the economy is also changing with the development of information technologies. The role of technology companies, startups and innovative industries is growing. This stage of development is characterized by more efficient use of resources, automation and rethinking of traditional business models. The concept of "big data" is becoming an integral part of the information society, which is characterized by the processing and analysis of huge amounts of information to identify patterns and make predictions. This opens up new opportunities for management, science, and technologies but also imposes a number of privacy and security challenges.

The information society also creates a new standard of cultural interaction. The perception of art, literature, and music is changing under the influence of digital media and network accessibility (Artemenko S., Fliashnikova A., Onishchuk I., 2023). Cultural expressions and traditions are viewed in a new context, and their dissemination becomes almost instantaneous. In such an environment, the information flow becomes not only a source of knowledge but also an active factor in personality formation. This relentless flow of data, ideas, and cultural experiences sets a new standard for the way we perceive ourselves and the world around us (Bronnikova L., 2023).

We can identify the following key features and characteristics that define and shape the information society in its current environment:

1. The information society is characterized by the rapid and massive exchange of information. The Internet and other technologies provide access to an unlimited amount of data, which makes it possible to obtain up-to-date information instantly.
2. Globalization in the information society is manifested in the interaction with events and information that comes not only from one's own country but also from other parts of the world. Information technologies make it possible to create global communities and interact with different cultures.
3. High-tech communication tools affect all aspects of life. Smartphones, social networks and other means of communication expand the possibilities of interaction and contribute to the formation of a virtual "I" in the digital space.
4. The growing importance of knowledge and information turns it into real capital. The ability to effectively use and analyze information is becoming a key success factor for both individuals and businesses.
5. E-democracy is becoming a reality thanks to the possibility of expressing opinions in the virtual space. Public debates and interactive petitions open up new forms of citizens' participation in decision-making.
6. The growth of a knowledge-based economy requires the active use of innovations and high technologies. Companies that invest in modern technologies become leaders in economic development.
7. Mass access to information and education becomes the standard. This provides an opportunity for ongoing self-improvement and learning new things at any time.

The transformation of identity in the information society is conditioned by new forms of expression and comprehension.

Art, literature and other cultural expressions have undergone a process of digital transformation, providing a new way of perception and creativity. In the world of permanent changes and challenges of the information age, we no longer just consume data – we interact with it, turning it into an active element of our existence. Moreover, this becomes a key factor in the formation of our personality, where metamorphoses become a necessity in the face of permanent changes and challenges of the information age.

Several basic concepts in the information society that determine its functioning and development, namely:

1. The concept of "Knowledge Society" defines the transition from a production-based economy to a society where knowledge and information are the key resources and sources of power (Bohachev R., Bohdanovskiy I., Liovkina O., 2022). It is determined by the transition from an industrial to a new type of society, where knowledge and information are the core resources and stimulus for development. The scientific and education systems are given a lot of attention by the "Knowledge Society". In addition to imparting fundamental knowledge, education fosters the growth of critical thinking, creativity, and intelligence. Research centers and universities serve as locations for the creation of innovative ideas and knowledge. To advance their development, they also actively utilize technological advancements and inventions. High-tech solutions, artificial intelligence, robotization, and other improvements in technology are necessary elements for effective functioning in such a society (Doroshkevych, A. S., Karina, O. M., 2011).

The "Knowledge Society" is characterized by shifting to the economy where intellectual and innovative potential becomes the main source. Companies are actively investing in research and development, ensuring sustainable economic development (Mykhailiuk O., Vershyna V., 2023). The knowledge society is becoming interconnected due to mass communication and global networks. People can share information, ideas, and cultural heritage across geographical boundaries. One of the key features of the knowledge society is the necessity of permanent learning and adaptation. Changes in technologies and knowledge require an individual to constantly advance to function effectively in the modern environment.

2. Digital transformation is an essential aspect of modern society since it determines the transition from traditional methods to digital technologies in all spheres of life. The central elements of digital transformation are the Internet and broadband access. The growing number of connected devices and expanding networks allow people and organizations to be constantly connected and share information in real time.

The application of artificial intelligence (AI) is an important element of digital transformation. Machine learning systems and data analytics systems help automate processes, identify patterns, and make decisions based on large amounts of information. Digital transformation has a significant impact on commerce. E-commerce is becoming increasingly popular, allowing people to make purchases online and companies to provide more efficient and personalized services. The healthcare sector has undergone digital revolution, resulting in the implementation of electronic medical records, telemedicine, and big data analysis. This helps improve diagnostics and treatment.

Digital security becomes more and more crucial since the quantity of digital data increases. Measures on encryption, protection against cyberattacks and processing of personal data are becoming crucial elements of digital transformation (Zavhorodnia Y., 2022).

3. Globalization is described as a process that leads to increased interdependence and interaction between different regions around the world. This concept covers economic, social-cultural, and political aspects, forming a single global space

(Kyrychenko M. O., 2017). Globalization leads to the intensification of world trade. International trade in commodities and services between states promotes market expansion and economic progress. Globalization ensures the free flow of capital and investment between countries. Companies can invest in different regions and this contributes to the advancement of international enterprises and boosts the economy of countries. Convergence of cultures is becoming an integral part of globalization. Globalization is fostering the formation of an international cultural space by encouraging the flow of languages, customs, cuisine, and other cultural elements. The increase in technologies and the Internet facilitates global communication and information exchange. People can easily communicate, collaborate and influence events, regardless of geographical distance.

Globalization makes it easier for people to move between countries for work, study or migration. This leads to the establishment of multicultural societies and enrichment of social experience. Economic convergence and production growth lead to shared responsibility for pollution, climate change and other environmental challenges. Globalization requires joint efforts to solve these problems.

4. "Digital transformation" indicates that there is an active process of using digital technologies to change traditional business models and optimize various areas of life.

For instance, digital transformation uses a wide range of digital technologies, including artificial intelligence, big data analysis, the Internet of Things (IoT), blockchain, cloud solutions, and others (Vitiuk M. & Mashin V., Kochetkov O., 2021). Digital transformation leads to revision and optimization of business models. Online presence, e-commerce, and other digital approaches will transform traditional business. Digital transformation involves reviewing and optimizing workflows. Automation and application of intelligent systems can improve the efficiency and accuracy of work. Due to the increasing volume of digital data, digital transformation requires enhanced cyber security and privacy protection measures.

The information society we live in determines various aspects of our lives, especially in the face of global crises for the individual, such as pandemics and war. Based on the abovementioned, the metamorphoses of the personality in the information society include as follows:

1. Given the changes to the world brought about by the pandemic and war, remote work has emerged as an essential aspect of our everyday lives. For instance, distance work became a standard for many people. The individual learns how to maintain professional etiquette and communicate with colleagues in a virtual environment. Education is moving to an online format. Pupils and students study using virtual platforms, which requires adaptation to new teaching methods and self-regulation (Zaporozhchenko O., 2021). The nature of social interaction is changing. The quality of interpersonal interactions is influenced by the fact that virtual meetings, chats, and communication are becoming the main forms of communication.

Nevertheless, working remotely creates new kinds of stress and necessitates the improvement of self-control abilities and the maintenance of mental health. Furthermore, the lack of options for physical leisure is contributing to the expanding role of electronic media. The individual adapts to new forms of content consumption and interaction with culture. Nevertheless, virtual life enables people to connect and communicate without the constraints of geography, which contributes to broadening the worldview and cultural diversity. Along with this, the increasing number of online users requires attention to data privacy and security issues to preserve personal space. In general, remote life has now become a new reality, influencing all spheres of our existence and requiring us to adapt to new social and technological challenges (Androsovykh K., 2023).

2. These factors have a significant influence on how a person's personality transforms in the face of global upheavals, where isolation and self-distancing have emerged as vital coping mechanisms during pandemics and war. For instance, the physical distance creates a sense of virtual communication; however, there might appear an impression of the lack of emotional connection. The individual learns to distinguish between virtual and physical proximity (Kompantseva, L. F., 2009).

Remoteness defines a new level of personal space. A person may experience tension in relationships in virtual space and should be sensitive to the needs of others. Self-isolation can cause different emotions, from loneliness to a sense of mental health protection. The individual learns strategies for self-support and support of others. The absence of physical interaction can influence social roles and requires reconsideration of conventional role models in a virtual environment. Along with this, long-term distance can cause emotional fatigue. The person develops strategies for maintaining emotional health and reducing the impact of emotional fatigue (Lialuk Y., 2023).

Changes in lifestyle due to self-isolation can lead to an altered perception of time. The individual learns to use time effectively and develops new daily rituals. The ability to engage constructively in virtual spaces is becoming increasingly crucial as remote communication grows. The individual learns the rules and nuances of virtual communication. Our vision of the world, relationships, and self-awareness are being influenced by the increasing prevalence of remoteness and self-isolation. The individual adapts to these changes, seeking a harmony between virtual life and reality.

3. Stress and instability are becoming an integral part of everyday life, affecting the person's mental state in the global context of pandemics and war (Nezhyya O., Teslenko, N., 2021).

Therefore, global crises cause fear, uncertainty and psychological discomfort. The individual faces a number of stress factors, such as health threats, economic instability, and social isolation. The advancement of strategies for coping with stress, such as support from loved ones, a healthy lifestyle, and regular relaxation practices, is an important component of psychological adaptation. Transformations in the working and learning environment can cause additional stress. Remote work and learning raise issues about the balance between professional and personal life, as well as challenges concerning self-management and motivation. The individual learns how to effectively organize working time and leave room for rest (Plohikh V., 2021).

Overwhelming emotions might result from experiencing an intensifying combat during a war, fearing for one's own health and the safety of one's family, and other factors. The person faces the need to effectively manage their own emotions and seeks support in these difficult circumstances.

Communication in conditions of social distance becomes an important aspect of stress and adaptation. The absence of physical proximity can cause feelings of alienation, and the individual adapts to new forms of interaction and support through virtual means (Pashchenko A., 2023). The conditions of global changes emphasize the importance of psychological support. The person seeks support from professionals, family and friends, recognizing the necessity to support mental health under stressful conditions. Deep transformations require the advancement of resilience and inner strength. The individual learns to adapt to new realities, developing an internal resource to overcome difficulties and maintain emotional well-being (Vozniuk O. V., Dubaseniuk O. A., 2009). Throughout these periods, a person undergoes a psychological adjustment process to preserve his mental well-being and assist others through difficult circumstances.

4. A person faces a massive flow of information in the current information society, which can lead to information fatigue and the necessity for efficient knowledge filtering. The overabundance of information offered in real time might lead to information fatigue. This can lead to overloading of the cognitive system, loss of concentration, and a general feeling of fatigue. Factors Causing Information Fatigue are as follows: the constant increase in information that a person has to perceive, process and analyze; the growing pace of life and innovation, which leads to the necessity to quickly update knowledge, as well as permanent access to smartphones and other gadgets, resulting in constant availability of information. Consequences of Information Fatigue are as follows: decreased concentration, memory and ability to analyze information, as well as emotional exhaustion, which can affect the emotional state, leading to stress and burnout (Lipin M., 2018).

Filtration of knowledge becomes a necessity to ensure efficiency and maintain the working capacity of the individual. The tools for Filtering Knowledge include the identification of the most significant topics and tasks for the individual's unique needs, the application of tools and programs to organize and filter information, and effective time management to eliminate unnecessary information and focus on important issues.

The impact of Filtering Knowledge on the Individual includes increased efficiency since effective filtering allows the individual to focus energy on what matters most, and less stress since reduced information leads to lower levels of stress and psychological strain.

5. Social networks have a variety of effects on an individual's mental health because they are an essential component of the information society, namely:

- Social networks create a virtual world in which a person presents himself or herself through selected fragments of life. This can cause stress due to disproportionate reality and comparison with idealized images of other users.
- Constant comparison of oneself with others in the virtual space can cause feelings of failure, envy, and dissatisfaction with one's own life. This may have a detrimental effect on one's sense of self and general mental health.
- Social media may be a source of support and communication, especially for those who feel socially isolated. However, relying too much on online assistance may cause one to lose genuine interpersonal relationships.
- Social media users often showcase only the positive aspects of their lives, choosing the best moments to share. This can lead to the illusion of a "bliss filter", where virtual reality looks more ideal than actual reality (Dovzhuk I., 2022).
- Permanent observation of the activity of others can cause a feeling of missing something important. This can cause anxiety and uncertainty about one's own decisions and life path.
- The spread of negative news and conflicts on social media can cause stress and influence the overall state of mental health. Interaction with negative content can affect the emotional state (Shcherbakova, I. M., 2011).
- Being a member of a virtual community can be positive, although it can also influence group opinion and attitudes, which can lead to conflicts and tension.

In summary, depending on how a person uses and engages with social media, there can be both beneficial and negative effects on their mental health. Balanced and conscious use is crucial for maintaining mental well-being.

Education in the light of personality's metamorphoses in the information society is marked by profound changes that influence various aspects of learning and personal development (Pysarenko O., 2016). For instance, e-learning has become a crucial component of our modern life. This approach to learning is defined by the use of modern technologies and the Internet to provide access to knowledge anywhere and anytime. Students

nowadays are able to choose courses that match their interests and master the material at their own pace.

Globalization of training became the reality thanks to e-learning. Students can now study material, communicate and exchange ideas with other students and teachers around them from anywhere. This not only expands the geography of education but also enriches the cultural experience of students.

Individualized learning is becoming increasingly relevant in the modern educational environment. Technologies for adaptive learning allow students to obtain personalized assignments and materials based on their individual strengths and weaknesses. The evolution of the teacher's role is a crucial component of transformations in education. Teachers are now not only providers of information but also mentors and facilitators. They stimulate independent learning and the formation of creative thinking among students.

Flexibility and accessibility have become key aspects of modern education. Students can choose not only subjects but also learning formats, providing flexibility in choosing courses and ways of acquiring knowledge. Emphasis on fostering technological competencies defines modern education. Students are given the opportunity to master programming, work with information technologies, and develop digital skills that will be crucial in the future (Rusul O., 2016). Education in the information society not only ensures the shift of knowledge but also forms an active, flexible and technologically competent personality ready for the challenges and opportunities of the modern world.

The metamorphoses of the personality in the information society have a profound impact on the cultural landscape, transforming the ways of perception, interaction and expression. An alternative cultural reality is being formed with the spread of virtual space. Virtual communities, online games, and social platforms are becoming not only platforms for interaction but also important aspects of identity formation. Virtual culture becomes a way of expressing and discovering oneself in the digital environment.

Thanks to the Internet and social networks, a new level of intercultural communication is emerging. People are able to interact with representatives of different cultures and are more likely to encounter diversity. This promotes perspective expansion, tolerance for many viewpoints, and the development of a global cultural consciousness.

The advancement of digital technologies is transforming art and culture. Digital art forms enable us to rethink and interpret traditional works of art, from the rise of virtual reality in creative processes to the advent of digital museums and exhibitions. Social networks define new cultural trends. They become an arena for the establishment of influential cultural phenomena, viral trends, and content generation. People interact, discuss and spread cultural ideas through digital networks.

Internet stimulates active participation in cultural events. Individuals interact, co-create, and influence cultural processes through online communities and discussion platforms. Active participation becomes a means of self-expression and interaction with the world around us. Digital technologies allow everyone to express their creativity. Social networks, platforms for self-expression and digital tools provide opportunities to create, publish and distribute creativity, bypassing traditional cultural barriers. Technologies make it easier to preserve and disseminate cultural values. Digital archives, online resources, and other technological tools preserve and transmit cultural memory across generations (Sarnavska O. V., Yakovyshyna T. V., Shadiuk T. A., 2020).

Metamorphoses in the cultural sphere in the information society enrich and expand the cultural range, allowing individuals to interact and express themselves more fully in the digital environment. Metamorphoses of the personality in the



information society have a significant impact on the formation and development of personal identity. These transformations cover various aspects of identity, from personal beliefs to the social-cultural context, and explore in detail the impact of digital technologies and the information environment.

With the proliferation of the Internet, an individual is able to construct his or her online identity. Social networks, blogs, and other platforms are becoming platforms for self-expression and representation in the digital realm. This influences the perception of oneself and communication with others. Online communication shapes new social roles. Differences in communication and interaction in the network create new stereotypes and perceptions of social roles. A person in the digital realm may feel differently than in real life.

An individual can be exposed to many cultures and perspectives through the use of the Internet. This leads to the formation of a multicultural identity, when a person combines elements of different cultures that influence his or her worldview and values (Shypko A., Zubrova O., 2023). Anonymity on the Internet can facilitate experiments with identity. Individuals may feel freer to express their thoughts and reveal parts of themselves that they may keep hidden in real life.

Anyone can take on different roles, experience scenarios in virtual reality that might not be possible in the actual world. This makes it possible to experiment with identity and develop different aspects of one's personality. Interaction with technologies, such as implants and augmented reality, replacing human work with a robot, influences the perception of one's own identity. An individual may view himself or herself as part of the technological environment, which influences his or her perception of his or her place in the world.

Identity transformations in the information age are a reflection of the complex effects of digital technologies and the Internet on people's perceptions and sense of self. Therefore, after analyzing all of the above mentioned, in our opinion, metamorphoses of the personality in the information society are defined as systematic, complex and gradual transformations in nature, values, habits and lifestyles of the individual, which arise under the influence of technological, cultural and social transformations characteristic of the information society. These metamorphoses include new forms of interaction, perception of the world, ways of learning and personal development, which differ significantly from traditional models due to the widespread use of information technology and profound changes in society.

Furthermore, it ought to be mentioned that the war in Ukraine is a key factor that shapes the metamorphoses of the individual in the information society. Extreme stress stemming from bereavement, losing loved ones, and reevaluating life principles negatively impacts an individual's identity and mental health. Furthermore, the circumstances of warfare can result in psychosomatic symptoms and post-traumatic stress disorder (PTSD). A person is exposed to significant stress, which can affect his or her mental and physical health.

In turn, people who have become refugees because of the war undergo metamorphoses of the personality as a result of losing their homes, social stability and adaptation to a new environment. The information society plays a significant role in their adaptation, providing access to resources and opportunities in the Internet space.

Thus, consideration of the impact of military conflicts on the metamorphoses of the individual in information society is crucial for a full understanding of the dynamics and challenges arising in the conditions of war and its consequences.

#### 4 Discussion

In the current information society, educational issues are becoming more urgent and complex. Digital disciplinary

requires teachers to adapt to new technologies and interactive teaching methods. At the same time, inequalities in access to technical means can cause large differences in learning opportunities between different groups of individuals.

Cultural dynamics in the information society is characterized by diversity and digital diaspora. People virtually unite with colleagues with similar interests, which can lead to the formation of culturally closed social groups. Furthermore, the spread of disinformation is becoming a serious problem, disrupting cultural objectivity and the preservation of historical truth.

The process of forming an identity becomes difficult in a world where virtual communication and pervasive anonymity are commonplace. Online identity and self-expression through social media can influence the self-perception but also raise issues regarding privacy and confidentiality. Digital stress and fatigue caused by constant connection to the digital realm are also becoming factors that affect mental health and personal identity.

#### 5 Conclusions

It has been analyzed that the metamorphoses of personality in the information society are considered from the perspective of education, culture and identity. The growing influence of digital technologies poses both benefits and challenges.

In the field of education, where the digital revolution is taking place, it is necessary to actively adapt to new technologies and ensure equal access to educational opportunities. Disinformation and the virtual diaspora are two issues that the cultural realm must address. As a result, measures for integrating cultures and thwarting information manipulation must be developed. Digital interaction online creates concerns about identification in terms of privacy, anonymity, and digital stress.

These factors together define a new landscape for personality formation in the information society. It is crucial to consider various challenges and seek a balance between the benefits of digital progress and the preservation of key values of personality, culture and education. Fostering critical thinking, technical literacy and ethics are important aspects to overcome challenges and promote the positive impact of the information society on the individual's formation.

As a result, the personality's metamorphoses do happen in the framework of the information society and take the form of a dynamic process that continuously affects identity development as well as education, culture, and other important facets of human existence. Although digital technology development offers opportunities, it also poses obstacles.

In this context, it is significant to maintain a balance between the benefits of technologies and the preservation of key aspects of personality, culture and education, promoting digital literacy and ethical use of technologies.

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**Primary Paper Section: A****Secondary Paper Section: AL, AO**

## MORPHOLOGY AND MORPHEMOLOGY: WORD STRUCTURE AND MORPHOLOGICAL ASPECTS OF LANGUAGE

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**Abstract:** The article focuses on analyzing the foundational theoretical tenets of morphology and morphology within contemporary Ukrainian linguistics, emphasizing their intrinsic interrelation. A comprehensive examination of the morpheme as the fundamental linguistic entity for morphemological studies is undertaken. The primary attributes of a morpheme as a linguistic unit are elucidated, facilitating a more proficient comprehension of the principles underlying the morphemic analysis of words. Furthermore, the research delves into the grammatical meanings embodied by morphemes within specific parts of speech, drawing on Ukrainian language lexemes for illustration. The discourse provides a rationale for considering morphemology as an autonomous branch of linguistics, intricately linked with morphology and derivatology. The article delineates distinctions in the application of terms such as "morphemics" versus "morphemology" and "morpheme" versus "morph." A crucial assertion is advanced, substantiating that a morpheme, functioning as the smallest semantically significant constituent of a word, can simultaneously convey lexical, grammatical, and word-formational meanings. The correlation between morphemology and morphology is substantiated by the integral semantics inherent in words, a phenomenon derived from the amalgamation of lexical and grammatical meanings. The confluence of these meanings establishes a word's classification within a specific grammatical category (part of speech) and its affiliation with a particular word-formational type. Similar to a word form, a morpheme exhibits reproducibility in language, possesses a semiological function, and serves to convey both subject (via the root) and non-subject (via affixes) meanings. As with other linguistic entities, morphemes and word forms can be regarded as historical categories, prompting the differentiation of word formation into historical and synchronic aspects. Throughout the historical evolution of a language, alterations in word structure manifest through phonetic changes, the loss of productive affixes, and modifications in the phonemic boundaries of morphemes. Consequently, the framework for synchronic morphemic analysis must not be indiscriminately applied to other synchronic facets of the language.

**Keywords:** Linguistics, Morphemics, Morpheme, Morphology, Morphemic analysis of a word, Word-root, Affix, Lexical and grammatical meaning, Word formation meaning, Morphemic composition of a word, Modern Ukrainian language.

### 1 Introduction

Language functions as a complex multilevel system, characterized by a systematic structure facilitated through the existence of syntagmatic and paradigmatic relations among different levels or tiers of language, as well as among various linguistic units. Morphology, one of the earliest branches of linguistics, is dedicated to the examination of the morphological level of language and the exploration of the grammatical semantics inherent in words. In conjunction with syntax, morphology constitutes a foundational component of language grammar.

Given that the subject of morphology encompasses a word or its word form, conceived as a structural and semantic amalgamation of meaningful components, key linguistic challenges at the intersection of morphology and morphemics can be delineated as follows:

1. Typology of morphemes in contemporary Ukrainian language.
2. Investigation into the meanings and functions of morphemes within words and their word forms.
3. Development of the principles governing morphemic analysis of words.
4. Examination of the morphemic composition across diverse parts of speech.

### 2 Aim and objectives

The primary aim of this article is to examine the interplay between morphology and morphemics, treating them as distinct branches within linguistics. The focus entails elucidating the lexical and grammatical significance of morphemes and their variations, commonly referred to as "morphs," within the framework of classifying parts of speech.

Research Objectives:

- To delineate the semantic boundaries of the concepts "morphemics," "morphemology," and "morphology," along with elucidating the linguistic units "morpheme," "morph," and "word form," establishing their correlation with specific levels of language.
- To expound upon the morphological characteristics of the Ukrainian language, exploring the relationship between morphology and morphemics through the lens of lexico-grammatical groups (parts of speech) and their distinctive derivational indicators.
- To enhance the structural and typological modeling of words classified within specific lexical and grammatical groups in the Ukrainian language.
- To outline the characteristics of the morpheme as the smallest significant unit in language, defining its functions and distinctive features.

### 3 Literature Review

A focal issue within contemporary morphology involves the formulation of principles and approaches for the classification of parts of speech, a categorization that is further delineated into traditional and modern perspectives. The traditional approach, as expounded in the collective monograph "Modern Ukrainian Literary Language. Morphology" (1969), classifies all parts of speech into full, partial, and interjection categories. The primary criterion underpinning the traditional approach to part-of-speech classification is the identification of shared formal features and a characteristic syntactic role.

The most recent classification, introduced by linguist I. Vykhoanets in his monograph "The Prepositional System of the Ukrainian Language" (1980), presented a novel semantic and grammatical framework for the categorization of words into parts of speech. According to Vykhoanets, nouns, verbs, adjectives, and adverbs are categorized as full parts of speech, while numerals, pronouns, conjunctions, prepositions, particles, and interjections fall under the designation of service words. This classification is grounded in the concept of "relational semantics." Notably, Vykhoanets contends that numerals have forfeited their status as an independent part of speech, asserting that their primary function is to specify quantity, a role equated with the indication of the number of nouns expressed through inflection.

In his subsequent monograph, "Parts of Speech in the Semantic and Grammatical Aspect" (Vykhovanets, 1988), the scholar further refined the classification of parts of speech. This classification is characterized as heterogeneous, deviating from the earlier homogeneous categorization, which dichotomized all words into modifiable (with inflections) and those that cannot be modified. I. Vykhoanets' heterogeneous classification was established on semantic, syntactic, morphological, word-formational, and logical criteria. This approach resulted in the creation of an internal hierarchy of parts of speech, wherein the noun and verb held central status, while the adjective and adverb were peripheral—thus forming a four-component system of full-value parts of speech. In her monograph "Conjunctions of the Ukrainian Language" (2010), K. Horodenska substantiated the semantic and formal-syntactic functions of conjunctions and provided insights into their morphemic status. Additionally, the



researcher introduced a novel perspective on the nature of interjections as a distinct part of speech, situating it within the concept of the sentential nature of the interjection.

The most comprehensive depiction of the morphological system of the Ukrainian language is articulated in the scholarly work "Grammar of the Modern Ukrainian Language. Morphology", authored by I. Vykhovanets, K. Horodenska, S. Sokolova, and A. Zahnitko (2017). This study delineates the morphological facets of the language through the lens of functional-categorical grammar. However, language, as a dynamic organism, undergoes constant evolution and change, thereby influencing the trajectory of theoretical morphology in the future. Notwithstanding the merits of the aforementioned works, there exists a notable gap in the examination of the relationship between morphemology and morphology, underscoring the significance of the chosen research topic.

Morphology and morphemology serve as pivotal domains for comparison in the realm of comparative grammar. In their study, Ukrainian scholars N. Hladush and N. Pavliuk (2019) conducted a comparative analysis of the grammatical structures of Ukrainian and English, revealing that nouns share more similarities in both languages than may be apparent initially. Upon scrutinizing the morphological structure of the Ukrainian language, the researchers concluded that the language's morphological system manifests its properties through the morphemic structure of words. Ukrainian, primarily a synthetic language, boasts a well-developed system of affixes. In contrast, English, an analytical language, predominantly employs free morphemes and is comparatively less rich in affixes. A noteworthy challenge in the English language lies in the fact that the same word can often belong to different parts of speech, with certain forms considered functional shifts or conversions, while others are homonyms. In English, the classification into parts of speech primarily relies not on formal characteristics, as in Ukrainian, but rather on the syntactic properties of words.

The scholar O. Zuban (2017) delves into the Ukrainian language corpus from the perspective of applied linguistics, situated at the intersection of morphemics and morphology. According to her assessment, the application of computer modeling at the morpheme level remains inadequately developed within contemporary corpus linguistics. It is noteworthy, however, that the Department of Structural and Mathematical Linguistics at the Academy of Sciences of Ukraine has established a Morpheme and Derivation Database for the Ukrainian language. Additionally, the team at the Computerized Laboratory of Linguistics at Taras Shevchenko National University of Kyiv has designed the Automated System of Morpheme and Derivation Analysis (ASMDA).

These two morpheme-derivation databases serve distinct purposes and, correspondingly, are grounded in different methodologies. The Ukrainian morpheme-derivation database functions as a manual within the realm of linguistics, offering a static resource that is not amenable to automated text analysis. In contrast, the Automated System of Morpheme and Derivation Analysis constitutes an electronic linguistic tool designed for the automatic segmentation of morphemes from the initial word form in a given text, operating with dynamic search capabilities. The development of the ASMDA software is geared towards the automated compilation of relevant examples based on the ASMDA lexical list, while also considering factors such as homonymy and root allomorphy. The application of this computer modeling method in constructing ASMDA aligns with both theoretical and applied concepts in modern linguistics, rendering the system an effective and rational tool for future linguistic research (Zuban, 2017).

#### 4 Research Methods

The study employed the following methods:

- Analysis Method and Synthesis Method: Utilized in the critical review of scientific literature, this approach

facilitated the differentiation of concepts such as "morph," "morpheme," "word form," "morphemics," and "morphemology."

- Comparative and Contrastive Method: Applied to identify similar, partially similar, and distinctive lexical and grammatical meanings associated with individual morphemes.
- Historical Method: Employed in the examination of historical word formation, exploration of phonetic alterations in word composition, analysis of affix productivity loss, and investigation of changes in the phonemic boundaries of morphemes.
- Method of Generalization: Utilized for synthesizing scientific and theoretical conclusions regarding the relationship between morphology and morphemics, as well as establishing correlations between word structure and the lexical and grammatical categories of words.

#### 5 Results

The term "morpheme" was originally coined by Jan Baudouin de Courtenay in the 1870s, during the nineteenth century. The scholar emphasized that morphemes are dynamic, tangible units of language subject to constant change. Importantly, he asserted that morphemes are not merely theoretical constructs but rather elements of linguistic cognition, functioning as psychological units. Followers of Jan Baudouin de Courtenay's doctrine underscored the significance of clearly distinguishing between the etymological and contemporary meanings of words. For instance, in modern Ukrainian, the terms "*malyna*" (*raspberry*), "*smorodyna*" (*currant*), and "*ozhyna*" (*blackberry*) are considered non-derivative, despite the presence of the etymological suffix "-yn-." In contemporary Ukrainian, this suffix is no longer discernible in these words; at the current stage, the root and suffix have amalgamated into a unified root morpheme.

The term "morphemics" emerged relatively recently, just over half a century ago, and its interpretation in linguistic dictionaries encompasses two principal perspectives. First, it is viewed as a system of morphemes within a specific language. Second, it is considered a distinct branch of morphology, tasked with elucidating morphological models in language—entailing the description of morpheme structures and the patterns governing their placement within words. However, the polysemy of the term often introduces confusion in scientific discourse, blurring distinctions between its two connotations: as a linguistic science branch and as a collection of units at the morphemic level of language. This inherent ambiguity significantly complicates the research process within the domain of morphological aspects of language.

The terms "morphemics" and "morphemicons" are often employed interchangeably with the term "morphemology." Their usage varies, sometimes treating them as absolute synonyms, while at other times drawing clear distinctions. Specifically, morphemics is conceptualized as a collection of morphemes and morphemicons, while morphemology is proposed as a linguistic subfield, akin to the nomenclature of sections such as "phraseology," "lexicology," "derivatology," and "phonology."

Given the considerations outlined above, it becomes both natural and imperative to organize and systematize terms within morphological terminology. The lack of organization in this terminology frequently leads to scientific misunderstandings and the conflation of concepts at different levels and categories. Morphology, as a field, is subdivided into three components: morphemology, derivatology, and paradigmology. The terms "morphemics," "word formation," and "paradigmatics" are employed to denote these morphological subsystems. Since the word stands as the fundamental unit in morphology, it is noteworthy that each subdivision emphasizes a different aspect of word structure. In morphemology, the focus is on the morphemic structure of the word as an ordered unity of morphemes. In derivatology, the attention turns to the word-formation structure of the word, encompassing the unity of the

word-formation base and the word-formation formant. In paradigmology, the emphasis lies on systematically ordered word forms, categorized into stems and inflections, thereby highlighting the paradigmatic structure of the word.

It is noteworthy that there is no unanimous agreement among scholars regarding the status of morphemology as an independent branch of linguistics. While some scholars view it as an auxiliary component of morphology, others position morphemology within the framework of word formation, considering it a derivative aspect of derivatology. We assert our stance that morphemology is justified in being regarded as a distinct and independent branch of linguistics, closely intertwined with both morphology and derivatology. Several factors substantiate the autonomy of morphemology:

1. Morphemes and morphs, the foundational units of morphemology, exhibit distinctions in terms of content, function, and structure when compared to morphological, morphophonemic, and word-formation units.
2. Morphemology operates with its own distinct conceptual and terminological framework, featuring a well-established system of methods and techniques specific to morphemological research.

One of the contemporary directions within modern morphemics aims to precisely delineate the semantic boundaries of key concepts such as morpheme, morpheme (allomorph), and their interplay within the word-word-form relationship. The morphological system of the Ukrainian language exhibits both isomorphic and allomorphic features. Isomorphic features are shared across a set of related languages, while allomorphic features have been acquired through historical development. A morpheme serves as an invariant realized through variants, referred to as morphs—specific manifestations of a morpheme. An allomorph, on the other hand, is a phonetically modified morpheme influenced by the sound composition of neighboring morphemes. For instance, in the cognates of two forms of the word "leg" (*noha* and *nizhechka*), the allomorphs are "noh" and "nizh," respectively.

Undoubtedly, the morpheme stands as the fundamental linguistic unit within the purview of morphemology. However, the delineation of functional boundaries for morphemes remains a subject of contention. Our standpoint is that both word-forming and grammatical (formative and inflectional) morphemes should be encompassed as subjects of morphemics. Both categories contribute to shaping the external, structural framework of the word, conveying either the fundamental (via the root) or ancillary (via the prefix, suffix, postfix) lexical meaning, or the grammatical meaning of the word. This perspective underscores the evident correlation between morphemics and morphology in contemporary linguistics.

The morphemic distinctiveness of the Ukrainian language is manifested through lexical and grammatical categories, including those of independent parts of speech. Examining the lexical and grammatical categories associated with nouns reveals specific derivational indicators. Notably, the suffix "-yvo" is employed in verbal substantives that signify the outcome or result of an action. Examples include "varyvo" (*indicating something that has been boiled*), "morozivo" (*ice cream*), "pechyvo" (*biscuits*), "merzhyvo" (*lace*), and "priadyvo" (*hemp*).

The correlation between morphemology and morphology is affirmed by the comprehensive semantics of the word, shaped by the integration of its lexical and grammatical meanings. The amalgamation of lexical and grammatical senses determines the classification of the word within a specific lexical and grammatical class (part of speech) and its affiliation with a particular word-formation type. An illustrative instance is found in the category of nouns derived through prefix-suffix word formation, conveying the meaning of "an object below the one named by the motivating noun." In this context, the formal indicators contributing to their lexical meaning, aside from the

root, encompass the prefix "pid-" and the suffix "-nyk-": "pidvikomyk" (*window sill*), "pidlokityk" (*armrest*), "pidvichnyk" (*candle holder*), "pidsnizhnyk" (*snowdrop*), "pidberezyk" (*birch bolete*), "pidhuznyk" (*diaper*), among others. The word-forming suffix "-nyk-" concurrently signifies grammatical association with the noun category, while the masculine null ending serves as a word-shifting morpheme indicating the use of these words in the singular form of the nominative and accusative cases.

Within the category of adjectives formed through the prefix-suffix method, denoting "located directly close to the one named by the derived noun," consistent indicators of lexical meaning include the root, the prefix "pry-," and the suffix "-n-": "prydvornyi" (*near the household*), "prybereznyi" (*near the shore*), "prysadybnyi" (*near the homestead*), "pryozernyi" (*near the lake*), "pryshkilnyi" (*near the school*), and "prydorozhnyi" (*near the road*). The suffix "-n-" concurrently signifies the grammatical classification of these words as adjectives, while the ending "-yi" serves as a word-shifting morpheme indicating the masculine singular form in the nominative and accusative cases of this part of speech.

The intimate relationship between morphemology and morphology is further underscored by the systematic arrangement of morphemes based on parts of speech. For instance, specific suffixes such as "-ets," "-tel-," "-izm-," and "-anyn-" are operative in nouns (e.g., "vchytel" - *teacher*; "feminizm" - *feminism*, "khopets" - *boy*, "seliayn" - *peasant*); suffixes like "-ov-" (-ev-, -iev-), "-uvat-" (-iuvat-), "-n-," and "-sk-" are found in adjectives (e.g., "chorniavyi" - *black-haired*, "syniuvatyi" - *blue*, "bilenyi" - *white*, "kazkovi" - *fabulous*); and the suffix "-ero-" is present in collective numerals (e.g., "shestero" - *a group of six people*, "semero" - *a group of seven*, "vosmero" - *a group of eight*).

The word-formation characteristics associated with degrees of quality contribute to the emotional and expressive potential of adjectives. The evaluation of the described attribute is frequently conveyed through the suffixal method, notably employing suffixes such as "-enk-" (e.g., "bilenyi" - *white*, "solodenkyi" - *sweet*, "malenyi" - *small*), "-esenk-" (e.g., "bilesenyi" - *very white*, "solodesenyi" - *very sweet*, "malesenyi" - *very small*), and "-iusink-" (e.g., "maliusinkyi" - *very small*, "harniusinkyi" - *very beautiful*). When examining the mechanisms for expressing the category of manner within the verb category, specific suffixes emerge, particularly in the process of imperfectivation. Notably, suffixes like "-i-," "-uva-," "-iuva-," "-yzuva-," and "-izuva-" are observed, as seen in words like "dobryi" (*to get better*), "zatsepenyi" (*to get stuck*), "hostiuvaty" (*to stay at one's place*), "vymoshchuvaty" (*to pave*), "pasteryzuvaty" (*to pasteurize*), and "vitaminizuvaty" (*to vitaminize*).

A distinct issue within the morphology of the Ukrainian language involves the categorization of interjections as a separate part of speech, considering their unique syntactic role within a sentence. This part of speech is inherently tied to specific communicative situations and their connection with adjacent sentences, leading some scholars to refer to them as exclamatory clauses. Examining the morphemic structure of interjections reveals that, on one hand, they consist of unchanged words. On the other hand, interjections encompass sound imitations that may be created through sound compounding or word compounding, exemplified by formations like "dzen-dzelen" (*jingle-jangle*), "b-r-r-r-r!" (*brrrr*), and "ku-ku-riku" (*crowing sound*). Consequently, it is logically justified that interjections hold a distinct status apart from both full-meaning and service parts of speech. Additionally, grammarians often seek to classify interjections, alongside particles and modal words, as a unique lexical and grammatical group of words that function at the boundary between independent and service parts of speech.

In discussing the word as the fundamental unit of morphology, it is essential to acknowledge that within morphology, the word is, to some extent, abstracted from its lexical meaning and features.

This abstraction allows for a focus on formal semantic structures. Simultaneously, morphological (grammatical) meanings of words are investigated concerning the lexical and semantic meanings of words. For instance, the semantics of parts of speech, such as quantitative characteristics (e.g., *group of four, seven, six hundred, eight hundred*), procedural actions (e.g., *think, wait, calm down*), and abstract concepts (e.g., *pride, tenderness, joy*), contribute to determining the grammatical peculiarities of different lexical and grammatical groups of words—numerals, verbs, and nouns, respectively.

A morpheme, functioning as a constituent of a word, consistently represents a reproducible unit of language. In contrast, a word is not solely replicated but also constructed by the speaker during the communication process, following specific word-formation models. A morpheme serves a semasiological function, capable of expressing concepts—object concepts through word roots and non-object concepts through affixes. For instance, the suffixes "-chyk-", "-nyk-", and "-tel-" in nouns convey the concept of the performer of an action, as seen in examples like *"myslytel"* (*thinker*), *"uchytel"* (*teacher*), *"budivnyk"* (*constructor*), and *"kranivnyk"* (*crane operator*). Despite the reproducibility inherent in morphemes, certain affixes are unique and are found exclusively in one word, termed unifixes. Examples include the suffix "-ampt-" (in *"poshtampt"* - *post-office*) or the suffix "-och-" (*"svitoch"* - *luninary*).

A morpheme can be regarded as a historical category susceptible to changes throughout the development of a language, a phenomenon inherent in various linguistic categories. Throughout the historical evolution of a language, phonetic alterations may occur within the word structure, productive affixes may be lost, and the phonemic boundaries of morphemes may undergo modifications. Therefore, the framework of synchronic morpheme analysis should not be extrapolated to other synchronic sections of the language.

It is noteworthy that certain morphemes exhibit specificity within a lexico-grammatical category, while others encompass a broader lexico-grammatical meaning. For instance, the suffix "-ynn-" is exclusive to the lexical and grammatical category of neuter nouns that solely possess a singular form, sharing the semantic feature of *"aggregate, collectivity."* This is evident in words such as *"kartoplynnia"* (*potatoes*), *"kvasolynnia"* (*beans*), and *"buriachynnia"* (*beetroots*). In contrast, the suffix "-chyk-" is versatile, being employed for both animate and inanimate entities, as seen in examples like *"khlopchik"* (*a boy*), *"horobchik"* (*a sparrow*), as well as *"stilchik"* (*a chair*) and *"palchik"* (*a finger*). Occasionally, to mitigate polysemy, distinct word-formation means are employed for animate and inanimate entities, as illustrated by *"vantazhnyk"* (*a loader - animate*) versus *"navantazhuvach"* (*handler - inanimate*), or *"oblikovets"* (*accountant - animate*) versus *"lichylnyk"* (*counter - inanimate*). However, the suffix "-ach-" in the word *"navantazhuvach"* does not necessarily denote belonging to the lexico-grammatical group of inanimate entities. This is because the suffix is regularly used in the formation of masculine nouns, indicating their field of activity or profession, as exemplified by *"zdobuvach"* (*applicant*), *"zaviduvach"* (*head*), *"vykladach"* (*educator*), *"dopovidach"* (*lecturer*), *"perekladach"* (*interpreter*), and so forth.

## 6 Discussion

The interconnection between morphemics and morphology is discernible in the modifications introduced in the revised edition of Ukrainian spelling (2019). In adherence to historical word formation and linguistic usage, the genitive case of singular nouns in the III declension was reinstated with the normative inflection "-y." Consequently, variants such as *"hordosti"* and *"hordosty"* (*two ways to write the word "pride"*), *"radosti"* and *"radosty"* (*two ways to write the word "joy"*), as well as *"nizhnosti"* and *"nizhnosty"* (*two ways to write the word "tenderness"*) were officially recognized as correct forms.

The grammatical category of degrees of comparison for adjectives and adverbs presents a complex linguistic nature. Ukrainian linguists engaged in prolonged discussions about whether these entities constitute new words or merely different word forms. This category relies on morphological, word-formation, and syntactic attributes inherent in the aforementioned parts of speech. Additionally, certain adjectives and adverbs exhibit irregular word formation (e.g., *"velykyi - bilshyi - naibilshyi"* for *"big - bigger - the biggest"* or *"pohanyi - hirshyi - naihishyi"* for *"bad - worse - the worst"*), deviating from the typical creation of word forms. The word-forming affixes such as "-sh-", "-ish-", "-nai-", and the components *"bilsh"* or *"mensch"* (*more or less*), *"naibilsh"* or *"naimensch"* (*the most - the least*) alter the qualitative characteristics of the adjective and adverb, signifying a more intense or weakened quality (feature). Consequently, due to the lack of lexical identity with the original forms of qualitative adjectives and qualifying adverbs, it is reasonable to categorize them as separate words rather than traditional word forms.

## 7 Conclusions

In the endeavor to systematize linguistic terminology, we propose a differentiation between the concepts of "morphemics" and "morphemology." The term "morphemics" is aligned with the set of morphemes found in the Ukrainian language, while "morphemology" pertains to the branch of linguistics dedicated to the study of these linguistic units, closely intertwined with morphology and derivatology. Morphemology exhibits all the characteristics of an autonomous branch of linguistics. Its research domain encompasses morphemes as the smallest significant units of language, incorporating lexical, grammatical, and word-formation meanings. Furthermore, morphemology employs its own conceptual and terminological framework and boasts a sophisticated system of methods and techniques for morphemological research.

The inherent characteristics of morphemic structures, marked by their regularity, systemic recurrence, and reproducibility within words, designate them as a distinct category of linguistic units. Specifically, they emerge as ontological entities with a structural nature operating at the morphemic level of the language system. Morphemes possess a reproductive property within language and serve a semasiological function, allowing them to convey both object concepts (via the word-root) and non-object concepts (through affixes).

The morphemic specificity of the Ukrainian language is articulated through lexical and grammatical categories, organizing a systematic totality within independent parts of speech based on the principle of categorization. In morphology, a word (or morphological word) is, to a certain extent, detached from lexical meaning and features, enabling a focused exploration of formal and semantic structures. This abstraction facilitates a comprehensive realization of the principle of categorization in language structures. The ongoing investigation of lexico-grammatical and morphemic features within parts of speech remains a promising avenue for the exploration of the morphological aspect of language.

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**Primary Paper Section: A**

**Secondary Paper Section: AI**

## PEDAGOGICAL SYSTEM FOR FORMING THE SOCIAL HEALTH OF CHILDREN AND YOUTH

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**Abstract:** The present academic paper is devoted to developing and implementing educational systems for the formation of social health of children and youth. Social health is defined in this context as a multifaceted concept that includes social skills, emotional intelligence, stress management, civic responsibility and tolerance. The primary purpose of the present research is to develop a pedagogical system that would contribute to forming and maintaining the social health of children and youth. Pedagogical approaches in the education system are distinguished, namely: psychological and pedagogical, socio-cultural, health-preserving, interactive, ecological and gender approaches. It has been determined that the formation of children's social health is ensured through such aspects as the development of social skills by means of interactive activities and group work, training of emotional intelligence through professional exercises and learning stress management methods. The conducted research provides a valuable scientific and practical elaboration in the field of developing and implementing educational approaches to the formation of social health of children and youth. It has been emphasized that the established educational system for forming the social health of children and youth is comprehensive and systematic.

**Keywords:** Social health, Pedagogical system, Children and youth, Interpersonal communication, Socio-cultural adaptation, Innovative methods, Collaboration between family and education

### 1 Introduction

The social health of children and youth is becoming increasingly significant in society. Health includes not only physical but also social, emotional and psychological components, and it has a significant impact on the quality of life and successful personality development. The pedagogical system for forming the social health of children and youth is a key tool for ensuring their well-being and harmonious development. The present paper aims to examine the relevant aspects and principles of forming children's and young people's social health, identify the variables influencing this state, and offer instructional approaches and techniques that foster the development and positive reinforcement of social health in diverse educational and parental contexts. We are going to explore different approaches to pedagogical influence on shaping the social health of children and youth, including curricula, teaching and training methods, as well as the role of families and educational institutions in this process. The present paper aims to support researchers, educators, and all those interested in the field of education and social work to gain a comprehensive understanding of and effectively influence children's and young people's social health processes.

The problem statement is based on the relevance and importance of developing and implementing effective methods and strategies of training and education aimed at promoting social health among children and youth. The issue lies in the fact that society faces a number of challenges and threats that influence the social health of the young generation. These challenges include deterioration of psychological and emotional state, social isolation, problems in interpersonal relationships, as well as bad habits and negative environmental impact. Social health is a crucial factor for successful adaptation and development of children and youth. It includes the level of communication skills, the ability to resolve conflicts, the development of self-awareness and self-esteem, as well as the ability to adapt to changing living conditions.

The purpose of the present academic paper is to develop a pedagogical system that would contribute to the formation and maintenance of the social health of children and youth.

### 2 Analysis of recent studies and publications

The scientific article by Kremen V. et al. (2022) highlight the relevance of studying training and teaching in the digital world. In her studies, Sushyk N. (2023) emphasizes the need to form children's health-saving competence and directs research towards implementing the technology of social education of the individual on the education seeker's health. The scholars Shportun O. and Levchuk N. (2022) propose an empirical approach and emphasize its importance in studying the features of the influence of motivation and attitudes on preserving the psychological health of young people. In their publications, Ivanov V. and Shchur V. (2023) define pedagogical conditions and mechanisms for the formation of children's value and sense orientations. Vitchenko A. et al. (2023) focus on analyzing the formation of children's value attitudes towards their own health. A general consideration of the principles of health protection plays a particular role in developing a modern personality (Basic approaches and principles of forming a health-preserving environment of an educational institution, 2023). Sushyk N. (2022) considers the competence-based approach to training and its impact on the formation of a holistic personality. The studies of Levchenko N. et al. (2022) are related to social security. The works of Levytskyi O. (2023) are devoted to the students' health. Rybchych I. (2023) devoted his scientific works to the issues of forming and implementing state policy in the social and humanitarian sphere in the context of preserving individual health among students. Smoliuk I. & Smoliuk A. (2023) considered the formation of humane relations as a component of children's legal socialization. Zelenov Ye. (2020) defines health as a value of planetary training of student youth. His studies are about the values and health of young people. Severynovska O. (2011) explores the current problems in the process of forming the health of student youth. In their studies, Danylko V. & Kravchenko T. (2023) focus on the leading aspects of students' physical education and the formation of a healthy lifestyle, which is crucial for maintaining the physical and psychological health of young people.

Maksymovska N. (2020) examines the issue of the parenthood culture of student youth from a gender perspective, which can be useful for understanding the role of gender in teaching and training. Volkova K., Chusova O. and Lazareva A. (2021) studied current trends in the development of the theory and practice of social education, and describe modern tendencies in social education, which helps understand modern approaches and challenges. Kabanets M. (2020) considers the issue of pedagogical support for gifted children, which is useful for understanding the importance of individualization in teaching and learning. Moseichuk Y. (2023) focuses on the state of students' health and its impact on vocational training. Litvinova T. (2021) pays considerable attention to the issue of health-saving technologies in the process of forming the future specialists' social health during socio-cultural activities. Kurova A. (2022) explores the psychological health of students in conditions of uncertainty, which may be relevant in the modern world. Lushchynskyi Yu. and Shtompel Yu. (2022) outline the problems of forming health-saving competence of education seekers in higher educational institutions. The authors identify the problems of developing students' competence on maintaining health. In his studies, Sukhenko I. (2019) considers the importance of forming a culture of health in training young people and outlines the need for this aspect in modern society. Stopkina A. and Trubnyk I. (2023) focus on the theoretical aspects of social support for children in the foster families and orphanages. Kurova A. (2023) explores the role of optimism and pessimism in of young people's psychological health, which is useful for understanding the impact of personality traits on health. Batsurovska I., Dotsenko N., Gorbenko O. and Kim N. (2021) consider technologies for forming students' competencies in higher educational institutions in the modern digital communication environment.

The analyzed sources include various aspects of students' training, health and personal development, as well as the use of modern technologies in the educational process. However, it should be noted that the pedagogical system of forming the social health of children and youth is not sufficiently studied in the psychological and pedagogical literature.

### 3 Research methods

The following methods have been used to conduct the research aimed at developing a pedagogical system for the formation of children's and young people's social health, namely:

- Analysis of the scientific literature and studies. The first stage of the research involves an extensive analysis of scientific literature, statistical data, as well as existing methods and practices related to the formation of social health among children and youth.
- Questionnaires and surveys. Conducting a survey among children, youth and teachers in order to identify their opinions, needs and assessments of the status and impact of pedagogical methods on social health.
- Content analysis. Analysis of curricula, training materials and guidelines related to social health education and training in order to identify best practices and requirements.
- Comparative analysis. Comparison of the effectiveness of different pedagogical approaches and methods for identifying best practices.
- Interviews and focus groups. Conducting conversations and discussions with participants in the educational process to identify their opinions, experiences and needs.

- The combination of these methods made it possible to comprehensively explore and develop a pedagogical system that promotes the social health of children and young people, as well as to evaluate its effectiveness in the real conditions of the educational environment.

### 4 Results

The pedagogical system of social health formation defines a set of pedagogical strategies, methods, tools and approaches aimed at creating conditions for the full development of social competence and ensuring the physical and mental health of pupils or students. This system is aimed at developing individuals who are able to successfully adapt to social conditions, build healthy relationships with others and interact effectively in society.

Elements of the pedagogical system of forming social health can include components aimed at developing social skills, communication and interpersonal skills, the use of game techniques, group work, trainings on the development of emotional intelligence, business games, etc. The involvement of psychologists to provide counseling and psychological support, especially in cases of conflict, stressful situations, and to develop self-regulation resources, is also a significant element in the context of forming social health. This also includes cooperation with parents, social services, and public organizations for the purpose of creating a favorable social environment. Let us consider pedagogical approaches to influencing the formation of social health of children and youth and provide a brief description of them (Table 1).

Table 1. Pedagogical approaches to influencing the formation of social health of children and youth and their brief description

Pedagogical approach	Brief description
Psychological and pedagogical approach	This approach is based on psychological and pedagogical principles. Its goal is to provide psychological support and develop children's and young people's social skills.
Socio-cultural approach	This approach takes into account the socio-cultural context in which education and training are conducted. It emphasizes the formation of values, socio-cultural norms and skills necessary for successful social adaptation.
Health-saving approach	This approach is focused on a healthy lifestyle. It includes physical activity, proper nutrition, prevention of bad habits and stress, contributing to the strengthening of physical and psychological health.
Interactive approach	The emphasis in this approach is on interaction and exchange of experience between students. It promotes the development of children's and young people's communication skills and self-regulation.
Ecological approach	This approach takes into account the impact of the environment on health. It is aimed at developing an environmental culture and responsible attitude to the environment.
Gender approach	The gender approach takes into account the gender features of education and training, striving to reduce gender stereotypes and maintain gender equality.

Thus, the methods and strategies that can be used by educators and specialists in the field of education and training to form children's and young people's social health cover various aspects of life and learning, including the physical, psychological, social, cultural and environmental dimensions. Pedagogical approaches can be adapted and combined to meet specific needs.

Such approaches are important tools for creating a favorable environment for forming the social health of children and youth, and the latter contributes to their successful adaptation in modern society.

Based on the outlined pedagogical approaches aimed at influencing the formation of children's and young people's social health, we have developed the relevant pedagogical system for the formation of social health of children and youth (Figure 1).

1. Supporting the development of social skills. The development of social competencies implies the ability to communicate and understand, as well as the ability to resolve conflicts and make friendly relations. Teachers should actively work on the development of education seekers' emotional and social intelligence and create opportunities for work and teamwork.

2. Developing self-regulation and stress resistance. Modern life is full of stresses and difficulties, and it is important to teach children how to cope effectively with challenges. The education system should facilitate the development of self-regulation skills that would help young people manage emotions and stress: various relaxation techniques, stress resilience training, and other methods that focus on strengthening the mental state.
3. Formation of civic responsibility and tolerance. The education system plays a significant role in the development of civic responsibility and tolerance. In order for modern kids to develop fully as individuals, it is crucial for youngsters to learn the value of respecting others' freedoms and rights, cultural diversity, and the ability to perceive different points of view.
4. Application of interactive technologies and methods of gamification. Modern pedagogy actively uses interactive and gamification technologies to achieve the best results in education. Relevant computer programs, virtual games, and other interactive tools will help develop social skills and help solve interpersonal problems.
5. Interaction with other institutions of the family and society. An effective education system cannot exist in isolation from other important factors, especially the family and other institutions of society. Collaboration with parents, social services, psychologists and other professionals can

- significantly improve the results of developing socially healthy youth.
- Implementation of project-based learning. Project-based learning is an effective way to educate socially healthy youth. This approach encourages students to actively interact, collaborate and develop group work skills. The objectives of the project can be related to local social issues, which contribute not only to the acquisition of knowledge but also to the development of analytical skills and joint activities.
  - Supporting mental health. It is necessary to pay attention not only to the body but also to the mental health of education seekers. Games, trainings on emotional intelligence, psychological support – all of these components help students understand their emotions and interact effectively with others.
  - Formation of values. Promoting social health also includes the formation of values and moral principles of children and youth. Teachers should emphasize the ethical side of the issue, develop students' ability to self-respect and choose a life path that is consistent with their personal beliefs.
  - Using the method of social work. The modern educational system can also apply methods of social work aimed at identifying and solving problems faced by students.

Collaboration with social workers, group and individual counseling help create a positive social environment in schools.

- The system of assessing social skills. The assessment of social competence should become a more important component of the educational process than the assessment of academic performance. The introduction of a system that takes into account social skills allows students to stimulate the development and improvement of personal qualities.

Taking all the outlined above into account, the educational system for the formation of social health of children and youth is comprehensive and systemic. This is precisely why only such an approach, focused on the individual characteristics of each student, can ensure the creation of conditions for the full development of social services and health, which is an important prerequisite for their successful functioning in modern society. In general, the education system for the formation of social health of children and youth should be flexible, adapted to modern challenges and scientifically grounded. And only in this way can it effectively influence the development of the individual and the formation of a harmonious social personality.

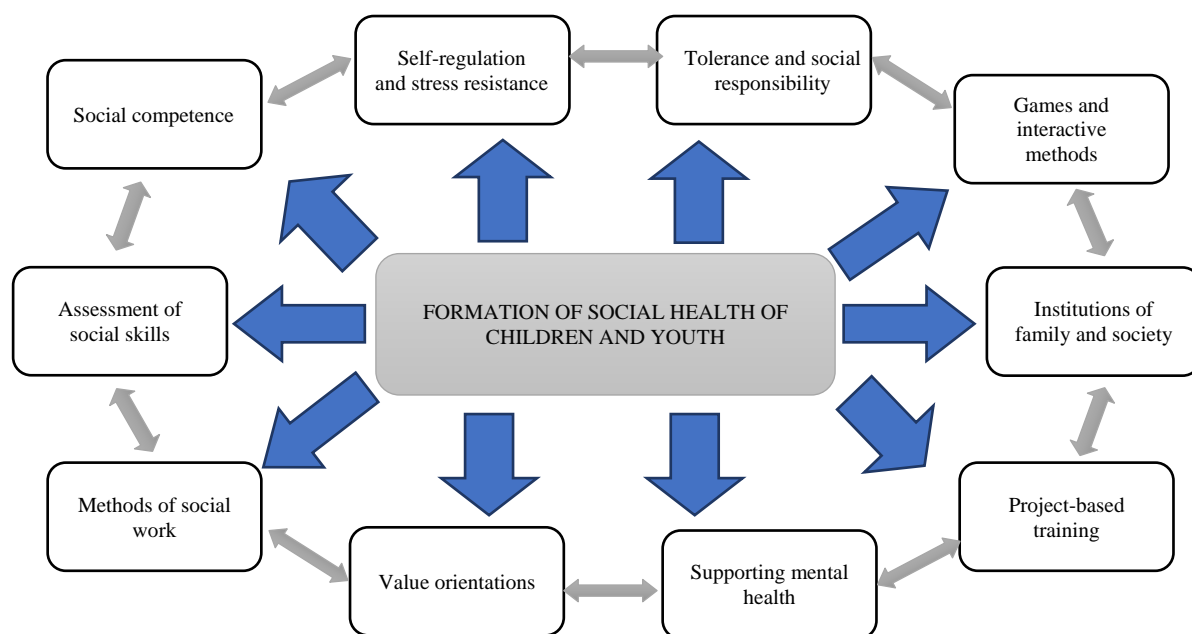


Figure 1. Pedagogical system for the formation of social health of children and youth

## 5 Discussion

In the context of the research on the pedagogical system of social health of children and youth, several important issues for discussion can be identified:

- Collaboration between family and school. It implies a discussion on how to ensure more active and productive cooperation between families and educational institutions in the context of social health. What mechanisms and practices can facilitate this interaction?
- Evaluation of effectiveness. It implies a discussion of methods and criteria for evaluating the effectiveness of the pedagogical system of social health education. What indicators should be used to determine the success or failure of such programs?
- Adapting to a changing world. It implies a discussion on how the social health care system can adapt to new challenges and requirements in the light of rapidly changing socio-cultural and technological developments.
- Innovative methods and technologies. It implies a discussion of the role of modern innovative methods and technologies,

such as digital learning, in shaping social health. What opportunities do modern tools provide to improve the effectiveness of educational programs?

- Cultural differences and diversification. It implies a discussion on how to address cultural differences and diversify approaches to social health promotion, taking into account the diversity of cultures and contexts in which children and youth grow up.

These debatable issues are crucial for the further development and improvement of pedagogical systems aimed at forming the social health of children and youth.

## 6 Conclusions and prospects for further studies

Thus, the system of education aimed at forming the social health of children and youth is important for strengthening public health and well-being. An effective system of forming social health requires not only knowledge about health but also the development of social skills, conflict resolution, and support for psychological health. In addition, successful formation of the environment and social health of children and youth requires

active collaboration between families, educational institutions and government bodies. It is important to create a coordinated system of support and interaction between all parties. Different types of educational institutions (schools, universities, extracurricular organizations) may need to adapt the system of forming social health to the specific needs and character of the student. Consequently, further studies are required to gain a deeper understanding of the effectiveness of the education system and to develop best practices.

Prospects for further studies may include systems of adaptation to specific situations, in particular, the adaptation of the educational system to different educational institutions and socio-cultural contexts. Future explorations can also be conducted in the area of developing effective strategies and practices for the social health of students at different levels.

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**Primary Paper Section: A**

**Secondary Paper Section: AM, FQ**



## PROJECT MANAGEMENT IN COMPLEX TECHNICAL INFRASTRUCTURE PROJECTS: CHALLENGES AND STRATEGIES

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**Abstract:** The paper delineates essential facets of hybrid management in the realm of infrastructure projects and programs, elucidating pivotal concepts, methodologies, and models integral to this approach. A comprehensive examination of the extant status of infrastructure project implementation at the regional level is undertaken, encompassing an inquiry into terminology, regulatory frameworks, and financial management standards specific to this domain. Noteworthy attention is devoted to global practices in program implementation at the regional level, as well as contemporary strategies for overseeing infrastructure projects and programs. The culmination of this investigation is the formulation of a refined scientific and applied framework for hybrid management at the regional level. This conceptual framework is rooted in the integration of project management knowledge systems and is delineated by its adaptation to the methodology of project program management. Within the parameters of this articulated concept, a convergent system for the utilization of project management methods and approaches in the context of efficient project program management has been devised.

**Keywords:** Project management, Technical project management cases, Infrastructure projects, Financial management.

### 1 Introduction

Technical infrastructure projects constitute a fundamental element of contemporary society, directed towards the advancement and fulfillment of requirements for facilities and services. Encompassing diverse domains such as the construction of bridges, tunnels, energy facilities, and other infrastructure structures, these projects are frequently characterized by considerable complexity and scale. The execution of substantial undertakings, such as the construction of expansive bridges or tunnels and the establishment of robust energy facilities, demands substantial resources and technical proficiency. Additionally, numerous technical infrastructure projects necessitate collaboration across multiple industries, including but not limited to construction, engineering, transportation, and energy. This necessitates the establishment of efficient communication and collaboration among diverse specialists. Infrastructure projects typically engage various stakeholders, including government agencies, businesses, communities, and others. Interaction with these entities constitutes a pivotal aspect of ensuring the success of project implementation. Given the substantial scale and significance of infrastructure projects, the establishment of elevated safety and quality standards is imperative. This pertains not only to the construction phase but also extends to the subsequent operation of the facility. In the contemporary context, an integral consideration is the assessment of the environmental impact of the project. Projects must adhere to requirements aimed at conserving natural resources and mitigating environmental impact. For the prosperous execution of technical infrastructure projects, proficient project management encompassing planning, controlling, and reporting is indispensable. The formulation of a fitting management strategy is paramount to realizing predetermined objectives.

The establishment of an effective management system for infrastructure projects and programs has emerged as a significant subject of inquiry in numerous scientific studies conducted in

Ukraine and internationally in recent years. This matter has become an intrinsic component of the majority of investigations in the realm of project management. Several factors contribute to the inherent complexity of this study, encompassing the magnitude and breadth of infrastructure projects and programs at the regional level, coupled with the integration of hybrid project and program management technologies. A notable challenge arises from the diversity within project environments and the influence of various factors, including industrial, legislative, territorial, cognitive, market, and industry disparities. Within the domain of project management, endeavors are underway to devise and progressively align diverse models and mechanisms, aiming to facilitate the effective hybrid management of infrastructure projects and programs. It is imperative to recognize that successful hybrid management considers not only technical dimensions but also entails interaction with diverse stakeholders, thereby contributing to the intricacy of this issue. Specifically, it is essential to investigate and incorporate the experiences gleaned from successful infrastructure projects to formulate more effective management strategies. This subject retains its relevance and necessitates ongoing research efforts to refine approaches and attain optimal outcomes in the management of complex infrastructure projects and programs.

### 2 Literature Review

To leverage the increasing prevalence of infrastructure projects globally, an escalating number of construction companies possessing professional expertise are vying for construction contracts in foreign markets. Furthermore, companies exhibit a willingness to undertake projects in other countries as a means to broaden their business scope, driven by the swift internationalization context, a low threshold for entering the global market, and significant growth potential. Nonetheless, amid the expeditious construction of diverse infrastructure facilities, researchers are progressively acknowledging the environmental side effects associated with these endeavors, which are anticipated to yield adverse consequences for society (Ovetska et al., 2021). This will influence the appropriateness and efficacy of the ultimate products, consequently affecting the environment and society. Therefore, sustainable infrastructure development presently represents a crucial facet of the architecture, engineering, and construction industry. A method to guarantee infrastructure sustainability involves enhancing project management across all phases of the life cycle. Certain scholars propose the incorporation of sustainability aspects into project management practices, a measure that contributes to the success of a construction project (Khan, 2019). In the context of the increasing global significance of sustainability, it should be regarded as a novel criterion for project success.

Project management deemed a crucial instrument in attaining project success, is characterized as the methodical application of knowledge, skills, tools, and techniques to project activities with the objective of meeting project requirements (Bushuyeva et al., 2020). Notably, there is a critical need to establish transparency regarding the cost of risks and to pinpoint key factors and sources of risks. Achieving this at the organizational apex necessitates the effective implementation of a risk management system and the cultivation of risk culture, fostering awareness at all organizational levels. Prudent and transparent communication among diverse teams engaged in infrastructure projects stands as a vital prerequisite for the success of any project. Consequently, it is imperative to institute an enhanced communication system facilitating effective collaboration across various departments and ensuring alignment of goals and processes. Engagement with contractors, encompassing monitoring activities, holds significance for the prompt identification and evaluation of risks (Oguzie et al., 2021). Clear directives were established from the organizational apex to operational levels, facilitating the dissemination of risk management knowledge. This approach entailed enhancing transparency concerning on-the-ground

operational risks and transitioning from a transient reactive strategy to a proactive anticipation of potential risks. To gauge the sustainability of infrastructure, scholars in the disciplines of architecture, engineering, and construction have explored the identification of assessment factors. For instance, researchers (Huang et al., 2021) devised indicator systems for evaluating infrastructure sustainability based on key indicators across three dimensions: economy, society, and the environment. They further categorized infrastructure sustainability into internal performance (encompassing construction, maintenance, and long-term adaptability) and external performance (encompassing public utility and environmental impacts) from the perspective of the project system. While the integration of sustainability into project management has emerged as a promising field (Stanitsas et al., 2021), certain gaps persist in the current advancement of sustainable infrastructure developments. These include a short-term perspective in the planning phase, insufficient consideration of demand fluctuations, and unfavorable conditions for maintenance during use.

The absence of formal and comprehensive frameworks addressing the factors intrinsic to infrastructure project management and infrastructure sustainability hinders this integration, impeding the capacity to manage projects and foster successful infrastructure development in practice. The investigator of the study (Beckers et al., 2013) undertakes an empirical examination of critical factors, offering insights into enhancing project management efficiency to attain infrastructure sustainability. While some risks may be inherently unavoidable, it is imperative to identify them effectively and promptly to formulate an appropriate mitigation plan (Gondia et al., 2022). Risk management exerts influence on diverse facets of an organization by heightening managerial awareness, enhancing the probability of success in goal attainment, and establishing a platform for the exchange of ideas within the organization. Moreover, proficient risk management serves to forestall unforeseen occurrences, bolster self-assurance in critical decision-making, ensure the delivery of high-quality services, and safeguard the organizational reputation. An infrastructure project is characterized as a multifaceted process encompassing technical, technological, economic, financial, and legal dimensions, necessitating coordinated and regulated activities for successful completion. Each project is assigned an estimated completion time, emphasizing the significance of establishing constraints for potential schedule deviations. While delays in infrastructure projects may be inevitable, it is crucial to delineate clear boundaries for the management of temporal shifts (Macura et al., 2022).

In the literature, risk is categorized as uncertainty that has the potential to impact project implementation both positively and negatively. Risk management enables the investor to foresee potential adverse consequences that may arise during project implementation. Delays in project implementation may be intrinsic, but a risk management plan is employed to predict them and enact effective measures for their management. The researchers (Macura et al., 2022) explored enduring trends during the development phase of substantial infrastructure projects to optimize processes and enhance management capabilities for more efficient project delivery. This investigation utilized a Type 2 fuzzy logic-based Failure Mode and Effect Analysis (FMEA) method for risk assessment in railroad infrastructure projects. Numerous organizations acknowledge the significance of implementing effective project and construction management, employing various frameworks and methodologies for this purpose. An essential component of every project is the project manager, tasked with choosing the appropriate methodology for a specific project and executing a consistent action plan (Khalfan, et al., 2022).

Instituting a project management structure represents a pivotal step, and the nuances of project management within the nuclear power industry shape the acquisition of experience, effective utilization of processes, and continuous adherence to authorizations (Kramskyi et al., 2023). The organization may encounter the necessity to incorporate diverse methodologies

into the project management system contingent upon the type and scale of projects. Each method is amenable to adaptation and combination based on internal requirements and prevailing circumstances (Pinto et al., 2023). In infrastructure projects, employing multiple methodologies concurrently may be a judicious approach. The selection of a specific methodology is contingent upon the type and scale of the particular project (Rahat et al., 2023). The project management industry encompasses several distinct methodologies, illustrating the evolution and diversity of the field. These methodologies are hierarchically organized, with varying levels of general universality and specificity (Kramskyi, et al., 2023).

The objective of this article is to investigate and analyze the challenges inherent in project management within complex technical infrastructure projects, while also developing and identifying strategies aimed at mitigating these challenges. The study centers on the specificities and challenges encountered in the execution of complex infrastructure projects, encompassing technical dimensions, financial considerations, managerial aspects, and stakeholder engagement.

### 3 Research Methods

To assess the efficacy of project management in complex technical infrastructure projects, a multicriteria analysis was employed. This approach enables the evaluation of projects by considering various criteria and making decisions based on multiple parameters rather than a singular one (Lesik et al., 2020). The multicriteria analysis method encompasses a range of criteria, addressing both financial and non-financial aspects. The primary objective of the study is to identify the optimal alternative, rank potential options, or select several of the most effective solutions for further in-depth analysis. Multicriteria Analysis (MCA) holds particular relevance in diverse infrastructure projects and those involving both public and private sectors, especially when qualitative aspects play a pivotal role, such as in the allocation of risks between the two sectors. MCA proves highly valuable in scenarios where estimating the substantial impacts of an investment is challenging, thus serving as a substitute for a comprehensive cost-benefit analysis (CBA). This substitution may be imperative during the stage of selecting investment alternatives, as observed in transportation or urban regional development projects. In certain situations, MCA is integrated with CBA, particularly when assessing specific impacts of an investment is intricate, such as evaluating landscape impacts. In large-scale projects, MCA is employed to aid in the selection of options during the initial stages of development. In the context of evaluating infrastructure project performance, MCA offers a comprehensive approach to decision-making, considering various facets of the project. MCA facilitates a structured and objective assessment of diverse aspects of infrastructure projects, thereby fostering informed decision-making and enhancing project management.

The methodology for calculating the Net Present Value of a project (NPV) stands as a fundamental strategy for assessing investment opportunities. This approach finds widespread application in decision-making practices, providing a means to evaluate the project's effectiveness in terms of cost. The essence of the method lies in determining the Net Present Value, also referred to as NPV (Voitsekhovych et al., 2022). This metric signifies the increase in the company's value after the project's implementation. NPV considers the difference between the cash flows generated by the project and the discounted costs associated with its execution.

The multicriteria analysis method will be applied to evaluate the success and effectiveness of the project, focusing on various criteria, including:

#### *Financial criteria:*

NPV (Net Present Value): Assessing the financial profitability of the project over the defined time horizon.

**Risk factors:**

Risk profile: Analyzing potential risks and their impact on the project outcomes.

**Public benefit:**

Contribution to employment: Quantifying the number of jobs created or preserved by the project.

**Strategic objectives:**

Alignment with the strategic goals of the organization: Evaluating how well the project aligns with the company's development strategy.

**Sustainability of technical solutions:**

Technical sustainability: Gauging the effectiveness of the selected technical solutions in accommodating technological trends and future opportunities.

**Customer satisfaction:**

Product quality and customer satisfaction. Multicriteria analysis facilitates the consideration of diverse aspects of the project and the determination of their significance in reaching a final decision. Throughout the analysis, the weighting of each criterion can be assigned based on the strategic goals and organizational needs.

The NPV was computed using the following formula:

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+r)^t} - C_0 \quad (1)$$

Where: *NPV* - Net Present Value; *T* - Number of periods; *CF<sub>t</sub>* - Cash Flow in period *t*; *r* - Discount rate; *C<sub>0</sub>* - Initial Investment.

In adherence to the criterion established in the NPV calculation method, the project is deemed justified if the NPV surpasses zero. To conduct the requisite calculations as per the aforementioned formula (1), it is crucial to possess a clear expression for cash flows that incorporates the conditions specified in the problem statement. Formula (1) can be modified and expressed as follows (2):

$$NPV = -I_0 + PV(I_n) + \sum_{i=1}^n \frac{(P-VC) * FMS * MS * (1+MGR)^i - FC}{(1+k)^i} \quad (2)$$

Where: *PV(I<sub>n</sub>)* is the discounted residual value of the investment, *I<sub>0</sub>* is the required amount of investment, *I<sub>n</sub>* is the value of the residual asset, *P* is retail price, *VC* is operating cost, in turn, *FMS* - Fair market share, *MS* - Market size, *FC* - Fixed cost, *MGR* - Market growth rate.

The calculation of the discounted residual value of investments was conducted following formula (3):

$$PV(I_n) = I_n / (1+k)^n \quad (3)$$

The risk profile elucidates the alterations in outcomes corresponding to incremental changes in the model parameters. The procedure involves sequentially augmenting each variable within the model, such as by 10%, and subsequently calculating the new values of the Net Present Value (NPV). Utilizing the calculated values of the model parameters, a graph was constructed in the coordinates of *change\_in\_NPV = f(parameter\_deviation)*. This graph comprises a series of straight lines intersecting at the point (0;0).

Calculations according to formulas (2) and (3) were executed utilizing Microsoft Excel. This software enables efficient computation and visualization of risk profiles for the implementation of an infrastructure project.

**4 Research Results**

Infrastructure facilities encompass substantial industrial structures, including plants, power plants, transportation networks, water supplies, and other facilities pivotal to societal and economic functioning. Chemical plants, in particular, exemplify complex infrastructure facilities characterized by intricate technological processes, substantial production capacities, intricate security systems, and interconnections with other vital infrastructure components like transportation, energy, and water supply. Effectively managing projects aimed at expanding or modernizing a chemical plant demands a comprehensive approach, considering diverse technical, economic, and environmental aspects.

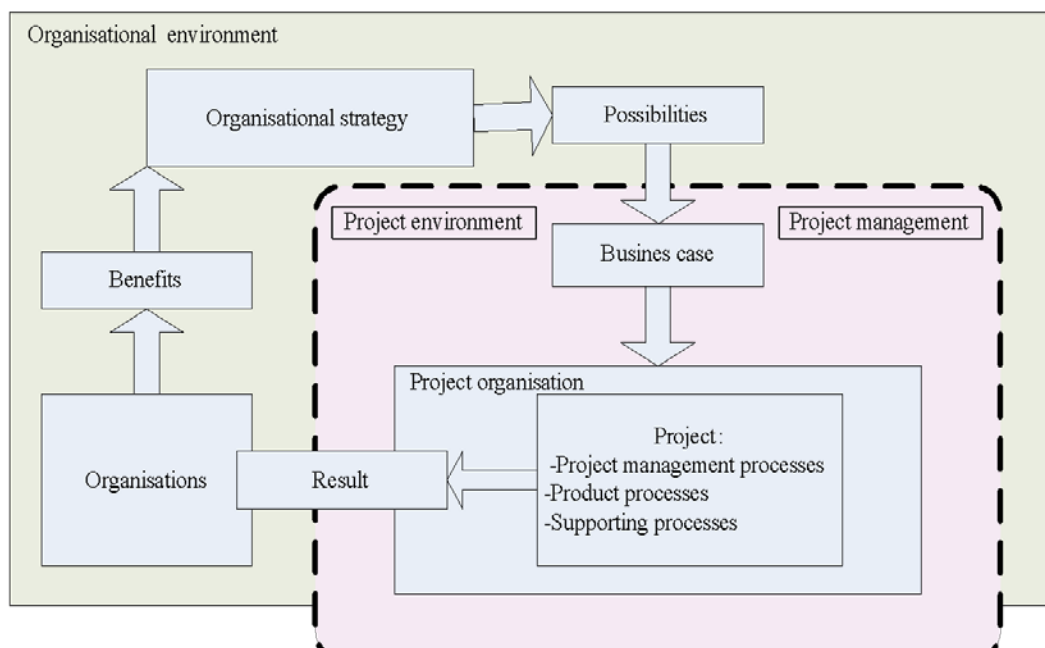


Figure 1. Flowchart of the infrastructure project management strategy

In the presented case study, a \$10,000,000 investment project was examined, focusing on the expansion of capacity for a chemical manufacturing company. This company engages in the

production of goods through the processing of raw materials valued at \$435 per ton, which are subsequently sold on the market for \$510 per ton. The objective involves conducting a

through assessment of the risks associated with the investment project, employing the method of simulation modeling. Particular emphasis is placed on scrutinizing the challenges and strategies pertinent to project management within the realm of complex technical infrastructure projects. The project parameters encompassed a product market volume of 250,000 tons per year, coupled with a market growth rate of 3%. Commencing the project, the company's market share stood at -12%. Technical specifications stipulated a service life of 10 years for the equipment, with a residual investment value of \$4,500,000 anticipated after this period. The plant incurred annual fixed costs of \$300,000. A discount factor of 10% was employed in evaluating the project.

The diagram delineates the key stages and elements of the project management methodology as follows:

*Organizational environment:*

- Identifying the context in which the organization operates.
- Understanding the main aspects of the internal and external environment.

*Organizational strategy:*

- Defining the strategic goals and objectives of the organization.
- Developing strategic plans to achieve the goals.

*Project environment:*

- Analyzing the factors that impact a specific project.
- Identification of internal and external factors that may influence its implementation.

*Opportunities:*

- Identification of opportunities for improvement and development.
- Analyzing options and potential directions for the project.

*Benefits:*

- Identifying the benefits that the organization can gain from the successful implementation of the project.
- Analyzing the benefits that the project can bring to the organization.

*Business case:*

- Creating a rationale for project implementation.
- Analyzing the cost, risks, and benefits of the implementation.

*Project management:*

- Implementation of project management processes.
- Development of strategies, plans, and control points.

*Project organization:*

- Defining the project structure and roles of participants.
- Assignment of tasks and definition of responsibilities.

*Results:*

- Evaluation of the project's effectiveness against the goals and expected results.
- Reporting and analysis of the data obtained for future projects.

The diagram illustrates a systematic approach to project management, commencing with the organizational environment and culminating in the analysis of results and lessons applicable to future projects.

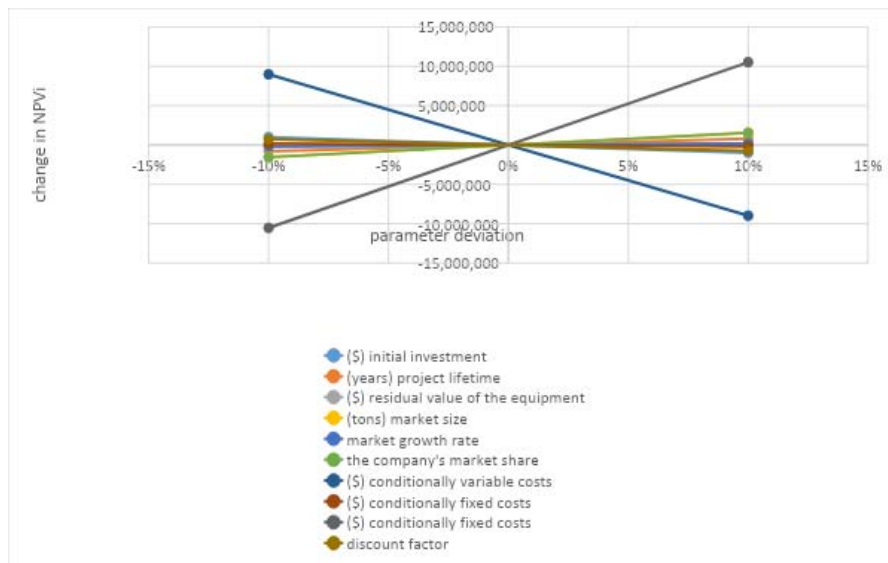


Figure 2. Risk profiles for an infrastructure project

Figure 2 depicts the impact of various changes on NPV when the respective variables are altered by  $\pm 10\%$ . The graph indicates that a 10% reduction in the initial investment results in a corresponding \$1,000,000 decrease in NPV, while a 10% increase in the initial investment leads to an equivalent \$1,000,000 rise in NPV. Similar adjustments were applied to other project parameters, where  $PV(I_n)$  represents the discounted residual value of the investment,  $I_0$  is the required investment,  $I_n$  is the value of the residual asset,  $P$  is the retail price,  $VC$  is the operating cost,  $FMS$  is the fair market share,  $MS$  is the market size,  $FC$  is the fixed cost, and  $MGR$  is the market growth rate. These alterations have the potential to influence the Net Present Value (NPV) and other financial parameters of the project. The graph visually represents the impact of each variable on the project outcome. The slope of the lines in the graph signifies the extent of influence of a specific variable, facilitating the

identification of variables with the most substantial leverage on the project's success. This information holds significance for the formulation of a risk management strategy, particularly when the identified changes in these factors can exert a considerable impact on the ultimate project outcome.

*Base Case:*

The calculation of Net Present Value (NPV) reveals a profit of \$5,379,998 over the ten years.

The project demonstrates financial viability and the potential to generate substantial profits.

## 5 Discussion

Project management in complex technical infrastructure projects is a task demanding an advanced approach and strategies geared

toward mitigating challenges and maximizing opportunities (Ivanenko, 2020). The execution of successful technical infrastructure projects is increasingly pivotal for the development of enterprises and society at large. The distinctive nature of complex technical infrastructure projects necessitates the efficient coordination of numerous factors, encompassing technical expertise to managerial aspects. Challenges, including technical uncertainties, time and budget risks, and interactions with diverse stakeholders, necessitate a systematic and flexible management approach. Project management strategies in this context should encompass anticipating potential risks, establishing mechanisms to respond promptly to changes, and underscoring the significance of communication and collaboration within the project team (Javed, et al., 2021). It is crucial to consider the principles of sustainable development and the integration of innovative technologies to enhance efficiency. Amidst rapid technological advancements and heightened customer expectations, project management in complex technical infrastructure projects is influenced not only by success in meeting objectives but also by the ability to adapt to unforeseen circumstances. This necessitates strategies that center on innovation and continuous improvement, along with the incorporation of change management practices.

The objective of project management in complex technical infrastructure projects is to establish optimal conditions for collaboration among all stakeholders, spanning from engineers and technicians to financial analysts and members of the public (Sabadash & Lysko, 2023). Only responsible and well-structured governance can guarantee successful project implementation and contribute to sustainable development. In the course of project management in complex technical infrastructure projects, several key aspects pertinent to the implementation and management of such projects should be highlighted (Bijańska & Wodarski, 2024). Our study sought not only to identify these challenges but also to propose strategies that can effectively address them. One key aspect that emerges in the management of complex projects is technical complexity. With the introduction of new technologies and innovations in construction, projects may encounter various technical challenges. Therefore, it is essential to discuss how to manage such challenges and explore strategies that can be applied to ensure project success. The financial aspect also assumes a crucial role in complex infrastructure projects. Many experts deem NPV, employed in our study, as the most informative indicator for most projects, as it accounts for the time value of money and expresses results in purely financial terms (Kryshtanovych, et al., 2021).

Effective methods of financing, budget optimization, and cost management should be contemplated to maximize the utilization of resources. Management aspects, including communication and interaction among project participants, should encompass strategies to enhance communication among project participants and efficient conflict resolution. A distinct aspect involves the strategy of interaction with stakeholders, such as communities, authorities, and other vested parties. Discussions should center on methods of public engagement and ensuring a sustainable social impact (Pasko, et al., 2021). It is crucial to underscore that success in complex technical infrastructure projects relies on integrated and strategic management, considering all facets of the project. References to best practices and instances of successfully implemented strategies can be pivotal in the discussion, reinforcing the thesis that approaches to managing such projects need continuous refinement. The assessment of investment project risks is frequently integral to the management of complex technical infrastructure projects. Risk assessment constitutes a crucial component of strategic project management, facilitating the identification, assessment, and management of potential threats and opportunities that may manifest during the project. The simulation modeling method enables the construction of a virtual model of the project, considering probable risks and their impact on various facets of the project, including timing, cost, and quality (Trach, et al., 2022). This method facilitates the analysis of different scenarios and the determination of likely consequences of risks, enabling more informed management decisions. Hence, risk assessment and

simulation modeling techniques constitute crucial components for comprehending and managing risks in complex technical infrastructure projects. This stance reinforces the thesis that, for effective project management, the application of a variety of methods and strategies is imperative to ensure successful project delivery in highly technical and complex environments.

## 6 Conclusions

This article delves into crucial aspects of project management in complex technical infrastructure projects. It identifies the key challenges confronted by project managers in these domains and highlights strategies for addressing them. To illustrate risk assessment methods and management strategies for complex technical projects, a case study of a chemical plant expansion project is presented. A flowchart of the infrastructure project management strategy has been devised, outlining the key stages and elements of the project management methodology. Commencing with an examination of the organizational environment, encompassing the definition of context and strategic goals, the flowchart proceeds to scrutinize the project environment. It involves the identification of opportunities and benefits, the development of a business case, and the implementation of project management. The systematic approach concludes with project organization, performance measurement, and reporting, furnishing a comprehensive overview and the capability to leverage accumulated data in future projects.

The impact of various changes on the net present value (NPV) of the project was systematically analyzed by modifying relevant parameters by 10%. The findings reveal that a 10% reduction in the initial investment or other factors results in a decrease of NPV by \$1,000,000, while an increase leads to a corresponding NPV increment. The study investigates the influence patterns of each variable on the project, determining their criticality. The overall NPV calculation for the baseline solution affirms the financial efficiency of the project, projecting a potential profit of \$5,379,998 over ten years. Conclusions drawn from the economic perspective underscore the financial efficiency and significant profit potential resulting from the project implementation. The acquired data proves valuable for formulating risk management strategies, particularly in scenarios where parameter changes can significantly impact the project outcome.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, BC**

## PUBLIC GOVERNANCE AT THE LOCAL LEVEL IN THE CONTEXT OF DIGITAL TRANSFORMATION

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**Abstract:** The relevance of the research is determined by the need to comprehend the interaction between public governance and local self-governance at the local level, especially in the context of modern challenges and technological innovations. Consideration and analysis of theoretical concepts of management can help improve the efficiency and transparency of governance processes, which is crucial for the sustainable development of society. The purpose of the research is to theoretically analyze the interaction of public governance and local governance at the local level in the conditions of digital transformation. The study of key aspects of this interaction is aimed at identifying challenges and opportunities arising in the context of digital technologies in public governance. The research also aims to analyze practical cases of digital innovations at the local level in order to determine their impact on the quality of services and management processes. The research results will help identify strategies for the successful implementation of digital tools in local governance and their contribution to the sustainable development of society. The obtained research results: based on the research findings, it can be determined that public governance at the local level is a complex process that can be considered from different approaches and perspectives. The importance of this interaction becomes especially relevant in the context of digitalization. Practical significance: the academic paper can be used for the development and improvement of the local government management system in the current conditions. Comprehension of the various aspects of this process makes it possible to develop effective strategies for implementing and using digital technologies to improve the quality of public services, interact with the community, and optimize management processes. Conclusion: the research emphasizes the importance of adapting management systems to the challenges of the digital age and the need to search for optimal solutions. Such an approach is fundamental in establishing an effective, transparent, and open system of local governance aimed at meeting citizens' needs in a digital society.

**Keywords:** Digital transformation, Public governance, Local self-governance, State governance, Municipalities, Digital technologies, Internet (IoT), Digital finances, Budgeting, Accessibility of services, Integration, Electronic project management, Internet, Sensors, Electronic payment systems.

### 1 Introduction

In a world of rapid technological development and profound changes accompanying the digital era, the issue of public governance at the local level is becoming particularly relevant and significant. Digital transformation, which is penetrating all spheres of society, creates new challenges and opportunities for local self-government authorities.

The concept of public governance at the local level is becoming an integral part of the life of modern communities, acting as a guiding force in ensuring the effective functioning and satisfaction of citizens' needs. Local self-government bodies can significantly facilitate interaction with the population, improve the quality of services and ensure more transparent and open governance through the introduction of digital technologies.

Digital transformation in public governance brings significant changes in decision-making, optimization of bureaucratic procedures, and interaction between authorities and citizens. Artificial intelligence, big data analysis, and e-governance are becoming essential tools for achieving efficiency and accountability in modern public governance.

In this context, the research aims to comprehensively analyze the impact of digital transformation on public governance at the local level. We aim to determine the essence of changes, development prospects, and practical approaches for further strengthening management systems at the local level by using statistical data and through the prism of a methodological approach. The research results should be considered as an

important contribution to understanding and optimizing modern public governance in the context of high technological development.

### 2 Literature review

The issue of public governance at the local level in the context of digital transformation has been studied by numerous scholars from around the world. The development and implementation of digital management strategies at the local level is one of the key aspects.

The scientific works of Shlapko T.V., Starynskyi M.V., Myrhorod-Karpova V.V. focus on the legal support of digital transformation in the healthcare sector in view of European integration processes. Kolianko, O. V. studies the interaction of state and local government authorities with the public, and Makarova I. O. analyzes the digitalization of public governance at the regional and city levels.

The research also considers e-health issues, which are reflected in the study by Agrawal A., who analyzes the problem of medication errors and proposes preventive measures using information technology systems. Furthermore, it is worth noting the scientific article by Greenhalgh T. et al. that reveals trends and paradoxes in the study of electronic medical records.

The research directions include analyzing the impact of digital innovations on the efficiency of public governance at the local level, identifying key challenges and opportunities in the context of digital transformation. The mentioned authors have made a significant contribution to understanding the interaction between digital technologies and public governance, and further study of their works can help develop this relevant topic.

The purpose of the research is to systematically analyze the impact of digital transformation on public governance at the local level. The research is aimed at identifying key aspects of digital transformation that influence the efficiency and functioning of public governance in the context of local self-governance.

### 3 Results

Public governance at the local level is a complex and multifaceted process aimed at efficient and equitable management of resources and services to meet citizens' needs in a particular local community. This is the sphere where local elected or appointed authorities interact with the community to ensure harmonious development and improve the quality of life. One of the key features of public governance at the local level is primary focus on a specific territorial space, where the leadership takes into account the unique features and needs of the community. This may include addressing infrastructure issues, providing educational and medical services, and ensuring security and order.

The meaningfulness of public governance at the local level is determined by its direct impact on the lives of citizens. The ability of local authorities to solve problems at the local level is recognized as a key element of democracy and civic participation. In the process of decision-making, they should be open to citizens' opinions and needs, contributing to the creation of open and transparent governance (Ben, 2020).

Public governance at the local level also serves as a tool for ensuring social justice and equality, directing its efforts to the development of all layers of society and ensuring the participation of citizens in decision-making concerning their lives (Polevyi, 2021). In the context of digital transformation, public governance at the local level rethinks its approaches and processes, using new technologies to increase efficiency,



transparency and interaction with the community (Lopushynskyi, 2018).

Local self-governance in the system of public governance is defined as a form of public authority that has defined rights and responsibilities of local governments to regulate a significant part of public affairs at the territorial level. According to the European Charter of Local Self-Government, ratified by the Verkhovna Rada of Ukraine, this right is determined in accordance with the law, under the responsibility and in favor of the local population (Bobrovska et al., 2014).

Public governance at the local level is a set of organizational, administrative and strategic actions aimed at ensuring the functioning and development of administrative units in a particular territory, such as cities, districts or villages. This concept covers a wide range of activities, from organizing social services to solving economic and environmental issues in order to meet citizens' needs and ensure sustainable development of the community (Nedilko, 2017; Makarova, 2021).

The primary aspects of public governance at the local level include decision-making, planning, implementation and evaluation of programs and services, as well as communication and interaction with the community. This is a system that should be open, transparent and take into account the interests of various groups of the population. Another significant aspect is the ability of local governments to adapt to changes in society and use innovations, including technological solutions, to improve the quality of services and optimize processes.

Understanding public governance at the local level includes an analysis of the interaction between the authorities, the community, business and other influential actors at the local level. The consideration of the context and conditions of a particular territory helps identify the most effective and appropriate solutions to improve residents' life quality and achieve strategic development goals.

Public governance at the local level in the conditions of digital transformation is a system of organizational, informational and technological processes aimed at improving and effectively functioning of local government bodies using digital technologies.

Therefore, in our opinion, digital transformation in the context of state governance at the local level means a transition from traditional methods of management and service delivery to the use of the latest technologies. This means the introduction of electronic systems, web platforms, analytical tools, artificial intelligence and other digital solutions to improve the quality of governance, ensure openness and transparency of interaction between the authorities and citizens.

In this context, the concept of public governance means planning, decision-making, policy implementation and public service delivery at the local level. Digital transformation makes it possible to optimize these processes by automating them, improving information exchange, simplifying access to administrative services for citizens, and enhancing the analysis and use of data for making managerial.

One of the key aspects of public governance at the local level in the context of digital transformation is ensuring cyber security and confidentiality of information since the introduction of digital technologies increases the risk of cyber threats and unauthorized access to data (Holovko, 2019).

In general, public governance at the local level in the context of digital transformation seeks to create effective, flexible and open management systems, contributing to improving citizens' quality of life and ensuring sustainable development of local communities. It should be stressed that the concept of public governance at the local level may be defined and considered from different approaches and perspectives, taking into account various aspects of its functioning. For instance, we can identify

the following approaches to understanding this concept (Kolianko, 2021):

1. the institutional approach – it focuses on the role and functions of specific institutions, such as local government authorities, administrations and other public structures for ensuring effective governance and service delivery to the local community;
2. the systemic approach – it considers public governance at the local level as part of a broader system that includes the interaction between different structures and aspects, such as the economy, social sphere and environment;
3. the community approach – it emphasizes community participation and interaction in decision-making and development processes, emphasizing the importance of public participation in the formulation and implementation of public policies;
4. the innovative approach – it emphasizes the use of the latest technologies and innovations to optimize management processes, in particular, in the field of e-government, big data analysis and the introduction of artificial intelligence;
5. the economic approach – it analyzes the expenditures and efficiency of local governance from an economic point of view, examining the interconnection between financial resources and performance, etc.

The combination of these approaches can create a comprehensive and in-depth understanding of state governance at the local level that takes into accounts the various dimensions and challenges of this important aspect of management. Ukraine poses particular difficulties in the context of digital transformation due to its ongoing conflict with Russia.. The state's current position of economic, social, and political unrest highlights how crucial it is to adopt digital solutions quickly in order to maintain the effectiveness and sustainability of public service management and delivery.

In times of war, digital transformation can become not only a tool for modernization but also a means of ensuring security and efficient resource management. It is important to take into account the specific challenges and opportunities arising in the conditions of military conflict and adapt digital strategies to the conditions determined by the situation on the front line. Furthermore, in the framework of digital transformation, what precisely is digital transformation and how can it be used to local government in the conditions of digital transformation?

To start, let's define digital transformation as the procedure of utilizing digital technologies to replace conventional commercial, management, and interaction approaches in a variety of social contexts. The conditions of digital transformation include as follows:

1. integration of modern technologies: Internet of Things (IoT), artificial intelligence, cloud computing, and data analytics and others to optimize processes and improve productivity;
2. developed digital infrastructure, including high-speed networks, Internet access and modern data storage and processing facilities;
3. use of large amounts of data to obtain insights and make informed management decisions;
4. introduction of electronic systems, platforms and services to facilitate interaction between government, business and citizens;
5. replacement of paper documentation with digital formats and automation and optimization of business processes.

Ukraine poses particular difficulties in the context of digital transformation due to its ongoing conflict with Russia.. The state's current position of economic, social, and political unrest highlights how crucial it is to adopt digital solutions quickly in order to maintain the effectiveness and sustainability of public service management and delivery. In times of war, digital transformation can become not only a tool for modernization but also a means of ensuring security and efficient resource



management. It is important to take into account the specific challenges and opportunities arising in the conditions of military conflict and adapt digital strategies to the conditions determined by the situation on the front line.

It is important to realize that digital transformation is not anything bad or distinct from digital technologies in order to fully comprehend it. Digital technologies can be defined as a set of processes, methods, and systems that use digital data and signals to process and transmit information (Dushchenko, 2021). From this perspective, digital technologies include the use of binary codes (zeros and ones) to represent information, which enables computers and other electronic devices to process information efficiently and quickly (Greenhalgh et al., 2009).

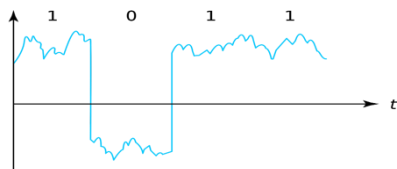


Figure 1. An example of the digital signal  
Source: (Ross Knox Bassett, 2007).

Thus, as of today, digital technologies, in a broad sense, are a set of integrated circuits or devices that include as follows (Makoto Motoyoshi, 2009):

- computers, smartphones, tablets, digital cameras and other electronic devices capable of storing, processing and transmitting digital data;
- software and operating systems that run on digital devices and enable them to perform various tasks, including data processing, communication, and device management.
- The Internet and other networks are becoming more and more accessible thanks to digital technologies, enabling the long-distance transfer of data and information.
- The advancement and use of algorithms and software make it possible to automate data processing and task execution.

The integration of digital tools into local public governance is particularly important in light of the ongoing conflict in Ukraine. These tools will help ensure community participation while ensuring the authorities' work is optimized and supported. Therefore, we consider it relevant to use digital technologies in the cases as follows:

1. In wartime, e-voting can be an effective tool for organizing electoral processes in a secure environment and for ensuring the participation of people temporarily evacuated or in the temporarily occupied territories. It can also help ensure the confidentiality of votes and avoid the possibility of pressure or manipulation of the social-political situation.

2. In the conditions of war, submitting petitions through digital systems becomes a convenient means of expressing public opinion and wishes of citizens. Citizens can submit petitions online from the comfort of their homes, which is especially important in times of restrictions and security risks. This provides quick and relevant feedback from the community, and allows the authorities to respond quickly to the urgent issues and needs of the population because of the armed conflict. Successful examples of the above are the official state application "Diia" and other forms (websites, applications, platforms) of electronic appeals of citizens. These tools are aimed at facilitating interaction between the community and the authorities. For instance, citizens can conveniently and efficiently submit various appeals online, including complaints, suggestions, questions, or any other messages. The possibility to pay taxes online is one of "Diia's" key features. Citizens can easily and securely pay their tax liabilities using digital services, which simplifies the procedure and saves them time. In addition, this platform offers services for conducting various online transactions. For instance, citizens can buy and sell a car, obtain

a police clearance certificate or other documents without the need to visit the relevant institutions in person. This simplifies interaction with the authorities and ensures the convenience and speed of solving various issues by citizens.

3. When it comes to local public governance, information security solutions are quickly emerging as a vital instrument for guaranteeing the dependability and safety of procedures involved in town and community management. These systems are aimed at protecting information related to local elections, rallies, demonstrations and other public events that are important to local governance. They include a set of measures that ensure the confidentiality and integrity of electronic systems used to process and transmit information for the effective management of local resources. Information security systems help coordinate and secure electronic platforms for citizens' appeals, which can include petition processes, approvals for public rallies and demonstrations, and ensuring the safe and secure transmission of information during local elections. These systems are an important factor in ensuring openness and transparency in public governance processes at the local level, making them more accessible and secure for residents of local communities.

4. Smart cities and mobile applications are becoming key components of modern urban governance aimed at improving residents' lives and the efficiency of city management. Smart cities integrate various technologies, such as sensors, communication networks, and data analytics to provide an integrated approach to managing urban resources. They help monitor traffic, air quality, noise, and energy efficiency, contributing to more efficient and environmentally friendly cities.

Mobile applications are becoming a necessary tool for interaction between the city and residents. They provide an opportunity to conveniently track transportation schedules, pay for utilities, and receive important notifications and news. Mobile applications facilitate active community participation by allowing for complaints, suggestions, and participation in voting. By integrating smart city technologies and mobile applications, cities become more flexible, livable, and efficient in managing their resources, contributing to the development of high-tech and citizen-friendly urban environments.

5. When it comes to rebuilding damaged structures and public infrastructure, an electronic project management system is a collection of instruments and technology that guarantee efficient planning, carrying out, and overseeing of restoration projects. The system includes a large number of electronic resources that make it possible to effectively monitor progress of the recovery, plan budgets and expenditures, and coordinate the work of various contractors and teams. Within the framework of reconstructing damaged buildings and civilian infrastructure, the electronic project management system prioritizes tasks, allocates resources, monitors progress, and ensures transparency and openness in interacting with the community. The use of an electronic project management system facilitates rapid recovery after crisis situations and helps consider residents' interests, ensuring effective rehabilitation and modernization of urban infrastructure.

6. The use of the Internet of Things (IoT) in municipalities is defined as the integration of sensors, communication and analytical tools to create an effective system for monitoring and managing urban resources. IoT makes it possible to collect, analyze a huge amount of data from various sources, such as sensors on the streets, devices in buildings and vehicles, which facilitates decision-making and optimizes the use of municipal resources. The application of IoT includes monitoring garbage levels, energy efficiency of facilities, traffic, and other parameters, allowing municipalities to respond quickly to changes and plan resources more efficiently. IoT is also used in security and monitoring systems, providing timely detection and response to events such as accidents or public order violations. The use of IoT in municipalities helps create more intelligent and efficient cities, improving residents' quality of life and

optimizing the management of municipal resources (Shevchenko et al., 2022).

7. Digital finances and budgeting represent an innovative approach to managing financial resources in municipalities. This concept is based on applying modern technologies and electronic tools to optimize budget planning and financial control processes.

Digital finances involve the use of electronic payment systems, online banking, and other digital tools to conduct financial transactions and monitor budget expenditures.

Digital budgeting includes the application of specialized programs and platforms for the development, implementation and monitoring of budget plans. This contributes to the efficient allocation of resources, taking into account the priorities of society and creating a transparent mechanism of spending. The implementation of digital finances and budgeting allows municipalities to respond more quickly to financial challenges, improve budget processes, and increase the efficiency of using funds for the benefit of development, meeting the community's needs (Demoshenko, 2022).

It is noteworthy that a lot of countries are currently actively putting electronic health systems (eHealth) into practice and using them as a vital tool to enhance the accessibility and organization of healthcare services in the local implementation of state governance. (Agrawal, 2009). These systems make it possible to efficiently exchange and store medical information, facilitate the coordination of care, and make the process of healthcare delivery more integrated.

According to scholars such as Sibylla Buletsa, Lyudmyla Deshko, and Viktor Zaborovsky, the electronic health system (eHealth) is defined as an electronic system that facilitates the receipt of quality medical services by patients and the provision of such services by doctors (Buletsa et al., 2019). According to the viewpoint of Korobchynska N.V., the electronic healthcare system can be defined as a complex apparatus that includes all subordinate medical institutions interacting in a coordinated manner within a single electronic medical record and a common electronic medical information space (Korobchynska, 2022).

In our opinion, the definition of an electronic health system (eHealth) implies that it is an integrated information ecosystem connecting various aspects of healthcare, from patients to medical professionals and administrators. Its goal is to improve the quality, efficiency and accessibility of medical care by means of information technologies.

One should also note that Electronic Healthcare Systems (EHS) have already been successfully implemented in various countries around the world: 1) Every hospital and clinic in the US is able to have its own electronic health record system, known as Electronic Health Records, or HER. Several most common EHR systems include Epic Systems, Cerner, and others. Data exchange between these systems may be hampered by technical and privacy issues (An electronic health record). 2) Germany is currently implementing digital healthcare systems. This includes electronic medical records for patients and a centralized network for the exchange of medical information between hospitals and doctors (Kierkegaard, 2011). 3) The UK has been developing a national electronic healthcare system to unite medical data from across the country. 4) France has been introducing a system of electronic medical records for patients. The process arises from issues of standardization and data exchange between various systems. 5) The electronic health information exchange system is actively being developed in the Netherlands. Emerging strategies, such as utilizing blockchain technology to guarantee data exchange security, are being discussed.

These countries have been implementing the EHS with varying degrees of success due to certain EU procedures, such as standardization, confidentiality and data exchange (Directive

2011/24/EU). Nevertheless, further development of these systems is a key step in the digitalization of this sphere.

Ukraine has already implemented the Electronic Healthcare System (EHS), which includes the Central Database and the Medical Information System. This facilitates the improvement of medical records as well as the availability of medical information, although it requires careful regulation to protect patient data.

The introduction of the EHR in Ukraine is a step towards the digital transformation of the healthcare sector. This system simplifies the accounting of medical services, facilitates the exchange of information and improves the availability of data for medical professionals. At the same time, along with convenience, it creates additional challenges in ensuring the security and confidentiality of medical information.

Regarding the legislative regulation of eHealth in Ukraine, numerous legal acts, including the Ukrainian Constitution, statutes, and bylaws, are in force to carry it out (Shlapko et al., 2021; What is eHealth, 2021).

#### 4 Discussion

After examining local governance within the framework of digital transformation, it is, therefore, feasible to suggest that the process and outcomes of digital transformation in Ukraine should be referred to as "digitalization". For instance, in local public governance, digital technologies are replacing traditional methods in numerous areas, such as public governance, healthcare, municipal and private property, settlement management, accessibility, and the ability to obtain administrative services.

As part of the digital transformation in Ukraine, we can refer to the specific outcomes of digitalization for 2022 (Order of the Ministry of Digital Transformation of Ukraine as of May 5, 2023, No. 54):

1. Full accessibility of all public services for citizens and businesses via the Internet has been achieved.
2. High-speed Internet access for population, social facilities and main roads has been provided by 95%.
3. The groundwork has been laid for the advancement of the IT sector, which currently accounts for 10% of gross domestic product.
4. More than 6 million Ukrainians have been involved in government and local programs that help improve the competencies of the national population.
5. The "Diia" portal has already made it possible to receive numerous electronic public services online in 2022, including automatic permits for construction, residence declarations, various extracts, grants, etc. The capabilities of the "Diia" Portal mobile application have also been expanded, enabling new electronic public services such as credit history notifications, annual tax returns for individual entrepreneurs, transfer of electronic copies of vehicle registration certificates, etc.
6. The amount of "Diia" Portal users has grown significantly, reaching 18,5 million in the smartphone application and about 22 million on the portal as a whole.
7. A survey in the smartphone application has been introduced, allowing users to influence the decisions of public authorities. 7 polls have been conducted with active participation of users.
8. Also, when traveling abroad, it is now possible to apply the "Diia" Portal mobile application to obtain a digital residence permit Diia.pl in the mObywatel application for Ukrainians abroad.
9. The amount of transactions using ISEI increased by 141% in 2022, reaching 29 million, compared to 12 million in 2021. More than 13,7 million qualified certificates of electronic signatures of citizens were received.

## 5 Conclusions

The academic paper examines in detail the introduction of digital technologies in public governance at the regional level in Ukraine, introducing the term “digitalization” as a key stage of digital transformation. The considered aspects, such as the electronic project management system, the use of the Internet of Things (IoT), and digital finance, define new realities in the management of cities and regions.

The theoretical analysis of the interaction between public governance and local self-governance identifies three concepts that define different approaches to public governance at the regional level. Notable accomplishments include making public services completely accessible online, supplying high-speed Internet to the general public, and laying the groundwork for the IT industry to expand. The “Portal Diia” mobile application has become a powerful tool for receiving services and interacting with government agencies.

Digital initiatives, such as the digital skills development program, expanding the functionality of the “Portal Diia” mobile application, and expanding the network of Centers for the provision of administrative services show success in engaging citizens in digital technologies. The growth in the amount of users and the positive impact on the satisfaction level indicate the active and practical contribution of digital transformation to improving the quality of servicing citizens (Borodin E., Piskokha N., Demoshenko H., 2021).

The key areas include the integration of modern technologies, such as smart cities, mobile applications, electronic project management systems and the Internet of Things, etc.

Digital transformation has proven to be crucial for improving residents' quality of life and optimizing the use of municipal resources. Project management systems and the use of IoT make it possible to effectively monitor and manage the recovery of infrastructure after crisis situations. Digital finances and budgeting are becoming important tools for managing municipal financial resources, ensuring transparency and efficiency of expenses. Digital payment systems and online banking help speed up financial transactions and interaction with budget plans.

The “Portal Diia” mobile application has proved to be an important tool for citizens to interact with public services, providing access to various electronic services and interaction with government bodies. Expanding the application's functionality, introducing polls, and improving security and accessibility indicate the active development of digital tools for citizens. Taking into account the concrete results for 2022, we can see significant success in implementing digital initiatives and a positive impact on the development of society and economy. Consequently, it is important to further work on cyber security, inclusiveness and ongoing optimization to ensure sustainable and effective digital transformation at the regional level.

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## REPRESENTATION OF REALITY IN THE LINGUISTIC WORLD PICTURE (COGNITIVE AND SEMANTIC ASPECTS)

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**Abstract:** Language plays a key role in shaping cultural and social identities in the modern world. In this context, the study of the interaction between language and cognition becomes particularly relevant. Understanding how linguistic structures influence the perception of reality is crucial for a deeper analysis of intercultural communication and social interactions. This research aims to analyze linguistic structures such as metaphors, metonymies, and idioms, as well as their impact on the formation of the linguistic worldview in different cultures. The research methodology is based on a comprehensive approach. It includes the analysis of linguistic and cognitive aspects of language, as well as a comparative analysis of linguistic worldviews in different cultures. This has allowed us to consider language as a means of communication and a crucial element of cultural and social reality. The article explores the importance of linguistic structures, such as metaphors, metonymies, and idioms, in shaping the linguistic worldview and their influence on cultural and social realities. Special attention is given to the analysis of the interaction between cognition and language, examining how mental processes affect linguistic possibilities. The research has revealed that linguistic structures, such as metaphors and metonymies, significantly impact how people perceive and interpret the world around them.

**Keywords:** Cognitive linguistics, Linguistic world picture, Metaphor, Metonymy, Idioms, Intercultural communication.

### 1 Introduction

In the modern world, where language serves as a primary means of communication and knowledge transmission, the study of how language represents reality becomes particularly relevant. The chosen topic occupies a crucial space at the intersection of linguistics, philosophy of language, cognitive science, and semiotics. The material presented explores how linguistic structures and language usage influence the perception and interpretation of reality.

The study of the linguistic worldview allows us to understand how the human mind structures and categorizes experience, using language as a tool. The cognitive aspect of this process involves examining linguistic mechanisms that enable us to form, store, and process information about the world around us. The semantic aspect, in turn, focuses on the meaning and usage of linguistic signs, as well as how these signs reflect and influence our understanding of reality.

This article aims to analyze how language reflects and shapes our concepts of reality while considering various theoretical approaches to studying the linguistic worldview. We investigate how cultural, social, and individual factors impact linguistic representation of reality, exploring the relationship between language and perception.

A key aspect of our research is understanding that language not only mirrors reality but actively shapes it through processes of categorization and conceptualization. This opens up broad perspectives for analyzing the impact of language on cognitive processes, including perception, thinking, and decision-making.

This article also examines how different languages may differ in their ways of representing reality, leading to diversity in linguistic worldviews. This allows us to better understand the universal and unique aspects of the human cognitive experience.

In our strong belief, the integration of various scientific approaches is crucial today for a deeper understanding of how language reflects and shapes our perception of reality, which is critical to understanding human experience and behavior.

### 2 Literature review

In contemporary studies of the linguistic worldview, special attention is given to cognitive and semantic aspects. Abdullayevna's work (2023) illuminates conceptualism in cognitive linguistics as an anthropocentric paradigm. This research underscores the importance of the human factor in the linguistic reflection of reality. Abdusamiyevna (2023) examines the evaluative aspect of the linguistic worldview. The author demonstrates how linguistic structures reflect subjective attitudes toward objects of reality. This study contributes significantly to understanding the relationship between language and culture.

Akpan (2023) critically analyzes the semantics of propositions within their ecosystem. The author highlights the issue of referential realism in some philosophical-linguistic concepts. This approach allows a deeper understanding of how language reflects and shapes our perception of reality. Burke, Gunstad, and Hamrick (Burke, Gunstad, & Hamrick, 2023) explore global and local semantic coherence in spontaneous language among people with Alzheimer's disease and healthy control groups. Their findings are essential for understanding the impact of cognitive disorders on language function.

Davari and Sabzevari (Davari & Sabzevari, 2023) focus on cognitive semantics and grammaticalization, investigating the usage of the word 'xâstan' (to wish). Their analysis shows how linguistic changes reflect changes in cognitive processes. Flores (2023) examines the semantics embodied in cognitive linguistics and Searle's account of linguistic intentionality. This research is essential for understanding the interaction between language and cognition.

Frisby et al. (Frisby, Halai, Cox, Ralph, & Rogers, 2023) decode semantic representations in the mind and brain, making a significant contribution to understanding neuro-linguistic processes. Kamienieva (2023) analyzes semantic and cognitive approaches to the analysis of metaphorical models. She emphasizes the importance of metaphors in the linguistic representation of reality.

Kostusiak et al. (Kostusiak et al. 2023) investigate the linguistic verbalization of quantity in contemporary mass media, highlighting linguistic-cognitive and communicative-pragmatic aspects of the Ukrainian language. This research is essential for understanding the interaction between language, media, and society. Makhhammadkulovna (2023) explores sociolinguistic aspects of representing gender asymmetry in culture. This study is crucial for understanding how linguistic structures reflect and shape gender perceptions in different cultures.

McDonald, Assef, Li, & Zamuner (2023) propose a methodological review of the visual world paradigm for indexing phonological and semantic lexical co-activation in children. This approach opens new perspectives for understanding language and visual perception interaction. Mondal (2023) suggests an approach to unifying the linguistic meaning theory. This research is essential for understanding the fundamental principles underlying linguistic meaning and its representation in different language systems. Nodira (2023) examines the idea of cognitive linguistics, emphasizing the importance of cognitive processes in shaping language structures. This study helps to understand how human cognition influences language and its use.

Sato, Mineshima, & Ueda (2023) explore the possibility of representing negation and compare the understanding of visual representations by humans and machines. This research opens new perspectives for understanding the interaction between language, cognition, and visual perception. Stachurska (2023) analyzes the linguistic representation of women in Kashubian, English, and Polish proverbs. This study is essential for

understanding cultural stereotypes and their reflection in language.

Stocker (2023) investigates the cognitive-semantic structuring of concepts in visual perception and visualization. The author identifies a new basic top-down processing system for visual experience. This research is crucial for understanding the interaction between visual perception and linguistic concepts. Tuxtazarova (2023) analyzes the concept of linguistic worldview and its significance in linguoculturology. This research underscores the importance of understanding language as a reflection of cultural and social realities.

Umarova (2023) examines the theory of cognitive aspects of the language system, focusing on the interrelation between cognition and language structures. This research is vital for understanding how human cognition influences language and its use. Zhang, Wong, Grand, & Tenenbaum (2023) explore the semantics of physical language using probabilistic programs and simulated worlds. This research opens new perspectives for understanding the interaction between language, cognition, and computer modeling.

Zhang, Karabulatova, Nurmukhametov, & Lagutkina (2023) analyze association strategies in the language behavior of communicators in encoding discourse. This study is essential for understanding the role of cognitive and linguistic processes in communication. Zhang & Liu (2023) discuss the intersection of neurolinguistics, cognitive linguistics, and semantic rhetoric. This research is crucial for understanding the interaction between the brain, language, and semantics. Zokirova (2023) examines the linguistic worldview as a projection of the conceptual system of consciousness. This research emphasizes the importance of understanding language as a reflection of people's inner world.

In their study, Lenci and Sahlgren (2023) analyze the distribution of semantic meanings in the language. It is crucial for understanding linguistic structures. This research is essential for comprehending how language reflects and structures our perception of the world. The paper by Reszegi (2023) expands on this topic by exploring the meaning and categorization of proper names in the context of cognitive onomastics. This research emphasizes the significance of proper names in shaping the linguistic worldview.

Mao and colleagues (Mao et al., 2024) provide a review of contemporary semantic processing methods essential for understanding linguistic processes. Their work opens new perspectives for the use of semantic technologies in various fields. The study by Wei and Economics (Wei & Economics, 2023) analyzes the use of discourse markers by second language learners from the perspective of cognitive linguistics. This research is vital for understanding language learning processes and their usage.

Tuxtazarova (Tuxtazarova, 2023) explores the concept of the linguistic worldview and its importance in linguoculturology. Her work underscores the importance of language as a tool for cultural expression and identity. Al-Qadi and Naser (Al-qadi & Naser, 2022) focus on lexical relationships in the context of cognitive semantics, specifically on antonymy, synonymy, and polysemy. Their research opens new avenues for understanding the complexity and diversity of linguistic relationships.

Turdieva and Sh (Turdieva & Sh, 2023) analyze the individual writing style from a cognitive perspective. This study contributes significantly to understanding how a writer's personality influences their creativity. Bakhtiyorovna (Bakhtiyorovna, 2022) explores linguistic creativity within the language and discourse system. Her work underscores the importance of innovation and creativity in linguistic expression.

Van Hoey (Van Hoey, 2022) proposes a semantic map for ideophones, which is crucial for understanding expressive aspects of language. This research opens new perspectives for analyzing emotional and sensory expression in language. Falck

and Okonski (Falck & Okonski, 2022) introduce a procedure for identifying metaphorical scenes, a key for bridging theory and practice in cognitive linguistics. Their methodology opens new possibilities for researching metaphors in different contexts.

Together, these studies form a comprehensive view of the interconnections between language, cognition, culture, and semantics, emphasizing the multiplicity and complexity of the linguistic worldview. At the same time, the topics we have chosen leave some "blank spots," which we will discuss in more detail below.

### 3 Aims

The study aims to reveal the processes of representing reality in the linguistic worldview, with an emphasis on cognitive and semantic aspects. This research seeks to identify how language structures reflect and shape our perception of reality, as well as how cognitive processes influence the formation of language concepts and semantics. The main focus lies in analyzing how different languages and cultures represent the same or different aspects of reality through their language systems.

Several tasks need to be accomplished to achieve this goal. First, it is necessary to analyze linguistic structures and their influence on the perception of reality. This task involves a detailed analysis of such linguistic structures as metaphors, metonymies, idioms, etc., and their role in shaping the linguistic picture of the world. Special attention is paid to how these structures reflect cultural and social realities. Then, we will move on to the study of the interaction between cognition and language. This task focuses on the study of how cognitive processes such as perception, memory, and thinking affect language and its use. The aim is to identify how our mental processes shape and limit our linguistic capacities. Finally, we will turn to a comparative analysis of linguistic world pictures in different cultures. This task involves a comparative analysis of how different languages and cultures represent similar or different aspects of reality. This will allow us to understand the common and unique aspects of linguistic worldviews and their impact on intercultural communication and mutual understanding.

### 4 Methods

This study is based on a comprehensive and interdisciplinary theoretical approach that integrates cognitive linguistics, semantics, and sociolinguistics. This approach allows for a comprehensive analysis of the interrelations between language structures, cognitive processes, and the cultural context.

Comparative analysis allows us to analyze linguistic worldviews in different languages and cultures, including the study of literature, media, and other cultural texts. Experimental methods, in particular psycholinguistic experiments, serve to explore the impact of language structures on cognitive processes such as perception, memory, and thinking.

Analytical methods employ qualitative analysis to evaluate selected texts and language examples to identify semantic and cognitive features. Cross-cultural research allows us to study how different cultural contexts influence linguistic pictures of the world.

Such a methodology allows for a comprehensive approach to the analysis of the representation of reality in the linguistic worldview, taking into account both linguistic and cognitive aspects. Besides, it provides a deep understanding of the interaction between the language, thinking, and culture.

### 5 Results

#### 5.1 Analysis of linguistic structures and their influence on the perception of reality

Language structures, such as metaphors, metonymies, and idioms, play a crucial role in shaping the linguistic worldview.



They reflect and actively mold our perception of reality, influencing cognitive processes and cultural conceptions. In this section, we delve into a detailed analysis of these structures, focusing on how they reflect cultural and social realities.

Metaphors serve as powerful tools for conceptualizing reality, allowing us to envision abstract concepts in concrete, understandable terms. For instance, many languages feature metaphors associating time with space (e.g., "Let's look at this tomorrow" or "We'll come back to this issue"). This points to a universal tendency in human thinking to project time into spatial dimensions.

Metonymies utilize one element to represent another, often associated with it. For example, when we say "read Shakespeare," we mean reading his works, not the author himself. Metonymies play a crucial role in structuring our experience and perception, enabling effective communication of complex ideas.

Idioms, or fixed expressions, are essential elements of language reflecting cultural nuances. For instance, the expression "throw down the gauntlet" in Western cultures has historical origins linked to knightly tournaments. Other cultures may have their unique idioms reflecting local traditions and history.

These linguistic structures not only reflect but actively shape our perception of reality. They influence our cognitive processes, helping us organize and interpret information. For example, the metaphor "time is money" can impact our attitude toward time, prompting us to assess it as a valuable resource.

The analysis of linguistic structures reveals that they mirror reality and actively shape it. They play a crucial role in our perception of the world, influencing our cognitive processes and cultural conceptions. Understanding these structures and their impact is essential for a deep comprehension of language and its role in shaping human experience.

## 5.2 Interaction between the cognition and the language

The interaction between cognition and language is one of the central issues in contemporary linguistics and cognitive science. A language reflects our thoughts and actively shapes our cognitive processes. Below, we will focus on studying how cognitive processes such as perception, memory, and thinking influence language and its usage.

Perception is a fundamental cognitive process that impacts language. For example, linguistic constructions reflect how we perceive time and space. Different languages have various ways of expressing spatial relations, which can influence how their speakers perceive and conceptualize space.

The memory plays a crucial role in language acquisition and usage. Lexical memory, for instance, allows us to store and retrieve words and their meanings. Additionally, our ability to remember language structures and rules influences our grammatical expression.

Thinking and language are closely intertwined. Language can influence our cognitive processes by helping us structure and organize our thoughts. Conversely, our cognitive abilities, such as abstract thinking, affect the complexity and diversity of language structures that we can use.

Language and cognition mutually influence each other. On one hand, language is a tool that enables us to express and communicate our thoughts. On the other hand, our cognitive abilities impact how we use language, shaping its structure and usage.

The interaction between cognition and language is complex and multifaceted. Our cognitive processes influence language, while language shapes and limits our cognitive abilities. Understanding

this interaction is key to a deeper comprehension of both linguistic and cognitive processes.

## 5.3 Comparative analysis of linguistic world pictures in different cultures

Linguistic maps of the world reflect the unique ways in which different cultures perceive and interpret reality. This comparative analysis explores how various languages and cultures represent similar or other aspects of reality, revealing common and unique aspects of the linguistic world picture.

Different languages have different ways of expressing the same concepts. For example, there are significant differences in expressing time between English and Japanese. English has a clearly defined temporal structure with various tense forms. Meanwhile, in Japanese, time is often determined by context rather than grammatical forms.

Linguistic worldview maps also reflect cultural realities. For instance, many Native American languages have a large number of words to describe natural phenomena, reflecting the close connection of these cultures with nature. At the same time, in urban cultures like American or European, linguistic structures often reflect a more technological and industrial worldview.

Comparing linguistic worldviews allows for the identification of universal aspects shared among many languages, such as ways of expressing emotions or basic needs. Simultaneously, there are unique aspects that reflect the specificity of individual cultures, such as unique metaphors or idioms that mirror cultural characteristics.

Understanding these differences and similarities is crucial for effective intercultural communication. Knowing how different cultures use language to represent reality can help avoid misunderstandings and promote mutual understanding.

A comparative analysis of linguistic worldviews provides essential insights into how different cultures perceive and interpret the world around them. Studying these differences and commonalities is vital to understanding the universal and unique aspects of linguistic worldviews and their impact on intercultural communication.

## 6 Discussion

The research on linguistic pictures of the world and their interaction with cognition opens up room for serious discussions. The latter pertains to linguistics and the philosophy of language, cognitive science, sociolinguistics, and culturology.

One of the key issues involves debates between universalism and linguistic relativism. Are common language structures shared across all human languages, or does each language uniquely shape the world's perception of its speakers? This question remains open and continues to stimulate research and discussions.

Another important question concerns the extent to which language influences cognitive processes. Does language shape our thinking or merely reflect pre-existing cognitive structures? This question sparks debates about the nature of thought and its interrelation with language.

Discussions also arise in the context of intercultural communication and translation. How accurately can one convey the content while preserving cultural nuances and conceptual differences? This issue becomes especially relevant in a globalized world where mutual understanding between different cultures becomes paramount.

Modern technologies, such as artificial intelligence and machine learning, introduce new aspects to the language and cognition discussion. How does technological development impact linguistic changes? What opportunities and challenges does it

create for linguistics? All these questions lack unanimous answers in the current literature, shaping the direction of development for linguistics and cognitive science. Thus, discussions in the field of linguistics and cognitive science open new horizons for understanding the interrelation between language, thought, and culture. They inspire further research and the development of theories that can provide a deeper understanding of these complex and multifaceted phenomena.

## 7 Conclusions

This article provides a summary for understanding the interaction between language, cognition, and culture. It focuses on how linguistic structures influence the perception of reality in different cultural contexts. The main ideas of the study open up new perspectives in understanding the linguistic picture of the world and its impact on intercultural communication.

One of the key findings here is that metaphors, metonymies, and idioms do not just reflect cultural realities but also actively shape the way we interpret the world. For example, the analysis of metaphors in English and Ukrainian showed how they reflect different cultural perceptions of time and space.

The research also emphasizes how cognitive processes, such as perception and memory, influence language. For example, the way how we use tense forms in speech can reflect not only linguistic but also cognitive aspects of our perception of time.

Comparative analysis of linguistic pictures of the world in different cultures has revealed both common and unique aspects. For example, the concept of "freedom" can have different shades of meaning in other cultures, which affects intercultural communication. The study revealed that linguistic structures could play a significant role in shaping social identities and relationships. The analysis of gender role-related phraseology and idioms in different languages highlighted how language can reflect and support certain social norms and expectations.

In addition, the paper confirmed that language reflects and actively influences our perception of the world. This is especially evident in cases where language structures limit or guide our thinking, for example, in the use of language categories to classify objects or phenomena. Another critical aspect of the study is to identify how language can affect intercultural communication. For example, different ways of expressing politeness in other languages can lead to misunderstandings in an intercultural context.

In our opinion, in the future, it is important to focus on analyzing how digitalization and social media affect the formation of linguistic worldviews in different cultures. This will give a complete picture of the cognitive and semantic aspects of representing the world in the present-day context.

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**Primary Paper Section: A**

**Secondary Paper Section: AI**

## RISK MANAGEMENT IN MEDICINE: THE PROCESS OF IDENTIFICATION, ASSESSMENT AND CONTROL OF RISKS IN MEDICAL PRACTICE

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**Abstract:** Risks accompany any activity of a person, company, or country throughout life. The healthcare industry is no exception, given the constant difficult situations that occur with patients, medical personnel, and healthcare facilities in general. All risks in medical practice can be divided into different groups according to the object in the risk zone: general risks (economic, financial, environmental, military, etc.), specific risks aimed at the patient (diagnostic, therapeutic, pharmacotherapeutic, etc.), and specific risks aimed at the healthcare employee (working conditions, contact with hazardous infections, etc.). Risk governance is one of the priorities of healthcare institutions in achieving their goals because there is always a chance that something will go wrong, not as it was planned. In the field of healthcare, as in other industries, to assess and analyze the risks one can use risk matrices. These matrices allow for quantitative, semi-quantitative, and qualitative risk analysis. The latter makes it possible to develop the right strategy for responding to and mitigating those risks. This study aims to conduct comprehensive research of the risk stages in medical practice, as well as to provide detailed recommendations for risk analysis and emphasize the importance of corporate risk governance in healthcare activities. The authors analyzed the data collected since 2013. It has been found that the study of the overall risk level assigned to each incident helps to determine the urgency and degree of control measures required.

**Keywords:** Caries prevention, Caries resistance, Groups at risk, Health care, Identification of risks, Medical practice, Risk governance, Risk matrix, Risks.

### 1 Introduction

One constantly meets risks in ordinary life, they are inevitable in any complex program, including medicine (Arimbi, Puspasari, & Syaifullah, 2019). Risk is defined as "the probability of something occurring that will influence the achievement of organizational objectives." The definition of risk governance in the literature is the following: "all activities related to identifying, assessing, selecting response options, and monitoring risks." The general risk governance pattern under international risk governance standards ISO 31000 consists of several vital stages (Spross, Olsson, & Stille, 2017), namely:

- Defining the organizational context;
- Risk identification;
- Risk analysis;
- Risk estimation;
- Risk treatment;
- Monitoring and review;
- Communication and consultation encompassing the entire process.

In this structure, risk estimation is a term that includes three consecutive stages: risk identification, risk analysis, and risk evaluation (ISO 31000, 2018; NSW Government, 2018). Risk identification is used to search, recognize, and describe hazards that may impact the achievement of goals. Risk analysis is proposed to define the nature, sources, and causes of identified risks and evaluate their levels. It is possible to use risk evaluation to understand the difference between the results of risk analysis with risk criteria to determine whether the specified risk level is acceptable or tolerable and to identify where additional actions are required (ISO 31000, 2018). Therefore, risk estimation gives possibilities to decision-makers to prioritize which risks will be considered and with what priority. It turns out to be a key part of the decision-making process, as it can help determine options for possible risk governance according to the specified risk level (Strametz, 2017).

Nowadays risk governance is a major task for organizations and governments in achieving their goals because there is a likelihood that things may go differently than planned. Organizations in the healthcare field are revealed as high-risk and highly complex, with a variety of interdependent dimensions. Therefore, risk governance in healthcare is critical, as even a low-risk event can have serious outcomes that affect patients, staff, costs, and, in general, the hospital's reputation. Risk estimation and ranking tools, developed in complex and high-reliability sectors such as nuclear energy, manufacturing, and aviation, have been recently adopted to solve the problem of patient safety, specifically in the healthcare sector.

Different analytical methods focus on two general points - the presence and severity of hazards. They vary in the methodology of assessment and the combination of these two factors in the process of risk estimation (Van der Fels-Klerx et al., 2018). One of these ways uses a qualitative or semi-quantitative risk estimation matrix to determine, evaluate, and rank threats-related risks and define which of them needs to be controlled first. This treatment's comparative simplicity and simplicity have likely promoted its worldwide adoption. This includes a common international standard for the methods of risk estimation in risk governance support (Gul & Ak, 2018; Li, Bao, & Wu, 2018; Vatanpour, Hruđey, & Dinu, 2015). In this context, hospital personnel often have to decide whether certain risks are high or low, but participants must clearly define what is considered "high" and what is "low." (Healthcare Insurance Reciprocal of Canada, 2014).

There are various risks related to healthcare institutions and hospitals. Healthcare organizations are engaged in highly complex surgeries that aim to provide high-quality patient care. As a sensitive service industry, it is exposed to significant risks from both the patient and staff perspectives. Risk governance in healthcare refers to processes that include monitoring, assessing, mitigating, and preventing clinical and administrative risks. Healthcare risk governance was traditionally focused on patient safety. Nevertheless, as healthcare services have expanded their role, the related risks have also increased. They relate to patient safety, business viability, and sustainability in financial, legal, and political areas. As a result, hospital services and other healthcare organizations are expanding their programs of risk governance that primarily support and promote patient safety but also actively protect other areas of business-related risks.

### 2 Literature review

The quality of healthcare is an indicator of a society's level of development. Healthcare institutions play a key role in social and economic life (Kubar, 2016). As service-providing enterprises, healthcare organizations deliver medical services to meet societal needs by combining production factors (Türk & Ertaş, 2018). However, they are regarded as a distinct sector due to the social importance of their services, market size, and their unique features (Türk & Çil Kocıyigit, 2020).

The activities of healthcare institutions are associated with encountering numerous risks, which occur continuously for both patients and healthcare professionals and the institutions themselves. All risks may relate to the healthcare institution, the patient, or the medical staff separately. Considering the significant number of threats in medical practice, risk governance is used to be a primary task, as there is a high likelihood that things may go differently than planned. Risk matrices are necessary for the estimation and analysis of risk levels and hazards in medicine, as well as in other fields. They enable quantitative, semi-quantitative, and qualitative risk analysis, allowing healthcare institutions to develop appropriate strategies for responding to and mitigating the outcomes of risks.

To understand the nature, evaluate the level of each risk, and provide a basis for risk estimation and decision-making it is important to be aware of all the risk matrix limitations. These limitations influence and impair the reliability of the provided information. There are traps for careless users of risk matrices (Baybutt, 2015). If risk matrices are not scientifically developed, the assessed risk evaluation may not be reliable (Chunbing et al., 2017). Despite widespread usage, an increasing number of authors identify, analyze, and discuss limitations and discrepancies in the risk matrix treatment, which are related to its development, utilization, and influence on risk governance decisions.

Cognitive limitations that affect a person's ability to elucidate and assess information can lead to errors and biases associated with the estimation of input data in risk matrices: impact-severity-consequence and probability-likelihood-frequency (Pascarella et al., 2021). People's risk aversion can complicate risk matrix results (Chunbing et al., 2017). The risk matrix is only one part of a broader process. The adequacy and reliability of information largely depend on the descriptions of outcomes and probabilities used by the matrix developer (Peace, 2017). Decisions based solely on the matrix can lead risk assessors to provide subjective and arbitrary judgments, rendering any risk estimations of dubious value. So, gathered information obtained from mapping with data on control measures, which are considered critical, can make the risk control activities more adequate and reliable.

Effective risk reduction measures cannot rely just on the risk matrix categories. They require additional quantitative information on the clampings of the budget and the interaction between control measures (Pascarella et al., 2021). In attempting to overcome decision-maker biases and competence during risk matrix result estimation, it is necessary to compare the risk level established by the risk matrix with the risk criteria set in advance by the healthcare organization. Risk criteria are essential for information obtained from the matrix to be correctly applied (Peace, 2017).

The danger lies in the fact that hospitals may use the matrix as a means and assessment tool not just like a simple visualization tool, unintentionally ignoring all its restrictions, given the limitations that can significantly affect the experts' opinions in decision-making and risk analysis. Arguably, the most significant risk for healthcare organizations is the "bias and competence of the risk matrix developer." When the developer does not know matrix construction principles and their pitfalls, as well as unfamiliarity with relevant events in the sector, the most common mistake is borrowing a matrix from another organization without attempting to adapt or customize it to the specific context (Peace, 2017). Additionally, the use of a single corporate risk matrix should be avoided as it is challenging to find a universal matrix that can be applied uniformly to numerous events pertinent to the healthcare organization. It is necessary to elaborate an effective risk matrix for decision-making to suit specific circumstances. What may be an acceptable risk at the company level may be unacceptable at the department level and even more tragic at the organizational level (Duijm, 2015).

Many authors have proposed various solutions to avoid the restrictions of risk matrices. A described process for elaboration of an obscure risk matrix can be used for new obscure logic applications in different security analyses to model vaguenesses associated with severity and possibility concepts (Pascarella et al., 2021). Earlier, Gul and Guneri (2016) proposed an obscure treatment. It allows assessors to employ linguistic variables to eliminate the shortcomings of a crisp risk estimation calculation and reduce inconsistency in risk decision-making by weighting probability and severity factors through an obscure analytic hierarchy procedure. It can also be used when evaluating five risk parameters: severity, occurrence, detectability, sensitivity to maintenance, non-execution, and sensitivity to personal protective equipment non-usage (Gul & Guneri, 2016; Gul, Ak

& Guneri, 2017). The authors provide some recommendations, including:

- the colouring of the components of the risk matrix;
- the choice of logarithmic scales for both outcomes and probability (it allows covering several orders of magnitude of probability and outcomes);
- determining (when aggregating risks) the rules for moving the aggregate probability of several separate events with similar solutions (outcomes) to the following probability category;
- avoiding the use of common corporate risk matrices;
- using the uninterrupted possibility-consequence diagram that employs uninterrupted scales instead of discrete ones as an alternative to the risk matrix;
- presenting ambiguity in risk charts in practical elaborations after estimating the advantages and disadvantages of existing proposals;
- modifying possibility-consequence charts with predisposal intervals and evidence estimation reliability (references not provided for the last part) (Duijm, 2015; Goerlandt & Reniers, 2016; Aven & Reniers, 2013; Abrahamsen et al., 2014).

A "consistent update treatment" has been proposed to overcome the limitations of the common risk matrix based on "modified weak sequence," "consistent internal consistency," and "continuous screening" (Li, Bao & Wu, 2018). The last three comprise the principles that reliably characterize an excellent risk matrix rating scheme. They propose a global ranking algorithm to elaborate a framework that responds to the three principles. In a hypothetical case, it explains the implementability of a treatment where decision-makers need to evaluate project risks with the same outcomes but do not have sufficient risk data to determine how to prioritize these risks.

Several recommendations have been made to address the challenges, primarily related to the methodological treatment and how to manage a risk that generates multiple impacts in many areas (Kaya, 2019; Card, Ward & Clarkson, 2014). The results showed a variety of risk matrices applied, primarily related to the size of the risk matrix (e.g.,  $3 \times 3$  or  $5 \times 5$ ), the type of matrix (symmetric or asymmetric), and the number of coloured bands and risk score for each band, which can increase the likelihood of mis-prioritizing risk. In addition, the results demonstrate that hospitals may give insufficient manuals on how to assess probability and outcomes and action algorithms in response to existing criticisms of risk matrices.

So, despite the existence of many guidelines for risk identification, estimation, and management, there are many unresolved issues regarding risk analysis and management in medical practice. These issues are related to the clash of interests of three parties in this area: the patient, the healthcare worker, and the healthcare facility.

The article aims to highlight the key variables, advantages, disadvantages, strengths, and weaknesses of the entire risk analysis stage in healthcare organizations. It also seeks to provide guidance on risk analysis carried out using a risk matrix and emphasize the importance of enterprise risk governance in healthcare institutions.

### 3 Methods and Materials

For this complex search for relevant articles, the MEDLINE-PubMed and EBSCOhost databases were searched for relevant studies since 2013. A set of "MeSH terms" was created to remove a large number of irrelevant papers in the manual search: "Risks/healthcare industry" [Mesh] / "Risk matrix" [Mesh] / "Risk governance/medical practice"[Mesh]) / "Risk identification/healthcare" [Mesh] / "Risk estimation/healthcare" [Mesh]. The same search terms were used for the database (EBSCOhost). The current literature review includes studies that focus on identifying healthcare risks, their estimation, risk governance in medical practice, and risk mitigation.

4 Results

Analysis of risks in the healthcare sector involves examining risk sources, their outcomes, and the probability that these outcomes may accommodate patient safety, individuals involved in healthcare delivery, and the organization itself. The aim is to distinguish between admissible minor clinical risks and unadmissible major risks and give data to aid in further risk estimation and control (Strametz, 2017; Department of Health, Government of Western Australia, 2016).

The Risk Matrix Method, also known as the "decision matrix method for risk estimation," turns out to be a systematic treatment used in risk estimation to determine and rank the level of risk, compare different risks, and identify which threats have to be controlled at the first time to diminish the credibility of potential risks occurring. The level of risk depends primarily on two variables: the sternness of harm and the probability of its occurrence (Gul & Ak, 2018).

The Decision or Risk Matrix (Figure 1) is user-friendly and visually appealing. It can be applied even with limited data and does not require specialized knowledge, offering a quick

graphical way to recognize risk issues, the seriousness of hazards, and their frequency/probability (Li, Bao, & Wu, 2018; Baybutt, 2015). The risk matrix is a two-dimensional lattice, with horizontal cells reflecting the chance of potential outcomes and vertical cells representing the severity categories of these events (U.S. Department Of Agriculture Forest Service, 2020). The intersection of cells helps to provide a relative ranking of various types of risks and establishes a baseline level from which progress and trends can be measured over time (Healthcare Insurance Reciprocal of Canada, 2014).

Matrices may have various designs based on an organization's risk pattern, and the desired number of cells depends on the scales of outcomes and probabilities used. A five-level scale for outcomes and probabilities is the most common, resulting in 25 cells. However, other combinations can be encountered (e.g., 3x3, 6x6, 7x10). It is essential to consider that 3x3 matrices may not provide sufficient detail for beneficial results, while 10x10 matrices might mislead users into believing they offer greater accuracy. It is claimed that a 5x10 matrix can allow the analysis of negative as well as positive outcomes and their influence on objectives (Peace, 2017).

Probability	Often, under any circumstances	0,9					
	Probably under most circumstances	0,7					
	Sometimes	0,5					
	Occasionally	0,3					
	Very rarely, only under certain circumstances	0,1					
			0,1	0,3	0,5	0,7	0,9
			Do not require treatment or first aid	Minimal injuries, requires first aid	The injury requires medical intervention and takes time	Serious injury, requires in-patient treatment	Death or permanent and severe disability
			Color-coded risk gradation				
			0,01-0,03 Very low risk	0,05-0,07 Low risk	0,09-0,27 Average risk	0,35-0,49 High risk	0,63-0,81 Very high risk

Figure 1. The risk matrix for quantitative, semi-quantitative, and qualitative risk analysis

The colour coding allows for a quicker estimation of the risk level. The risk levels and corresponding colour codes are categorized based on their evaluation or calculation, and the degree of loss can be defined in five levels:

- very high-risk level – red,
- high-risk level – orange,
- moderate or average risk level – yellow,
- low level of risk – green,
- Very low level of risk – grey/blue.

The levels of description of the occurrence possibility can be expressed as percentages or in semantic terms. Risks with the same quantitative values should have the same qualitative ratings and colour.

The risk matrix is usually used in healthcare facilities because it can standardize the risk grading process and gives a visualization of the probability of an event occurring as well as of its outcomes if an event occurs. It provides a direct view of how these two elements affect the overall risk, facilitating stakeholder discussion about the identified risks (Van der Fels-Klerx et al., 2018; Kaya, Ward, & Clarkson, 2019). More than that, the risk matrix helps evaluate and document risk changes before and after the implementation of controls (World Health Organization, 2012).

A well-designed risk matrix (including its colour) should meet three axioms:

- weak consistency,
- interrelationship
- axiom of consistent colour (Pascarella et al., 2021).

The Axiom of Weak Consistency requires that all risks in a cell with a higher rating be quantitatively greater than any risk in a cell with a lower rating. So, the smallest risk point in a cell with a higher rating must be quantitatively larger than the most significant one with a lower rating (Chunbing, Dengshen, Wan, Li, & Chen, 2017). This axiom shows that to satisfy weak order, any risk matrix must be performed by at least three colours (green, yellow, and red). Continuity means that the yellow risk category must be passed between a slight change in the probability or impact starting from the green risk category and ending in the red category. Sequential colouring means that risks with equal quantitative levels must have the same qualitative and colour estimations.

It is possible to use the risk matrix to assess the risk rating through quantitative, qualitative, and semi-quantitative methods (see Figure 1). The quantitative treatment calculates numerical values connected with each element, which is the result of risk estimation (Pascarella et al., 2021). Thus, the risk impact, probability, and level are determined by numerical values (Ayatollahi & Shagerdi, 2017). For instance, the level of risk of patient injury resulting from a specific medical procedure may be determined by assessing the chance based on historical frequency or accessible statistical data and numerical values expressing potential impacts, ranking from insignificant injuries to harsh ones leading to death (Pascarella et al., 2021).

In contrast to quantitative methods, qualitative methods do not express probability or outcomes with numbers. The values of probability and impact/outcomes of a particular event are presented by specification based on a pre-defined rating scale (Pascarella et al., 2021). This usually means imprecise risk

determination and is used in all cases where the calculation of numerical risk values is impossible or complex (Ayatollahi & Shagerdi, 2017). For example, when numerical data is insufficient or unavailable, resources are restricted (in terms of expertise or budget), and when time is constrained, a person or a team in such situations may gather information with the help of structured interviews/questionnaires (together with experts in the relevant field), expert opinions and estimations, evaluations involving multidisciplinary groups, and benchmarking methods (Department of Health, Government of Western Australia, 2016; Pascarella et al., 2021).

Semi-quantitative risk estimation represents an intermediate level between qualitative textual estimation and numerical quantitative risk evaluation, achieved through ranking risks according to a pre-defined scoring system, allowing the handling of information quantitatively. This treatment involves categorizing perceived risks, establishing a logical and clear hierarchy between categories, and reflecting on the sequence to be followed when considering them (Pascarella et al., 2021). After comparing the plus and minus of quantitative and qualitative methods, it can be concluded that this combination of the proposed two models may be a decision in the sector of healthcare. The semi-quantitative method combines the peculiar privileges of each, mitigating their drawbacks. As suggested by governmental and non-governmental practices guidelines, they have a restricted ability to correctly reproduce risk estimations anticipated by quantitative models (Peace, 2017).

The risk governance guidelines (Safe Work Australia, NSW Government, 2019) propose assessing the severity of detriment resulting from each risk, taking into consideration the following points:

- The type of detriment that may take place (physical, psychological, financial, legal, etc.).
- The seriousness of the detriment (death, serious traumas, severe illness, additional monitoring or minor treatment, minor budget losses, anxiety, fear, corruption, etc.).
- Factors that can influence the severity of harm (e.g., height in a fall, concentration of a particular substance, patient age, social culture regarding corruption levels, etc.).
- The number of people that may experience harm.
- The number of cases that may be related to the risk.
- The number of cases that may be linked to the risk more than once.
- The number of people exposed to the threat and the number that may be affected at the workplace and beyond.
- The need for specific implements or processes to evaluate the severity of detriment (e.g., samples for testing or organizing noise impact testing).
- Multiple failure scenarios (e.g., low-quality medical services leading to a poor reputation).

The outcomes are categorized on a five-point scale:

- insignificant/not significant,
- minor
- moderate
- significant
- catastrophic.

When assessing the impact, the expected outcome of the risk is evaluated on a scale from 1 to 5 points, where 5 points represent the most serious impact. In the case that such standardization is not revealed, there is no possibility of comparing risks to each other, and priorities cannot be adequately set (Healthcare Insurance Reciprocal of Canada, 2014). Each severity category is associated with a specific value and example. Thus, a risk is catastrophic if it results in death (harm impact), while it would be significant if it causes significant injury/prolonged disability/impairment, moderate if it causes mild injury or a disease requiring professional intervention, and so on. These categories can help users identify risk by providing examples of risk levels. Experts usually underline that consequence tables will never be excellent or universally agreed upon, but they

acknowledge that if perfectly formed, they give the possibility for adequate comparisons between a variety of events (Department of Industry, Innovation and Science, 2016).

In healthcare, it is impossible to predict all possible risks, and events that have never occurred before constantly happen in life (Healthcare Insurance Reciprocal of Canada, 2014). In this case, it may be impossible to precisely predict a certain risk's outcome (and also the probability). Some risks may lead to more than one outcome, which also influences different areas. In such cases, a multiple risks analysis is required to identify the overall risk from several hazards, whereas eventual dangers and vulnerability interactions may occur simultaneously or just after each other or not coincide chronologically. The absence of reliable data and the fact that individual risks may relate to different time intervals, or the need to consider different impact typologies complicate, if not preclude, ranking, often requiring the use of software instruments, such as the system of decision support, to reflect scenarios of multiple risks (Pascarella et al., 2021).

Throughout the process of risk estimation analysis, probability is the assessment of the chances of an event or incident occurring, regardless of whether it is defined, measured, or objectively or subjectively determined, so it is usually referred to as likelihood. Notwithstanding several terms are usually used interchangeably, some differences should be considered.

Probability is the chance that an event or something will happen, usually expressed qualitatively. Likelihood is a quantitative or numerical measure of the probability of something happening, expressed in percentages. Both concepts can be successfully used, but the diversity between chance and likelihood is critically important in the process of risk analysis (Popov, Lyon & Hollcroft, 2016). Probability relates to feasible results (reciprocally exclusive and comprehensive), while outcome relates to hypotheses. This, unlike the results, is neither mutually exclusive nor comprehensive (Gallistel, 2015).

Additionally, while likelihood is explained with the help of the term "probability," it can also be clarified in terms of frequency over a certain period. Thus, frequency is a gauge of probability expressed as the number of instances (e.g., once a month or yearly) of an event over a specific time or number of observations. As with outcomes, one can use the probability scale in theory and practice to evaluate the likelihood of risk happenings, providing specialists with a more precise description of how often negative outcomes are likely to take place. In the semi-quantitative model, probability can be estimated on a five-point scale from 1 (the lowest possible rank) to 5, (the highest possible rank).

When analyzing risk, it is vital to take into consideration the present control measures, as a control failure could bring an outcome. Understanding the exact meaning of controls in place and the rate of their efficacy can help determine what further actions are needed (University of Adelaide, 2019). Each organization of Healthcare should have its treatment to assess control effectiveness guide the process and determine how controls should be evaluated. This will allow the organization to determine the rate of its exact control efficacy, and treatment for estimation, evaluate whether the control is effective, partially effective, or ineffective, and help decide what actions are needed (Victorian Managed Insurance Authority, 2016).

A healthcare organization can apply the control estimation questions proposed in the WHO Clinical Risk Management Guidelines to evaluate the exact control in place (depending on the varying degrees of documentation, agreement, etc.) and the appropriate answers to make some assumptions about the level of adequacy (Department of Health, Government of Western Australia, 2016). Controls may consist of legislation, policies, procedures, guidance materials, staff training, necessary education, segregation of duties, audits, inspections, investigations, personal protective equipment and facilities, checklists, etc. (The University of Adelaide, 2019; Victorian

Managed Insurance Authority, 2016). The risk level is evaluated with the help of a risk matrix after determining the adequacy and effectiveness of controls, outcomes of a risk happening and its outcomes in case of happening.

Risk governance is developing and implementing strategies to optimize patient well-being, avoid harm or diminish injury of patients, focusing on reducing errors to ensure the highest quality of healthcare services to patients, as well as reducing any financial loss and damage to the organization's viability. One can describe healthcare risk governance as a complex set of clinical and administrative systems, processes, procedures, and reporting structures elaborated to identify, monitor, evaluate, mitigate, and prevent patient risks.

Nowadays the majority of risk governance practices and processes taking place in the system of healthcare reflect the items in the Institute of Medicine's report entitled "To Err Is Human: Building a Safer Health System" (McGowan et al., 2023). The report by the Institute of Medicine indicated that every year merely 98,000 people die because of medical errors during hospitalization. As a result of the report, the U.S. Congress passed the Patient Safety and Quality Improvement Act in 2005.

Legal experts have analyzed the impact of this Law and formulated some of its main principles and responsibilities:

- ensuring certification and recertification of patient groups for safety
- collecting and disseminating information concerning patient safety;
- elaborating a database of patient safety;
- facilitating consensus building among healthcare professionals, patients, and other stakeholders on patient safety and recommendations for its improvement;
- provide technical contributions to conditions that have or elaborate medical error reporting systems to assist in developing standardized data collection methods and collecting data from state reporting systems for its incorporation into the database of patient safety.

The main purpose of this Law was to enhance general patient safety in the country by stimulating of confidential and voluntary reporting of unfavourable occasions affecting patients' health.

Policy-makers theoretically believed that systematic data collection on medical errors could refine patient safety. In their view, Awareness of medical professionals and administrators regarding such error data would lead to error prevention and a significant reduction in their recurrence (McGowan et al., 2023).

At the core of risk in the system of healthcare lies the patient's and staff's safety. Healthcare facilities, being commercial enterprises, must have their financial, strategic, and operational processes under control (Özcan, 2018). Risk governance in healthcare facilities focuses more on patient and employee safety rather than holistic treatment like corporate risk governance and risk-oriented management, inner control, and audit, neglecting the emergence of risks in neglected areas of activity. The appearance of missed or ignored risks can lead to adverse outcomes, including injuries and deaths within healthcare organizations. Such outcomes, affecting patients, employees, as well as third parties, also impact the organization's financial structure. Risk governance activities are crucial for operational-financial activity and financial stability, as the economic dimension of risk will influence the enterprise's financial activities (Türk & Eroğlu, 2021; Ishchenko et al., 2022).

The risk governance process includes five essential and significant steps:

- Risk identification.
- Risk estimation.
- Development of risk governance strategies.
- Implementation of strategies.
- Evaluation of strategies.

Risk identification primarily revolves around identifying potential organizational risks (Figure 2). Such risks are performed by four main categories:

- Safety risks, such as patient or staff injury.
- Operational risks, which include disruptions in circulation.
- Financial risks, such as a slowdown in the economy.
- Strategic risks, such as a decline in brand value or the emergence of new, more effective competitors.

It is important to identify the risks that pose a potential risk to the entire institution and patients.

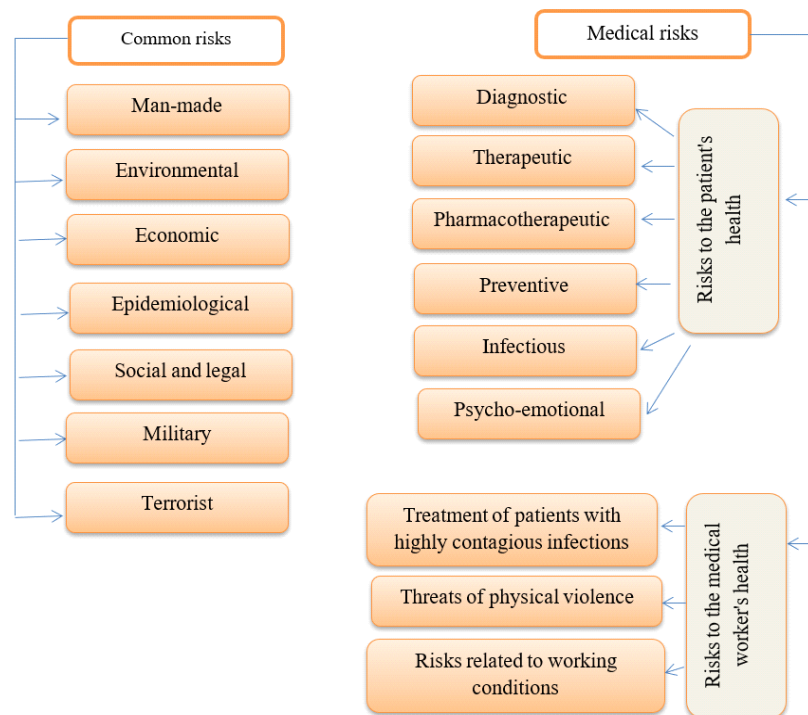


Figure 2. The main groups of risks in medicine

Risk estimation involves measuring the frequency and severity of risks identified within an organization. Heat maps or risk maps are commonly used to visualize the occurrence frequency of risks within the organization. This helps determine the priority of actions essential for risk governance.

The development of risk governance strategies entails addressing potential hazards for the organization. These risks may be newly identified, or strategies previously used or proposed may be applied if relevant in the context.

The strategy implementation involves the adoption of these strategies at various levels of the organization. All staff and relevant stakeholders are oriented towards the strategies and changes implemented to take necessary steps in their activities. This process requires change management among employees to implement the devised strategies effectively.

Implemented strategies are evaluated over specific periods, such as monthly or quarterly estimations. It is recommended to ensure constant monitoring and evaluation of optimized functioning and to address any related issues.

Healthcare organizations face numerous potential risks during operations and patient care services. Depending on the organization's size, different instruments are used to determine and evaluate these risks to determine the prioritization of actions and associated opportunities. While holistic risk governance programs may seem inadequate in healthcare settings, like in corporate risk governance treatments, many healthcare facilities realize risk governance strategies in clinical and patient safety programs, projects, and services. However, they may fail in enterprise risk governance's financial success and stability (Aksoy, 2018; Alam, 2016).

The corporate risk governance treatment is recommended to improve value creation and a safer environment in healthcare organizations (Etges et al., 2018). The International Organization for Standardization (ISO) 31000 (ISO, 2018) defines common steps in corporate risk governance:

- identification;
- analysis;

- estimation;
- monitoring;
- control.

In financial risk governance research in healthcare organizations, they discuss the analysis of financial applications, financial distress, institutional efficiency, and bankruptcy prediction. In risk governance, some companies identify consequence categories related to the impact of hazards on human health, environmental harm, financial loss, and reputation. At the same time, governmental and the best non-governmental guidelines in healthcare organizations focus on the patient, staff, or public safety (physical/psychological harm), finance, assets, business continuity, etc. (Schwarz, Koerts & Hoercher, 2019).

In the clinical practice of dental healthcare institutions of any form of ownership, whether public or private, preventive activity should play an important role. Preventive clinical activities are of vital importance, including social importance, due to the high prevalence of such dental diseases as dental caries and periodontal diseases in our country. They significantly threaten dental and somatic health, especially children (Yanchuk et al., 2019; Glazunov et al., 2021; Ziuzin et al., 2022).

The transition to economically rational market mechanisms for the operation of municipal dental health care institutions, which have acquired the status of municipal non-profit enterprises, has forced a slightly different treatment to risk estimation in clinical practice to reduce the likelihood of their occurrence (Lytyynova et al., 2020; Mazur et al., 2022). As a result, mass preventive measures against dental caries and periodontal diseases in organized groups of children have been reduced or made impossible due to the risk of high costs. The expected moderate effectiveness of the standard may not justify it. In other words, preventive measures that are the same for all children examined and treated are not effective, while the most effective is the most personalized prevention. In this regard, the importance of screening tests is growing significantly, as they can identify people with a significant risk of developing a particular dental disease.

Regarding dental caries, a range of clinical methods has been proposed for screening examinations of school-age children.

These methods allow for determining the degree of individual caries resistance or susceptibility based on the condition of tooth enamel and predicting the likelihood of the development of this condition. The enamel resistance test is the most commonly used method for such rapid determination. This test has been included as a mandatory procedure for trainees in list No. 7 (dental procedures) of the Higher Education Standard for the speciality 221 Dentistry, field of knowledge 22 Health Care, for the second (master's) level (Order of the Ministry of Education and Science of Ukraine..., 2019). Due to numerous modifications, this test has reached a high level of standardization in terms of its conditions of performance and objectivity in the evaluation and interpretation of the results, achieved through the use of computer software for digital image analysis after the test (Udod et al., 2019). However, the test does not take into consideration the negative impact of orthodontic pathology, which is significantly prevalent among school-age children in our country. The test also does not consider the additional hazards associated with dental caries due to its presence and the typically prolonged orthodontic treatment. Therefore, these additional adverse factors should be considered when assessing caries resistance.

Determining the level of enamel caries resistance during screening examinations of children, considering orthodontic pathology and appropriate treatment allows the formation of groups of people at high risk of caries development. This allows for targeted and personalized caries prevention measures with periodic monitoring of the caries resistance level according to the enamel resistance test within specified periods. If there's an increase in resistance in certain people, it indicates the high effectiveness of the applied preventive measures and their exclusion from the risk groups. Such a selective treatment provides an opportunity to optimize the caries prevention system in organized children's communities by directing preventive measures only to those children who urgently need them. It significantly reduces the costs of caries prevention and thus reduces the clinical practice risks.

Healthcare is a high-risk industry that faces various threats daily. Risk governance in healthcare is a process used to prevent and mitigate threats and harm to patients, staff, and organizations. Reducing risk aims to avoid harm and minimize its outcomes through the estimation of patient, staff, safety, and organizational risks and safety events. Assessing past risk events allows organizations to develop an appropriate risk reduction plan, which can prevent or mitigate future threats.

The key risks in healthcare include cyber threats, physical threats, breaches of confidentiality, healthcare-associated infections, and non-compliance with requirements. Therefore, they conduct some solutions for emergency departments.

When assessing risk, it is recommended to:

- Consider the competence of assessors, confirming the probability and outcomes of judgments (using three-dimensional risk matrices) withal to two classic input data (probability and consequences).
- Introduce a manual on strategies when a risk has multiple outcomes in several domains, and explain how to assess risk when a range of outcomes may occur with different probabilities.
- Explain which probability estimation scheme (i.e., nominal, temporal, and conditional) to use and under what conditions and how to prioritize risks that receive the same assessment.
- Remind risk, assessors, that risk matrices are just one of several tools elaborated to support their decisions, not to make decisions exactly and that supplementary factors required for implementing any means of risk control should be considered in risk prioritization.

Finally, risk indicators may not reflect the actual risk rating, and the main recommendation, while making risk decisions, is a balanced and unbiased professional and subjective judgment.

## 5 Discussion

Hospitals should develop administrative activities to anticipate potential risks and turn them into opportunities to minimize potential losses. Hospitals with active risk governance will stay ahead compared to those that do not strive to ensure patient and staff safety and service quality. Possible risks and the outcomes of these risks can vary depending on the conditions, resources, and environmental factors. Risk governance is a proactive methodology for hospitals to address operational, clinical, and financial risks. However, risk diversity and estimation are complex. Self-awareness is crucial for organizations.

The determination of the risk level means understanding the consequences that this threat can lead to identifying acceptable minor clinical risks among those that are considered unacceptable. Risk ranking by multiplying outcomes by probability is an easy way to appoint a numerical value to any risk. The risk matrix turns out to be a useful instrument to evaluate probabilities and levels of consequences and to define the risk rating according to the proposal scale. It also helps the team prioritize risks that need to be addressed first. However, in the process of risk analysis, deviations that characterize the entire stage and, in particular, those affecting the development and employment of risk matrices must be considered.

When developing matrices, consideration should be given to the fact that developers may poorly understand the matrix design principles and catch, as different choices can lead to quite other representations of the risk matrix and, as a result, various decisions regarding risk acceptance. Present control measures also need to be considered, as they affect the probability and risk estimation.

Many authors describe issues of risk matrix use that can mislead risk assessors, misinform decision-makers, or lead to incorrect analysis, while some authors consider risk matrices to add little value to risk governance. Essentially, as soon as the matrix predicts the outcomes and probability of risk, its positions are tied to the judgment of the developer and user. Peace (2017) points out that few matrix developers or users may not understand the main idea while receiving training or supervising the elaboration or use of risk matrices (Peace, 2017). Duijm (2015) stresses that risk matrices are widespread and create uncertainty and ambiguity in results and limiting their use becomes challenging (Duijm, 2015). For these reasons, we also believe it is more productive to consider a priority to its limitations and inform risk assessors, designers, and decision-makers about these difficulties rather than obstructing their use.

According to the Food and Agricultural Organization, the choice of matrix style depends on the team's preferences. Colours play the role of a visual instrument to facilitate discussion and help risk assessors agree on the risk level. Thus, the matrix may not be necessary for some cases of lack of information, and the general risk value is evident. Healthcare organizations do not shy away from this logic and do not support their team members with appropriate organizational manuals to support risk control practices. In our opinion, critical questions related to the use of risk matrices may be unknown not only to developers and users but also to healthcare organizations to manage and govern risk (Card, Ward & Clarkson, 2014). However, there is no data to confirm this conclusion.

The use of risk matrices is widespread and offers risk governance guidance for organizations of healthcare, possibly because not all assessors have the necessary skills and knowledge to propose risk analysis using more complex methods. Hence, they represent a widely accepted decision to ensure quick response and some rapid results in healthcare organization risk governance. Any organization is urged to develop (or assist in developing) one or more questionnaires to provide a more accurate calculation of the risk level by considering the probability category against the severity category of outcomes. The general risk value assigned to the event helps determine the urgency and degree of necessary control measures.



Accordingly, various control measures with different levels of urgency will be introduced to counter this.

## 6 Conclusions

Risk governance is one of the primary challenges for healthcare institutions. It allows them to predict the facility's development and avoid or mitigate the outcomes of risks. The use of risk matrices helps both personnel and management to analyze risk, predict the possibility of a situation occurring and avoid the outcomes, if possible. All employees who conduct risk estimations should be trained in risk estimation as per the standards and institutional goals to improve basic awareness and enable the identification and management of risks in different departments, encouraging adequate pre-planning for potential threats.

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## STRATEGIC DECISION MAKING IN A HETEROGENEOUS AND UNCERTAIN BUSINESS ENVIRONMENT: INTEGRATED MODELS FOR ANALYSIS AND FORECASTING

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**Abstract:** This article provides a comprehensive examination of models employed in strategic decision-making within a context characterized by heterogeneity and uncertainty in the business environment. It elucidates prominent theories and methodologies utilized for the identification, analysis, and response to diverse economic, social, and technological factors influencing the market environment. The discourse encompasses the evolution in strategic decision-making paradigms, encompassing transitions towards scenario planning, the delicate equilibrium between intuitive approaches and analytical methodologies, and the organizational adaptation to internal variations. The research methodology proposed herein is grounded in a systematic approach, emphasizing analysis and synthesis. The article directs its focus towards diverse integrative analysis models that amalgamate internal and external facets of organizations, facilitating efficacious strategic decision-making. The scrutiny of models such as the Ansoff Matrix, Porter's Five Forces, McKinsey 7S Model, and BCG Growth-Share Matrix reveals that each model possesses distinct advantages and limitations contingent upon the specific conditions and requisites of the business environment in question. The author asserts that there exists no singular optimal model universally applicable to all scenarios, underscoring the imperative for flexible integration and adaptation of varied approaches. Illustratively, this may involve the amalgamation of Porter's Five Forces model with SWOT analysis, accounting for both internal and external factors, or the augmentation of the McKinsey 7S Model with external analyses, such as PESTEL analysis. The conclusions drawn in the article underscore that the achievement of success in strategic decision-making within the contemporary dynamic and unpredictable business environment hinges on organizations' capacity for flexibility, adaptability, and innovation. The escalating complexity and rapid pace of change necessitate companies to formulate comprehensive strategies that encompass various aspects and approaches for the development of effective solutions.

**Keywords:** Strategic decision-making, Integrated analysis models, Scenario planning, Business environment uncertainty, Business environment heterogeneity.

### 1 Introduction

In the contemporary business landscape, characterized by its unpredictability and constant flux, strategic decision-making demands not only precision but also a profound comprehension of the diversity and uncertainty that influence it. We inhabit an era where conventional rules have become obsolete, and new ones are yet to be formulated. It is at this historical juncture that the quest for equilibrium between risk and reward, and between stability and innovation, becomes paramount.

This article seeks to elucidate the intricacies of the contemporary business milieu through the utilization of integrated analysis and forecasting models. We delve into the effectiveness of managerial decisions when traditional analytical methods fall short of comprehending the complexity and volatility inherent in modern business.

In addressing these challenges, we advocate for a holistic approach grounded in the tenets of economic theory, statistical analysis, and strategic management. This approach is designed not only to facilitate decision-making under conditions of uncertainty but also to guide the trajectory towards innovative development and sustainable growth.

In this context, the emphasis extends beyond the analysis of the current situation to the development of strategies that enable companies not only to endure but also to prosper in an ever-changing environment. We assert that the pivotal determinants of success in today's world lie in the capacities to adapt and innovate, underscoring the continued relevance of the topic as delineated in the title.

The primary objective of the article is to undertake a theoretical analysis and comparison of diverse analysis and forecasting models employed in strategic decision-making within the framework of the uncertain and heterogeneous business environment.

### 2 Analytical literature review

The subject matter, as indicated by the title, catalyzes collaboration within the global scientific community, uniting researchers across continents in the pursuit of an optimal model for analysis and foresight in strategic decision-making. Commencing with the seminal work of Schwenk (1995), which delves into strategic decision-making, the significance of incorporating diverse facets of management and organizational behavior becomes apparent. Schwenk underscores the pivotal role of internal processes in the decision-making continuum, positing them as key determinants of the efficacy of strategic decisions. Expanding on this theme, Papadakis, Lioukas, & Chambers (1998) scrutinize the role of governance and context in strategic decisions. Their analysis underscores that strategic decision-making is intricately linked to the broader organizational context, dispelling the notion that it transpires in isolation. Subsequently, Stokman, Van Assen, Van der Knoop, & Van Oosten (2000) delve into group processes and their impact on strategic decision-making. Their approach underscores the significance of interaction and communication within organizational structures.

Moreover, Nooraie (2012) in his study directs attention to the factors that exert influence on strategic decision-making processes. This investigation is pivotal for comprehending how external and internal elements, including organizational culture and structure, shape decisions at the managerial level. Citroen (2011) underscores the significance of information in strategic decision-making, emphasizing the crucial role of both qualitative and quantitative data in formulating effective strategies. This research contributes to a nuanced understanding of the importance of analytical tools in the strategic decision-making process. Eisenhardt & Zbaracki (1992) offer a comprehensive review of strategic decision-making processes, highlighting the impact of diverse managerial and organizational factors. Their contribution lies in the identification of key elements influencing the success or failure of strategic initiatives.

In a related vein, Elbanna (2006) directs attention to the significance of comprehending strategic decision-making processes within organizations. The author accentuates the impact of diverse factors, encompassing organizational structure and culture, in configuring these processes. Bhushan & Rai (2004), in their research, examine the application of the Analytic Hierarchy Process (AHP) within the domain of strategic decision-making. They contend that AHP proves to be an effective tool for the evaluation and comparison of various strategic alternatives.

Kirkwood (1996), in his book, elucidates diverse methodologies and approaches to the decision-making process at the strategic level, underscoring the significance of an integrated approach. Alzoubi & Aziz (2021) delve into the impact of emotional intelligence on the quality of strategic decisions, with a specific focus on the role of open innovation as a mediator. Their findings underscore the pivotal role of the emotional component in the decision-making process, particularly within the context of heterogeneous business environments. MacDonald, Clarke, & Huang (2022) investigate multi-stakeholder partnerships for sustainable development by analyzing decision-making processes to enhance partnership potential. Their emphasis on the design of decision-making processes contributes to a deeper understanding of how various stakeholders can exert influence on strategic initiatives.

Yalcin, Kilic, & Delen (2022) perform a thorough literature review on the application of multi-criteria decision-making methods in business intelligence. This study underscores the significance of analytical methods in strategic planning, particularly within complex and heterogeneous business environments. In their review of SWOT analysis applications, Benzaghta, Elwalda, Mousa, Erkan, & Rahman (2021) provide an integrative literature review. Their findings highlight the diverse approaches and contexts in which SWOT analysis can be employed to bolster strategic decision-making.

Kou, Olgu Akdeniz, Dinçer, & Yüksel (2021) investigate investments in European banks using a hybrid IT2 fuzzy multidimensional decision-making approach. This study exemplifies the application of modern analytical methods to support intricate financial decisions. Tan, Mills, Papadonikolaki, & Liu (2021) conducted a review on the amalgamation of multi-criteria decision-making (MCDM) methods with building information modeling (BIM). Their work illustrates how the integration of different methods enhances decision-making in the construction industry. Bag, Gupta, Kumar, & Sivarajah (2021) propose an integrated artificial intelligence approach for knowledge creation and rational decision-making in B2B marketing. This approach showcases how advanced technologies can enhance the effectiveness of strategic planning in business.

Driscoll, Parnell, & Henderson, Eds. (2022), in their book, offer a comprehensive overview of decision-making processes within the context of systems engineering, emphasizing the significance of integrating technical and managerial perspectives. Luoma & Martela (2021), in their article, examine three cognitive strategies in strategic decision-making: intuition, analytical thinking, and rethinking. This approach underscores the importance of balancing diverse thinking styles for effective strategic planning. Razavi et al. (2021) focus on the future of sensitivity analysis, a key discipline for systems modeling and policy support. Their work highlights the necessity for a profound understanding of the impact of various factors on system models.

Yu, Yang, & Fan (2022) explore strategic decision-making within the context of information asymmetry, proposing effective algorithmic tools for decision support. This approach underscores the significance of leveraging advanced technologies in the realm of strategic planning.

Alzoubi & Aziz (2021) investigate the role of emotional intelligence in strategic decision-making, with a specific focus on open innovation as a mediator. Their findings underscore the significance of incorporating not only rational but also emotional aspects into the decision-making process. Settembre-Blundo, González-Sánchez, Medina-Salgado, & García-Muñia (2021) explore flexibility and resilience in corporate decision-making, proposing a novel risk management framework grounded in sustainability for uncertain times. This research is instrumental in comprehending how organizations can adapt to rapidly changing conditions. Kochenderfer, Wheeler, & Wray (2022), in their book, provide a detailed overview of algorithms and technologies applicable to the decision-making process. Their approach highlights the importance of integrating technological innovation into strategic planning.

Awan, Shamim, Khan, Zia, Shariq, & Khan (2021), in their study, scrutinize the impact of big data and analytical capabilities on decision-making, with a specific focus on enhancing productivity within the context of a circular economy. This investigation underscores the importance of utilizing data for informed decision-making and its consequential impact on economic productivity. MacDonald, Clarke, & Huang (2022) investigate multi-stakeholder partnerships for sustainability, emphasizing the design of decision-making processes to bolster partnership capacity. This work illustrates the critical nature of designing strategic decision-making processes to achieve sustainability within intricate inter-organizational contexts. Naqvi, Soomro, Alzoubi, Ghazal, & Alshurideh (2021), in their study, explore the influence of big data on the decision-making

process. This research underscores the role of technology in enhancing decision-making processes, particularly in ensuring the accuracy and validity of strategic choices.

Niu, Ying, Yang, Bao, & Sivaparthipan (2021) analyze the utilization of big data for organizational business intelligence and decision-making. Their study illustrates how big data processing can enhance the quality of information for strategic planning. Monino (2021) focuses on the value of data, particularly big data, and its analysis in the context of decision-making. This work underscores the escalating role of data as a strategic asset in contemporary business. Diaz, Schöggel, Reyes, & Baumgartner (2021) explore the sustainability of products within the framework of a circular economy, with a specific focus on the impact of these factors on actors, decision support, and life cycle information management.

Wang, Nguyen, Dang, & Lu (2021) employ a trade-off approach to decision-making for third-party selection in logistics within the framework of a sustainable supply chain, utilizing fuzzy Analytic Hierarchy Process (AHP) and VIKOR methods. Lawrence & Klimberg, Eds. (2021) provide an overview of cutting-edge research in forecasting within the domains of business and management. Lehmann (2023) examines the predictive power of the IFO business climate surveys, analyzing their impact on economic cycle research. His work is significant for comprehending how economic indicators can be utilized to support strategic planning and decision-making.

Jha & Pande (2021), in their study, present a methodology for sales forecasting, which holds significance for planning and strategic management in the retail sector. Koot & Wijnhoven (2021), in their work, analyze the impact of utilization on data center electricity consumption by developing a system-dynamic forecasting model. This study underscores the necessity of considering information technology in strategic management and resource planning.

Delle Monache, De Polis, & Petrella (2023), in their paper "Modeling and Forecasting Macroeconomic Downside Risk," explore quantitative analysis techniques for assessing risks in the macroeconomic environment. This research is crucial for comprehending how risk models can be employed to support strategic decision-making.

Barbaglia, Consoli, & Manzan (2023) investigate the impact of media on forecasting economic indicators, showcasing how news analysis can be incorporated into economic models to enhance forecast accuracy. Menculini, Marini, Proietti, Garinei, Bozza, Moretti, & Marconi (2021) compare the Prophet model and deep learning with ARIMA in the context of price forecasting for the wholesale food market. This study is significant for comprehending the advantages and limitations of different forecasting methods within a specific sector.

Gonçalves, Cortez, Carvalho, & Frazao (2021) adopt a multivariate approach for demand forecasting in multi-stage production lines, particularly within the automotive supply chain. Their approach illustrates the importance of integrating diverse data and methodologies for accurate forecasting in complex industrial systems.

Climent & Haftor (2021) undertake an empirical assessment of the utilization of digital technologies in business. This study underscores the escalating role of technology in the contemporary business environment and its consequential impact on strategic planning.

Taken collectively, these studies illustrate the diversity of approaches to strategic decision-making, spanning from traditional economic theories to the latest technological innovations. They highlight the importance of employing various methods and tools for effective management in a swiftly changing and unpredictable business environment.

### 3 Methodology

The research methodology is founded upon three fundamental methods: systemic, analysis, and synthesis. The systemic method will enable the consideration of each model within a broader strategic management system. This involves assessing how different elements of the models interact both internally and with other aspects of strategic planning. The systems analysis encompasses an evaluation of the impact of external and internal factors on the effectiveness of these models. The analytical approach will be applied to each model, discerning its key components, operational principles, and areas of application. This analysis aims to comprehend the strengths and weaknesses of each model and assess their suitability for different types of business environments. Through synthesis, the information will be integrated to form a cohesive understanding of how diverse models can contribute to effective strategic decision-making within an environment characterized by uncertainty and heterogeneity. The synthesis process will facilitate a comparative analysis among the models, determining their relative effectiveness in various business environment scenarios. This comprehensive approach will enable the formulation of recommendations for the optimal use of these models under specific conditions, accounting for their potential advantages and limitations.

### 4 Results

The global economy is undeniably witnessing an escalation in complexity, a multifaceted trend attributed to various factors. Foremost among these factors is globalization, which has fundamentally transformed the dynamics of economic interactions, fostering heightened interdependence among nations. Formerly isolated markets are now integral components of a global system, resulting in intricate international relationships. This heightened interdependence signifies that economic changes in one country possess the potential to exert a substantial impact on other nations, occasionally in unforeseeable manners.

Furthermore, the financial sector is undergoing a discernible rise in complexity. The introduction of novel financial instruments, including derivatives and currency swaps, has rendered the comprehension and management of risk more intricate. These innovations amplify the potential for unforeseen interconnections and risks that may only manifest when they evolve into issues. The intricate nature of financial products and models also renders regulation and supervision more challenging, particularly in the face of swift technological advancements.

In light of these considerations, it can be asserted that the global economy is not solely becoming more complex but also necessitates innovative approaches to comprehend and manage economic processes. Such complexity demands in-depth analysis and adaptable strategies to navigate swiftly changing conditions. Additionally, identifying optimal models of strategic decision-making becomes crucial in this environment of uncertainty and dynamism, requiring a specialized approach to planning and responding to evolving conditions.

Strategic decision-making in a heterogeneous and uncertain business environment can be conceptualized as the theory of identifying, analyzing, and responding to the diverse economic, social, and technological factors that shape the market environment. Within this framework, strategic decisions should be grounded in a comprehensive understanding of both macroeconomic and microeconomic trends, coupled with the capability to anticipate potential scenarios. This process encompasses not only traditional trend analysis and detailed forecasting but also a readiness to embrace uncertainty as an inherent element of strategic planning. Companies adept at navigating this environment prioritize crucial uncertainties, formulate diverse scenarios that may unfold, and pinpoint pivotal indicators signaling changes in direction. Planning becomes a cyclical process of "execution, monitoring, and

adaptation," dynamically steering the company toward improved opportunities in the future. In the contemporary uncertain business environment, strategic decision-making must be adaptable to new challenges. The economy is dynamic and evolves, necessitating managerial flexibility in devising strategies.

Primarily, it is imperative to dispel the illusion of absolute accuracy in forecasting and acknowledge the significance of scenario planning. This involves crafting diverse scenarios and strategic plans that facilitate prompt responses to evolving conditions. Consequently, companies should not center their attention on a singular path of events but rather cultivate several strategies, each tailored to address a specific scenario.

An additional critical aspect involves integrating intuition and emotional perception alongside analytical methods in the decision-making process. This amalgamation aids managers in more comprehensively assessing the situation and making decisions that effectively address the challenges posed by uncertainty.

Finally, attention should be given to the internal dialogue within companies. Disparities of opinion among managers in various departments can foster the development of new strategic approaches and ideas. It is crucial to acknowledge that each manager's distinctive perspective can enhance the comprehensive understanding of the situation and assist the company in adapting to changes.

In an environment characterized by uncertainty and continual change, strategic decision-making necessitates not only profound analysis but also the capacity to adapt swiftly through a range of approaches and strategies. The principal transformations in strategic decision-making within an uncertain business environment include the following:

- *Transition to scenario planning:* This shift is founded on the premise that the inability to accurately predict the future underscores the importance of developing diverse scenarios. Consequently, companies are required to formulate plans enabling rapid responses to changing conditions, aligned with various potential future scenarios. This may involve the creation of strategic "playbooks" that encompass a commitment to a particular direction while maintaining flexibility to adapt to different future scenarios.
- *Balance between intuition and analytics:* In the contemporary business landscape, it is crucial to employ not only analytical methods but also intuitive approaches in decision-making. This integration assists managers in more comprehensively assessing the situation and making decisions that effectively address the challenges posed by uncertainty.
- *Understanding and adapting to internal differences:* Recognizing and leveraging the diversity of perspectives within the organization is of paramount importance. Varied viewpoints among managers can contribute to the development of novel strategic approaches and ideas, thereby aiding the company in adapting to changes.

These adjustments to strategic decision-making underscore the imperative of cultivating more flexible, adaptive, and innovative integrative models. These models are designed to address the swift changes and unpredictability inherent in the modern business environment.

Integrative models of strategic decision-making analysis can be characterized as comprehensive approaches that amalgamate various facets of an organization and its external environment to facilitate effective strategic decisions. These models incorporate diverse perspectives, encompassing internal resources, market conditions, competitive advantages, corporate culture, and other pivotal factors influencing strategic decisions. By integrating these multifaceted elements, these models enable managers to holistically assess the situation and ascertain the optimal directions for the organization's development.

One of the pioneering models in this category is the Ansoff matrix, widely acknowledged and utilized in business for over sixty years. It serves as a pivotal tool for strategic planning, enabling companies to adapt to dynamic market conditions.

The Ansoff matrix, developed by Igor Ansoff in 1957, serves as a tool for identifying potential areas of growth for a company based on combinations of new or existing products and markets. It enables systematic evaluation of various development strategies, ranging from increasing sales in existing markets to developing new products or entering new markets. The Ansoff Model facilitates informed strategic decision-making by providing a balanced approach to seizing opportunities and managing risks. With a focus on identifying growth and diversification potential, the model becomes particularly valuable in today's dynamic business environment. Utilizing the Ansoff model empowers companies to formulate strategies that consider changes in consumer needs, the competitive landscape, and technological trends, thereby contributing to their long-term success and sustainability.

In this context, it is pertinent to focus on Michael Porter's model of competition, given its profound insights into the dynamics of market forces and their implications for strategic business planning. Porter's Five Forces model elucidates the critical aspects influencing competitiveness within an industry and delineates the market structure.

Firstly, the threat of new competitors entering the market is a crucial consideration. This factor assesses the ease with which new players can penetrate the market, considering existing barriers such as scale, access to distribution channels, or proprietary technologies. Secondly, the threat of substitutable products or services is a significant force. This aspect examines how readily a company's products or services can be substituted by alternative solutions, impacting the company's ability to retain its customer base. Thirdly, the strength of suppliers is a pivotal factor. This pertains to the extent to which suppliers wield power over companies in the industry, potentially due to resource costs or the uniqueness of materials. Fourthly, customer power is a vital consideration. This factor evaluates the influence of customers on pricing and sales terms, contingent upon factors such as the number of customers, their significance, available alternatives, and their price sensitivity. Lastly, competition among existing firms is a critical dimension. This reflects the intensity of competition within the industry, encompassing elements such as price wars, advertising campaigns, and the introduction of new products.

It is crucial to emphasize that comprehending these forces is foundational for making effective strategic decisions. These forces not only influence the attractiveness of an industry but also indicate potential areas for innovation and change, a critical consideration for long-term success in an ever-evolving economy. Companies possessing a profound understanding of these dynamic forces are better equipped to adapt and thrive in a fiercely competitive business environment.

Let us examine the McKinsey 7S model, a subject of interest for economists and marketers alike due to its significance in ensuring strategic flexibility and efficiency in organizational management. Developed by McKinsey consultants, this model comprises seven key components that require balance and integration for successful strategy implementation. The fundamental concept is that an organization's effectiveness hinges significantly on the interplay among its structure, strategy, systems, shared values, people, skills, and management style. Each of these elements plays a pivotal role in shaping the organization's overall performance and culture, influencing its ability to achieve strategic goals and adapt to change. Specifically, the organization's strategy should encompass both its long-term goals and the specific methods for attaining them. The organizational structure should reinforce these strategic directions by ensuring a clear division of roles and responsibilities. Management systems ought to be designed to support the organization's strategic and performance objectives

while overseeing and assessing its activities. The foundational shared values of the organization should permeate every aspect of its operation. The alignment of the organization's staff and skills with its strategic needs is crucial, and the management style should foster a culture of openness and innovation.

Lastly, let's delve into the Boston Consulting Group (BCG) Growth-Share Matrix, commonly referred to as the BCG matrix. This matrix serves as a tool for strategic planning analysis and the management of a company's portfolio of business units or products.

The BCG matrix categorizes products or business units based on two parameters: market share and market growth rate. The identified categories are as follows:

- *Stars*: These are products or business units holding a high market share in rapidly growing industries. While maintaining leadership requires substantial investment, they have the potential to generate substantial revenues.
- *Cash Cows*: Represented by business units or products with a high market share in mature, slow-growing industries. This category ensures stable revenues and significant cash flow, which can be directed toward investments in other business units or the development of new products.
- *Question Marks*: These encompass products or business units with a low market share in fast-growing industries. While indicative of potential, they necessitate substantial investment to augment their market share.
- *Dogs*: Business units with a low market share in slow-growing industries fall into this category. Often not generating significant revenue, these units may be considered for sale or liquidation.

This strategic decision-making approach is crucial for resource optimization and leveraging opportunities to foster growth and realize the organization's long-term objectives. Portfolio management based on this model enables companies to allocate resources more effectively, concentrating on the most promising opportunities while mitigating risks. The utilization of a growth-share matrix aids companies in discerning the business units requiring investment and those that should be discontinued or repurposed, enhancing overall efficiency and profitability. This model assumes heightened significance in today's dynamic business environment, where companies continually seek ways to adapt to swiftly changing conditions and delineate optimal growth strategies (Savytska et al., 2021).

Each of these models possesses distinctive strengths and limitations, rendering them more or less suitable based on the specific conditions and requirements of the business environment. For instance, the Ansoff Model proves effective in identifying growth opportunities but may exhibit reduced utility in conditions characterized by high market uncertainty, where predicting reactions to new products or market entry becomes challenging. Porter's Five Forces model holds significance for analyzing the competitive environment but may neglect internal organizational aspects, such as corporate culture or internal processes. McKinsey 7S model offers a comprehensive view of an organization's internal structure but may prove insufficient for analyzing the external market environment. Lastly, the BCG matrix serves well in portfolio analysis and investment decisions but may overlook external market changes, such as emerging technologies or shifts in consumer preferences.

In a profoundly heterogeneous and uncertain business environment, models offering a thorough analysis of external conditions while incorporating internal factors are more likely to yield success. For instance, Porter's Five Forces model proves valuable in comprehending external competitive threats and opportunities. However, as a comprehensive strategic analysis, it can be synergistically combined with tools like SWOT analysis, thus incorporating the internal strengths and weaknesses of the organization. Conversely, the McKinsey 7S model provides an in-depth internal analysis of the organization but can be enhanced with external analysis, such as PESTEL analysis, to

attain a comprehensive understanding of the strategic context. Ultimately, the selection and effective utilization of these models hinge on the specific needs and context of the organization.

## 5 Discussion

Within the framework of scrutinizing strategic decision-making in the contemporary business environment, numerous discussions ensue, encompassing diverse facets of the utilization of strategic decision-making models.

A pivotal consideration in the discourse surrounding strategic decision-making revolves around the selection between models emphasizing external factors, such as the competitive environment (e.g., Porter's Five Forces model), and models concentrating on internal facets of the organization (e.g., McKinsey 7S model). On one hand, proponents advocate for the adoption of externally oriented models in a dynamic market environment, facilitating adaptive responses to changing conditions and capitalization on growth opportunities. Conversely, internally oriented models enable organizations to concentrate on resource and process optimization, thereby playing a crucial role in fortifying organizational structure and fostering a robust corporate culture.

A subject of ongoing discussion pertains to the selection between overarching strategic models and specialized approaches tailored to specific industries or market conditions. Comprehensive models, like the growth-share matrix or the Ansoff matrix, offer a sweeping perspective on strategic options and find application in diverse contexts. Nevertheless, critics contend that these models may be overly generalized, neglecting the nuances of particular markets or industries.

It is crucial to recognize that there is no universal strategic model suitable for all companies or situations. Effective strategic planning necessitates a comprehensive examination of numerous factors, encompassing industry particulars, market dynamics, corporate culture, and internal resources.

## 6 Conclusions

Strategic decision-making in a heterogeneous and uncertain business environment is a theoretical framework aimed at identifying, analyzing, and responding to the diverse economic, social, and technological factors influencing the market environment.

The primary transformations in strategic decision-making within an uncertain business environment include the following: a shift towards scenario planning attributed to the challenge of accurately predicting the future; a balance between intuition and analytics; and recognition and adaptation to internal differences to harness the diversity of views within the organization. These alterations in strategic decision-making underscore the necessity to formulate more flexible, adaptive, and innovative integrative models to address the swift changes and unpredictability characteristic of the contemporary business environment.

Integrative models of strategic decision-making analysis can be characterized as comprehensive methodologies that amalgamate diverse facets of an organization and its external environment to facilitate the formulation of effective strategic decisions.

Based on the findings derived from the analysis of the Ansoff Matrix, Porter's Five Forces model, McKinsey 7S model, and BCG's Growth-Share Matrix, it is evident that each of these models presents unique advantages and limitations. Consequently, their suitability varies depending on the specific conditions and requirements of the business environment. Specifically, while the Ansoff model proves effective in identifying growth opportunities, its utility may diminish in conditions of high market uncertainty, where predicting reactions to new products or entry into new markets becomes challenging. Porter's Five Forces model is significant for analyzing the competitive environment but may lack

consideration for internal aspects like corporate culture or internal processes. McKinsey 7S model offers a comprehensive view of an organization's internal structure but may fall short in analyzing the external market environment. Finally, BCG's Growth-Share Matrix serves well for portfolio analysis and investment decisions but might not account for external market changes such as new technologies or shifts in consumer preferences.

These observations lead to the conclusion that there is no single optimal model for analyzing and forecasting strategic decision-making in a heterogeneous and uncertain business environment. To address this complexity, combining the analyzed models with other tools becomes a partial solution. For instance, Porter's Five Forces model is valuable in comprehending external competitive threats and opportunities. However, as a comprehensive strategic analysis, it can be integrated with tools such as SWOT analysis, ensuring the inclusion of internal strengths and weaknesses of the organization. On the contrary, the McKinsey 7S model furnishes an in-depth internal analysis of an organization, but to achieve a thorough understanding of the strategic context, it can be complemented with external analyses like PESTEL analysis.

From our perspective, the most effective approach in a heterogeneous and uncertain business environment is to flexibly integrate different strategic models. This approach enables companies to leverage the advantages of each model, tailoring them to their specific needs and circumstances. Success lies in the capability to assess changes in the market environment and adjust strategic plans flexibly in response to these changes.

It is imperative to delve deeper into the impact of global economic, political, social, and environmental trends on strategic decision-making. Hence, future research could focus on how companies can adeptly adapt to such trends and utilize them to discern new strategic directions.

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## SYNERGISTIC APPROACHES TO STRATEGIC MANAGEMENT: MODELS AND IMPACT ON THE PERFORMANCE OF ORGANIZATIONS

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**Abstract:** In the current dynamic business environment, the ability of organizations to manage and innovate effectively is becoming a crucial factor for success and competitiveness. In this context, synergistic management approaches are of particular relevance since they offer the integration of different functions and processes to achieve better results than are possible by using traditional methods. The relevance of the topic is determined by the need for a more comprehensive understanding of the mechanisms of synergy in management and its impact on organizations' efficiency. The purpose of this research is to analyze synergistic models of strategic management with a focus on their key features, advantages and limitations. Modern organizational structures and strategic procedures are the object of the research. In our research, we applied a comprehensive methodological approach that combines a systematic approach, analysis and synthesis, and comparison. This gave us the opportunity to conduct an in-depth analysis of the interactions between different components in the organizational system, opening up new perspectives in understanding synergies in management. The application of these methods also made it possible to effectively assess how synergistic strategies influence the overall management efficiency, providing valuable insights into optimizing organizational processes.

**Keywords:** Synergistic management, Strategic management, Organizational efficiency, Innovations, Systematic approach, Cultural aspects of management.

### 1 Introduction

In the modern world, where market conditions are constantly changing and competition is becoming increasingly global, strategic management of organizations is becoming a crucial factor in their success and sustainable development. The present academic paper examines synergistic approaches to strategic management, which combine theoretical and practical aspects of interaction between different parts of the organization for achieving optimal results.

Synergetics, as a scientific discipline, studies the processes of self-organization in complex systems. It offers a new perspective on management processes, emphasizing the need for a harmonious combination of various elements of the system to achieve a higher level of organizational efficiency. In the context of strategic management, synergy opens up new opportunities for optimizing management decisions that ensure the integration of the organization's internal capacities with its external environment.

The present academic paper explores various models of synergistic management, identifies their key features and implementation mechanisms, and analyzes the impact of these approaches on organizational performance. The objective is to identify how synergistic approaches can contribute to the effectiveness of strategic management, adaptation to changes in the external environment, and sustainable development of organizations. Given the dynamic nature of the market environment, this approach is especially relevant for modern managers and theorists in the field of economics and management.

The purpose of the proposed research is to theoretically analyze synergistic models for strategic management and their impact on the performance of organizations.

### 2 The analytical review of the literature on the research topic

In the field of synergistic approaches to strategic management, significant contributions have been made by researchers who have considered various aspects of this topic. The scientific work of S. O. Ajibolade and O. S. Sankay (2013) focuses on the study of the synergistic effect between working capital management and financing decisions, demonstrating their joint impact on corporate profitability.

The issue of synergy in the context of the "green" economy is covered by Akymenko O., Petrovskaya A. and Zholobetska M. (2017). The authors' analysis of the synergistic approach to implementing the strategic priorities of the green economy points to significant opportunities for achieving sustainable development.

The study by Ali, Wu, & Ali (2023) examines the management of product innovation through the prism of the individual and synergistic role of the company's internal and external marketing capabilities. This publication demonstrates the importance of a balance between internal and external innovation strategies.

Another significant contribution to exploring the synergies between Industry 4.0 and the circular economy was made by F. Alkaraan, M. Elmarzouky, K. Hussainey, and V. G. Venkatesh (2023), who studied sustainable strategic investment decisions in UK companies. M. Bobrek and M. Sokovic (2006) investigate the concept of integration and synergistic effect in modern management. Their scientific work emphasizes the need for a harmonious combination of various elements of the management system for improving its efficiency.

L. Brenner and D. Vargas-del-Río (2013) analyze community ecotourism and environmental protection in Mexico, considering synergistic strategies as an effective tool or just a fashionable slogan. Their research makes a significant contribution to the understanding of sustainable tourism.

E. Burova, S. Grishunin, and S. Suloeva (2021) developed a system-synergistic approach to managing expenses for high-tech industrial enterprises. Their research shows how innovative management strategies can contribute to sustainable development and economic efficiency. S. Chatterjee (1986) focuses on the types of synergies and their economic value, analyzing the impact of mergers and acquisitions on competing and merged companies. Its analysis is crucial for understanding strategic financial decisions in the context of corporate governance.

S. V. Chuprov (2015) studies the management of industrial stability and development in the context of the synergistic paradigm. This exploration makes a significant contribution to the understanding of management processes in complex industrial systems.

A. Čirjevskis (2023) offers a valuable analysis of competency-based synergies in the merger process, with a special focus on the IT and global cosmetics industries. His research emphasizes the importance of synergies for successful integration and competence management in the context of international corporate mergers.

A. M. Dejanović, S. T. Nikolić, and J. Stanković (2015) developed an integral model of strategic management that focuses on identifying potential synergies. Their approach includes a comprehensive analysis of the interaction of various aspects of organizational structure and strategy. I. Fadyeyeva and L. Horal (2014) focus on applying modern modeling in the strategic management system of oil and gas companies. Their study opens up new opportunities for the use of complex analytical tools in this area.

L. M. Gaisina, O. M. Barbakov, Yu. I. Koltunova, E. V. Shakirova, & E. G. Kostyleva (2017) propose a model of social management based on a synergistic approach, exploring the methods and fundamentals of its implementation. This scientific work demonstrates the importance of synergies in the social aspect of management.

S. Garzella and P. Fiorentino (2017) analyze the value of synergy and its role in strategic management. Their exploration is a significant contribution to understanding how synergies can be used to increase the value of companies. J. Hagedoorn and G. Duysters (2002) study the impact of mergers and acquisitions on the technological efficiency of companies in a high-tech environment. Their findings are essential for understanding the impact of corporate strategies on the innovation potential of enterprises.

M. Holubčík, J. Soviar, and V. Lendel (2022) consider synergies in cooperation as a key to sustainable business strategy management. Their study emphasizes the importance of an integrated approach to strategic planning and management. S. Jia-Sheng (2006) conducted a study of the synergetic model of management for manufacturing enterprises. This approach demonstrates how integrated management can help improve the efficiency and competitiveness of manufacturing enterprises. K. Kalaiselvan and K. P. Naachimuthu (2011) propose a synergistic model of learning and development. Their research emphasizes the significance of an integrated approach to corporate training for ensuring effective staff development.

L. Karpenko, O. Zhylinska, H. Dmytrenko, N. Poprozman, and V. Koltun (2020) explore synergistic management tools to ensure the economic security of an enterprise. Their analysis indicates the need to integrate various elements of the management system to ensure the sustainability of the organization.

M. Kaur, K. Singh, and I. Singh Ahuja (2012) evaluate the synergy in the implementation of TQM (Total Quality Management) and TPM (Total Productive Maintenance) paradigms on business productivity. Their research demonstrates the importance of an integrated approach to quality and service management to improve overall enterprise productivity. Moreover, M. Kaur, K. Singh, and D. Singh (2019) analyze the synergistic success factors of Total Quality Management (TQM) and Supply Chain Management (SCM). Their scientific work considers how the integration of these approaches can improve overall quality management and supply chain performance.

L. K. Koo and H. Koo (2007) propose a holistic approach to diagnosing, prioritizing, implementing and monitoring effective strategies through a synergistic combination of SWOT, Balanced Scorecard and QFD. Their research demonstrates the relevance of integrated planning to the development of management strategies.

I. Kosach (2017) studies the monitoring of the synergistic potential of public-private partnerships in the system of strategic management of integration processes in the agricultural sector. This study reveals new aspects of interaction between the state and the private sector.

J. Lee and H. B. Kwon (2023) analyze the synergistic effect of R&D and exports on productivity in the US manufacturing industries, comparing high-tech and low-tech segments. Their publication emphasizes the importance of integrating studies and foreign economic activity.

S. H. Li and R. Greenwood (2004) study the impact of intra-industry diversification on the company's productivity, focusing on the creation of synergies, multidimensional contact and market structure. Their findings demonstrate the importance of synergy in the context of strategic management.

N. N. Lychkina (2016) considers synergies and development processes in social-economic systems, striving to find effective

constructs for modeling. Her research makes a significant contribution to the theoretical understanding of synergies in a social-economic context.

E. Orlova (2019) develops a synergistic synthesis of mechanisms and models for coordinated management in the production and economic system. This study opens up new horizons for managing production processes through the integration of different management approaches. K. F. Pun (2004) proposes a conceptual model of synergy of strategic formulation for production. His approach emphasizes the importance of integrating various strategic elements to achieve optimal results.

J. Rowley (2002) discusses synergies and strategy in e-business, emphasizing the importance of an integrated approach to marketing and management in the digital environment. O. A. Shevchuk (2018) develops a system-synergistic approach to ensuring the dynamic stability of enterprises based on business leadership. This exploration emphasizes the relevance of leadership and managerial innovation in today's business environment.

The studies outlined demonstrate the depth and versatility of approaches to exploring synergies in strategic management, demonstrating their significance for the development of effective strategies in various sectors of the economy. E. V. Shirinkina and R. Romansky (2020) focus on assessing the synergistic efficiency of industrial companies' reengineering processes. Their research is crucial for understanding the impact of optimizing business processes on overall productivity.

M. Shujahat, S. Hussain, S. Javed, M. Malik, R. Thurasamy, & J. Ali (2017) present a model of strategic management through the prism of knowledge management and competitive intelligence. This is a comprehensive approach that includes various aspects of strategic analysis. M. L. Sirower (1997) raises the issue of the "synergy trap", analyzing how companies can lose in the game of mergers and acquisitions. His scientific work is important for understanding the risks related to corporate mergers. L. M. Stan (2017) explores the "Synergistic Economy", highlighting approaches to synergistic economic networks and systems. This publication makes a fresh contribution to the theory of economic synergies.

M.A. Ta'Amnha, I.K. Magableh, M. Asad, & S. Al-Qudah (2023) investigate open innovation as the missing link between the synergistic effect of entrepreneurial orientation and knowledge management on the performance level of product innovation. Their research shows the importance of integrating approaches to innovation. J. A. Weber and U. M. Dholakia (2000) offer a step-by-step approach to incorporating marketing synergies into merger and acquisition analysis. This study reveals the significance of integrating marketing strategies in the process of corporate mergers.

Yu, Wu, S. Gu, Z. Tu, and Z. Zhang (2022) perform a systematic dynamic analysis of the synergistic process of innovation between industry, universities, and research institutes based on knowledge flows. Their research emphasizes the importance of synergies between different sectors for innovation. S. X. Zeng, J. J. Shi, and G. X. Lou (2007) present a synergistic model for implementing an integrated management system. Their empirical work in China points to the effectiveness of integrating different management systems to improve organizational performance.

These studies cover a wide range of issues related to synergies in the context of strategic management, showing how these approaches can be applied to increase the efficiency and innovation potential of organizations. However, it is impossible to ignore the existence of several "white spots" in the materials under analysis. For instance, many studies focus on generalized models of synergistic management without taking into account the uniqueness of organizational structures and cultures. In addition, there is often a gap between theoretical concepts and their practical application, and, therefore, more studies are

required on the practical aspects of implementing synergistic strategies and the challenges that may arise in this process.

It should also be noted that innovations in synergy often do not receive sufficient attention. It is important to investigate how modern innovative approaches can be integrated into synergistic management to increase its effectiveness. Finally, most studies focus on the internal processes of the organization, while the interaction with the external environment, especially in the context of globalization and technological change, is often not considered.

### 3 Methodology

The systematic approach is used in this research to generalize the conceptual and categorical apparatus of the theory of strategic management. In addition, such general scientific research methods as analysis and synthesis are applied. The analysis makes it possible to analyze individual synergistic models of strategic management, identify their shortcomings and benefits, and find out in which context a particular model is the most effective. The synthesis enables to combine the ideas behind particular synergistic models of strategic management for their better understanding, criticism and development.

### 4 Results

#### 4.1 The concept of synergistic models of management

Synergetics in the context of strategic management is an important and increasingly relevant area of the research. It combines various aspects of organizational management, striving to achieve integrity and optimization in the face of complexity and uncertainty in the modern business environment.

The synergistic model of strategic management is a conceptual scheme for managing an organization that is focused on creating added value through optimizing interactions and integrating various aspects of resources and activities. This involves combining resources, competencies, technologies and processes in such a way that the overall effect of their use exceeds the sum of the effects of their individual application. The main goal of this approach is to maximize the efficiency and competitiveness of the organization by leveraging synergies between different departments and functions. Modern models of synergistic management focus on integrating different aspects of organizational life to create an interaction that brings more value than just the sum of its parts.

Synergistic models of strategic management differ from other models by their unique approach to using the organization's resources and competencies. They are focused on creating added value by optimizing interactions between different parts of the business. This is achieved by integrating, coordinating, and combining resources and processes in a manner that makes the overall result greater than the sum of individual contributions. For instance, synergistic models can include sharing knowledge, technologies, and market opportunities between different divisions of a company, thereby creating a competitive advantage (Savytska et al., 2021).

These models are also characterized by their inherent flexibility and adaptability, which allows organizations to respond quickly to changes in the external environment. They differ from traditional approaches, which often focus on stability and efficiency through standardization and control.

#### 4.2 Modern synergistic models of strategic management: a comparative analysis

Below, we will consider several key synergistic models for strategic management and compare them.

11C Synergy Model, developed by TIAS Business School, is an innovative approach to organizing synergies in companies, especially those consisting of many business units. The model

challenges the common assumption that synergies are achieved exclusively through centralization and points to the need to consider different ways of organizing synergistic interaction.

The central element of this model is the idea that synergies can be created not only through centralization but also through various forms of interaction between units. The major areas include concentrating resources and activities into a single organizational unit, coordinating the efforts of different departments to achieve common goals, and creating coalitions or temporary teams to implement specific projects.

Understanding who is responsible for creating synergies is also an important feature of this model. This can be either an initiative from the top of the corporate center or horizontal cooperation between departments. Such an approach makes it possible to create a more flexible and adaptive management system that can effectively respond to the company's external challenges and internal needs.

The 11C Synergy model demonstrates that the organization of synergies is not only a matter of structural organization but also a process of searching for the optimal balance between centralization and decentralization, formal control and horizontal cooperation, which ensures flexibility and adaptability in strategic management.

The Ansoff model in the context of synergistic strategic management serves as an important tool for identifying and implementing synergy potential in various business areas. This model, developed by Igor Ansoff in 1957, allows companies to identify strategies for growth through different combinations of products and markets but it can also be used to identify and exploit synergistic opportunities.

The Ansoff model focuses on four main strategies: market penetration, market development, product development, and diversification. Each of these strategies can be interpreted as a way to achieve synergy. For instance, a market penetration can create synergies by optimizing the use of existing resources and distribution channels while product development can stimulate innovation and collaboration within the company.

Market development, on the other hand, can open up new opportunities for synergies by attracting new customer segments or entering new geographic markets, allowing the company to better utilize its current competencies and assets. Diversification is arguably the most ambitious strategy in terms of synergies since it involves going beyond existing products and markets, thus, stimulating innovation and searching for new opportunities for growth.

By using the Ansoff model in the context of synergistic strategic management, the company's management can systematically evaluate and select strategies that are not only aimed at growth and expansion but also at creating additional value through an effective combination of internal and external resources and capabilities.

The McKinsey 7S model, as a synergistic model of strategic management, is used to analyze and improve various aspects of the organization. It covers seven key elements: structure, strategy, systems, shared values, skills, style, and people. The model helps companies identify how internal factors interact with each other and how these interactions can be optimized to improve overall performance and achieve strategic goals.

The "hard" elements in the McKinsey 7S model, such as structure, strategy, and systems, reflect the more formal and easily identifiable aspects of the company. The structure indicates the organizational hierarchy and distribution of responsibilities, the strategy defines the overall direction and goals, and the systems reflect internal processes and methods of work.

The "soft" elements, including shared values, skills, style, and personnel, are more subjective and often harder to change. These

include the corporate culture and values that guide employees' behavior, the skills and competencies of the team, the leadership style and approach to management, and the composition and development of the workforce.

The 7S model is considered synergistic because it focuses on the interaction between different elements that jointly determine the overall effectiveness and productivity of an organization. This model helps managers understand how changes in one area can affect others, and how harmonizing these elements can lead to improved overall performance and synergies in strategic management.

#### 4.3 Comparison of synergistic management models

Next, we will try to compare the synergistic models of strategic management identified in the previous section. For this purpose, we believe that the following criteria should be used:

- focus and purpose (what is the main direction and goal of the model?);
- flexibility and adaptability (how adaptable is the model to different types of organizations and situations?);
- ease of use (how difficult is the model to use?);
- advantages and disadvantages (what are the benefits and drawbacks of each model?);
- optimality and context of use (in what context is each model most effective?).

The 11C Synergy model, developed as part of strategic management research, offers a comprehensive approach to organizing and identifying corporate synergies. The main distinguishing feature of this model is its high flexibility and adaptability, which provides a variety of methods for organizing synergies depending on the unique needs and conditions of each organization.

Although highly adaptable, the 11C model can be difficult to understand and use, especially without deep expertise in the area of corporate governance and strategic planning. One of the main difficulties in applying this paradigm is balancing the several synergy components, resulting in the need for thorough preparation and analysis.

The advantages of the 11C Synergy model include its flexibility in approaches to creating synergies, which allows companies to respond effectively to changing conditions and challenges. At the same time, the high complexity of implementation is its weakness, especially in large and complex corporate structures.

In general, the 11C Synergy model is most effective in the context of large, diversified corporations where there is a need for in-depth analysis and integration of various business functions and departments. It provides a strategic framework for designing and implementing synergistic initiatives that can improve the efficiency and competitiveness of organizations in a complex business environment.

The Ansoff model, in the context of analyzing strategic management, is a strategic tool that helps determine the direction of company growth. The model focuses on choosing the best strategies for expanding the company's activities, taking into account both the current state of the market and the opportunities for product development.

The model demonstrates moderate flexibility and adaptability since its effectiveness depends on the specifics of the business and market conditions. This means that the model may be more or less applicable depending on the specific case, for example, depending on the market situation or the company's development stage.

The Ansoff model is regarded as being relatively simple to comprehend and use in terms of complexity. This makes it accessible to a wide range of companies, regardless of their size

and resources. However, one of the limitations of the model is that it may not take into account all internal aspects of the organization, such as corporate culture or internal processes.

In terms of strengths and weaknesses, the main advantage of the model is its clarity and comprehensibility in strategic planning. This enables managers to focus on specific areas for business development. However, its shortcoming is its relative limitations in considering the internal factors of the organization.

In general, the Ansoff model is considered effective for companies seeking to identify ways to grow and expand, especially in the context of market development and new product development. Its simplicity and straightforwardness make the model valuable for strategic planning in various business contexts.

The McKinsey 7S Strategic Management Model is an effective tool for analyzing an organization and developing a strategy. It helps understand the interrelation between the seven S's (structure, systems, strategy, skills, leadership style, system of values, staff) in order to achieve harmony and successful implementation of the organization's strategy. The model can be adapted to different types of organizations and situations due to its focus on internal factors. Although it is not extremely complicated, its effective use requires a deep understanding of each of the "S" components and the ability to analyze their interaction.

The advantages of the model include the ability to determine which aspects of the organization should be adjusted to achieve the strategic goal, taking into account internal harmony and applicability across industries. However, weaknesses may include the lack of consideration of the external environment and the complexity of implementation. The model is most effectively used in the internal analysis of an organization when it is necessary to understand which aspects of the internal structure and culture can support or hinder the implementation of the strategy.

#### 4.4 Evaluation of challenges and obstacles to synergistic management

Challenges and obstacles to synergistic management in the context of strategic management of organizations are significant and require special attention. The first of them is systemicity and complexity. Synergistic management requires considering the organization as a system with numerous interconnections, which can be a difficult task.

The lack of knowledge and skills in the team is the second challenge. Implementation of synergistic approaches requires specialized knowledge in system analysis and system thinking. The lack of such competencies can be an obstacle to successful implementation.

The third challenge is resistance to change among staff and old management practices. Synergistic management may require a change in the organization's approach and culture, which may cause resistance and difficulties in the implementation process.

In addition to the challenges, there are particular obstacles to consider. The first of them is the consistent implementation of synergistic approaches. After all, introducing them only once or periodically may not lead to the desired results since synergistic management requires a systematic and continuous approach.

The second obstacle is financial constraints. Implementation of synergistic approaches may require additional financial resources for staff training and infrastructure, which can be a challenge in a budget constrained environment.

Finally, the lack of support from senior management is the third major obstacle. An initiative to implement synergistic management should have active support on the part of the

organization's management because without it, successful implementation may be hampered.

The overall conclusion is that synergistic management can lead to improvements in organizational performance; however, it requires careful consideration of these challenges and obstacles and taking relevant measures to overcome them. These recommendations, aimed at achieving effective and strategic use of synergistic approaches, are based on scientifically sound management principles and practices.

Primarily, it is important to take into account a systematic approach to management, considering the organization as a complex system with interacting elements. Developing a systemic mindset among staff is crucial for perceiving problems and tasks from the perspective of their interconnectedness and impact on performance.

Continuous improvement of synergistic management requires adapting general approaches to the specific conditions and needs of the organization. Governance and leadership should reflect a systemic approach and promote a culture of values.

Monitoring and measurement of results through a system of key performance indicators is a mandatory component for an objective assessment of the effectiveness of synergy management. Involving external experts and preserving and analyzing lessons learned from previous iterations of synergistic management will help enrich the practice and provide new insights for further improvement.

In general, the implementation of synergistic management requires a systematic and strategic approach, leadership support, investment in staff development and a monitoring system. These recommendations can serve as a guide for organizations seeking to achieve optimal results through synergistic management.

#### 4.5 Recommendations

The recommendations proposed below are aimed at achieving effective and strategic use of synergistic approaches. The first step is to take into account a systematic approach to management, considering the organization as a complex system with interacting elements. Developing a systemic mindset among staff is essential to perceive problems and tasks from the perspective of their interconnectedness and impact on performance.

Ongoing improvement of synergistic management requires adapting general approaches to the specific conditions and needs of the organization. Governance and leadership should reflect a systemic approach and promote a culture of values. At the same time, it is necessary to take into account the importance of monitoring and measuring results through a system of key performance indicators, which is an indispensable component for an objective assessment of the effectiveness of synergistic management.

As already pointed out, engaging external experts, preserving and analyzing lessons learned from previous iterations of synergistic management can significantly enrich the practice and provide new insights for further improvement.

In general, the implementation of synergistic management requires a systematic and strategic approach, management support, investment in staff development and a monitoring system. These recommendations can serve as a guide for organizations seeking to achieve optimal results through synergistic management.

#### 5 Discussions

Discussions on synergistic models of strategic management often focus on the dilemma between universal standards and individual adaptation. Supporters of standardization emphasize the significance of consistency and predictability in management

processes. Meanwhile, those in favor of individualization emphasize the need for flexibility and adaptation of strategies to specific circumstances. Integrating the two methods in order to create a balanced and successful management strategy that considers both the particulars of each circumstance and standardized principles is a crucial component.

In the context of synergistic models of strategic management, the difference between centralizing and decentralizing management decisions is another significant topic of discussion. On the one hand, centralization can ensure greater consistency and efficiency in decision-making; however, on the other hand, it can limit opportunities for innovation and adaptation at the local level. This discussion also concerns the distribution of power and resources within the organization and affects the company's ability to quickly adapt to changes in the business environment. As we noted above, some strategic management models, such as 11C Synergy, demonstrate effectiveness in the context of decentralized management decisions.

#### 6 Conclusions

In the present research, we have analyzed synergistic models of strategic management, identifying a number of significant aspects and nuances that are of particular importance for modern organizations. One of the key findings is that synergistic management is superior to traditional methods due to its ability to efficiently utilize resources, creatively solve problems, and generate innovative solutions through the strategic integration of various departments and functions.

The research results also emphasize that synergistic strategies contribute to the innovation and adaptability of organizations. This is evidenced by an increase in the number of successfully implemented innovative projects and an improved response to external challenges and opportunities. At the same time, the research revealed challenges related to the implementation of synergistic strategies, including managing changes and integration between different units, which require careful planning and effective management.

Organizational culture plays an important role in the success of synergistic strategies. The culture that fosters collaboration, innovation and openness to change is crucial for the effective implementation of synergistic approaches. Moreover, cultural aspects can have a significant impact on the motivation and engagement of employees, as well as on the overall readiness of an organization to innovate and change.

From a practical perspective, the findings of this research can be used by executives and managers to develop more effective management strategies, leveraging synergies in order to achieve better results. This is especially true when it comes to increasing productivity, adapting to rapid changes in the business environment, and stimulating innovation.

Further studies should focus on a thorough analysis of the integration of innovations and management of changes in the context of synergistic management, as well as on the specific challenges that may arise when implementing these strategies in different organizational contexts. It is also important to consider the international aspect of synergistic management, in particular, in the context of globalization and international markets.

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## THE DUALISTIC MYTHOMODEL OF S. CHERKASENKO'S DRAMA "THE PRICE OF BLOOD", PARTICULARLY IN ITS PHILOSOPHICAL, SPATIO-TEMPORAL CHARACTERISTICS

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**Abstract:** The article deconstructs the poetic mytho-model of world of the drama "The Price of Blood" by S. Cherkasenko, in particular in its philosophical characteristics: reveals the artistic features of the author's dualistic model of the world, examines the reinterpretation of biblical Christological themes, motifs and images. This thematic exploration adds depth to the understanding of the drama and underscores the profound philosophical questions S. Cherkasenko raises. The analysis shows that dualistic myths are represented through the forms of binary oppositions, such as cosmological (e.g. the space and chaos, the moon and the sun, heaven and earth, day and night), biological (e.g. male and female), social (e.g. dual organization of society) and ethical (e.g. good and evil). The drama "The Price of Blood" is based on the mythological plot of the Gospel story of Judas Iscariot's betrayal, in which S. Cherkasenko uses dualistic mythological thinking to contrast "faith – mind", which is reproduced through the following oppositions: "good – evil", "sin – righteousness", "truth – lie", "God – Devil", "life – death", "freedom – slavery", "love – hate", "loyalty – betrayal". This is a confrontation between faith and mind in a kind of search for the salvation of humanity. The relevance of this topic lies in the study of the author's dualistic model and the disclosure of biblical motifs in the drama "The Price of Blood" by S. Cherkasenko: comprehension of the problem of betrayal in a mythopoetic way. The results of the study showed that the author describes the universe as a unity of opposites, which is typical for a dualistic myth, where the victory of good implies the elimination of evil. The archetypal characters – Jesus Christ (faith) and Judas the Tempter (mind) – are encoded by the binary opposition "good – evil" and their confrontation can be seen as an antagonistic duality.

**Keywords:** Dualism, Drama, Mythologeme, Archetyp, Symbol.

### 1 Introduction

From the late nineteenth to the early twentieth century, when national consciousness and culture were developing, Ukrainian writers used mythopoetic thinking actively. This is due to the desire of writers to assimilate the sources of mythology and folklore to create general models of human interaction with the world. Therefore, mythology became a permanent artistic presence in the literary transformation of reality. This requires a study of the artistic "products" of the interaction between the systems of myth and literature, and the definition of the functions of myth in literature.

The work of Spyrydon Cherkasenko is of particular interest, as he was a representative of Ukrainian modernism, a poet, a prose writer, a playwright, a participant in the national liberation struggle, and an emigrant who was unknown in Ukraine for a long time. After a long break in research, his work was resumed in the 1990s. Cherkasenko's work helped bring Ukrainian literature closer to philosophical trends and movements, and his mythofolklore synthesis shows the artist's aesthetic power in using folklore.

### 2 Methodology

The theoretical and methodological basis of the article consists of: works on philosophy and aesthetics by J. Campbell, M. Muller, F. Nietzsche, F. Tönnis, O. Spengler, F. Schelling, etc. explorations in the field of mythopoetics by S. Averintsev, M. Bakhtin, Ya. Golosovkera, Vyach. Sun. Ivanov, M. Eliade, O. Losev, Y. Lotman, E. Meletynskiy, V. Toporov, O. Freudenberg, etc.; scientific concepts of archetypal criticism by K. Jung, ritual-mythological method by J. Fraser, N. Fry.

An active civic and cultural figure of the early twentieth century, Spyrydon Cherkasenko lived in a difficult historical time (revolutions (1905 and 1917), world wars (World War I and World War II), which left "its mark on his work, made him its chronicler, forced him to drink the bitter cup of misery

together with his people" (Myshanych, 1991), but he "withstood the difficult battle of the worlds, did not tarnish his talent with opportunistic distortions and political speculation" (Myshanych, 1991, p. 20), and was an active participant in the National Revolution and the armed defense of the state will of Ukraine. The territory of his residence is diverse (the Russian Empire, the Ukrainian People's Republic, Austria, Czechoslovakia), as is his work, "a whole continent of literature: poetry, drama, prose, publicist, satire, literary criticism, journalism, pedagogics" (Myshanych, 1991, p. 20).

S. Cherkasenko's literary debut (1904) and subsequent poetic works received both favorable and devastating criticism, in particular, they did not go unnoticed by S. Yefremov ("Cherkasenko ... entered the literary field as if he was already quite ready") (Yefremov, 1995), who became a teacher and an adviser in Cherkasenko's development as a playwright. S. Yefremov notes the original style and recognizability of his poetry, noting that "his verse is light, there are beautiful and apt images, strong turns of phrase; the content is dominated by calls to fight for a broad, free life, protest against bourgeois everyday life" (Yefremov, 1995). Ukrainian art critic D. Antonovych praises Cherkasenko's dramatic works for creating symbolic drama alongside social drama, calling it "the most accessible and close to the old household theater, it is like a bridge or a branch of a chain that connects the old household repertoire with the repertoire of the modern theater" (Antonovych, 1925).

It is well-known that the formation of S. Cherkasenko as a playwright was largely influenced by S. Yefremov, his literary and theoretical recommendations, which he expressed to S. Cherkasenko in the process of epistolary discussion of his dramas "The Old Nest" (1907) and "The Snowstorm" (1908). Among Cherkasenko's dramatic works, S. Yefremov singles out "The Tale of the Old Mill", "on the theme of the struggle between the newest forms of capitalist life and the "old tale" of the steppes. The author introduces symbolic images alongside real-life paintings, emphasizing his main idea, the struggle between the old and the new" (Yefremov, 1995).

With the arrival of the Bolsheviks in Ukraine, Cherkasenko's work was erased from Ukrainian literary life, and the death of the "singer of the country of black brilliance, Donbas" was first reported in Ukraine in the occupation year of 1942 in an article by Y. Sheveliov in the newspaper "Nova Ukraina", "Two years ago, in a foreign land, in bitter exile, broken by poverty and deprivation, Spyrydon Cherkasenko died, and his premonition did not come true, his greatest dream was to "touch his native land" (Sheveliov, 1945).

In this article, the author briefly characterizes the peculiarities of the writer's artistic world, for whom the main thing is not "a description, but problematics, who wants his reader to think about life, to actively seek conclusions and generalizations, to make the work evoke a certain mood (the latter is especially evident in such works as "Must" or "Horror")" (Sheveliov, 1945). The critic especially notes the dramas "What the Sawdust Rustled About" ("as a highly poetic poem about the struggle of two principles in the human soul - active and contemplative, animal and angelic-poetic") (Sheveliov, 1945) and "The Tale of the Old Mill", where "the problems of the philosophy of history are developed" (Sheveliov, 1945).

The writer's work became forgotten during the Soviet era, and only a few receptions of his work appeared abroad. In particular, R. Karpia's article "Don Juan: A Universal Theme in Ukrainian Dram" in the magazine "Canadian Slavonic Papers / Revue Canadienne des Slavistes (Karpia, 1982). The author, comparing S. Cherkasenko's play "The Spanish Caballero Don Juan and Rosita" (1931) with the dramatic poem "The Stone Master", concluded that by using the myth of Don Juan, Lesia

Ukrainka reproduced the myth, establishing it in Ukrainian literature, and S. Cherkasenko refuted it (Karpiak, 1982).

Thanks to V. Pohrebennyk (in collaboration with O. Leontovych), the scientific heritage of the diaspora scholar N. Ishchuk-Pazuniak returned to her native land and was published in two books. The first of the two books represents "the writer's archival work, the drama-extravaganza "The Forest Song" in broad comparative aspects – both the world (works by H. Hauptman, H. Ibsen) and the Ukrainian one (personality and creative heritage of S. Cherkasenko)" (Ishchuk-Pazuniak, 2008), where the researcher revealed typologically comparable features of S. Cherkasenko's and Lesya Ukrainka's plays.

In the context of the development of Ukrainian drama, literary critic, Doctor of Philosophy at the University of Pennsylvania, L. Zaleska-Onyshkevych distinguished the writer's work for introducing "new themes and a new approach" in the literature of the early twentieth century (Zaleska-Onyshkevych, 1998).

After a long break, only in the early 1990s did Spyrydon Cherkasenko's work become the subject of research in Ukraine. Today, the writer's work has been studied by literary critics, theater critics, and researchers of the history of pedagogical thought in Ukraine.

O. Myshanych was one of the first in Ukraine to study Cherkasenko's work, and he is the author of a thorough foreword and compiler of a two-volume collection of the writer's works. The main content of the foreword is devoted to the analysis of Cherkasenko's creative career: his stay in Ukraine and in emigration.

The problem of mythofolklore writing by S. Cherkasenko-lyricist was studied by V. Pohrebennyk (Pogrebennyk, 2002). In his monograph "Folklorism of Ukrainian Poetry (the last third of the nineteenth – the first decades of the twentieth century)", the scientist studied the peculiarities of the ideological, aesthetic and emotional transformation of Ukrainian folklore in the poetry of the symbolist S. Cherkasenko. The author of the monograph emphasizes that "folklore provided the symbolist S. Cherkasenko with protomotifs and prototypes that served as an expression of his attitude to the world. In his interpretation, each of them carried a certain mood; in general, folk art has become a well-developed resource of poetics, subordinated to the main one (national liberation struggle) and other topics" (Pogrebennyk, 2002). The researcher notes that a number of traditional folklore images (Beauty-Girl, Motherland-Ukraine, black ravens) in S. Cherkasenko's lyric epic sounded in a new way in symbiosis with original mythologemes.

In general, S. Cherkasenko's drama has been studied extensively. S. Khorob examines S. Cherkasenko's dramatic works "in the typological context through the prism of European modernist trends" and for the first time decodes the Christian symbolism of S. Cherkasenko's dramas (Khorob, 2001). The scholar notes the national codedness of the symbols of S. Cherkasenko's drama, which "become an artistic expression of acute public and social problems" (Khorob, 2001, p. 133). The evangelical motifs of S. Cherkasenko's drama "The Price of Blood" have been studied by V. Antofiichuk, O. Kohut, O. Kuzma, A. Niamtsu, and others. In the article "The Evangelical Archetype of Betrayal in the Drama 'The Price of Blood'", V. Antofiichuk emphasizes the manifestation of the archetype of betrayal in the drama, which S. Cherkasenko complicates with numerous national, historical, spiritual and moral motivations, excluding from the content plan of the drama the traditional, gospel interpretation of Judas' betrayal" (Antofiichuk, 2000). O. Kuzma revealed the intertextual richness of S. Cherkasenko's drama "The Price of Blood" and proved that the drama is "a kind of 'palimpsest' text, which clearly distinguishes biblical intertext, ideological and thematic connection and associations with the works of Lesya Ukrainka ..." (Kuzma, 2014).

It is worth noting the dissertations by V. Shkola, who traced the evolution of the writer's individual style, revealed the genre and style features of the writer's drama. In particular, V. Shkola considers the mythological level of the dramas "The Tale of the Old Mill" (1914) and "Fern Blossom" (1926), asserting the combination of fantasy with reality, "modern conflicts and ancient folklore motifs" (Shkola). In her argument, the researcher singled out mythological world plots, images (Judas, Don Juan) and motifs (Prometheanism) in S. Cherkasenko's drama.

N. Maliutina, T. Sverbilova focused on the issues of genre and style transformations of S. Cherkasenko's dramatic works and sometimes analyzed a number of S. Cherkasenko's dramatic texts for the first time.

Having traced the evolution of the reception of S. Cherkasenko, we see that the mythological aspect of artistic comprehension of S. Cherkasenko's work has been studied selectively and superficially, so we see the need for a deeper and more systematic interpretation of the writer's works.

The purpose of the article. The comprehension of S. Cherkasenko's work in the mythopoetic vein is a continuation of our dissertation research (Moshnoriz, 2021). Therefore, our goal is to study the embodiment of the dualistic myth in the drama "The Price of Blood". The achievement of this goal entails a number of tasks, such as studying the author's dualistic model and revealing the biblical motifs in S. Cherkasenko's drama; identifying the moral and psychological reasons for Judas Iscariot's betrayal and his actions in terms of historical, social and national originality.

The Representatives of modernism in the early twentieth century cultivated artistic and reinterpreted biblical Christological themes, motifs, and images in a new way. This led to a change in the perception of the image of Judas Iscariot. Instead of unequivocally stating the fact of betrayal, they began to study Iscariot's moral and psychological motives and his actions in terms of historical, social, and national originality. That is why the world image of Judas as a traitor takes on a new meaning in the works of L. Andreiev, V. Vynnychenko, T. Hedberg, O. Kobylanska, S. Cherkasenko, Lesia Ukrainka, and others. In general, "religious drama becomes dominant for diaspora playwrights of the early twentieth century, in which Christian plotting and figurative references to the Holy Scriptures serve faith not as much as national Ukrainian centrist components, Gospel quotations and allusions serve as matrices for discussing mainly social, political, ideological, national, cultural, and philosophical problems" (Bondareva, 2006).

The result of a significant attempt to rethink the gospel motif of betrayal was the drama "The Price of Blood" (1930) by S. Cherkasenko. The drama has been the subject of research by V. Antofiichuk, L. Demianivska, O. Kohut, O. Kuzma, O. Myshanych, T. Sverbilova, and others. O. Kuzma analyzed the intertextuality of the drama and called it "a kind of 'palimpsest' text, which clearly distinguishes biblical intertext, ideological and thematic connection and associations with Lesia Ukrainka's works" (Kuzma, 2014).

O. Kohut and T. Sverbilova studied the poetics of symbolism in the drama. In particular, T. Sverbilova interprets the image of Judas as a victim. V. Antofiichuk notes that the image of Judas Iscariot has acquired an archetypal meaning in world literature, as it combines the motivation for betrayal of one person by another in the most general form (Antofiichuk, 2000, p. 17). In S. Cherkasenko's drama, Judas "realizes his plans thanks to his excellent knowledge of the psychology of the crowd, excited by talk of the coming appearance of the Messiah and therefore ready to believe in the divine election of Jesus. In addition, he cleverly uses the ignorance and fanaticism of some of Jesus' disciples, spreading rumors about Christ's deliberate participation in the hoax of the resurrection of Lazarus" (Antofiichuk, 2002, p. 6).



In world literature, there are many examples of the use of the image of Judas as a universally recognized symbol of betrayal and inevitable retribution for crimes. The main motives for Judas' betrayal in Ukrainian literature were classified by A. Nyamtsu: 1) Judas' disappointment in the Messiah; 2) perception of Jesus as a rival in love with Mary Magdalene; 3) Jesus' ingratitude, who did not realize that Iscariot was his main disciple; 4) betrayal is the realization of Jesus' desire; 5) betrayal as a provocation to rebellion; 6) betrayal as Judas' desire to get rich; 7) betrayal, without which there would be no death and resurrection of Jesus, and, as a result, no sacrifice necessary for the salvation of humanity (Nyamtsu, 2000, p. 89). We agree with O. Kohut and I. Fediushyna that "the image of Judas Iscariot, which concentrated in the most generalized form the motivation for betrayal of one person by another, has acquired an accentuated archetypal sound and meaning in world literature" (Kohut, 2000).

Also it's worth noting the informative observations on the specifics of the author's modeling of the figure of Judas in Lesia Ukrainka's drama "The Price of Blood", made by His Beatitude Sviatoslav Shevchuk in a conversation with Oksana Zabuzhko about Lesia Ukrainka, "There is a conflict between two experiences, two ways of cognizing God: cognition of God through personal, existential life experience - and cognition of God through the repetition of certain logical mental schemes" (Zabuzhko & Shevchuk, 2020).

### 3 Results

Understanding the problems in mythopoetic way should begin with the realization that dualistic myths are widespread in all mythologies of the world, they have many variants in many religions, including Christianity. M. Eliade notes that the word dualism was invented in 1700 to characterize the Iranian doctrine of two spirits and meant the recognition of two opposing principles.

Dualistic myths are reflected in binary oppositions: cosmological (the space and chaos, the moon and the sun, heaven and earth, day and night), biological (male and female), social (dual organization of society), and ethical (good and evil). In our opinion, S. Cherkasenko, using dualistic mythological thinking, reproduced in the drama the opposition "faith - mind", which is depicted through the oppositions "good - evil", "sin - righteousness", "truth - lie", "God - Devil", "life - death", "freedom - slavery", "love - hate", "loyalty - betrayal". The author touches upon the confrontation between faith and reason in the salvation of humanity, based on the mythological plot of the Gospel story of the betrayal of Judas Iscariot. The author gives the right to solve this problem to two archetypal firstfruits - Jesus Christ (faith) and the tempter Judas (mind). The confrontation between Jesus and Judas can be interpreted as an antagonistic duality, as an archetype of a Person and a Shadow. The external features of Judas impose the semantic meaning of Satan the tempter ("Judas, with eyes burning feverishly (emphasis added by M. M.), cautiously crept up to Jesus as he prayed alone on the stone"), burdened with human problems and desires. Let us agree with M. Moklytsia that Satan "loses the aura of unconditional evil and begins to symbolize something not so clearly marked in moral and ethical terms" (Moklytsia, 2002). The image of Jesus Christ corresponds to the canonical prototype and speaks only words from the Bible. In the drama, Judas is a provocative catalyst for its plot development, whose image deviates from the canon and is largely based on apocryphal sources. At the very beginning of the drama, the author emphasizes the secret intentions and insidious calculation of Judas, who wants to get closer to Jesus in any way possible. S. Cherkasenko portrays his inner world as a complete picture of the soul, which reflects the worst flaws of human nature. The author interprets three reasons for Judas' betrayal of Jesus: revenge, rivalry in love, and belonging to another ethnic group. In the drama, Judas is a humiliated soldier of the defeated Jewish army who became a disciple of Jesus and served as a treasurer. He is offended by his defeat in the war, by the fact that he had to steal to eat, by the fact that he was beaten

and thrown into a ditch while admiring a beautiful harlot, by the fact that the invaders laughed at him (Cherkasenko, 1991, p. 791).

There is nothing to distinguish Judas from the crowd; his appearance gives the image only negative semantics. The only thing that distinguishes him from the others is his mind. The author shows Judas' lack of confidence in his abilities and human envy of Jesus, whom he perceives as a rival. The author emphasizes Judas' belonging to another ethnic group, which is conveyed through the opposition "friend - foe". Jesus and all his apostles, except Judas, were Galileans. Ethnically, Judas is a stranger who joined the Galileans to achieve his own goals.

The binary opposition "good - evil" is also encoded in the names of Jesus Christ and Judas Iscariot. "The nickname Iscariot (a man from Carriot) has a symbolic meaning "from the darkness", because "kariot" is something dark, from the root kar, which means dark, dark brown". The name Jesus means "light, clear, sunny. The nickname Christ (from the Hellenic "Christ") was given to those who were the best, kind, decent, honest, noble".

The drama has a vertical structuring of the universe, as there is a clear division into top and bottom. The author notes this in his remarks. During a meeting or conversation, Jesus of Nazareth is always on the higher ground (On a mound, on a barren chunk of rock, in deep thought - Jesus, the young son of Mary from Nazareth) (Cherkasenko, 1991, p. 759) unlike Judas, who often sits down among the stones, i.e. in a mythological dungeon, which also reflects moral and ethical qualities (high and low deeds). According to N. Lysiuk, within the mythological worldview, heaven was imagined as a solid rock. Throughout the work, Jesus and Judas met once in the desert, and all other meetings were fenced off by some objects. This contrast is also reinforced by temporal parameters. Judas is often associated with the dark time of the day, for example, after his conversation with Jesus, he goes into the desert, which is "covered with night"; Judas also has a conversation with Hanan at night.

A variant of the opposition "good - evil" is "God - Devil". In the drama, the first meeting between Jesus and Judas takes place in the desert. This meeting is analogous to the biblical encounter between Jesus and the devil in the desert, who tempted him to sin. It is no accident that such a place for the meeting was chosen, because, as J. Ciriot notes, the desert is a place of trial, the place of residence of Satan and evil spirits. This meeting is significant as the eternal spiritual struggle between good and evil, faith and mind. Jesus Christ and Judas aim to save people: Jesus - from sins, Judas - from slavery, Jews in particular.

The confrontation between Jesus and Judas is a kind of duel between the forces of good and evil that takes place at the bottom of the vertical - on the ground. But Jesus saves the soul, guiding it to the path of goodness and salvation, while Judas cares only about satisfying bodily needs, and only by insidious means (deception, lies, betrayal) and with the benefit of himself. The human mind alone is not able to cognize God and the ideal basis of reality, because it is captive to feelings. At the same time, faith helps to overcome doubts and begin a spiritual life. In this way, S. Cherkasenko reveals the idea of Judas' betrayal. From the very first meeting, the author depicts the communicative conflict between Jesus and Judas. Not understanding and not trying to understand the Christian doctrine, Judas chooses Christ to achieve his own desires, and for this reason he followed Him.

During the conversation in the desert, Judas tempts Jesus with what people always want. First, Judas tempts Jesus to perform a miracle as a proof of his divinity, urging him to turn stones into bread. To which Jesus replies, Does man live by bread alone? (Cherkasenko, 1991). This proves the superiority of the spiritual over the material in Christian mythology: professing the words of God is more important than satisfying hunger. For Judas, the

material is more important, - Set bread before them and be king over all the world) (Cherkasenko, 1991, p. 761). The motif of turning bread into stone is used to realize the opposition between the spiritual and the material. This means that even in times of need, there are more important things than food. Judas believes that the Savior of the world can prove His authority by giving everyone something to eat. Jesus is convinced that power is not the determining, true criterion for measuring salvation. But Jesus performed a miracle by feeding the five thousand people who had come to hear God's Word, leaving everything else behind, opening their hearts to God, so they would receive the bread with faith in their hearts. And finally, an important element of this miracle is the mutual willingness to sacrifice to one's neighbor. Judas cunningly, using his own mind, desacralizes this miracle, using the example of Salome to prove that not everyone can sacrifice. He forces Salome to give the last of her food to the hungry people, provoking her to manifest sinful actions and qualities – greed and anger (Cherkasenko, 1991, p. 773).

The motive of turning stones into bread is connected to the motive of satisfying one's own material needs. In the Bible, the devil is the enemy of God and people, the one who breaks the connection between God and a man. The word "devil" means the one who scatters, separates one object from another or one person from another. In mythology, he is a person who causes discord, division, and strife in thoughts and feelings. Mostly he does everything with the help of temptations. Judas tempts all the apostles, proving that their faith is not true: he sows even more doubt in the heart of the unbeliever Thomas about the truthfulness of faith; provokes John to aggression by paraphrasing Jesus' words; he tempted Magdalene with passionate compliments, reminding her of her dissolute, easy, and luxurious life. Once tempted, it is very easy for a person to sin a second time. For example, by promising Salome to see "her eaglets flying at the king's side", Judas forces her to arrange a "false resurrection of Lazarus".

Later, Judas suffered the same fate as Jesus' temptation: for the sake of his own enrichment, he hid John's jewelry from everyone, and received 'thirty pieces of silver' that would not bring him what he wanted, - Is it for will, or for blood?... / How cheap that blood is... After all - / Only thirty pieces of silver... / (She shudders, then maliciously throws the money into the hole). / Away with the price of blood / When everything died!.. And I ... what am I Now? (Cherkasenko, 1991, p. 868). In this way, the author realizes the opposition "spiritual – material", in which he emphasizes that focusing only on "material bread" that satisfies temporary hunger leads to unbelief, and as a result, to spiritual death.

The opposition "sin – righteousness" is manifested in the temptation of Jesus by Judas to commit sin, - Oh, proud Rome / Will fall at your feet as a humble slave. / And Israel will sing a song of freedom (Cherkasenko, 1991, p. 760). But Jesus understands the cost of achieving all these "benefits", - I do not bring war to people, but peace" (Cherkasenko, 1991, p. 760). Judas, on the other hand, has no obstacles to achieve his goals, not even a human life, - Blood?.. What is blood?.. / It has no price: the blood of such slaves, / Like us ... It is nothing, it is water, / Which can be swim ashore / Freedom, with the blood of its enemies / Mixing it. (Cherkasenko, 1991, p. 817).

Judas tempts Jesus with power, - Listen to me, Rabbi Jesus, / And you will become a king and a god on earth / And you will save the world from slavery and abuse (Cherkasenko, 1991, p. 762). Jesus overcomes temptation because his faith is unshakable. By his victory over all temptations, Jesus shows that he is indeed the Son of God who came to destroy the devil and his works. His great weapon is the Word, which helps him recognize truth and lies. The author introduces this dialog to show that the motive of temptation is a part of life in this world, and a man should imitate the God-man.

The grace of God changes a person, enabling him or her to make the right choice and act in accordance with the will of

God. An example of this is the image of Mary Magdalene, who underwent a spiritual rebirth thanks to Jesus. For the Christian Magdalene, Jesus became the light of her spiritual life. Solar symbolism is associated with cathartic ideas (the idea of purity and purification). Jesus is likened to light, a valuable factor to which the soul of the righteous is directed. Jesus showed Magdalene her path and how to avoid temptations, and helped her change her own life. Magdalene was most afraid of succumbing to the sin of fornication again, and so because of her fear she did not see Judas' true intentions. Of all the people who followed Jesus, Magdalene supports Judas the longest in his quest to make Jesus the king. But the sentencing of Jesus to death forced Magdalene to see the real Judas. Judas himself did not overcome this temptation: thanks to his ingenuity, his intelligence, and his power, he betrayed Jesus to the Romans, not realizing that he himself had been used and deceived.

Another of Jesus' temptations in the desert is deception. Judas suggests that he jump off a cliff because God will not let him fall, challenging him to prove that he is truly the Son of God. During this test, Judas quotes from the Bible, - ... there it is also said that God / will order his angels / to protect you in all your ways / so that you do not trip over a stone with your foot. / (With malicious irony). Do I say yes or no, son of God? (Cherkasenko, 1991, p. 762), changing the tactics of temptation. As in his previous attempts, Jesus does not compromise with Judas, categorically rejecting his proposal, "Do not tempt God". With these words, Jesus emphasizes his complete trust in God's Providence. All material things are the cause of sin, but a man is given the freedom of choice. This is how the opposition "freedom – slavery" is realized. Jesus asserts that a person has the choice to do good or evil, and the highest degree of freedom is the ability not to do evil. The person who has the grace of God is the freest; true freedom is serving Christ. Judas, however, is convinced that freedom must be gained through war, and then a person can be free in his own land without Roman invaders, - Only free people need peace, not slaves. / From slavery, peace will never liberate (Cherkasenko, 1991, p. 760).

With his action, Jesus teaches people to refuse momentary pleasures and vicious desires, no matter how persistently they are offered. Evil makes life more difficult because it encourages us to pursue what is more convenient. Judas himself cannot give up love, which is devoid of spiritual meaning. He is clouded by his passion for the harlot woman and does not take into account the feelings of his beloved one. In the desire to possess this woman, a certain obsession can be traced, indicating that the devil has taken possession of his soul and body. The same obsession can be seen in the revenge against the Romans, which Judas sees as realized through the return of the independence of his homeland. In this way, in his opinion, he will regain his status and get a life with the woman he desires.

S. Cherkasenko emphasizes that when a person's goals become the only purpose of life and prevail over relationships with loved ones and other important aspects of life, this can lead to negative consequences: a sense of dissatisfaction, alienation from family and friends, and loss of balance in life.

In our opinion, the great drama of Judas is that he understands himself and his ideas about Christ better than he understands the person of Christ. The meeting between Judas and Jesus Christ is an opportunity for Judas to get closer to a spiritual life, to get closer to God, to change his life for the better. Judas, like every person facing a choice, has two options: good or evil. Christ encourages Judas to constantly change his plans and actions, but always gives him a choice. And Judas' life depends only on his own choice, and as a result, it may turn out that you have not achieved what you originally wanted. Judas' death is not accidental; it is the logical outcome of his sinful life, because the author, in our opinion, sees the salvation of humanity in the Christian religion. We agree with Y. Polshchuk that Judas is more likely a person that strives for "mastery of the high ego, ... but stops before internal obstacles-passions, temptations, personal benefits-that are unable to overcome them. In the end,

those passions and temptations turn out to be illusory, but the realization of this comes with a tragic delay" (Polishchuk, 2002). Judas' suicide can be interpreted as the loss of "mind" to "faith". Jesus' self-sacrifice is the highest price for the salvation of people, which is the sacred meaning of sacrifice. Judas realized that mind without faith will not save people. All of Christ's disciples had left Judas, the woman he desired had left as well, and even the precious glory, which had been misappropriated, had been stolen. In this situation, the mind suggests one thing: suicide, which in Christianity is the greatest sin, indicates the final possession of the "unclean" soul of a person. In our opinion, in this way the author describes the universe as a unity of opposite phenomena, which is characteristic of the dualistic myth, where the victory of good implies the destruction of evil.

#### 4 Conclusions

S. Cherkasenko wrote the drama "The Price of Blood" in 1930, when he was already an adult. It was a difficult adaptation period of the writer's life abroad. Perhaps this was the reason for his appeal to human existence.

The dualistic mythomodel in "The Price of Blood" is modeled through the motif of the battle between faith and mind and is represented by the binary oppositions of "good – evil", "sin – righteousness", "truth – lie", "God – Devil", "life – death", "freedom – slavery", "spiritual – material", "loyalty – betrayal". The binary opposition "good-evil" is encoded in the archetypal first - Jesus Christ (faith) and the tempter Judas (mind), and their confrontation can be interpreted as an antagonistic duality.

The artistic realization of betrayal is at the same time the protagonist's redemption, which is connected with the inconsistency and contradictions of Judas' character, who is perceived as a hostage to his existence, his fate.

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**Primary Paper Section: A**

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## THE MANAGEMENT OF FINANCES IN INTERNATIONAL PROJECTS: OPTIMIZING COSTS AND ENSURING SUCCESS THROUGH GLOBAL INVESTMENTS AND FINANCIAL MANAGEMENT

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**Abstract:** In the course of writing the scientific article, an in-depth study of aspects of financial management in the context of international projects was conducted. The focus was on analyzing cost optimization strategies and achieving success in a global investment and financial management environment. The conducted research shows that in the modern world of globalization, it is important to understand and effectively implement financial management strategies that take into account the unique aspects of international business. Particular attention is paid to the identification of risks related to the external environment, such as currency fluctuations, political and economic risks, which affect the effectiveness of financial decisions. Particular attention is paid to the use of specialized financial instruments to reduce risks, such as risk management and multi-currency settlements. The article analyzes in detail the influence of financial decisions on the effectiveness of international projects, emphasizing the strategic context of profit maximization and ensuring the stability of the financial position. The study of the interaction of financial mechanisms in international transactions takes place in the context of the unique challenges of the global business environment, including currency fluctuations and political and economic risk. In addition, the article summarizes recommendations and strategies aimed at achieving maximum efficiency and sustainability for international projects through careful strategic planning and cost optimization. A detailed analysis of various mechanisms of financial management in the context of global investments has revealed key principles that can serve as a basis for solving complex financial management tasks in international business.

**Keywords:** Management of finances, International project, Cost optimization, Global investments, Financial management, Financial strategy, Strategic financial planning.

### 1 Introduction

Management of finances in international projects is particularly important in today's world, when globalization is becoming not only a reality but also a necessity for the development of organizations. The ability to optimize costs and ensure success through global investments and financial management is becoming a crucial element of strategic management. International projects involving a variety of industries and crossing borders require managers to possess a high level of competence and a deep understanding of the complexities of financial management in a globally competitive environment.

In this context, cost optimization and efficient use of resources are becoming strategic tasks for achieving competitiveness in the international market. Investments act not only as a source of financing but also as a catalyst for development, contributing to the formation of stable and viable business models. Companies may optimize their potential by skillfully managing risks and seizing opportunities in the global economic landscape, all thanks to modern approaches to financial management.

In addition, the dynamics of the modern economic landscape should be taken into account, where the business environment is constantly changing under the influence of technological progress, political decisions and social-cultural factors. In such an unpredictable environment, management of finances becomes not only a tool to ensure stability but also a critical factor in achieving competitive advantage.

Global investments, using innovative approaches and strategies, can open up new markets, increase production capacity and provide access to technology, which contributes to the creation of more efficient and competitive business models. Management

of finances, in turn, should be innovation-oriented, taking into account not only traditional aspects of accounting but also innovative methods of resource and risk management.

The purpose of writing a scientific article was to conduct an in-depth research and analysis of significant aspects of the management of finances in international projects. The primary focus was on identifying effective strategies to optimize costs and succeed in the conditions of global investment and financial management.

### 2 Literature Review

Ananieva Yu. (2023) investigates the impact of globalization on the financial stability of enterprises in her scientific work and develops strategies to ensure it. Globalization is considered as a factor that may influence a company's financial stability in both positive and negative ways given the current economic circumstances. The author examines the key factors of this influence and proposes effective strategies to ensure the financial stability of enterprises in a global environment. The major aspects explored in the publication include diversification of activities, creation of reserve funds, cost optimization, development of a long-term strategy, and investment in innovation, risk management and staff development. The results of the study may be useful for business executives, financial analysts and other business professionals.

In the course of her scientific practice, Lukyanenko I.G. (2021) analyzed the situation regarding investment activity in key regions of the world; the scholar assessed investment activity in the field of financial technologies in three major global regions. One of the key components of the study was the grouping of countries using cluster analysis methods based on criteria that determine the level of economic development and innovation in the financial sector.

In addition, Ostapchuk, O., Baksalova O., Babii I. (2022) studied the issues of financial management, focusing on the structure and development of efficiency in this area. They identified the role of information technologies and the impact of e-commerce on optimizing the expenditure of enterprises' financial resources. The authors emphasize the importance of improving financial management in the digital economy; however, at the same time, they point out the existence of financial risks when using the latest technologies. Further studies are required to systematize the tools and identify factors influencing the effectiveness of their use.

Mandych O., Babko N., Lysenko M., Kharchevnikova L. (2022) studied the digital transformation of business in their scientific work. In the course of writing this academic paper, attention was focused on defining and analyzing digital transformations in the field of business. The authors emphasize that at the current stage, digitalization has become a strategic goal for the development of any company, covering both individual business processes and the creation of a business model based on comprehensive digital transformation.

### 3 Methods that have been applied

The following methods were used in the course of the research:

- analysis of literature sources was used to systematize the existing theoretical knowledge on the management of finances in international projects and made it possible to identify key concepts, theories and practical aspects of financial management in the global context;
- the generalization method was applied to combine various data and information in order to reveal general patterns and trends in managing finances in international projects;

- the systematization method was used to organize and classify various aspects of the management of finances in international projects.

#### 4 Research results

Financial management is crucial in managing the finances of international projects since it shapes the company's strategic decisions both at the general level and within individual divisions. Consideration of financial aspects is a necessary element to ensure the success and efficiency of projects operating in a global context.

The globalization of economic processes, the transition of business entities to a market economy, and Ukraine's accession to the World Trade Organization have, to an unknown extent, led to an increase in the number of financially unproductive enterprises. In the context outlined, management of finances is defined as the purposeful influence of management bodies on financial processes and operations in order to achieve and ensure the harmony of financial stability, profit and financial security for achieving economic and social goals (Hrabova, 2021).

A distinctive feature of financial management is the strategic creation of a mechanism for redistributing financial resources between and within different participants in the financial system, including activities aimed at mobilizing and efficiently using financial resources. The management of enterprises' finances is based on objective and subjective laws of social development, taking into account and using the principles of distribution of finished products and gross income of the enterprise (Demyanova, 2021).

The essence of the concept of financial management can be conceptualized as a means of implementing finance and financial policy, creating effective mechanisms for their implementation. At the same time, the management of finances is a complex set of methods aimed at influencing the organization and optimizing financial relations and resources. In addition, this involves active control over management structures and the financial apparatus at all levels of the enterprise's internal management. Financial management is defined as a strategic tool for achieving financial goals and optimizing the resource potential of an enterprise (Ishchenko, 2022).

At the same time, the financial management of an international project differs from a domestic project due to the complex influence of several factors. Taxation, political and governmental risk, restrictions on accepting investments from external sources, and international accounting and financial reporting aspects create a unique environment for financial management (Nikolyak, 2022). The features of international financial management include, in particular, adaptation to taxation conditions in different countries, assessment of political and governmental risk in each region, consideration of restrictions that may apply to attracting foreign investment, and the specifics of using international financial instruments (Didenko, Volyk, 2023).

The effectiveness of managing international cash flows and other assets is determined by many factors, such as changes in exchange rates, political and economic developments in the regions, international banking relationships, and international financing methods and rates. Management of finances on a global scale requires in-depth analysis, forecasting and adoption

of effective strategies in the face of constant changes in the global economy (Vorzhakova et al., 2021).

Different economic conditions of the countries in which an international company operates should be considered while managing the finances of multinational projects. This is because these conditions are determined by the variations in economic indicators. Different countries have different levels of integration into the global economy, economic growth rates, and inflation rates, availability of resources and interest rates, and balance of payments. The differences outlined give rise to additional market and financial risks that should be predictable and taken into account when making financial and investment decisions (Lisovenko, 2023).

National legislation of different states plays a significant role in the formation of financial strategies. Various legal regulations on foreign investment, financial transactions, financial markets, taxation, and export-import operations may cause conflicts between the interests of international corporations and the relevant government authorities (Chernega et al., 2022). In addition, governments may restrict the international corporations' actions, and this, in turn, influences the conditions for exporting profits, foreign operations, and employment of local labor. Issues related to foreign currency are also becoming a significant component for companies operating in the global market. Risks of foreign currency exchange and constant fluctuations in the value of foreign currencies are becoming essential aspects of financial management in the conditions of the global business environment (Zhigalkevich et al., 2022).

Furthermore, a major aspect of foreign companies' financial management is their national economies' tax policies. The variability of tax pressure in different countries opens up opportunities for arbitrage and tax optimization, which may affect the financial strategies of international corporations. Differentiation of taxation for domestic and foreign companies determines the need for careful consideration of these features when launching a business in particular countries (Vlasenko et al., 2021).

Cost optimization through global investment defines a strategic approach to managing finances in international projects aimed at minimizing costs and maximizing performance. This approach involves a thorough analysis and rationalization of cost elements through the effective use of global investments (Hrazhevskya et al., 2021). Moreover, cost optimization seeks to strike the best possible balance between risks and returns, enabling the business to adapt quickly to shifting circumstances in global marketplaces. This includes allocating investments across various sectors and different industries in order to maintain an ideal portfolio balance. (Kharchenko et al., 2021).

Thus, global investments not only diversify risks but also provide access to new markets and opportunities for efficient use of resources, including the development of new products and services, as well as the improvement of management processes. This approach to cost optimization is aimed at providing sustainability and competitiveness of the enterprise in the global market environment, ensuring a balance between efficiency, innovation and financial stability (Levkovich et al., 2021). Therefore, cost optimization through global investments is a complex process that includes a number of strategic and tactical actions, as outlined in Table 1.

Table 1. Methods of cost optimization through global investments

№	Process	Features
Global management of the supply chain		
1.	Diversification of suppliers	Expanding the base of suppliers can help avoid the risk of dependence on a single supplier and gain access to more competitive supply terms
2.	Optimization of transportation	Choosing optimal logistics routes and vehicles can reduce shipping costs and ensure efficient movement of goods through the supply chain
Global financial management		
3.	Currency exchange	Currency exchange transactions make it possible to avoid risks from changes in exchange rates and

		maximize profitability
4.	Optimization of tax liabilities	The understanding of tax regimes in different countries provides an opportunity to use optimal tax strategies and avoid double taxation
Global diversification of the investment portfolio		
5.	Diversification of the investment portfolio	The distribution of investments across different industries and regions helps reduce risks and ensures portfolio stability
6.	Strategic partnerships and asset acquisitions	Searching for strategic partners or acquiring assets in different parts of the world can create opportunities to increase efficiency and access to new markets
Technological innovations		
7.	Implementation of automation technologies	Use of automation of production and business processes can reduce costs and increase productivity
8.	Implementation of analytics and data flow	The use of data analytics provides insights for cost management and effective decision-making
Environmental efficiency		
9.	Green initiative	Implementation of environmentally efficient production and logistics methods can reduce energy and water costs

Source: Compiled by the author based on (Rozumovych et al., 2023).

Therefore, cost optimization through global investment is an integral part of strategic management for international companies. It requires not only high expertise in finance and management but also a deep understanding of the global business environment and its nuances. A systematic analysis aimed at identifying optimal solutions is determined by the company's readiness to adapt to changes in markets, legislation and the economy (Velyka, 2023). Maximizing profits, reducing expenses and efficient use of resources in global investments determine the competitiveness of an enterprise on the world stage. At the same time, it is important to consider the flexibility of strategies and decisions since the international business environment is dynamic and often subject to unpredictable changes (Moroz, 2023).

International projects are becoming an essential component of a company's strategic development in the modern world operating in a global market environment. It's critical to recognize and efficiently handle a range of expenses in order to guarantee the long-term success and viability of such initiatives (Verlanov, 2021). Thus, mechanisms of cost optimization are a key tool for achieving this goal since they enable companies to use financial resources rationally and minimize costs in the context of global competition (Table 2).

Table 2. Mechanisms for cost optimization through financial management

№	Process	Features
1.	Budgeting and controlling	Careful planning and management of the project budget ensures effective cost control, avoidance of unnecessary expenses, and timely detection of deviations
2.	Optimization of capital investments	Analysis and selection of optimal investment methods for ensuring maximum capital efficiency and minimizing risks
3.	Financial analysis and forecasting	Using financial analysis to forecast market trends, determine optimal strategies and adapt to changes in the financial environment
4.	Risk management	Developing and implementing risk management strategies to reduce financial losses due to unforeseen events or fluctuations in market conditions
5.	Optimization of working capital assets	Rational management of working capital assets and inventory to minimize financial losses due to delays and unforeseen circumstances
6.	Selection of effective financial instruments	Analyzing and selecting the most effective financial instruments, such as loans or securities, to optimize the financing structure of the project
7.	Management of suppliers and contracts	Studying and optimizing supply costs and contractual agreements with suppliers to obtain better terms and avoid overpayments
8.	Use of innovative technologies	Investing in innovations and technologies to ensure increased efficiency and reduce production costs
9.	Strategic financial planning	Elaboration of long-term strategies for the financial development of the project, taking into account international economic and financial trends

Source: Compiled by the author based on (Dalik et al., 2023).

Thus, financial management plays a crucial role in achieving the optimal use of financial resources and minimizing costs, which is especially important in the context of international activities. The mechanisms considered include strategies for attracting funds, optimizing the capital structure, managing working capital and rationalizing financial processes (Nazarchuk, 2018). The application of these mechanisms provides companies not only with cost savings but also with the ability to ensure the sustainability of their financial position, maximize profits and increase competitiveness in the international market. At the same time, it is also important to take into account the specifics of international transactions, such as currency risks, taxation and regulatory restrictions (Nepochatenko et al., 2021).

Optimizing costs and ensuring success in the context of global investment and financial management is one of the factors of the effective functioning of enterprises in the international business environment. The modern business environment determines the

need for rational use of resources and strategic management of finances (Bashlay et al., 2023).

Global investments require not only capital investments but also a careful analysis of the risks related to the diversity of economic, tax, trade and currency systems. Financial management, in turn, is a key tool for achieving efficiency in a global business environment, ensuring the optimal use of financial resources, strategic planning and minimizing financial risks (Shubina, 2023).

Successful implementation of global investments and effective financial management allow companies not only to reduce costs but also to increase competitiveness, expand markets and ensure long-term stability. Taking into account all aspects of the global business environment and implementing effective cost optimization strategies are becoming an integral part of the successful management of a company in a highly competitive and rapidly changing global marketplace.

## 5 Discussion

We agree with the statement of Ananieva, Yu. (2023), because her research deeply analyzes the impact of globalization on the enterprises' financial stability and provides specific strategies to ensure this stability in the context of globalization. It is noted that globalization can have both a positive and negative impact on the financial situation of companies, and it is essential to take these aspects into account when developing strategies for financial management. This publication provides a detailed discussion of the key factors influencing globalization, such as diversification of activities, creation of reserve funds, cost optimization, development of long-term strategies and investment in innovation. Practical recommendations for effective partnership cooperation are provided, including building trust, optimizing communications and developing mutually beneficial agreements.

We partially agree with the statement of Lukyanenko, I.G. (2021) since studying the state of investment activity in the fintech industry in global regions is an important step in understanding the dynamics of this sector. However, it is important to keep in mind that investment activity can be driven by various factors, such as regulatory policy, technological readiness, and the innovation environment.

We support the statement of Ostapchuk, O., Baksalova, O., Babii, I. (2022) since their study has systematized approaches to financial management and identified areas for its development. The authors highlighted the importance of information technologies and the impact of e-commerce on optimizing the expenditure of enterprises' financial resources.

We share the opinion of Mandych, O., Babko, N., Lysenko, M., Kharchevnikova, L. (2022), because their study on digital business transformation reflects the current realities of company development in the context of the global digital economy. According to the definition of digitalization as a priority area for enterprise development given above, digital technologies are now essential in today's world and help make businesses more competitive in the marketplace. Furthermore, the scientific article's framework for the various stages of business digitalization, as well as its discussion of prerequisites, opportunities, and potential issues, demonstrate the authors' in-depth knowledge and comprehension of the subject of digital transformation and bolster the validity of their findings.

## 6 Conclusions

The management of finances in international projects is a complex and crucial element of a company's strategy in the global business environment, requiring a deep understanding of financial, market and cultural aspects. In this context, cost optimization is a prerequisite for achieving successful results and sustainability, including not only the careful use of financial resources but also the strategic selection of the most profitable and strategically important areas for global investment.

Awareness of global investment opportunities and their adaptation to different market conditions is crucial for successful financial management in international projects. The application of modern financial instruments and technologies is becoming a necessity for the effective management of finances on a global scale.

In the course of writing the scientific article, the authors have also identified the optimal cost optimization strategies and determined their impact on success in global investments. These strategies include recommendations on how to use financial instruments in order to mitigate risks, maximize profits and ensure the sustainability of the financial position.

Success in international projects is ensured not only through financial strategies, but also by taking into account local features, cultural differences, and legal aspects. Effective financial planning and development of projects requires a deep

understanding of the managerial, economic, and social-cultural factors that influence events in the global market.

Therefore, management of finances in international projects requires a comprehensive approach and a deep understanding of the modern global business environment. Only after considering the factors outlined above, companies can achieve stability in a competitive market space.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, AH**



## THE ROLE OF DIGITAL TECHNOLOGIES IN THE TRANSFORMATION OF THE TOURISM BUSINESS: PROSPECTS FOR DEVELOPMENT AND IMPACT ON THE COUNTRY'S ECONOMY

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**Abstract:** Digital tourism is becoming increasingly relevant due to global technological innovations and consumer behavior changes. Adaptation to the new realities caused by digital transformation requires in-depth study and analysis of both theoretical and practical aspects of this topic. The modern tourism industry is looking for ways of efficient use of digital technologies to ensure sustainable development and increase competitiveness. The study aims to analyze the impact of digital marketing on tourism development. Modern technologies and their application in the tourism sector are the subject of this research. The methodological framework is based on a combination of quantitative and qualitative methods. These methods allowed for a comprehensive analysis of the topic under the study. The paper revealed that the integration of digital tools can significantly improve the quality of tourism services and help to adapt to the changing needs of customers. The use of digital technologies in tourism fosters the creation of new business models, expansion of market presence, and optimization of customer interaction.

**Keywords:** digitalization of tourism, competitiveness, small and medium-sized enterprises, sustainable development, digital transformation, data protection.

### 1 Introduction

In the last decade, the digital revolution has led to profound changes in many sectors of the global economy. The tourism industry, traditionally characterized by stability and predictability, now faces unprecedented challenges and opportunities due to the proliferation of digital technologies. The main aspects of this industry, from instant hotel booking to personalized travel recommendations based on artificial intelligence, are undergoing revolutionary changes.

This article aims to explore the role of digital technologies in transforming the tourism business and to examine the potential impact of these changes on the country's economy. We will investigate how innovative technologies affect entrepreneurs' strategies, consumer opportunities, and the interaction of various market participants in the context of the new digital era.

It is important to note that the impact of digital technologies on the tourism business goes beyond simplifying booking processes or improving user experience. They also provide opportunities to create new business models, promote global integration, and foster interaction among market participants. These technologies can strengthen the positions of small and medium-sized enterprises.

On the other hand, digital transformation in tourism requires regulatory bodies to adopt a new approach to policymaking in this area, especially regarding competition, user data protection, and sustainable development. Thus, digital transformation in tourism has opened up numerous opportunities for the industry, from online booking services to virtual tours and the use of artificial intelligence for personalized recommendations. However, such rapid and profound changes also present new challenges for government regulation.

One of the key issues is ensuring competition. With the emergence of major online booking platforms that control a significant market share, there is a risk of monopolies or oligopolies forming. This can lead to increased prices for consumers and insufficient innovation. Therefore, government agencies must study market dynamics and make necessary adjustments to legislation.

Users' data protection is another crucial aspect. Online services collect a vast amount of information about their users. This

information can be used not only for personalizing offers but also for manipulating prices or violating user privacy. Governments need to establish strict rules and standards for the storage and processing of personal data and continuously monitor their compliance.

Sustainable development in the context of digital transformation in tourism requires special attention from the academic community. On the one hand, digital technologies can contribute to ecological and sociocultural development, mainly by promoting ecotourism or "slow" tourism. On the other hand, uncontrolled resource utilization can devalue tourist destinations. Governments should actively collaborate with local communities and businesses to create sustainable development strategies.

Additionally, it's essential to consider the environmental dimension of digital transformation. Digital technologies can play a crucial role in supporting sustainable tourism by optimizing resource usage and reducing environmental impact.

This study is based on several key hypotheses. The first hypothesis predicts that the adoption of digital technologies in the tourism business increases the competitiveness of small and medium-sized enterprises. It allows them to occupy niches that were previously accessible only to large corporations. The second hypothesis suggests that digital transformation can promote sustainable tourism, especially in terms of resource optimization and reduced environmental impact. Finally, the third hypothesis assumes that active digitization of the tourism industry requires new approaches to regulation by governments, particularly concerning user data protection and ensuring competition.

We will try to verify/falsify the above statements in light of a critical analysis of the current literature on the subject of our study and other information available during the research.

### 2 Literature review

The issue outlined in the title of this article attracts the attention of many scholars from different continents. The analyzed literature can be conditionally grouped into the following four thematic blocks:

- The basics of digital tourism and its role in the future.
- Digital marketing and its impact on the tourism business.
- Social media, internet marketing, and new technologies in tourism.
- The impact of digital tourism on regional development.

We would like to emphasize that this classification is relatively nominal. All the materials that we have reviewed relate to a single common problem area, which is tourism in the era of digitalization. However, they differ in terms of topics, focusing on one or another side of the phenomenon under study.

#### 2.1 The basics of digital tourism and its role in the future

According to the research by E. Happ and Z. Ivancsó-Horváth (2018), digital tourism emerges as a future challenge, indicating new approaches to the tourism industry. At the same time, K.O. Kayumovich (2020) explores the prospects of digital tourism development, emphasizing the strategic importance of digital innovations for the industry. Additionally, a team of researchers led by M. Watkins (2018) suggests that digital tourism can be a key driver of economic development in many countries. It's also important to mention the work of T. Pencarelli (2020), who examines the digital revolution in the travel and tourism industry. L. Caravan (2017) investigates contemporary trends in promoting tourism services in the digital age.

Thus, by emphasizing the central place of digital tourism in the modern world, all these researchers confirm its huge potential and impact on the future of the tourism industry.

## 2.2 Digital marketing and its impact on the tourism business

Digital marketing plays a crucial role in the tourism industry today. In particular, A. Hassan and R. Rahimi (2016) emphasize the significance of augmented reality as an innovative tool in digital tourism marketing. J. R. Saura, A. Reyes-Menendez, and P. R. Palos-Sanchez (2020) underline the importance of fundamental digital strategies and trends in the tourism business. Meanwhile, B. P. Kushwaha (2020) examines personalized digital marketing in the context of tourism. On the other hand, S. Hudson (2014) focuses on the challenges of tourism marketing in the digital global economy.

The study of the impact of digital marketing on tourism continues to gain momentum. V. Mathew and M. Soliman (2021) investigate how digital content marketing influences consumer behavior in tourism based on technology acceptance models. G. Gupta (2019) explores the comprehensive application of digital marketing in the tourism industry. The primary focus of S. K. Deb, S. M. Nafi, and M. Valeri's (2022) research is on promoting the development of the tourism business through digital marketing in the "new normal".

S. Maurer (2021) thoroughly studies digital marketing in tourism, while N. P. R. Dewi (2020) concentrates on digital marketing strategies for tourism companies in the era of Marketing 4.0. Meanwhile, S. Riyadi (2019) presents digital marketing strategies to support the tourism economy, particularly by examining the case of "Atlantis Land Surabaya". T. Floričić (2018) focuses on the promotion of digital tourism and electronic marketing.

S. Carvalho and J. V. Carvalho (2020) discuss the consequences of digital marketing and e-commerce for the growth of the tourism sector. M. P. Ratiu and I. M. Purcarea (2015) reveal the advantages of digital tourism on the path to success in digital marketing. J. D. Santos and O. L. Silva (2019) provide a comprehensive overview of digital marketing strategies for the tourism and aviation industries. In conclusion, I. V. Hristoforova et al. (2019) offer methods for improving digital technologies in marketing communications for tourism enterprises.

## 2.3 Social media, internet marketing, and new technologies in tourism

M. Tairova, O. Khurramov, and N. Odinaeva (2021) emphasize the vital role of Internet marketing in digital tourism. K. O. Kayumovich (2020) explores the specifics of using social networks in digital tourism. L. Tsourgiannis and S. Valsamidis (2019) examine the reasons why Greek tourists use digital marketing applications like Airbnb.

A. P. Kontis and S. Skoultos (2022) investigate the digital evolution in tourism marketing channels, especially the Greek tourism industry and online travel agencies. M. H. Dewantara, S. Gardiner, and X. Jin (2023) provide a literature review on the ecosystem of travel blogs concerning the development of digital marketing. K. Skagias et al. (2022) offer the latest developments and recommendations in digital and influencer marketing for Mykonos.

F. Goenadhi and D. R. Rahadi (2020) determine the target audience of digital Tourism 4.0. I. N. Sudapet et al. (2019) focus on researching Indonesia in the field of tourism and digital tourism. Finally, P. Li-Xin (2016) examines the application of virtual reality technology in digital tourism systems.

## 2.4 The impact of digital tourism on regional development

A. Preko, G. K. Amoako, R. K. Dzogbenuku, and R. O. Boakye (2020) explore digital tourism and its role in sustainable regional development in developed countries. Z. Chiteka, S. Moyo, and

T. Matiza (2020) study the impact of digital tourism on rural communities. J. Clarke (2019) examines the connection between digital tourism and the sustainability of economic development, as well as the challenges and opportunities that arise in this context. D. Gursoy, M. Saayman, and M. Sotiriadis (2021) focus on the role of digital tourism in regional development and economic sustainability. Finally, B. Maksimchuk and T. Bilozerozov (2021) argue that digital tourism is a crucial factor for the sustainable development of the industry in all tourist regions worldwide.

Digital tourism has become a key area of research as technologies increasingly permeate the tourism sector. It affects various aspects, from marketing to the sustainable development of regions. The scholars emphasize the importance of digital tourism for regional development, especially in developed countries (Preko et al., 2020). Special attention is given to the impact of digital technologies on rural communities (Chiteka et al., 2020) and the relationship between digital tourism and sustainability (Clarke, 2019; Gursoy et al., 2021).

Furthermore, new opportunities and challenges faced by the tourism industry in the digital age are explored. They include marketing strategies, the use of social media, and the influence of virtual reality on tourism. Such studies highlight the depth and complexity of digital transformation in tourism, emphasizing the need for adaptation and innovation to achieve sustainable development (Maksimchuk & Bilozerozov, 2021).

Therefore, studying tourism digitalization plays a crucial role in contemporary research. It shapes new directions for the industry and points to possible ways to optimize practices in a rapidly changing world.

## 3 Aims

In light of the aforementioned, the article aims to analyze the current state of the travel industry during the digitalization era and to identify strategic directions for its development. Our research focuses on identifying the opportunities and challenges faced by the industry. We also aim to develop recommendations for various market players to achieve long-term success within the new digital reality.

## 4 Methodology

The methodology of this research is based on a comprehensive approach towards analyzing the scientific literature on digital tourism. First of all, research publications from databases containing scientific papers in the field of tourism were systematically reviewed. There were chosen relevant sources covering various aspects of digital tourism, including marketing, sustainable development, technology, and other key elements.

Each publication was reviewed per its content, key concepts, research methods, and conclusions to ensure the accuracy and completeness of the analysis. The main goal was to identify general trends, benefits, and challenges, as well as to determine the main directions of digital tourism development.

After that, based on the collected data, all the information was aggregated and systematized. It allowed us to identify key topics and issues that arise in the context of digital tourism, as well as to develop a balanced approach to their understanding and interpretation.

The triangulation methodology was applied to confirm the reliability and validity of the results, which involves comparing findings from different sources. This approach helped to ensure the unbiased and scientific accuracy of the results.

## 5 Results

In today's world, where technologies are rapidly changing our lifestyles, the tourism sector has not stayed away from these transformations. Digital marketing has turned out to be one of

the key tools that has dramatically changed the approach to the promotion and sale of tourism products. Through interactive platforms and social media, travel companies can now interact directly with their target audience, receiving real-time feedback and adapting to changing customer needs. This has not only increased the effectiveness of marketing campaigns but also helped to build long-term relationships with customers based on trust and a personalized approach.

Virtual reality, smartphone apps, and other digital innovations have opened new horizons for presenting tourist destinations and services. Nowadays, a potential tourist can virtually visit a hotel, restaurant, or natural park before making a travel decision. However, such innovations have also added convenience for consumers. They have forced tour operators, hotels, and other tourism businesses to be more innovative, adaptive, and competitive. Digital marketing has become the key to attracting new market segments and expanding their geographical presence.

As a result, digital marketing has played a crucial role in shaping the modern face of tourism. It has made tourism more dynamic, accessible, and adaptable to the rapidly changing needs of the modern consumer.

Modern tourism is facing numerous challenges, including both competition and changing consumer habits, as well as the need to harmonize development with the principles of sustainability and conservation of natural resources. In this context, digital tourism has proven to be not only an innovative marketing tool but also a powerful means of supporting the sustainable development of the industry.

Thanks to technology, tourism companies have gained the ability to ensure the rational use of natural resources. For example, by using intelligent resource management systems, hotels can optimize the use of water and electricity, which plays an essential role in preserving the natural environment.

In addition, digital platforms allow for the study and analysis of tourist behavior. As a result, they can direct tourists to less famous but no fewer interesting places, thus distributing the tourist flow and reducing pressure on the most visited locations. Such decentralization helps prevent the overloading of specific tourist destinations and promotes the development of less favored regions. The introduction of digital technologies also contributes to the development of cultural and historical tourism. Through virtual reality or augmented reality applications, visitors can immerse themselves in the history of a place and its cultural and traditional features (Pomaza-Ponomarenko et al., 2020). All this enriches their experience and deepens their knowledge of the region.

Therefore, digital tourism opens up new opportunities for the tourism business. It also makes an essential contribution to the sustainable development of the industry by offering innovative solutions for the preservation of natural and cultural heritage. Digital tourism, despite its numerous advantages, also faces a series of challenges that may impact its further development. One of the main issues is ensuring the confidentiality and security of user data. In a world where data is becoming the most valuable resource, providing its protection is the responsibility of all market participants (Mrykhina et al., 2020).

The increasing dependence on digital technologies can also lead to a sense of alienation and isolation among tourists seeking an authentic experience and direct contact with the local culture. Therefore, there is a need to find a balance between using digital tools and ensuring deep immersion in the real environment. Additionally, the industry must adapt to rapidly changing technological standards and constant updates to marketing tools. Tourism organizations should be prepared for the swift implementation of innovations and continuous education of their staff.

However, alongside these challenges, digital tourism offers numerous prospects. Automation and business process

optimization can significantly enhance the quality of services and make tourism more accessible to a wider audience. Integration with other technologies, such as artificial intelligence or blockchain, can open new horizons for personalizing offers and ensuring transaction security.

Considering all the challenges and opportunities, it can be said that the future of tourism digitization looks highly optimistic. Through the combination of technology, innovative solutions, and strategic planning, the industry can reach new heights of success, offering tourists unparalleled experiences and discoveries.

## 6 Discussion

Digitalization of tourism, like any new phenomenon or concept, not only draws attention to its advantages and possibilities but also sparks debates regarding its impact on the tourism industry and society in general. At first glance, digitalization in tourism appears as an undeniable positive step forward. However, could it lead to the disappearance of the authenticity of the travel experience? If everything is optimized and digitized, will travelers lose the opportunity to serendipitously wander through the streets of an old city and discover something truly unique that is not mentioned in any guidebook?

There are also ethical and privacy questions related to digitalization. If tourism companies collect data about their clients to enhance personalized services, what is the moral threshold for this database? Besides, how can we ensure that this data won't be abused or sold to third parties?

Additionally, the impact of digital tourism on local communities is worth considering. On one hand, promoting a location through digital platforms can lead to increased tourist flows and economic development for the region. On the other hand, it can lead to an overload of tourism infrastructure, rising prices for essential goods and services, and a decrease in the quality of life for the local population.

In conclusion, the discussion aspects of digital tourism are limitless and require ongoing analysis and debate among industry experts. Only through a critical examination and discussion can we achieve the optimal balance between the opportunities and challenges brought about by the digital era in the field of tourism.

## 7 Conclusions

This study examined various aspects of digital tourism. They reflect current trends in the industry in the context of rapid technological progress. The implementation of digital technologies in the tourism business leads to increased competitiveness for small and medium-sized enterprises. This has allowed many such companies to carve out niches in the market that were previously primarily accessible to large corporations. Digital platforms, such as online booking services and social media, help attract new customers, optimize resources, and interact with the target audience.

On the other hand, digital transformation indeed contributes to the sustainable development of tourism, especially in terms of resource optimization and reducing environmental impact. Digital technologies enable tourism businesses to operate more efficiently and with fewer resource expenditures. Additionally, digital tourism can stimulate ecotourism and other forms of responsible tourism that promote sustainable development.

The active digitization of the tourism industry requires new approaches to legal regulation by governments. This includes the protection of user data and ensuring fair competition in the market. With the deepening of digitization in the tourism sector, there is a need for more stringent regulation to ensure consumer safety and the preservation of their confidentiality.

Thus, in the modern world, digitization is actively penetrating all aspects of life, and tourism is no exception. Today's travelers can only imagine a trip with mobile apps for hotel bookings, transportation tickets, virtual tours, or navigation. These and other digital tools significantly simplify travel planning, allow for faster responses to changes, and find optimal accommodation and entertainment options. However, despite all the advantages and conveniences offered by technological progress, it is essential to maintain sight of the essence of tourism itself. Tourism has always been and remains a way to explore the world and interact with other cultures, traditions, and history. Human relationships, direct contact with the local population, and the ability to experience the atmosphere of a new place shape the unique travel experience that any technology cannot replace.

Cultural exchange, in particular, allows tourists not only to see landmarks but also to gain a deeper understanding of the values, customs, and way of life of local residents. This is where the main "magic" of travel lies – in the ability to broaden horizons, learn something new, and create unforgettable memories. Therefore, while technologies open up numerous new possibilities, it is vital to preserve the values of authentic tourism, where human interactions and discovery through direct experience play a central role.

A multitude of factors determines the prospects for researching digital tourism in the future. Integrating new technologies such as artificial intelligence, quantum computing, and blockchain will enable the tourism industry to create innovative, more efficient, personalized solutions for users. This, in turn, will open up new horizons for the sector and contribute to its development.

The environmental component also plays a crucial role in the future exploration of the topic. In the context of global climate change and increasing attention to sustainable development, digital tourism can become a powerful tool in combating the negative consequences of climate change. Digital solutions can help minimize the environmental footprint of tourism, optimize resources, and promote more environmentally friendly travel.

Additionally, the role of sociocultural aspects in digital tourism is becoming increasingly prominent. Modern tourists seek not only comfortable travel conditions but also deep cultural exchange, an authentic experience, and the opportunity for in-depth exploration of new places. Digital technologies can help meet these needs by providing high-quality content, virtual tours, and interactive cultural programs.

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## THE ROLE OF FINANCIAL AUDIT IN ENSURING THE RELIABILITY OF FINANCIAL STATEMENTS

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**Abstract:** The audit of financial statements is positioned as an integral part of an unbiased assessment and control of financial activities. It is aimed at ensuring their reliability and compliance with generally accepted standards. It is necessary to actualize the role of financial audits due to the dynamics of conditions and factors affecting companies' activities. This study aims to substantiate the role of financial audits as a guarantee of financial statements' reliability. Furthermore, the article seeks to develop proposals for improving financial audit methodology. The research was carried out by using general scientific methods of cognition. These include logical and structural analysis, comparison, abstraction, specification, and generalization. The study examines the role of financial audits in ensuring the reliability and accuracy of financial statements in terms of the directionality and functionality of the phenomenon under study. The authors paid special attention to the identification of financial audit's place in the management paradigm under current economic realities. The article generalized the essence of financial statement audit and analyzed its procedures. The authors highlighted the potential risks related to the phenomena of improper implementation of the financial statement audit or neglect of the need for its conduct. In particular, it has been established that the primary negative consequences of such phenomena will affect investment planning and financial stability. The study proves that due to the unstable economic environment, an effective financial audit serves as a prerequisite for improving the quality of financial reporting and optimizing the sectoral management paradigm.

**Keywords:** Elements of financial statements, Audit, Audit evidence, Financial risks, Accounting, Managerial decision.

### 1 Introduction

In today's economic environment, the reliability of financial statements, which is positioned as the main source of information on the financial condition of a business entity, has a significant impact on the process of making effective managerial decisions. The dynamics of tax and accounting legislation lead to a tendency to increase the frequency of errors. At the same time, this creates an effective financial audit, a prerequisite for the reliability of financial statements. The situation is complicated by the general growth of financial instability and the dynamics of micro- and macroeconomic processes at the national and global levels. These factors have led to new financial risks and challenges. The innovative progress of digitalization and the increase in the volume of accounting information create challenges for the financial audit process. They require a high level of competence of specialists to analyze and verify enterprises' financial statements properly.

Numerous studies by both Ukrainian and foreign scholars have been devoted to the development of the theory, methodology, and practice of financial audit, in particular, as a tool for controlling reporting and evaluating financial performance. Scientists in this field focus mainly on the fact that there is no effective algorithm for the correct assessment of financial statements (Derkachenko et al., 2023; Kononenko et al., 2023). They also reveal the essence of financial statement audits and identify their place in the process of enterprise management in the modern economic environment (Onyshchenko et al., 2022).

The most substantial research of the recent period includes studies by Orlov I. and Zakharov D. (2023), Shchur K. and Skorobohatova N. Ye. (2023), and Oneshko S., Drozdova O., and Ivanova N. (2023). These papers analyze the financial audit procedures according to the purpose and features of the financial reporting structure. Some issues of possible risks that business entities may face as a result of neglecting the financial statement audit procedure have been studied by several researchers

(Holovchak et al., 2023; Nazarenko, 2023; Sakun et al., 2023). Chubai V. and Hrytseliak O. (2021) made a significant contribution to the practical optimization of the financial audit system.

Most modern industry experts agree that the problem of financial audit is complicated by the need for a comprehensive approach to identifying distortions in the financial statements of business entities, as well as the corresponding detailed algorithms of analytical procedures.

However, the issue of financial audit optimization as a safeguard of financial reporting reliability in the context of economic uncertainty is not sufficiently studied in national scientific literature. Mainly, it is caused by the need for more adaptation of classical theoretical approaches of auditing to the current dynamic conditions of the financial and economic environment.

This study aims to analyze the financial audit function for ensuring the reliability of financial statements and to develop practical recommendations for optimizing this process in the face of uncertainty.

### 2 Literature review

A solid scientific and theoretical base has been developed in financial audit. It includes scientific publications of Ukrainian and foreign scientists in specialized journals, monographs, dissertations, and the results of practical developments in this field.

Several leading contemporary scholars have significantly contributed to studying the theory and methodology of financial statement audit (Alzeban, 2020; Gold et al., 2020). Their work focuses on identifying opportunities to improve the financial audit system as a fundamental prerequisite for ensuring the reliability of financial reporting. In particular, certain scholars have thoroughly formulated the principles of identifying discrepancies in reporting, its analysis, and evaluation (Kaawaase et al., 2021).

Some studies by contemporary foreign researchers are dedicated to studying priority areas for enhancing the effectiveness of financial audits (Florou et al., 2020; A\Shaer, 2020). The question of the feasibility of digitizing part of the financial statement audit algorithm is addressed in the studies by Ashraf M., Michas P., and Russomanno D. (2020), and Elliott W., Fanning K., and Peecher M. (2020). Several modern researchers have focused on various aspects of the financial audit methodology (Albu et al., 2020; Firnanti et al., 2020).

Despite the significant volume of research results, several questions still need to be completed regarding the necessity of adapting the procedure of financial statement audits in conditions of economic uncertainty. This situation necessitates the further development of scientific research and demonstrates the complexity and relevance of the investigated topic.

### 3 Materials and methods

During the research process, several general scientific research methods were employed. They include logical and structural analysis, comparison, abstraction, concretization, and generalization. The authors used analysis and synthesis methods in the research process to identify the functionality of financial audits, the defining elements of the process, and the basic vectors of influence on the ultimate reliability of financial reporting. The comparison was used to highlight specific features of the modern innovative approach to auditing compared to traditional methods.

The abstraction method was applied to achieve the following goals:

- to extract theoretical generalizations;
- to identify key categories and concepts;
- to form conclusions regarding the priority vectors for optimizing the financial audit system.

The research was conducted based on the principles of complexity and the systematic nature of scientific research. The systematic approach allowed for the analysis of the research object as a holistic financial-economic system characterized by a set of interrelationships and interdependencies.

#### 4 Results

Given the unstable operating environment, the following issues can be identified as of primary relevance, such as:

- Reliability of financial statements.
- An effective identification of their discrepancies with the realities of the economic activity of the business entity and prompt analysis of the reasons for this discrepancy.
- Control over the efficiency of financial and economic activities.

The main structural elements of financial statements include the balance sheet and the company's financial performance report. Internal users of financial statements (company management, owners, and employees) use them for internal control, strategic management decision-making, and company performance evaluation. External users (current and potential investors, customers, suppliers, banks, and state authorities) consider financial statements as an essential source of information for assessing the stability and solvency of a business entity (Gold et al., 2020). At the same time, the primary functional direction of financial statements is to provide information, the reliability of which must be confirmed by audit practices.

The audit is a complex, multifaceted process with a rational organization. A financial statement audit serves as an independent review to assess the reliability of financial statements, their timeliness, and accuracy. It is also aimed to identify compliance of financial and economic activities with the current legislation. The financial audit process includes such procedures as asset verification, assessment of cash flow generation capabilities, and analysis of the structure of income and expenditures. These procedures allow the identification of possible errors and drawbacks, ensuring the reliability and accuracy of financial statements (Lyschenko et al., 2023).

It is necessary to ensure obtaining a sufficient amount of the required audit evidence to achieve the goal of a financial audit. It allows to evaluate financial statements impartially and form a reasonable opinion on their reliability, accuracy, and precision (Kononenko et al., 2023). Such conclusions form the basis for making strategic management decisions.

Overall, financial reporting aims to satisfy the informational needs of external and internal users, with each of its elements possessing specific functionality for providing informative data in a particular context (Onyshchenko et al., 2022). Therefore, when assessing the reliability of the reporting, it is necessary to verify not only the correctness of its formation but also the compliance of the content of structural elements with established requirements.

The financial audit system of financial reporting involves a thorough analysis of the interrelation of its components. This includes assets, capital, liabilities, revenues, and expenses. It enables the structuring of report data and the identification of necessary audit procedures. All elements of the reporting must be integrated into a coherent system.

Clearly, updating the financial audit's role in ensuring the reliability of financial reporting requires guaranteeing the

effectiveness of the audit process itself. The role of the audit significantly increases considering many prerequisites, which include:

- the implementation of high national standards for audit quality and the adoption of international audit standards;
- effective control over the activities of audit organizations;
- unification of qualification requirements for auditors;
- the establishment of clear rules for the independent activities of audit organizations.

In addition, during the financial statement verification, special attention should be paid to the audit risk factor (Gold et al., 2020).

When making conclusions on the reliability of financial statements, it is essential to obtain not only an idea of the correctness of their forms but also to summarize the compliance of the content of each element of the company's financial statements with the established information task during the financial audit (Oneshko et al., 2023). All components of the financial statements are parts of an integrated whole. Therefore, their reliability should be confirmed by the interrelation and consistency of all indicators appearing in the financial statements (Chubai et al., 2021). The development of the financial audit's role in enhancing the reliability and credibility of financial statements requires strengthening its functional effectiveness. At the same time, the established algorithms for preparing financial statements regulate the requirements for audit evidence.

It should be noted that the conceptual approaches to the formation of financial statements under national standards are similar to international standards. Therefore, the process of their consolidation allows to disaggregate known information arrays, identify the main areas of audit, and form a system of audit procedures. The systematization of informative data by disaggregating statements allows for the identification of the risks of its distortion. At the same time, it specifies the scope of necessary audit procedures (Alzeban, 2020). Particular importance should be given to the assessment of the significance of information and the audit risk factor.

Currently, one of the most pressing issues related to the audit of financial statements in Ukraine is the inefficiency of regulation and supervision of the audit procedure. The lack of interest in control by the legislative bodies and the business community, which directly shape the management paradigm in the industry, can cause significant financial losses both for the business entity itself and for external users of its financial statements. Today, the need for a global transformation of approaches to financial audit is emphasized to minimize the risks of manipulating financial statements (Lyschenko et al., 2020).

Therefore, the role of financial audits in ensuring the reliability of financial statements is wider than recording compliance with the realities of economic activity. A correctly implemented audit procedure makes it possible to identify weaknesses in the financial sphere of an entity's activities and to stimulate adaptation mechanisms of the enterprise's economic activity in the face of uncertainty.

This research substantiates the leading role of financial audits in ensuring the completeness, accuracy, and reliability of financial statements. At the same time, an inadequate level of attention to the audit as an essential tool for verifying the accuracy of financial information provokes an increase in the frequency of illegal actions and financial fraud (Nazarchuk, 2018). It also leads to neglect of possible business activity risks and wrong managerial decisions.

The rational solution to issues related to the risks of losses, financial instability of enterprises, and audit activities is considered a prerequisite for forming well-founded and effective administrative decisions. By adapting the theoretical basis and improving the financial audit tools, the quality, accuracy, and reliability of financial statements will be improved, decision-

making will be simplified, and the national business sector will be promoted in general. An effective financial audit system facilitates the timely identification and elimination of potential financial risks and management shortcomings (Ocheretko, 2013a). At the same time, it releases potential resource opportunities for growth and development.

Nowadays, audit is a necessary tool in interaction with investors and partners (Derkachenko et al., 2023). The guarantee of an unbiased audit of the company's financial statements increases the level of trust in the company, improves its attractiveness for investment, and helps to raise capital for further development. Consequently, an effective financial audit is positioned as a prerequisite for an enterprise's successful operation and stable development, as well as the main source for making management decisions. In the challenging realities of a dynamic economic environment, the issues of reliability of accounting and financial statements, analysis of the reasons for possible discrepancies between these statements and the real state of the enterprise, as well as control over the efficiency of financial and economic activities, are becoming increasingly important.

## 5 Discussion

The issue of identifying the role of financial audits in ensuring the reliability of financial statements is addressed by modern scientists. Their research is driven by the need to optimize the capabilities of audit activities to meet current financial, economic, and management needs. Scholars in leading scientific fields (Amahalu, 2020; Abass et al., 2022) argue that an effective financial audit requires, first of all, a structured basis for the audit process algorithm.

Scientists and experts in financial audits widely use accounting system data as the main source of information for the formation of strategic managerial decisions. At the same time, the axiomatic fact of the validity of such targeted use only confirms the urgency of the need to improve the theory, methodology, and practice of financial statement audit. This is evidenced by the global trend of growing scientific interest in this field (Assad et al., 2020).

Studies by Hasan, S., Kassim, A., & Hamid, M. (2020) highlight the need to improve audit tools. According to them, an auditor needs to disaggregate the information in the financial statements to prove that the entity has fulfilled the necessary conditions for preparing the financial statements. This way, audit evidence will logically and fully reflect all audit procedures.

According to some scholars (Levy, 2020; Endrawes et al., 2020; Ocheretko, 2011), this concept should level the phenomenon of imbalance in the studied area by preventing minor inconsistencies that can ultimately form significant discrepancies between the financial statements and the economic realities of the business entity.

The research of modern scientists convinces us that the functional features of the paradigm of a symbiosis of effective financial audit and an effective management system are the formation of trends in the dynamics of economic development, legitimacy, and compliance with the challenges of instability (Muttakin et al., 2020; Ocheretko, 2013b).

Some scientific papers consider the possibility of introducing a system of selective audits of high frequency to prevent the formation of false reporting and promptly mitigate risk situations in the financial and economic activities of an enterprise (Wahab et al., 2021; Bolduev et al., 2020). These research findings are identical to the basic algorithm for optimizing the financial audit system developed in the current study.

The results of modern scientific research by Lohapan N. (2021) show a tendency to reorganize approaches to financial audit. It is based on the positioning of a business transaction as the basic element of a financial statement audit. In addition, according to the scholar, each reporting element has the functionality of

providing information in a certain context. This should also be taken into account when implementing audit activities (Eulerich et al., 2020).

Such scientific conclusions are identical to the results of the current study. They require further research on the functionality of financial audits to attract innovative opportunities for modernization and digitalization.

Florou A., Morricono S., and Pope P. F. (2020) focus on the need for auditors' qualifications to meet the current requirements of socio-economic development. In addition, contemporary scholars consider the advantage of teamwork principles in the provision of audit services. This involves cross-checking the results and significantly increases the efficiency of the process (Ashraf et al., 2020; Abu et al., 2020).

At the same time, Kaawaase T., Nairuba C., Akankunda B., and Bananuka J. (2021) emphasize that the prospect for the development of financial audit activities includes the introduction of artificial intelligence technologies for increasing the efficiency and accuracy of audit operations.

Therefore, the results of the current study reflect the existing scientific perspective of most contemporary scholars. They expand the concept of a modern approach to financial audit as a guarantee of financial reporting reliability towards the optimization of tools, the algorithmization of the target functionality, and the involvement of innovative opportunities for digital optimization within the studied process. At the same time, the formation of a contingent of qualified and reputable auditors is positioned as a prerequisite for achieving national and global financial and economic development goals (Ocheretko, 2014).

In addition, despite the significance of the scientific achievements of modern researchers, it should be noted that in the context of the constant dynamic impact of national economic environment instability factor, there is a lack of research on the practical adaptive functionality of financial audit as a guarantor of the reliability and validity of financial statements, which is the basis for making crucial strategic management decisions. This issue still needs to be studied and requires further theoretical and practical investigations.

## 6 Conclusion

Nowadays, one of the main priorities for optimizing the process of objective assessment and control of the financial activities of business entities is to adapt the financial audit system to the dynamic and unstable national economic environment. The priority tasks include an increase in the level of reliability and accuracy of financial statements as a basis for the formation of effective strategic management decisions.

The article analyzed the role of financial audits in ensuring the reliability and validity of financial statements. Based on the analytical results, the authors have identified the place of financial audit in the management paradigm under current economic realities.

The study has proved that the primary consequences of unreliable financial statements are reflected in the investment planning and financial stability of a business entity. In addition, the risks that arise in both audit and business activities when identifying the reliability of financial statements or in case of neglecting the need for an audit, such as a decrease in economic efficiency and loss of investment attractiveness, are identified.

It is obvious that the audit of financial statements is a key aspect of confirming the reliability and unbiasedness of information provided to internal and external users. It helps to formulate effective decisions within the management paradigm. This ensures a significant reduction in the risks related to management decision-making, increases the trust in the business entity on the part of partners and investors, establishes its



positive image, and simplifies the process of establishing new contacts. This synergistically contributes to the successful development of the enterprise.

Particular attention was paid to the relevance of generalizing the essence of financial statement audit and unifying financial audit procedures in order to adapt to the changing and dynamic economic situation in the country. It is established that a flexible multifactorial approach will make it possible to implement effective audit activities while adhering to the principles of sustainable economic development.

Therefore, the research proves that given the unstable economic environment, effective financial audit is positioned as a prerequisite for improving the quality of financial reporting and optimizing the sectoral management paradigm. The study proposed modern approaches to the rational and effective solution of the studied issues. This will significantly expand the scope of financial audits in the direction of forming economically sound management decisions.

The promising nature of the research on this topic results from the new global trend of focusing financial audit activities on the concept of enterprise risk management. The authors believe that further scientific development of the studied issues in this area would be advisable.

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## THE ROLE OF INTERNATIONAL TRANSPORT LOGISTICS IN OPTIMIZING TRANSPORT INFRASTRUCTURE ARCHITECTURES

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**Abstract:** Nowadays, transport infrastructure is a crucial component of any social and economic system. The arrangement of infrastructure is a top priority in economic activity due to the globalization of international logistics. This study aims to comprehensively analyse the transport infrastructure system regarding architectural objects. It also seeks to identify the main issues of the management paradigm in the industry and options for solving them. The research employed general scientific methods of cognition, including logical and structural analysis, comparison, theoretical modelling, abstraction, induction, and deduction, as well as statistical methods, specification, generalization, and formalization. The article examines innovative approaches to developing transport infrastructure in the international logistics system. The authors analysed the main issues, challenges, and achievements of managing the architectural component of transport infrastructure. The paper concludes that the effective use of transport infrastructure capabilities is essential for increasing the productivity of economic processes. The authors also identified the position and role of architectural objects in the international logistics system.

**Keywords:** Cross-border infrastructure, Integration, Optimization, Transit, Logistics, Strategic priorities.

### 1 Introduction

The activation of globalization and integration processes has led to the emergence of new challenges. These challenges require dynamic and adaptive changes in the management of socio-economic processes. One of the most relevant concepts currently is the transformation of transportation infrastructure, which is maximally implemented in the international logistics system. The aim is to ensure the proper functionality of architectural objects of transportation infrastructure. It involves developing a complex set of organizational foundations and effective means of implementation and monitoring. The aim is to optimize the transport sector, given the global challenges of optimizing the international logistics system. This concept guarantees the optimization and simplification of management processes and the synergistic development of socio-economic processes.

Various scientific fields have been used by Ukrainian and foreign researchers to address the issue of transport infrastructure in the international logistics system (Aulin, 2021; Sabadash, 2020). Some modern scientists conduct studies on the functioning of the architectural component of transport infrastructure in relation to the global role of the international logistics system. They also study practical projects for optimization (Prokopenko, 2021; 2023). Some scholars examine infrastructure management in the transport sector from the perspective of complexity and multifunctionality (Pasichnyk et al., 2022).

Transport infrastructure in the international logistics system is divided into specific directions, including the purpose, means, and level of system component integration (Zelenko et al., 2022). Scholars emphasize that the potential and capabilities of the architectural infrastructure of the transport system are fully revealed only through the harmonization of the main factors - social, economic, and environmental. These factors are the foundation of the sustainable development concept (Pokrovskaya et al., 2020).

Current research by modern scientists convincingly shows that an effective transport infrastructure requires optimal use of resources, competent management decisions, and continuous improvement towards integration into the international logistics system (Kraus, 2019).

The problems related to architectural objects of transport infrastructure in the context of sustainable development have been extensively researched by contemporary scholars (Vignali and Acerra, 2021). Some conceptual issues have been addressed in the studies conducted by individual researchers (Iacob et al., 2019). Despite the scientific value of these published studies, several issues in this field still require resolution. Further scientific attention is required to study the problems related to analysing algorithms for optimizing modern transport infrastructure architectural capabilities in the context of globalizing international logistics systems.

This study aims to analyse the modern innovative capabilities of architectural objects as part of the transport infrastructure in the context of sustainable development and the dynamics of the conceptual priorities of the international logistics system.

### 2 Literature review

The study's scientific and methodological background was established by researchers who focused on the following aspects:

- The functioning of transport infrastructure architectural objects in the international logistics system.
- The problems of transforming management processes in transport infrastructure.
- Finding solutions to these problems.

Numerous scientific professional journals have published works on the topics explored in this paper. Contemporary scientists (Zichichi et al., 2020; Ciampoli et al., 2020) have examined the modern transport infrastructure of the international logistics system. The studies by Zhou Z., Cai M., Xiong C., Deng Z., and Yu Y. (2022) are noteworthy among the relevant publications. The authors establish the principles for effectively implementing the functioning of architectural objects in transport infrastructure within the context of modern global processes in the international logistics system. At the same time, some scholars (Solla et al., 2021) highlight the importance of adequately preparing the public environment for the management processes within the transport infrastructure sector.

Wu J., Wang X., Dang Y., and Lv Z. (2022) present the main conceptual framework for an effective management system in the studied industry, based on integration into the global system of international logistics. D'Amico F., Calvi A., Schiattarella E., Di Prete M., and Veraldi V. (2020) highlight the importance of actively implementing digitalization tools in the transport infrastructure system. At the same time, Abbondati F., Biancardo S., Palazzo S., Capaldo F., and Viscione N. (2020) point out the complexity of optimizing the functioning of some aspects of transport infrastructure in the international logistics system.

Therefore, while acknowledging the significance of the scientific and practical accomplishments of scholars in this field, it is important to emphasize the requirement for additional research to enhance the architectural aspect of the transport infrastructure. This will guarantee the sustainable development of the industry, enabling it to integrate into the international logistics system and proactively respond to new challenges in the current environment.

### 3 Materials and methods

The authors employed various scientific methods of cognition during their research, including abstract, logical, and

comparative analysis, as well as methods of specification, formalization, and graphical interpretation of theoretical information.

The theoretical and methodological framework of this study was formed based on the priority principles of conducting comprehensive research and a systematic approach. The authors employed the complexity principle to analyse the object and subject of study as a complex system with corresponding interrelations.

They used analysis and synthesis methods to identify the factors and stages of development of the studied object, as well as its defining elements. The comparison method was applied to determine the specifics of development and features of models of architectural objects of transport infrastructure in the international logistics system. The deduction method was used to develop proposals for optimizing management processes in transport infrastructure. The inductive method was utilized to forecast the indicators of future development.

The abstract-logical and dialectical methods of scientific cognition, as well as the method of scientific abstraction, were used for the stated purposes:

- to formulate theoretical generalizations;
- to clarify the conceptual apparatus;
- to identify basic concepts and categories;
- to formulate research conclusions;
- to shape the idea of an integrated transport infrastructure system in the context of sustainable development.

The formalization method was used during the research process to identify priority vectors for optimizing architectural objects in the transport field. Additionally, it was employed to formulate the results of scientific research for practical management purposes. This method structured the principles, functions, tasks, and priorities of the research object.

The study employed the general scientific method of specification to evaluate the effectiveness and feasibility of enhancing the role of architectural objects in transport infrastructure within the international logistics system. It also identified optimal solutions and conditions for optimizing the management system in the transport sector based on the principles of sustainable development.

#### 4 Results

Today, transport infrastructure plays a crucial role in the industry's overall infrastructure. At the same time, its main purpose is to establish interconnections between the system's functional elements to ensure their efficient functioning and to utilize opportunities for spatial development.

To ensure that the strategic goals of the innovative stage of transport infrastructure development align with the dynamics of its operating environment in the international logistics system, an adaptive approach to forming an innovative strategy for transforming the transport industry's infrastructure can be implemented (Aulin, 2021). The approach involves creating a system for setting and adjusting goals with input from stakeholders, utilizing investment opportunities, and modern information and analytical systems and technologies.

Unbiased processes in production and economics necessitate the formation of a sectoral infrastructure. This is a test of structural changes in the system (Pasichnyk et al., 2022). Economic processes in the transport sector should be analysed using a systemic and integrated approach to ensure reliable, versatile, and practical results and management decisions.

In the context of global integration processes, the role of transport infrastructure is becoming increasingly important. This requires a comprehensive interaction between the structural elements of systems and other components of the economic and

social sphere (Vignali and Acerra, 2021). In this regard, the functioning and development of transport infrastructure is currently identified as a significant component of improving the efficiency of production activities and increasing the level of socio-economic development.

The formation of international transport and logistics chains and the intensification of the interaction of various modes of transport reflect global integration processes. As a result, the technical and technological requirements of the transport process have increased (Kraus, 2019). The development of high-speed transport infrastructure and related architectural facilities is a particularly active area for certain countries (Zelenko et al., 2022).

To fully realize the transit potential of the international logistics system, it is recommended to analyse the optimal use of the architectural component of the transport infrastructure, as well as its potential opportunities and development factors. At the next stage, a system of suitable measures should be developed based on the identification of typical features of adaptability or misadaptability (Jacob et al., 2019).

The current model of institutional support for the innovative development of international transport and logistics infrastructure, in terms of architectural solutions, should combine a system of motivation for creative development and tools for digitalization progress. This optimization concept has a known potential both in the economic and managerial aspects. At the same time, logistic concepts have a set of clear rules to ensure their effectiveness. They also have the dynamism and flexibility to be adapted to the needs and tasks in a specific place and under certain conditions (Prokopenko et al., 2021).

All aspects of transport cooperation between Ukraine and the European Community are regulated by the Association Agreement between Ukraine and the European Union, the European Atomic Energy Community, and their Member States (Sabadash, 2020). Such communication is being implemented to establish the functioning of stable transport systems, as well as development towards integration processes and sustainable development. Additionally, modernizing architectural objects of transport infrastructure is a significant factor in the industry's progressive growth. It reveals promising tools for the implementation of strategic opportunities for state regulation of its innovative transformation processes regarding the international logistics system. The innovative concept of transport infrastructure systems provides for their openness to reconfiguration due to their flexibility, digitalization and efficiency (Prokopenko et al., 2023).

The EU project "Optimizing Construction Logistics: Strategies for Efficient Transport Infrastructure in Global Projects" highlights the obvious need for rapid integration of transport technologies and regional mobility projects. The issue is particularly relevant for countries with economies in transition, including Kyrgyzstan and Ukraine. Modern transport infrastructure with efficient multifunctional architectural solutions, fair market competition, effective coordination of activities and an efficient system of state regulation and management will form the basis for the development and functional growth of the national transport systems of Ukraine and Kyrgyzstan as part of a single system of international logistics solutions. Optimizing the quality of international logistics services will increase competitiveness, stimulate exports and promote domestic production and trade.

Global investment projects in Kyrgyzstan, China and Ukraine, including those initiated by the European Community, in particular the EU project "Optimizing Construction Logistics: Strategies for Efficient Transport Infrastructure in Global Projects", are mainly aimed at implementing a radical modernization of existing and construction of new transport and logistics infrastructure facilities to meet the demand for quality transport services. The priorities of such optimization include comprehensive innovative development of transport, in

particular through the enforcement of a targeted approach to innovation and investment projects, as well as the improvement of the management system for transport infrastructure development. At the same time, architectural solutions within the transport infrastructure system play an important role. Today, it is precisely the needs of the international logistics global network that determine the efficiency of the national transport infrastructure.

Modern projects to optimize construction logistics as part of an efficient transport infrastructure strategy in global projects are based on historical planning and architectural solutions in regional specificities.

In particular, the modern railway industry in the European-Asian context is a market whose production and technical potential is developing rapidly. In 2011, for example, a memorandum of cooperation was signed in Beijing between NC Kazakhstan Temir Zholy JSC and the Ministry of Railways of the People's Republic of China for the construction of the Astana-Almaty high-speed railway. The expected speed of the train is 350 km/h.

The construction of the Turkestan Railway in the thirties of the last century and the development of the entire railway transport in the region on this basis is a representative process in terms of planning and architectural solutions for railway complexes, as its length is more than 14 thousand km and the construction process is still ongoing. Railway complexes are an important component of the planning structure, which requires organization in a spatial and temporal vector. In essence, their architecture is inextricably linked to history, scientific and technical achievements. A railway station is a rather complex building that performs the main functions of managing passenger flows and the safety of the railway environment, as well as providing a wide range of related services. In this regard, the dynamics of the needs of modern society require constant expansion and adaptation of the functions of passenger buildings.

In the case of the Turkestan Railway, the construction of railway stations contributed to the development of the territory around them and connected settlements with other settlements. The intermediate stations built during its operation actively influenced the development of suburban areas. At the same time, some of the station complexes were located in the centre of the settlement, in close connection with its historical part. Another characteristic feature of the composition of railway complexes is the proportionality of the architectural structures, which are organically integrated into the surrounding landscape.

It should be noted that an influential element in the formation of the architectural and planning structure was the caravan roads that connected Turkestan with major regions, determining its important strategic location in the communication system of the Great Silk Road.

The Great Silk Road is a representative structure of the methodology of logistics processes, including the formation of material flows, the justification of the trajectory of movement and the organization of the necessary infrastructure. The logistical features of the Silk Road position it as a key link in the Eurasian supply chain.

Caravanserais were buildings constructed along the route of the Silk Road that served as resting places for caravans of travelling merchants. From China to Turkey, they gave merchants time to rest before continuing their journey, as well as the opportunity to exchange goods in local markets, contributing to the cultural and linguistic transformation of the region.

Many aspects of the internal structure of the caravanserai had a significant impact on the development of communication between travellers, such as the presence of steam baths and oriental bazaars. In large caravanserais, the eastern bazaars ran through the centre, between the two entrance gates. The Silk Road caravanserais, located throughout Central Asia, were of great socio-economic and cultural importance.

In terms of the globalization of construction logistics and the strategy of efficient transport infrastructure, the Great Silk Road and the Turkestan Railway are positioned as representative elements of architectural solutions for the transport and logistics system of Eurasian international traffic.

Within the framework of the EU project "Optimizing Construction Logistics: Strategies for Efficient Transport Infrastructure in Global Projects", under the conditions of free movement of cross-border flows of goods within the integrated European market, there is a tendency to replace national terminals with unified international economic logistics complexes. Such measures are positioned as an element of transport infrastructure optimization. Thus, the concept of consolidation of cross-border logistics complexes and their synergy with international logistics platforms is emerging. In the long term, this will contribute to more efficient cross-border trade flows.

One of the main prerequisites for the growth of the domestic market of logistics services provided for the purposes of foreign economic activity is the availability of an adequate level of quality of logistics services that would meet international standards. In this regard, it is necessary to develop systematic sectoral and inter-sectoral standards that will form the basis for regulating logistics activities in the implementation of multimodal transport projects. The following factors, in synergy with the introduction of an effective management system, can create conditions for the stable and functional development of the transport system:

- Modern infrastructure.
- Transparent market conditions and competition.
- Innovative transformation.
- Adequate system of coordination of activities in the transport sector.

Improving the efficiency and quality of services in the transport sector will help to increase its competitiveness, investment attractiveness and export opportunities. A specific toolkit should be developed to diagnose the investment attractiveness of transport infrastructure, and in particular its architectural component. This will attract investors to the transformation processes of transport infrastructure growth.

A special role in the process of adapting transport infrastructure to the modern requirements of the international logistics system should be given to the digital optimization of management processes (Sabadash, 2020). It is essential to introduce innovative solutions that improve the quality of logistics services through digitalization (Prokopenko et al., 2023).

The problems of implementing the optimization concept for architectural objects of transport infrastructure within the international logistics system may be caused by low responsiveness to methods of changing traditional organizational structures of the enterprise. It relates to the established and practised operational scheme (Prokopenko et al., 2021).

The conceptual strategy for the development of transport infrastructure towards sustainable development gives priority to improving the quality of transport services and their safety, as well as minimizing the destructive impact on the environment. It also emphasizes the need to optimize the management system in terms of publicity and digitization. Additionally, the strategy stresses the need to implement an anti-corruption policy.

## 5 Discussion

The vast majority of modern scientists see the optimal functioning of transport infrastructure in the international logistics system as the basis for the innovative development of socio-economic processes towards sustainable development. According to researchers in current scientific fields (Izrailov et al., 2020), one of the most effective ways of optimizing management processes in the transport industry is to actively use

the capabilities of architectural objects. This includes increasing the attractiveness of the industry for investment.

The transformation of the modern architectural system of transport infrastructure involves, first and foremost, fundamental changes in the functional model. Contemporary scholars (Patman et al., 2019) argue that a promising option is to develop architectural solutions for specific categories, needs and functions of transport infrastructure. This requires the availability of appropriate, well-established integration processes and the prioritization of the principles of sustainable development of the industry.

According to the research results of scientists (Buyvis, 2021), at the current stage of optimization of transport infrastructure in the international logistics system we can name the following priorities:

- Rejection of outdated technologies and algorithms.
- Resource optimization of processes.
- Establishment of internal effective communication.
- Involvement of modern architectural solutions.

Yelizyeva A., Artiukh R., & Persiyanova E. (2019) believe that the transformation of the architectural part of the infrastructure is a component of effective modernization of the transport sector. It provides for multifunctionality and focus on cross-border destinations. At the same time, de Rus G. and Pilar Socorro M. (2019) assure that innovative approaches to the construction of railway stations, airports and other strategically important transport facilities are the main trend in modern integrated logistics processes. They ensure the efficiency and versatility of services for all categories of consumers within the industry. Innovative events in the transport infrastructure sector should focus on modernizing the system of architectural solutions and expanding the boundaries of transformational changes (Jansen and Seraj 2020).

Based on the findings of Gibbons S., Lyytikäinen T., Overman H., & Sanchis-Guarner R. (2019), it can be argued that architectural elements have significantly expanded their functional scope today. They have become a basic element of the market system. The authors consider architectural objects of transport infrastructure as one of the main prerequisites for the development of a modern international logistics system. At the same time, the scientists note that improving the productivity of management processes in the transport industry in terms of integration into the global logistics system requires the gradual and effective achievement of goals (Thacker et al., 2019).

Based on the results obtained in this study and the conclusions of the aforementioned authors, we can predict an increase in the role of architectural objects of transport infrastructure in the implementation of a successful integration management policy in the industry. This approach will significantly improve the efficiency of management decisions, introduce innovative capabilities of the international logistics system and ensure compliance with the requirements of sustainable development.

## 6 Conclusion

The multifunctionality of transport infrastructure architectural objects in the international logistics system was analysed in the article. It also assessed their role and place in the system of socio-economic transformations in the transport sector based on the principles of sustainable development. In the course of the study, the authors found out that the effective use of the capabilities of the architectural components of the transport infrastructure is a basic condition for the intensification of the efficiency in this area. They also highlighted the priority vectors for optimizing the transport infrastructure management system. Besides, the authors propose assessing the efficiency of transport and logistics systems based on the state of the architectural component.

Using the research results, the authors suggest several measures that should be applied within the framework of the general trend of global integration into the international logistics network. The paper develops a universal model for the optimization of transport infrastructure, covering the main socio-economic functions and an optimal management system. The study formed the basis of the adaptation mechanism of the existing architectural objects of transport infrastructure to the requirements of the modern international logistics system. In addition, the feasibility of the transformation of this area was substantiated.

The authors have established that only the synergy of a professional approach, a stable position and stable principles of forming strategic priorities for the optimization of transport infrastructure, considering the global integration and the need for proper control, will allow to fully and quickly bring the system of architectural objects of transport infrastructure into line with the principles of sustainable development.

Based on the results of the study, the authors proposed priority vectors for further research on this topic. They argued that it is necessary to organize the availability and systematization of practical information on architectural objects of transport infrastructure in the international logistics system.

An effective approach to the system of management processes in the field of transport involves a hub of methods and tools in a set of interconnections that can ensure an increase in productivity and efficiency of communication and integration processes. This approach should be based on implementing a development strategy that follows the principles of sustainable development as an integral part of the management paradigm.

The authors believe that there is a need for further research into the possibilities of increasing the functionality of architectural objects in the transport infrastructure to develop and implement programmes for integration into the global logistics network. This includes the incorporation of international practical experience.

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**Primary Paper Section: A**

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## CONTEMPORARY ENGLISH MEDIA DISCOURSE: LINGUISTIC, PRAGMATIC, SOCIAL AND DIGITAL ASPECTS

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**Abstract:** The academic paper analyzes the linguopragmatic, social, and digital aspects of contemporary English-language media discourse, with a focus on its role in shaping public opinion and cultural perceptions. The introduction examines the relevance and importance of English-language media in the modern globalized world, emphasizing their impact on intercultural communication and public consciousness. The present research primarily analyzes the linguopragmatic features of English-language media discourse, in particular, the use of language strategies for achieving communicative goals. The academic paper considers how language tools influence the formation of messages and their perception by the audience. The focus is then shifted to the social and cultural aspects of media discourse. An analysis is conducted of the ways the media influence the formation and maintenance of gender stereotypes, as well as how they reflect and can potentially impact racial and ethnic representations in society. The scientific work examines the ways in which the media can enhance or provoke public debate on these important issues, as well as their role in shaping cultural identities. This is followed by a discussion of the digital transformation of English-language media discourse, with a focus on the role of social media and digital strategies in communication. The conclusions emphasize the significance of the balance between freedom of speech and media responsibility. The need to combat disinformation and increase the media literacy of the audience is emphasized. The academic paper suggests directions for further studies, in particular, analyzing the impact of English-language media discourse on different cultural contexts and developing strategies to ensure objectivity in media content. The research results have practical implications for developing media strategies and raising the level of media literacy, as well as for understanding the impact of media on modern society and intercultural interactions.

**Keywords:** Media discourse, Media communication, Social networks, Linguopragmatics, Social aspect, Digitalization.

### 1 Introduction

In the modern world, which is constantly evolving and digitalizing, English-language media discourse takes a leading role in shaping public perceptions and stereotypes. Media discourse has become a powerful tool for influencing mass consciousness due to globalization and the spread of the Internet. The present academic paper aims to explore the key aspects of contemporary English-language media discourse, in particular, its linguopragmatic, social and digital features.

Linguopragmatics in the context of the present research covers the study of linguistic means and strategies used in the media to achieve specific communicative goals. The social aspect includes an analysis of the impact of media discourse on the formation of social relations, identities and cultural norms. The digital aspect, in turn, focuses on the role of digital technologies in the distribution and influence of media content.

The academic paper will address the issue of how modern technologies and social networks influence the language and content of media messages, as well as how these changes affect the public's perception of information. We will also consider how digitalization and social media are changing the rules of the game in the media space and creating new challenges for understanding and interpreting media messages.

Given the importance of this topic, the present research aims to shed light on the complex interplay between language, technology, and society in the context of the contemporary media landscape. By analyzing various examples and cases, we aim to understand how English-language media discourse shapes and reflects current social trends, as well as what opportunities and risks this brings for different groups of media users.

This publication is targeted at researchers in the field of media communications, sociolinguistics, and the general audience interested in understanding the impact of media on modern society. We are trying to identify how linguistic and digital changes in the media influence our perception of the world and our interaction with it.

### 2 Analytical review of the literature on the research topic

In his study of media discourse in the English-speaking world, A. S. Macarro (2002) focuses on the analysis of how the language of the media shapes our perception of the world, providing a framework for understanding the features of media discourse in the English-speaking context. A. Fetzer (2008) expands on this topic by exploring the various forms and functions of thematic zones in media discourse, providing an in-depth analysis of the linguistic means used to achieve certain communicative goals.

A. O'Keeffe (2006) studies how the media use language to influence audiences and shape public perceptions. This scientific work is important for understanding the impact of media discourse on the formation of social relations. Furthermore, J. Androuthopoulos (2004) explores the use of non-native English in the media and its impact on the formation of subcultural identities. The study by F. Zappetini and his colleagues (2021) focuses on the emotionalization of contemporary media discourse, offering an important dimension for understanding the impact of media on emotional reactions and opinions of the audience. This investigation shows how language and stylistic means in the media can evoke emotional reactions and shape public opinion.

K. Cotter (2015) reveals broader aspects of the interaction between discourse and media in his work, focusing on how the media shape and reformat public discourse. This is a contribution to understanding the impact of media on cultural and social processes. Finally, N. Liu (2018) analyzes how the translation of news from English into Chinese and vice versa affects the framing of news and the formation of media discourse. This study is important for understanding the impact of translation and cultural differences on media discourse in a globalized world. This aspect is crucial for assessing the impact of cross-cultural interactions on media messages. I. Androuthopoulos (2012) examines the use of English in the German media, analyzing its discursive functions and impact on the media landscape. This publication is significant for understanding how English is used in non-English-speaking contexts and its impact on shaping media discourse.

T. M. Milani and S. Johnson (2010) discuss the intersection of linguistic ideologies and media discourse, pointing out the critical moments of this interaction. This study shows how language ideologies influence media content and its perception. R. Breeze and I. Olsa (2017) in their editorial work focus on evaluation in media discourse, especially in the European context. This scientific article examines how the media evaluates events, people and phenomena, influencing public opinion and perception.

A. O'Keeffe (2013) analyzes media discourse in the context of discourse analysis in 2013. This publication provides insight into how analytical tools can be used to uncover the deeper meanings in media messages and their impact on society. I. F. Porubay and E. I. Ibragimova (2021) study the features of social media discourse on the examples of Russian and English. This exploration emphasizes the importance of social media in the modern media landscape and its impact on linguistic and cultural differences.

S. R. Kaldas-Coulthard (2003) highlights the cross-cultural representations of the "otherness" in media discourse in her



scientific work. This study shows how the media shape perceptions of other cultures and peoples, influencing intercultural perception and understanding. Moreover, A. Fetzer (2014) examines media discourse in a broader socio-cultural and political context. This survey provides a deeper understanding of how media messages reflect and influence social, political and cultural realities.

In his work, M. Talbot (2007) examines how the media represent and interact with their audience. This publication contributes to understanding how media shape our perceptions of the world and facilitate social interaction. P. Baker, C. Gabrielatos and T. McEnery (2013) focus on the analysis of the representation of Islam in the British press. This research is important for understanding the impact of media discourse on shaping attitudes toward religious and cultural groups.

D. Machin and T. Van Leeuwen (2007) examine the global media discourse from a critical perspective, exploring its impact on world events and politics. This scientific article is important for understanding global media processes and their impact on international relations. A. H. Jucker (2005) explores the evolution of news discourse over several centuries in his research. This historical overview shows how the forms and functions of the media have changed over time. M. Bednarek (2006) analyzes how newspapers evaluate events and individuals, which is crucial for understanding the media's influence on public opinion.

R. Ramanathan and T. B. Hoon (2015) emphasize the importance of critical discourse analysis in the study of media discourse, demonstrating how the media reflect and shape social ideologies. L. Chouliaraki (2005) highlights the interconnection between media discourse and the public sphere, emphasizing how the media influence public discussions and public debate. This exploration is important for understanding the role of the media in shaping public opinion and influencing public debate.

S. Coleman and K. Ross examine how the media create and maintain a division between "them" and "us" by analyzing the representation of different social groups in media discourse (Coleman & Ross, 2010). This study reveals how the media shape perceptions of identities and relationships between different groups.

K. S. Schroder explores how media textures create cultural meanings from their creation to their reception by the audience (Schroder, 2007). This scientific work emphasizes the importance of analyzing media content to understand its cultural impact. M.G. Sindoni and I. Moschini examine changes in discourses, especially with regard to contexts and digital media, emphasizing the importance of adapting to new media formats (Sindoni & Moschini, 2021). This publication emphasizes how digital media influence linguistic and discursive practices.

O. Welply (2023) analyzes how the media in France and England represent the issue of migration and education, focusing on the discourse analysis of the press. This study is important for understanding the role of the media in shaping attitudes toward migration and educational policies. Yu Hu, Lu Hu and J. Hu (2021) examine how news about the COVID-19 pandemic is presented in China and the UK using a corpus-based critical discourse analysis. This research demonstrates how media discourse can influence the perception of global events and reflect cultural differences in approaches to reporting.

N. Lazebna and A. Prykhodko (2021) study the digital discourse of English language acquisition, identifying the peculiarities of using digital technologies in language education. This exploration emphasizes the role of digital media in contemporary language practices. M. Caiani, B. Carlotti, and E. Padoan (2021) analyze online hate speech and the radical right wing in times of pandemic, examining cases in Italy and England. This scientific article focuses on the rise of hate speech in the online space and its impact on public policy.

I. Bosworth (2023) analyzes the discourse on the quality of French and Canadian politicians speaking English in the Canadian media, especially during the 2020 Conservative leadership debate. This analysis highlights how language issues can influence political discourse. K. Nickerson (2021) explores the genres and discursive strategies in English used by Dutch writers in multinational corporations. This research emphasizes how language influences corporate communication and identity in the globalized business world. S. Belgrimet and H. Rabab'ah (2021) conducted a multimodal discourse analysis of English posters in campaigns against violence against women. This study is essential for understanding the role of visual and textual elements in shaping public opinion.

M. Zappavigna and L. Logi (2021) analyze the use of emojis in social media when discussing work from home. This project highlights how digital symbols influence communication and discourse in the digital age. Yu Yu, M. Nartey, and J. Chen (2023) conducted a critical discourse analysis of climate change resistance in Chinese English-language news. This study demonstrates how media discourse reflects and shapes public debate on environmental issues.

A. Musolff, R. Breeze, K. Kondo, S. Vilar-Lluch et al. (2022) have devoted their attention to the discourse of pandemics and crises, including COVID-19 communication and public health strategies. This scientific work demonstrates how media discourse influences the understanding of and response to global health challenges. J. S. Al Falaq and D. Puspita (2021) explore how masculinity is represented in L-Men advertisements using critical discourse analysis. This research is important for understanding how gender stereotypes are spread and maintained in the media. I. Munandar and S. Akmal (2023) analyze the representation of Ukrainian refugees in the British media using critical discourse analysis. This survey highlights how the media can shape perceptions and attitudes toward migration crises.

E. Esposito and M. Khosravini (2023) have devoted their scientific work to the issues of discourse in the digital era, in particular, in relation to the activities of social media and power. This publication examines how digital media influence public discourse and power relations. A. Matamoros-Fernandez and J. Farkas (2021) conduct a systematic review and critique on racism, hate speech and social media. This study emphasizes the challenges of racism and hate speech in the digital space.

S. A. Castaño-Pulgarin, N. Suárez-Betancourt, L. M. T. Vega, and J. M. H. Lopez (2021) conducted a systematic review on the Internet, social media and online hate speech. This study is important for understanding how digital media can spread hateful messages and negative stereotypes. J. Mendelson, S. Budak, and D. Jurgens (2021) simulate the framing of immigration discourse in social media. This research demonstrates how social media can influence the perception and discussion of immigration issues. D. Hangartner, G. Gennaro, S. Alasiri, N. Bachrich, A. Bornhoft, J. Boucher et al. (2021) show that empathy-oriented responses can reduce racist hate speech on social media. This exploration is essential for understanding the effectiveness of counter-discourses in combating hate speech and racism in digital spaces.

Summarizing the literature review, it can be stated that the study of contemporary English-language media discourse covers a wide range of topics and aspects. The literature focuses on different dimensions of media influence, including linguopragmatic, social and digital aspects. The researchers analyze the linguistic means and strategies used in the media to achieve certain communication goals, highlighting how these strategies influence the formation of public opinions and perceptions. Particular attention is paid to the analysis of gender stereotypes, racial and cultural representations in the media, which have a significant impact on the formation of social relations and identities.

Many studies are devoted to digital transformation and its impact on media discourse, including the role of social media and the

Internet in the modern media landscape. The academic paper analyzes how digital technologies and platforms influence the dissemination and impact of media content, as well as the changing role of traditional media. It is also important to consider the challenges related to ensuring objectivity, accuracy and ethics in media content, especially in the context of combating disinformation and fake news. This emphasizes the need to develop media literacy and critical thinking among the audience.

### 3 Purpose

The purpose of the research is to identify linguopragmatic, social and digital aspects of the contemporary English-language media discourse. The latter includes studying the linguistic strategies used in the English-language media, assessing the impact of these strategies on shaping public opinion and cultural perceptions, and considering the impact of digital transformation on the media sphere. The main goal is to identify the key trends and challenges facing English-language media discourse in the modern, rapidly changing world, as well as to develop recommendations for further studies in this domain.

### 4 Methodology

The methodology of the present research is based on a combination of four main methods: analysis and synthesis, ascent from the concrete to the abstract and from the abstract to the concrete. The analysis implies a detailed study of individual elements of media discourse, after which they are further combined to form a holistic understanding of the topic (synthesis). The ascent from the concrete to the abstract includes the analysis of specific problems of English-language media discourse, on the basis of which theoretical generalizations are formed. The ascent from the abstract to the concrete involves the application of theoretical positions to solve specific problems arising in English-language media discourse and English-language media communication.

### 5 Results

I) The English language, with its wide geography of use and its status as a lingua franca in the global context, plays a unique role in media discourse. Linguopragmatic features of English-language media discourse include the use of idiomatic expressions, phraseology, and culturally specific references that make media messages more attractive and relevant to a wide audience. This refers to both news and entertainment content, where the choice of vocabulary, presentation style and tone are extremely important to ensure that the message is clear and appealing to an international audience. The English language makes it possible to use a wide range of linguistic means to achieve a variety of communication goals, from informing to persuading.

The use of English in the media discourse also has a major impact on global communication processes. It acts as a bridge between cultures and promotes the dissemination of ideas and information at the international level. This is especially evident in international news, where English is often used as a means to reach a wider audience. However, this also poses challenges for non-English-speaking audiences, who may interpret messages through the lens of their own cultural and linguistic characteristics, sometimes leading to misunderstandings or loss of context.

Contemporary English-language media discourse is a multifaceted and dynamic phenomenon that reflects the complex interaction between language, culture, and technology. The main feature of this discourse is its linguistic and pragmatic features, which play a key role in the formation and interpretation of media messages.

Modern media use a wide range of language strategies to achieve their communication goals. This includes the choice of words, stylistic devices, tone of the message, and contextual references.

By utilizing these strategies, the media not only provides information to the public, but it also molds specific opinions, affects feelings and thoughts, and inspires people to take action. The pragmatic aspect of media communication also includes the author's intention, the context of the message, and the expected reaction of the audience.

An important linguopragmatic feature of English-language media discourse is the use of implicatures and indirect communication. The media often convey a deeper meaning or subtext through hints, allegories and other indirect linguistic means that may not be immediately obvious. This requires the audience to actively participate in the process of interpreting and understanding the message.

Framing plays a crucial role in shaping perceptions of events, people, and ideas in media discourse. By choosing certain words, images, and contexts, the media construct a certain picture of reality. This allows the media to influence the way the audience understands and evaluates particular events or phenomena. The rise of social media and digital media has also led to an increase in dialogicity and interaction in the linguopragmatic features of English media discourse (Mialkowska et al., 2022).

This means that the audience not only consumes content but also actively participates in its creation and interpretation. Comments, discussions on social media, and audience feedback are now an integral part of media discourse. This creates a two-way dialogue between the media and their audience, providing for a more dynamic and interdependent communication.

The linguopragmatic features of contemporary English-language media discourse open up new opportunities for influence and information interaction, but also pose new challenges. The increasing complexity and ambiguity of media messages requires critical thinking and in-depth analysis from the audience. Thus, understanding of linguopragmatic features becomes a key to effective perception and interpretation of modern media discourse.

II) The English-language media often serve as a source of gender and cultural representations that influence the international context. The use of English in the global media space spreads certain stereotypes and cultural norms that may differ from local contexts. This is especially evident in the portrayal of female and male images in the media, which often reflects Western ideas about gender roles and beauty ideals. This influence can lead to the global spread of Western standards and, at the same time, to the underrepresentation of other cultural perspectives.

The English-language media are often the main source of information that shapes international public opinion in the context of global challenges. They influence how different cultures perceive issues such as climate change, migration, and international conflicts. The English language in the media contributes to the widespread dissemination of certain views and interpretations, often centered on a Western perspective. This emphasizes the importance of multilingualism and cultural diversity in the media to ensure a more balanced and comprehensive coverage of global events.

Modern English-language media not only reflect but also actively shape social and cultural realities. In this section, we will consider how the media influences public perceptions, from gender stereotypes to the portrayal of global challenges, and how this affects the formation of public values and norms.

The media often use and disseminate gender stereotypes that shape our perceptions of the roles of males and females in society. Advertising, film, television, and news all contribute to the normalization of particular gender stereotypes and behaviors. This can lead to far-reaching consequences, from maintaining gender inequality to creating restrictive social expectations.

The media also play an important role in shaping and spreading racial and ethnic prejudice. Racial and ethnic tensions can be

exacerbated by the media by contributing to stereotypes and providing inadequate or inaccurate depiction of minorities. This can include both direct reflection of racial stereotypes and insufficient portrayal of diversity in the media, leading to the marginalization of certain groups.

In the context of globalization, the media play a key role in covering and interpreting global challenges, such as climate change, migration, international conflicts, and economic crises. The way the media present these issues can influence public opinion and political decisions, which necessitates responsibility and objectivity in their coverage.

The media also shape our perceptions of different cultures and facilitate cultural exchange. However, it can also lead to cultural homogenization, where certain cultural images and values become dominant to the detriment of diversity. Understanding this aspect is crucial for supporting cultural diversity and intercultural dialogue.

The role of media in shaping social values and norms has undergone significant changes with the advent of social media and digital platforms. Every user now has the opportunity to influence the public discourse, which creates new challenges and opportunities for social interaction and self-expression. Thus, the English-language media is not just a mirror of society but also an active participant in shaping social and cultural perceptions. They possess the potential to contribute to positive change but also bear responsibility for the possible negative consequences of their influence. Awareness of these aspects is crucial for analyzing the modern media landscape and its role in society (Mialkowska et al., 2023).

III) Digital transformation in English-language media is of global importance since English is one of the most widely used languages in the digital space. This creates unique opportunities for the dissemination of information, ideas, and cultural trends internationally. English-language news platforms, blogs, social networks, and other digital media are shaping the way the global audience perceives events, discusses important issues, and interacts with each other. It also creates challenges related to the need to ensure accuracy, objectivity and ethics in media content. English in digital media discourse affects the way users communicate and interact. The use of English in social media and online platforms helps create a community that unites people from different parts of the world. However, it can also lead to a language barrier for non-English-speaking users, limiting their ability to participate in global discussions and influence international agency. Thus, English in the digital space can facilitate the dissemination of ideas and information but it can also limit the diversity of perspectives and voices in the global dialogue.

Digital transformation in the English-language media also contributes to globalization, making English a key tool in shaping the international information flow. English-language information affects cross-cultural comprehension and drives global discourse on everything from social media to internet news. At the same time, this poses challenges in terms of ensuring representation and inclusion of voices from different cultural and linguistic contexts. Understanding this aspect is important for supporting multiculturalism and global communication equality in the digital age.

Digital transformation has radically changed the media landscape, introducing new forms of communication and interaction. This section of the academic paper examines how digitalization has affected media discourse, with a focus on the role of social media and new digital strategies in shaping public opinion and communication processes.

Social media have changed the way we perceive and share information. They allow the rapid dissemination of news, ideas and opinions, often bypassing traditional media channels. As a result, the media landscape becomes more democratic and everyone can make and consume information. At the same time,

this also leads to the dissemination of unverified information and fake news, posing new challenges to society in terms of media literacy.

Digitalization requires media companies and brands to develop new communication strategies. This means using tools such as content marketing, SEO (search engine optimization), targeted advertising, and analytics to attract and retain an audience. Digital strategies provide a more personalized and interactive experience for users but also raise issues of privacy and the use of personal data.

Traditional media, such as newspapers and television, are also adapting to the digital era by incorporating online platforms, mobile apps and social media into their communication strategies. This allows them to reach a wider audience and ensure interactivity with their readers and viewers. However, it also leads to changes in business models and the search for new ways to monetize content.

Digital transformation has a significant impact on public opinion and political processes. Social media and other digital platforms have become important tools for political engagement, campaigns and advocacy. This creates new opportunities for civic participation but also raises concerns about manipulation and influence on electoral processes. Given the speed of information dissemination and the abundance of available content, issues of ethics and responsibility in the digital media space arise. It is important to verify information, combat disinformation, and ensure the confidentiality and protection of user data.

Thus, digital transformation affects all aspects of media discourse, from the way content is created and disseminated to its impact on society and culture. Understanding these changes is crucial for adapting to the new realities of the communication space, ensuring effective interaction with the audience, and using the latest technologies responsibly. The importance of digital transformation in media discourse cannot be underestimated since it shapes the future of media and their role in society.

## 6 Discussions

One of the key debates within the contemporary English-language media discourse is the balance between freedom of speech and media responsibility. This discussion covers a wide range of issues: from the ethics of journalism and the impact of fake news to the role of social media in shaping public opinion. The dilemma of regulating content on the Internet and social platforms is particularly important, where the boundaries between freedom of expression and the need to protect against harmful content are often blurred.

On the one hand, there is a standpoint that emphasizes the importance of freedom of speech as a fundamental principle of democracy. Supporters of this viewpoint believe that any attempts to regulate or restrict media content can lead to censorship and undermine democratic values. On the other hand, there are voices calling for greater media accountability, especially in the context of fake news and hate speech. They point to the need to protect public order and moral standards, as well as the need to combat disinformation and its potentially harmful impact on society.

The issue of balancing freedom of speech and media responsibility is particularly challenging in the context of English-language media discourse that influences a global audience. The importance of freedom of speech cannot be underestimated since it is the basis for an open and multifaceted public dialogue. However, given the potential influence of the media on shaping public opinion, the irresponsible use of this freedom can have serious consequences, including inciting intercultural conflicts, spreading disinformation, and inciting hostility.

Therefore, it seems necessary to find a balance, where, on the one hand, freedom of speech will be ensured, and on the other hand, responsibility and objectivity of the media will be ensured. This requires improving the legal framework, developing media literacy among the audience, and introducing ethical standards in journalism. The role of the media in fostering a critical attitude to information is also important, especially in the digital age, where the amount of available content is extremely large.

## 7 Conclusions

The English-language media discourse has a significant impact on the formation and development of social and cultural ideas, playing a key role in global information exchange. This influence is manifested in various ways, including the dissemination of cultural values, norms, and perceptions. The ability of media discourse to foster international cultural discussion and raise awareness and understanding amongst many peoples and cultures is a beneficial aspect. Such interaction can support intercultural understanding and cooperation.

At the same time, the research has revealed potentially negative consequences, including the spread of stereotypes, one-sided perceptions, and misinformation. Particular attention should be paid to the challenges related to balancing freedom of speech and media responsibility. Media organizations and content creators need to take a responsible approach to covering news and information, avoiding distortion of facts or excessive sensationalism that can lead to misperception of events or issues.

Ensuring objectivity and accuracy in the news is critically important, especially in the context of combating disinformation. This requires constant effort and development of new methods and approaches in journalism, including the use of fact-checking, critical analysis of sources and the use of reliable information resources. Particular attention should be paid to raising media literacy among the audience to enable them to critically evaluate information and distinguish reliable sources from unreliable ones.

In conclusion, it can be stated that English-language media discourse is at the crossroads of numerous challenges and opportunities. Despite its potential to bring cultures closer together and foster global dialogue, it is equally important to recognize the need for a responsible approach to media content. Considering this, further studies should focus on the development of tools and strategies that will allow the media to respond effectively to the challenges outlined, maintaining high standards of journalism and promoting a healthy media environment.

It is proposed for further studies to focus on analyzing the impact of English-language media discourse on different cultural contexts, as well as to investigate the impact of new technologies on the evolution of language in the media. Particular attention should be paid to strategies for combating disinformation and developing effective methods of information verification in the context of digital globalization.

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## ANALYSIS OF FINANCIAL STATEMENTS AS A BUSINESS MANAGEMENT TOOL

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**Abstract:** In today's dynamic business environment and intensified competition among companies, the study of financial stability and management efficiency is crucial for any successful organization. Therefore, the analysis of financial statements is a necessary tool for enterprises to make rational management decisions and achieve strategic goals. Additionally, financial analysis is essential in the context of increasing competition and market volatility. The capacity to promptly respond to changes in the economic environment and adapt strategies is increasingly crucial for ensuring enterprise efficiency. Financial statement analysis, in particular, enables companies to assess their financial strength, determine optimal development strategies and make informed decisions in a changing market environment. Financial statement analysis is a crucial aspect of successful management. It involves a systematic analysis of an enterprise's financial and economic activities, including its structure, dynamics, and effectiveness. The scientific literature reviewed in this paper emphasizes the significance of financial statement analysis as a tool for identifying risks, formulating management strategies, and enhancing financial stability. In particular, the article discusses various aspects of the analytical approach, methods and tools of analysis that can help companies make informed management decisions. This article aims to explore the role and importance of financial statement analysis in business management. It covers various aspects of the analytical approach, methods, and implements of analysis to determine how this tool can become crucial for making informed strategic and operational decisions.

**Keywords:** Financial report analysis, Financial statements, Business, Risk identification, Business management, Strategic management, Financial sustainability, Weighting factors.

### 1 Introduction

In today's dynamic business environment and growing competition, effective enterprise management requires a systematic and objective analysis of its financial position. Therefore, the analysis of financial statements, which covers various aspects such as the structure of assets and liabilities, the dynamics of financial indicators and performance, becomes an integral part of strategic management.

Furthermore, in the current climate of heightened competition, financial statement analysis serves not only as a means of facilitating rational management decision-making, but also as a strategic approach to achieving long-term sustainability and enhancing enterprise competitiveness. This technique enables the identification of potential risks, the discovery of opportunities for growth, and the maintenance of financial stability in the face of market uncertainty and change.

### 2 Purpose

The purpose of this article is to systematize the theoretical and practical aspects of financial statement analysis, with a view to using it as an effective business management tool. The article aims to demonstrate the importance of financial analysis as a key element of strategic management, identify its main tasks and methods, and justify its application for making management decisions.

### 3 Literature review

O. M. Panchenko and V.V. Kosenko (2020) highlighted the use of financial analysis methods to ensure sustainable development of small businesses. The authors studied in detail and described the concept of sustainable development of a small business entity as a coordinated system of changes in economic,

environmental, social, and other subsystems of the enterprise. Additionally, they proposed using this analysis to assess the sustainable development potential of a business entity at different stages, based on specific financial indicators. The authors identified five stages of analysis, including the preparation of forecasted financial statements. This method is crucial for identifying patterns in a company's financial state and providing opportunities for efficient management of future alterations.

The scientific work by S. Stebljuk and L. Fizer (2020) determined the importance and content of financial analysis in enterprise activities, as well as the algorithm for its implementation. The algorithm includes stages for collecting and preparing input information, conducting analytical analysis, evaluating results, and drawing conclusions. Additionally, the scientific research presented a range of methods for conducting financial analysis, including the balance sheet method, elimination method, comparison method, and method of relative values. It is also found that financial analysis is a comprehensive tool for assessing enterprise activities, facilitating management decision-making, and determining the need for financial resources.

The scientific article by O.O. Doroshenko and D. O. Popchuk, D.O. (2023) analyses the aspects of forming a risk management system at an enterprise. The aim is to achieve the enterprise's goals while considering its interests and guaranteeing reliable financial stability and independence. This will provide additional competitive advantages in the future. The article argues that an effective system of accounting and analytical support can facilitate timely and informed management decisions based on analytical calculations and accounting information. Such a system should aim to protect the economic interests of the enterprise from both external and internal threats. The article proposes a system for building accounting and analytical support for enterprise risk management. The authors concluded that risk management is a system that involves identifying and analysing hazards, managing them, minimizing or neutralizing threats, with a view to ensuring the profitability and successful operation of an enterprise in the long term.

### 4 Applied methods

The research process employed literature analysis to determine the importance of financial statements as the primary source of information for conducting operational and prospective investigations of the financial condition of the enterprise. A comparative analysis was conducted to identify the economic and mathematical methods that contributed to a comprehensive study of the financial statements of the enterprise, including spatial, integral, and trend analysis. The study aimed to thoroughly examine the dynamics and efficiency of financial and economic activities. Additionally, the generalization method was used to systemize and summarize the methodological recommendations for analysing financial statements. The systematization method was applied to analyse potential unforeseen threats that may affect the financial statements of the enterprise.

### 5 Research results

In the current environment, where information flows are vast and accounting information processing is decentralized, it is crucial to maintain the integrity of analysis. This involves combining the process of information processing with the implementation of effective management decisions. A close link between accounting and economic analysis is essential and attainable. During the implementation of analytical procedures, the course of economic activity will be considered, which includes technological, technical, organizational, and managerial preparation and justification of the production process of the

enterprise. This information will be used with the final economic results (Zhuravel et al., 2023).

Financial statements are the primary source of information required for timely and prospective analysis of an enterprise's financial position. This data helps to determine the property status, assess performance, and forecast future development, which serves as a basis for making management decisions. However, recent changes in the structure of financial statements have significantly limited the information support for economic analysis. To conduct a qualitative and objective financial analysis, it is necessary to use additional sources of information besides the primary financial statements. This makes the process of economic analysis more labour-intensive and time-consuming (Churylova, 2023).

The efficiency and stability of a business entity's financial condition, as well as reasonable recommendations for improving strategic and tactical management, are determined by the place of financial statement analysis in the management system. Financial statement analysis reflects key aspects such as liquidity, profitability, and financial stability, enabling responses to changes in the economic environment (Nesterenko, 2021).

Furthermore, this analysis serves as a tool for identifying potential risks and opportunities that may affect the financial performance of the company. By analysing financial statements, management can identify trends and peculiarities of doing business. This enables them to adapt the company's development strategy to changes in market conditions. Analysing financial statements also helps to determine the efficiency of resource use, control costs and identify funding needs. This process is increasingly important in strategic planning, contributing to the enhancement of business processes and improving the

competitiveness of the enterprise in an ever-changing economic environment (Dombrovska, 2023).

Analysis of a company's financial statements is a vital tool for assessing its financial health and ensuring proper strategic orientation. The main tasks of this investigation include studying profitability and determining the level of financial stability of the company, which are crucial aspects of evaluating its business success (Tkachenko, 2020). The analysis aims to evaluate the effectiveness of financial resource management, evaluate the company's position in the financial market, and find out its competitiveness. Furthermore, it is crucial to provide an objective assessment of solvency, liquidity, and financial stability. The efficiency of capital use and an enterprise's ability to provide its own working capital are crucial indicators for measuring a company's financial transparency and readiness to face market competition (Stepenko, 2020).

Firstly, the analysis of financial statements involves various methods, including horizontal and vertical analysis, profitability and liquidity indicators, capital structure, comparative analysis with other companies, and the assessment of financial risks and opportunities. The purpose is to determine how efficiently a company uses its resources, manages its financial activities, and identifies opportunities and threats to its financial position. Financial analysis is a crucial aspect of enterprise management and decision-making for future development (Nasibova and Shipenko, 2019; Balazyuk, 2013).

It involves the analysis of financial statements to solve problems related to cash flows, financial resource formation and utilization, and short and long-term planning (Shepel, 2023). Table 1 presents the algorithm for conducting financial analysis of an enterprise.

Table 1. Algorithm for Conducting Financial Analysis of an Enterprise

Stage	Features
Incoming information collection and preparation	Objective and tasks of financial analysis; Information materials selection; Reliability assessment and comparison of data; Analysis methods selection.
Calculation and analytical	Calculating key indicators (financial stability, liquidity, profitability, business activity); Processing and analysis of the data obtained.
Results evaluation	Systematization and generalization of the data obtained; Comparing actual results with those of previous periods; Identify trends and key differences.
Drawing conclusions	Forecasting the company's performance; Finding reserves to improve performance; Developing recommendations for determining effective and appropriate solutions in the field of enterprise management.

Source: Compiled by the author based on (Steblyuk and Fizer, 2020).

When analysing financial statements, economic and mathematical methods are used to conduct an in-depth study of a company's financial statements. These methods include integral and trend analysis, analysis of absolute and relative differences, factor analysis, and equity calculations. Furthermore, additional techniques such as graphical analysis, correlation, and regression methods are employed to carry on a comprehensive study of the financial situation of the enterprise (Rizunyk, 2020).

Comparative (spatial) analysis is a key technique that plays a significant role in identifying the dynamics and financial stability of an enterprise. This technique involves comparing the financial indicators of the reporting period with their planned value or the indicators of the previous period. To obtain reliable conclusions, it is important to ensure the homogeneity and consistency of the studied indicators (Zhilyaev, 2020; Balazyuk, 2008).

The balance sheet approach is employed to analyse the relationship between two groups of economic indicators, the total results of which should be equal to each other. Balance

sheet estimates are the main technique used to examine an enterprise's financial statements and verify the accuracy of the results obtained regarding the impact of individual factors on the overall deviation of the studied indicator (Shesternyak and Pasternak, 2023).

Horizontal time-based analysis compares each financial statement item with the corresponding item from the previous period to identify trends in changes. This helps to determine changes in items or groups included in the financial statements. Vertical (structural) analysis finds out the structure of financial indicators and identifies the impact of each item on the overall result. Financial statements are presented as relative values to reveal the structure of key indicators (Semenenko and Poplyuiko, 2023).

Trend analysis is a methodological strategy used to study financial indicators by comparing various reporting items with previous periods. The main purpose of this analysis is to identify and define a trend, which is the main direction in the dynamics of an indicator that is not influenced by random individual

periods. Trend analysis involves a detailed comparison of financial data for several reporting periods, considering their sequence. This method enables the identification of the primary trend in the selected indicator over time, determining its changes and establishing a general pattern (Okhmush, 2021).

When examining an enterprise's financial stability and efficiency, it is crucial to conduct a thorough analysis of its

financial statements. They are a crucial source of information for objectively assessing the property status, performance, and future development forecasting of an enterprise (Pylypenko, 2023). Table 2 provides an overview of the areas for analysing financial statements, considering both national and international experience.

Table 2. Financial Statement Analysis Areas

National experience	International experience
1. Assessment of property status indicators; 2. Analysis of business activity indicators; 3. Analysis of profitability indicators; 4. Analysis of liquidity and solvency indicators; 5. Analysis of indicators of financial stability of the enterprise; 6. Analysis of financial results of the enterprise.	1. Assent management rations (asset analysis); 2. Debts management rations (analysis of liabilities (obligations) of the enterprise); 3. Liquidity (analysis of liquidity indicators); 4. Long-term and short-term solvency (analysis of the company's solvency indicators); 5. Profitability (analysis of profitability indicators); 6. Financial leverage (analysis of financial leverage); 7. Market value (analysis of market value).

Source: Compiled by the author based on (Bogatska, 2021).

One important aspect of the rationale for using weighting factors is their potential to provide a comprehensive assessment of various aspects of financial performance. Weighting coefficients can be used to determine the significance and weight of various factors that affect the financial condition of an enterprise in the

context of management decisions (Rybak, 2023). The methodological recommendations presented in Table 3 provide the basis for understanding the financial condition of the enterprise under study.

Table 3. Guidelines for Analysing Financial Statements

No.	Indicator name	Calculation procedure (formula)
Indicators for assessing the property status of an enterprise		
1	Working capital	F.1 (line 1195) - (line 1695)
2	Share of own working capital	F.1 (line 1100) + (line 1110) + (line 1165) + (line 1167) / (line 1195)
3	Depreciation ratio of fixed assets	F.1 (line 1012) + (line 1011)
4	Fixed assets serviceability ratio	F.1 (lines 1011-1012) / (line 1011)
Business activity indicators		
1	Asset turnover ratio (A/R)	F.2 (line 2350) / F.1 (line 1300)
3	Non-current asset turnover ratio (NAR)	F.2 (line 2350) / F.1 (line 1095)
5	Current asset turnover ratio (CART)	F.2 (line 2350) / F.1 (line 1195)
7	Inventory turnover ratio (ITR)	F.2 (line. 2050 / F.1 (line 1100)
9	Accounts receivable turnover ratio (A/R)	F.2 (line 2350) / F.1 (line 1140)
11	Equity turnover ratio (ETR)	F.2 (line 2350) / F.1 (line 1495)
13	Accounts payable turnover ratio (APT Ratio)	F.2 (line. 2050 / STLC)
Analysis of profitability indicators		
1	Asset profitability	F.2 (line 2350) / F.1 (line 1300)
2	Net asset profitability	F.2 (line 2350) / F.1 (line 1300) - (line 1595) - (line 1695)
3	Sales profitability	F.2 (line 2090) / (line 2190)
4	Equity profitability	F.2 (line 2350) / F.1 (line 1495)
5	Fixed capital profitability	F.2 (line 2350) / F.1 (line 1010)
Liquidity and solvency indicators		
1	Current liquidity ratio (CLR)	F.1 (line 1195) / STLC
2	Quick liquidity ratio (QRL)	F.1 (line 1165) + (line 1135) + (line 1140) + (line 1155) / STLC
3	Absolute liquidity ratio (ALR)	F.1 (line 1165) / STLC
4	Own current assets (OCA)	F.1 (line 1165) + (line 1135) + (line 1140) + (line 1155)
5	Current ratio of own working capital (Cwc)	OCA / STLC
6	Inventory to current assets ratio (current ratio)	F.1 (line 1165) + (line 1135) + (line 1140) + (line 1155) + (line 1190)
7	Maneuverability coefficient of own working capital (MCOWC)	OCA / F.1 (line 1100) + (line 1170)
8	Inventory coverage ratio (ICR)	OCA / F.1 (line 1195) + (line 1100)
9	Short-term borrowed capital (STBC)	OCA / F.1 (line 1100)
Company's financial stability analysis		
1	Autonomy ratio	F.1 (line 1495) / (line 1300)
2	Financial dependency ratio	F.1 (line 1300) / (line 1495)
3	Financial risk ratio	STLC / F.1 (line 1495)
4	Equity manoeuvrability ratio	F.1 (line 1195) / (line 1495)
5	Long-term investments coverage structure ratio	STLC + F.1 (line 1495) / (line 1095)
6	Long-term fundraising ratio	F.1 (line 1500) + (line 1515) / (line 1095)
7	Ratio of financial independence of capitalised sources	F.1 (line 1495) / (line 1500) + (line 1515)

Source: Compiled by the author on the basis of (Taranenko, 2023).



The coefficients and indicators resulting from the calculations should be compared to standard (optimal) criteria, as well as to data obtained in the previous period and similar indicators at related enterprises or industry averages. Furthermore, analysing financial statements aids in identifying potential shortcomings, predicting bankruptcy, and determining production prospects in a competitive environment (Petrishcheva, 2019). To enhance the regulation of accounting and management accounting, it is essential to ensure that all stakeholders have access to primary information and reporting that objectively reflects the financial condition and performance of a business entity. The state regulates aspects of accounting that pertain to summarizing current information and forming subsequent reports to meet the needs of external users (Suk, 2022).

However, in today's business environment, companies encounter various economic, financial, and external factors that can impact their stability and profitability. Therefore, to identify the impact of unpredictable threats in this context, analysts must conduct a detailed analysis of the company's external environment and internal processes. They should investigate potential risks and unexpected circumstances that could significantly affect financial performance, such as changes in market conditions, policies, technological transformations, or changes in consumer demand (Samoilenko, 2022).

It is crucial to assess how unforeseen threats may impact the entity's financial statements. This involves estimating potential losses, changes in costs, liquidity risks, and other possible consequences. The assessment of possible losses includes an analysis of the potential impact on the company's profitability and overall financial position. When considering adapting to new conditions, it is important to control and optimize associated costs (Ananieva, 2023). Additionally, analysts should pay special attention to liquidity risks, which may affect the company's ability to pay its obligations on time. Potential liquidity losses should be assessed, and strategies developed to improve or restore them. When identifying the potential consequences of unforeseen threats, it is crucial to consider the reactions of stakeholders, such as investors, partners, customers, and regulators. Predicting market reactions and ensuring effective communication can help to mitigate the impact of negative factors on reputation and relationships with stakeholders (Nesterenko, 2021).

In a constantly changing business environment, the importance of financial analysis and analytical management is becoming increasingly relevant. This is due to the growing number of economic entities and their complex management tasks, as well as the increasing social significance of commercial activity. At the same time, it is necessary to strengthen public control over enterprise income, which requires consideration of financial indicators of profitability and performance. It is important to identify changes in these indicators and the effectiveness of income management in the context of modern business development. At the same time, the analytical process extends beyond the enterprise and has social significance (Fostolovych et al., 2023).

It is important to note that in the current economic climate, the emphasis is not only on the analytical capabilities to determine the objectivity of reported data, but also on its application to achieve business success. While other methods may be prioritized, most economists and practitioners recognize the importance of analysis in achieving success in business. Therefore, the analytical process plays a socially important role in enterprise management, particularly in the context of resolving financial issues. A comprehensive analysis of the company's financial activity and a thorough examination of business processes and phenomena are essential for an objective evaluation of events during management activities. The analysis of financial statements serves as a crucial tool for this purpose. This approach enables accurate determination of expected results and the development of effective strategies to achieve set goals (Doroshenko and Popchuk, 2023).

## 6 Discussion

We concur with the findings of O.M. Panchenko and V.V. Kosenko (2020) regarding the application of financial analysis techniques to promote the sustainable growth of a specific business entity. The authors defined effective functioning of small businesses as an interconnected set of coordinated changes in various subsystems of the enterprise, which are caused by the influence of external and internal environmental factors, considering current and future needs. They also argue for the importance of tailoring financial analysis to different groups of small business representatives based on their specific characteristics. The authors' approach to analysing different enterprises, considering their unique risks and characteristics, demonstrates an understanding of the need for individualized assessments of financial sustainability and sustainable development.

We partially agree with S. Stebljuk and L. Fizer's (2020) conclusions regarding the importance and content of financial analysis in enterprise activities. Their algorithm for conducting financial analysis, definition of a system of methods, and emphasis on rapid diagnostics are constructive and valuable for improving management decisions and financial and economic activities of enterprises. However, our views diverge regarding the significance of certain financial analysis aspects and comprehending the potential for research that concentrates on identifying the specifics of analysing wholesale trade enterprises. It is possible to consider additional aspects and expand the analytical approach.

We partially concur with O.O. Doroshenko and D.O. Popchuk (2023) as the paper highlights important aspects of forming a risk management system at an enterprise. The system aims to achieve goals, meet enterprise interests, and ensure reliable financial stability and independence to gain additional competitive advantages in the future. The authors also systematized the evolutionary stages of risk management, focusing on global events in the financial and economic spheres. The proposal to build a system of accounting and analytical support for risk management is useful. However, the study could be enhanced by including aspects related to specific methods and tools of analysis. This would increase its practical value and specify its contribution to solving financial management and risk issues at the enterprise.

## 7 Conclusions

The analysis of financial statements is crucial in determining a company's financial efficiency and stability, and plays a vital role in the management of its operations. This tool also provides valuable recommendations for improving strategic and tactical management, considering key aspects such as liquidity, profitability, and financial stability. Various methods and techniques of analysis, such as horizontal and vertical analysis, profitability and liquidity ratios, can be used to study the financial position of an enterprise and determine its efficiency in resource utilization.

Analysing financial statements is important not only for understanding the objectivity of the reporting data but also for its impact on business success. This paper presents methodological recommendations for analysing financial statements, which are a key component of enterprise management and decision-making regarding its future development. The recommendations provide the necessary methodological basis for studying the financial resources and prospects of an enterprise. Such an analysis not only helps to identify deficiencies and prevent bankruptcy but also allows for determining the prospects for development in a competitive environment.

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## ASSESSMENT OF THE IMPACT OF GLOBALIZATION ON THE REGIONAL DEVELOPMENT OF INNOVATION CLUSTER

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**Abstract:** The article delves into the complex dynamics of innovation clusters moving through the complex landscape of global trends and challenges inherent in the comprehensive process of globalization. The multifaceted influence of global factors on the evolution of innovation clusters within the framework of the modern economic situation is also meticulously studied. In the course of the analysis, a special emphasis has been placed on a detailed examination of the challenges arising as a result of the current processes of globalization and the rapid development of innovative technologies. The present research identifies the key role played by innovation clusters as integral components of regional development and essential contributors to the tangled web of global production chains. One of the most important findings is the reconciliation of local and global interests in the circumstances surrounding the establishment and operation of innovation clusters. It has also been determined that globalization is a stimulus for innovative development and the emergence of new challenges to ensure the sustainable competitiveness of regional clusters in the global economic environment has been substantiated. It is noted that countries where innovation clusters demonstrate successful integration into global production chains actively use the advantages of globalization to develop their regional innovation systems. The primary purpose of the analysis was to determine the factors contributing to the successful integration of clusters into global processes. These factors include effective cluster management, the development of a flexible innovation strategy, and the ability to adapt to changes in the global economic environment. The role of innovation management in the context of globalization is considered separately, in particular, the need for constant monitoring and analysis of global innovation trends.

**Keywords:** Globalization, Global chains, Cluster, Regional clusters, Innovation cluster, Integration, Innovation environment, Regional development.

### 1 Introduction

The relevance and significance of globalization and its effects on the regional development of innovation clusters are growing in the current economic environment. Global transformations in the economy, technologies and communications not only change the paradigm of approaches to business but also create new opportunities and challenges for regional development, in particular, through the formation of innovation clusters.

In addition, it is important to determine how global technological changes, knowledge exchange and innovation affect the formation of innovation clusters and their competitiveness. Assessment of the impact of global competition, consumer needs and world trends will help reveal opportunities for expanding the horizons of innovative clusters and ensure their adaptation to new conditions.

Thereby, the study of the relationship between globalization and the development of innovation clusters is of strategic importance for the effective management of regional innovations and ensuring sustainable development.

The purpose of the research is to determine the impact of global economic and technological trends on innovation clusters and their ability to adapt to new conditions. In this context, the main objective is to reveal and study the factors determining the effectiveness of innovation clusters in the context of global changes.

### 2 Literature review

Bogashko O. L. (2021) examined the key trends in the development of modern regional economies in his scientific article and also adapted them to the impact of globalization, informatization and innovative development in the post-industrial era. The main emphasis in his study was placed on clustering as one of the important strategies, which is defined in the form of regional and interregional clusters. Clusters were considered priority inter-industry complexes, determining the development of the post-industrial information economy at different levels. Such integration of interrelated industries and interdependent social institutions creates a significant factor that contributes to increasing the competitiveness of both national and regional economies.

Along with this, the study of Boyko O. M. (2022) is important in assessing the further regional development of clusters in Ukraine. The scholar investigated important aspects of the functioning of clusters, focusing on their current role as a form of enterprise integration. The author took into account the features of developing clusters in different parts of the world, focusing on the unique components of each individual cluster. The main specificity of the cluster, identified by the researcher, is the achievement of a synergistic effect, which is manifested in increasing competitiveness. Emphasis was placed on innovative development as its distinguishing feature. In addition, the author highlighted the issue of financing the formation and development of aviation clusters in Ukraine, noting that these issues mainly concentrate on investment or budgetary resources, which is a key aspect for the successful implementation of cluster initiatives.

In addition, Karpenko A. V. and Karpenko N. M. (2022) have determined that the basis for the formation and effective functioning of a cluster is the building of trust and responsibility between its participants. At the same time, tolerance and solidarity in society are crucial, especially in conditions of market monopolization, a low level of business ethics, and a limited legal culture. The scholars pointed out that these factors have limited the full potential of the national economy for a long time. In particular, they have identified the need for territorial integration of scientific and educational institutions with a network of specialized suppliers, producers and consumers united by a technological chain. The authors also emphasized the importance of the conscious formation of clusters by participants in economic relations for the full use of the available potential and implementation of competitive advantages.

### 3 The applied methods

In the course of the research, the following methods were used:

- the analysis of literary sources was applied to study the essence of the concept of "cluster" and factors of development of the innovation environment of regional clusters;
- methods of comparative analysis were used to analyze global and domestic practices of formation and activation of cluster initiatives;
- the method of generalization was used to identify factors hindering the development of the innovation environment and promote the innovative development of regional systems.

### 4 The research results

In the current conditions, the main goal of economic strategy in advanced and developing countries is to strengthen national competitiveness and expand the influence of national companies on domestic and global markets, aimed at increasing the efficiency of their activities. Along with this, the exhaustion of

traditional industrial policy, which was carried out through the expansion of production and technological specialization and collaboration within network structures – innovation clusters – is making competitiveness management increasingly difficult (Horobynska, 2021).

The concept of “cluster” was formulated and introduced into economic theory by M. Porter, who is the founder of the theory of cluster development. According to his definition, a cluster is a group of interdependent companies, specialized suppliers, companies in related industries, and related organizations (such as universities, standardization agencies, and trade associations) in specific geographic areas. Such companies compete but at the same time cooperate to achieve common goals and effective interaction (Bechko et al., 2022).

The essence of modern innovation clusters includes various aspects that determine the features of this concept and indicate the key points in the formation of a strategy for creating effective clusters. Primarily, the geographical concentration should be noted, which presupposes that the businesses are part of the cluster and are centered in a single location. Such concentration helps increase the efficiency of cooperation and the exchange of ideas due to the physical proximity of the companies. The horizontal character of the cluster is expressed in the connection of enterprises from different industries, which promotes diversity and joint interaction among various sectors of the economy. In turn, the vertical character implies that the cluster includes enterprises with adjacent stages of the production process, and this contributes to the coordination and efficiency of production (Rykov, 2020).

In addition, clusters have a lateral scaling impact that involves integrating several industries to create a common scale and synergy and maximize interaction between various economic sectors. In turn, the technological nature of the cluster unites enterprises with similar technologies, promoting the exchange of innovative approaches. Focal concentration creates a cluster around a central element, thus, facilitating joint innovation initiatives (Petrenko et al., 2021).

The effectiveness of clusters is revealed in practice and demonstrated by real-life successful examples. The world’s leading economies are characterized by the presence of cluster structures, such as, Hollywood and Silicon Valley or the entertainment industry in Las Vegas. The effect that arises from the action of clusters on economic development is explained by the fact that companies achieving competitiveness in the global market spread their positive impact on the surrounding environment, including suppliers, consumers and competitors. The successes of this environment, in turn, contribute to the further growth of the competitiveness of companies (Neboga et al., 2021).

A characteristic feature of the cluster is the achievement of a synergistic effect for the included organizations, which is manifested in an increase in the competitiveness of the system as a whole compared to individual economic entities. The mechanism of increasing competitiveness in the cluster is based on the effective combination of interrelationships within the cluster in the production process with internal competition within the cluster (Lazarenko, 2022).

An innovation cluster, as an effective tool for achieving high competitiveness, is an informal association of various organizations, including research centers, industrial enterprises, individual entrepreneurs, state administration bodies, public organizations, and higher educational institutions. The formation of a cluster based on vertical integration contributes not only to the random concentration of technological inventions but also to the creation of a system of targeted distribution of new knowledge, technologies and innovations. Establishing long-term relationships among cluster members is a crucial prerequisite for the efficient conversion of ideas into inventions and innovations into competitive advantages (Sushchenko, 2017).

The intensive development of technologies, logistics, and information systems has led to an almost instantaneous exchange of information and financial flows. In light of this, key components for achieving and maintaining competitive advantages have become not only innovation and education but also interaction between enterprises, which creates favorable conditions for the formation of network structures, that is, clusters (Artyomov et al., 2019).

Experience from around the world provides compelling evidence that the process of cluster formation has been actively accelerating during the last 20 years. Well-known experts estimate that more than half of the economies of the world’s leading countries are already affected by this phenomenon. Globalization and the international competitive processes that characterize the modern world economy have become necessary prerequisites for the transition to a new paradigm of competitive management. Such repurposing consists of abandoning the traditional industrial policy in favor of a new system based on the effective use of the advantages of specialization and interaction (Smerichevska, 2020).

In this context, it should be noted that key initiatives such as the European Cluster Policy Group, the Europe Inter Cluster Initiative, the European Cluster Platform, the European Cluster Alliance, etc. are being implemented to support competitive clusters. These initiatives are aimed at harmonizing policy, strengthening international cooperation, increasing the efficiency of clusters, and stimulating their development in the context of globalization. Therefore, the main goal of this policy is to create a favorable environment for the growth of competitive and innovation-oriented clusters (Boyko, 2020).

In the context of the current conditions of developing and forming the innovative economy of Ukraine, special attention is paid to innovation systems at the regional level. The innovative development of regions and the formation of infrastructural support take place at different rates due to institutional, economic and industry specificities. The innovation environment creates conditions for the maximum use of innovation potential in the development of new products based on new technologies, with subsequent market introduction and high innovation receptivity (Ursakiy, 2021).

It should be emphasized that it is necessary to clearly define the tasks for the effective implementation of the cluster policy in the context of the current challenges facing the regions of Ukraine. Among the priority directions, it is possible to single out the development of systematic and methodical support for clustering, in particular, for innovative clusters. It is also crucial to substantiate and develop a legal framework for the implementation of cluster policy that takes into account the specifics of modern conditions (Artyomov et al., 2021; Savytska et al., 2021).

In particular, the key element is the institutionalization of cluster culture aimed at forming a positive attitude towards cluster initiatives and promoting their successful implementation. An integral part of this process is the creation of a network of business incubators, technology parks, technopolises and other infrastructural forms in the regions, which is aimed at promoting the development of small and medium-sized businesses within innovation clusters. The general guidelines of state regional policy, as outlined in the current State Strategy for Regional Development until 2027, authorized by the Ukrainian Cabinet of Ministers on August 5, 2020, No. 695, should be considered in the context of these duties. This document defines strategic directions and priorities for the sustainable development of regional systems (Cabinet of Ministers of Ukraine, 2020).

However, the development of innovation clusters and regional policies did not receive sufficient attention and government support. The beginning of the full-scale invasion of the Russian Federation into Ukraine led to the termination of the operations of more than 50% of small and medium-sized enterprises (SMEs), which make up more than 90% of the total number of

enterprises in the country. Under the conditions specified, the Analytical Center of the Ukrainian Cluster Alliance (UCA) developed the program "Export and Internationalization of Industrial SMEs" as one of the components of proposals for the anti-crisis action program of the Cabinet of Ministers of Ukraine. Thus, the problem for the cluster movement in Ukraine nowadays is passivity in the business environment regarding the formation of economic clusters, which is caused by the lack of an effective investment and innovation mechanism for the creation and functioning of clusters (Karpenko et al., 2023).

The solution of the tasks related to bridging the gaps in the innovation process and the effective use of factors contributing to the innovative development of regional innovation systems requires the improvement and development of new innovation strategies. The formation and active growth of the cluster's innovation environment is the means by which the critical stage of facilitating the integration of regional businesses into innovation clusters is achieved.

Primarily, it is necessary to focus attention on identifying and taking into account key factors that contribute to the innovative development of regional systems, which requires the presence of the relevant infrastructure, innovative enterprises and highly qualified personnel. The next step is the development and implementation of strategies aimed at supporting innovative initiatives and increasing the competitiveness of enterprises. The formation of a system of funding and support for innovative ideas will promote interaction between participants and take into account the latest solutions. Moreover, it is important to consider the individual features of the region and its industries when formulating innovation development strategies (Zarichna, 2021).

Innovation potential and innovation climate reflect the amount of resources and conditions for the introduction of innovations in the economic system. In addition, innovation activity and infrastructure are significant indicators of the innovation system's state, which is determined by an integrated structure such as an innovation cluster (Karpenko et al., 2022). The efficiency of innovation activity acts as a complete indication of the implementation of the innovation process at the level of the region and cluster, and such a structure facilitates interaction between players in the process of innovation implementation. In addition, the creation of an innovative environment is conditioned by the influence of various factors that can both stimulate innovative activity and act as limiting factors for developing the innovative system. These factors include the scientific activity of the region, state support for innovation, infrastructure supporting innovation as well as the level of competitiveness and others (Kramer et al., 2022).

It is also important to take into account the factors inhibiting the development of the innovative environment, such as the low attractiveness of the region for investments, the lack of demand for innovations, difficulties in implementing innovative development programs, and others. These challenges could be brought on by the region's low level of innovative receptivity, the incoherence of industry, government, and scientific initiatives, or a lack of funding. Consistency and cooperation of all parties, as well as the use of various tools, become key factors for creating an effective innovation environment and developing the innovation system in the region (Table 1).

Table 1. Tools determining the innovation environment of the cluster

Innovative tools	Components of an innovative environment
Organization of innovative activities	Organizational support
Development and implementation of innovations	Infrastructural support
Financing innovative activities	Investment security
Stimulation of innovative	Regulatory and legal support

activity	
Technological transfer tools	Commercialization of technologies
Intellectual property protection tools	Scientific and legal support

Source: Compiled by the author based on (Mekhovych, 2019)

Therefore, the innovative system implements effective tools at different levels (macro-, meso- and micro-levels) by involving participants in its integrated structures. Instruments for establishing and enhancing the cluster's innovation environment help raise the standard of the innovation area and prevent or address regional issues that impede its quick development. In general, an effective innovation environment is considered a competitive network system that provides tax benefits, guarantees support from the state and the private sector and has a developed system of communications and relationships. The implementation of innovative projects and stimulation of innovative activities are monitored in this environment (Bugil, 2023).

Currently, globalization processes influence the development of innovation clusters both positively and negatively, causing new challenges for the competitiveness of various industries. Thus, clusters that become part of global production chains and gain access to global resources may be vulnerable to global changes and long-term crisis phenomena (Franko, 2023).

In Ukraine, cluster efforts should be launched in light of the country's shift to a digital economy and the creation of smart specialization in regional development plans. The development of clusters that are formed "from below" with a full understanding of the benefits of cooperation between participants becomes especially significant.

For instance, in September 2020, Zaporizhzhia launched an initiative to create a professional association of entrepreneurs, scientists, business associations, etc. Such an initiative was initiated by the Memorandum of Cooperation between the Association of Industrial Automation of Ukraine (APPAU) and the Zaporizhzhia Chamber of Commerce and Industry (ZTPP), as well as with the participation of Zaporizhzhia Polytechnic University. In the future, the German government has ordered the public organization Zaporizhzhia Cluster "Engineering-Automation-Mechanical Engineering" to be established, with a focus on the growth of high-tech industries, with the help of APPAU and the German company "Deutsche Gesellschaft für internationale Zusammenarbeit" (GIZ) (UCCI, 2022).

Consequently, the Zaporizhzhia cluster "IAM" has successfully united and continues to attract leading companies and specialists of the region in the fields of industrial engineering, automation, information technologies and mechanical engineering. The main goal of the cluster is to increase the economic potential of the Zaporizhzhia region by strengthening competitiveness and stimulating the development of the region's innovative ecosystem in high-tech industrial sectors.

It should be noted that the territorial integration of scientific and educational institutions with a network of specialized suppliers, key producers and consumers interacting in the technological chain is aimed at accelerating and making more efficient the process of spreading innovations, such as new discoveries and inventions, in a particular economic subsystem (Karpenko et al., 2018). This approach involves close interaction between various links of the technological chain, which is supported by active participation and cooperation with state administration bodies and the public. As a result of such integration, conditions are created for the progressive development of the region, which is based on interaction between science, education, production and consumption, contributing to sustainable and innovative growth.

## 5 Discussion

We agree with the opinion of Boyko O. M. (2022) since his study identifies important aspects of the functioning of clusters and emphasizes their modern role as a form of enterprise integration. The author carefully examines the features of developing clusters in different parts of the world, paying attention to the unique features of each specific cluster. The author also examines the issue of financing the creation and development of aviation clusters in Ukraine, determining that these aspects are mainly focused on budgetary resources or investor resources, and this issue is crucial in the successful implementation of cluster initiatives.

We agree with the standpoint of Bogashko O. L. (2021) since his scientific work clearly highlights the main trends in the development of the modern regional economy caused by globalization, informatization and post-industrial innovative development. The scholar pays special attention to clustering as an important strategy, defined through the creation of regional and interregional clusters. The study emphasizes that clusters are considered as key inter-sectoral complexes that determine the development of the information economy in modern conditions. The analysis's primary outcome is that integrating social institutions and related industries is a crucial component of raising competitiveness at both the national and regional levels.

We partially agree with the viewpoint of Karpenko A. V., Karpenko N. M. (2022) because they determined the basis of the formation and effective functioning of the cluster through fostering trust and responsibility between its participants, as well as the importance of tolerance and solidarity in society. At the same time, they correctly pointed out that the conditions of market monopolization, a low level of business ethics, and a limited legal culture for a long time limited the full use of the potential of the national economy. Along with this, we believe that the integration of interconnected industries and interdependent social institutions is crucial for a thorough understanding of how clusters function. Moreover, it is a major factor in boosting the competitiveness of both the national and regional economies. Such integration is able to create favorable conditions for the gradual development of the region and the implementation of the competitive advantages of clusters.

## 6 Conclusions

Examining the way globalization affects the geographical growth of innovation clusters is an essential task provided the current problems of economic globalization and the swift advancement of creative technology. Currently, globalization processes, while bringing new opportunities for development, also create new challenges and threats. Access to global resources is made possible by the successful integration of innovation clusters into global production chains; however, accomplishing this also necessitates flexibility to changes in the global economic environment.

Innovation clusters have the potential to play a significant role in the global economy, which would accelerate the spreading of innovation and boost competitiveness. In particular, the territorial integration of scientific and educational institutions with the network of suppliers and manufacturers creates prerequisites for the effective dissemination of new knowledge and technologies. However, given the global and long-term challenges, clusters should be flexible and adaptable, taking into account the variables in the global environment. Managing the competitiveness and sustainability of clusters requires a strategic approach and the readiness to introduce innovations in all aspects of their activities.

Thus, globalization defines a new context for the development of innovation clusters, and only effective interaction, management and adaptation can ensure a sustainable increase in the competitiveness of innovation clusters in regional development.

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## CURRENT ISSUES IN THE CRIMINAL LEGAL PROTECTION OF CULTURAL HERITAGE IN UKRAINE

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**Abstract:** Since the preservation of cultural heritage sites is essential, their criminal legal protection remains relevant today. This study aims to provide a comprehensive examination of the norms of Ukraine's Criminal Code that, in one way or another, relate to the protection of Ukrainian cultural heritage. The research employed the methods of analysis, synthesis, scientific generalization, and formal-logical method. The paper explores Articles 178, 193, 201, 298, 307, and 316 of the Criminal Code of Ukraine. In the context of Article 178 of the Criminal Code of Ukraine, it is stated that the subject of this criminal offense - a religious building or place of worship - is much narrower than the concept of "cultural heritage." At the same time, Articles 193 and 201 of the Criminal Code of Ukraine specify that the subject can only be a tangible object associated with intangible cultural heritage objects. Part 2 of Article 298 of the Criminal Code of Ukraine directly relates to the criminal-legal protection of cultural heritage in Ukraine. The article analyzes the sanctions of Part 2 of Article 298 of the Criminal Code of Ukraine and provides recommendations for determining punishment under this part of the article. The paper also describes violations of legislative technique in constructing the composition of the criminal offense stipulated in Part 2 of Article 298 of the Criminal Code of Ukraine and offers recommendations for their elimination.

**Keywords:** Criminal offense, Cultural heritage, Sanctions, Punishment, Elimination, Destruction, Damage, Architecture, State register.

### 1 Introduction

International legal protection of cultural heritage traces its origins back to 1954 when the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict was adopted. Naturally, the issue of criminal-legal protection of cultural heritage gains particular significance in light of the full-scale invasion of the Russian Federation into the territory of Ukraine, as the risk of destruction, ruin, or damage to cultural heritage sites significantly increases during military actions. At the same time, military criminal offenses should not be equated with the system of criminal offenses where cultural heritage objects are the subject.

Furthermore, for proper qualification, it is necessary to establish what exactly is meant by "cultural heritage objects." In the process of examining the system of criminal offenses related to cultural heritage objects, violations of legislative technique rules were identified, particularly in the construction of sanctions. The paper provides suggestions for addressing such violations.

### 2 Literature review

Blake J. (2000) wrote about understanding the definition of "cultural heritage." The researcher notes that the 1954 UNESCO Convention for the Protection of Cultural Property in the Event of Armed Conflict is the earliest of these modern international texts. It was mainly developed in response to the destruction and looting of monuments and works of art during World War II. However, Blake J. (2000) notes that international law related to the protection of cultural heritage began with comparatively narrow goals - the protection of cultural property during wartime.

Solis G. (2021) also spoke about the protection of cultural property in the context of the 1954 Hague Convention for the Protection of Cultural Property. Nafziger J., Paterson R., and Renteln A. (2010) devoted their research to the issues of cultural material in the context of criminal justice and dispute resolution.

Mahnad P. (2017) addressed the issue of protecting cultural property in Syria regarding opportunities for states to strengthen compliance with international law.

The paper by Cunliffe E., Muhesen N., and Lostal M. (2016) also focuses on the conflict in Syria. It is related to the legal consequences and obligations of the destruction of cultural property during the Syrian conflict. Seršić M. (1996) focused on the protection of cultural property during armed conflict. The study by Lowenthal D. (2013) refers to natural and cultural heritage.

Rizzo I. and Throsby D. (2006) wrote about economic analysis and public policy in the context of cultural heritage. Rizzo I. and Throsby D. (2006) are convinced that economic theory and public policy analysis can illuminate the decision-making process concerning cultural heritage. They argue that from an economic perspective, it is interesting to conceptualize heritage as a capital asset. According to the authors, considering heritage as a cultural capital requires consideration of sustainability aspects, along with the consideration of natural capital in economic theory. It allows a rule of sustainability to be derived from accumulating cultural wealth. Rizzo I. and Throsby D. (2006) discuss the application of cost-benefit analysis to the evaluation of heritage investments, with a particular focus on the valuation of non-market benefits. Addressing policy issues, the authors explore the ways in which governments intervene in heritage markets, with a specific focus on listing and other forms of regulation.

Holtorf, C. and Högberg, A. (2020) considered cultural heritage for the future. Gražulevičiūtė I. (2006) is the author of a research paper on cultural heritage in the context of continuous development. Vecco M. (2010) presented a comprehensive study on the definition of "cultural heritage" as it ranges from material things to non-material ones. As a result, the issue of criminal legal protection of cultural heritage was not addressed in the studies mentioned above.

### 3 Aims

The study aims to provide a comprehensive review of the provisions of Ukraine's Criminal Code that, in various ways, relate to the protection of Ukrainian cultural heritage.

The following tasks were set to achieve this goal:

- to describe the composition of criminal offenses related to cultural heritage to some extent. These are, in particular, Articles 178, 193, 201, 298, 307 and 316 of the Criminal Code of Ukraine;
- to analyze the text of the Criminal Code of Ukraine in part related to the protection of cultural heritage sites for compliance with the rules of legislative technique and to develop recommendations in case of their violation;
- to differentiate the concepts of "elimination," "destruction," and "damage."

### 4 Methods

The following methods were applied during the research:

- Analysis method (in reviewing Articles 178, 193, 201, 298, 307, and 316 of the Criminal Code of Ukraine);
- Synthesis method (for a comprehensive statement of the issues related to the rules of legislative technique violation);
- Scientific generalization method (for a systematic description of scientific sources related to the research topic);
- Formal and logical method (when distinguishing the types of punishment from the sanction of part 2 of Article 298 of the Criminal Code of Ukraine).



## 5 Results

The following articles of the Criminal Code of Ukraine (hereinafter referred to as the CC of Ukraine) can be identified as somehow related to the protection of cultural heritage or concepts associated with it. In particular, these are Articles 178, 193, 201, 298, 307, and 316 of the CC of Ukraine. However, not all of these articles specifically concern cultural heritage as the subject of a criminal offense. Certain legal structures related to cultural heritage appear as various elements of criminal offenses under Articles 178, 193, 201, 298, 307, and 316 of the CC of Ukraine. Let us take a closer look at them.

Article 178 of the CC of Ukraine provides for criminal liability for the damage or destruction of a religious structure or place of worship. It should be noted immediately that a place of prayer is not the same as a cultural building. A place of prayer serves religious worship needs. At the same time, religious buildings or places of worship may well constitute cultural heritage.

However, it is evident that the concept of "cultural heritage" is broader and includes not only religious structures or places of worship. Thus, the peculiarity of Article 178 of the Criminal Code of Ukraine in terms of the study of criminal legal protection of cultural heritage concerns certain buildings that may potentially belong to cultural heritage sites. However, there are possibly some cases when temples or houses of worship are damaged or destroyed and are not classified as cultural heritage.

The Article 193 of the CC of Ukraine contains a criminal offense of misappropriation of found or accidentally obtained property or treasure belonging to someone else that has a special cultural value. In such cases, the subject of the criminal offense may be cultural heritage, but in the context of tangible property associated with intangible objects of cultural heritage (Law of Ukraine "On the protection of cultural heritage," 2000). The author would also like to note that, along with property or treasure of special cultural value, the subject of Article 193 of the Criminal Code of Ukraine includes objects of special historical, scientific, or artistic value (Criminal Code of Ukraine, 2001).

Similarly to Article 193 of the CC of Ukraine, the subject matter of the criminal offense of smuggling under Article 201 of the CC of Ukraine may be a tangible object related to intangible cultural heritage. In such a case, the aforementioned tangible object falls under the criteria of the smuggling subject "cultural valuables." The criminal offense of smuggling will be present in the case of transporting cultural property across the customs border of Ukraine beyond customs control or hidden from customs control.

In the context of our study, part 2 of Article 298 of the CC of Ukraine becomes especially important. It establishes the following criminal offense: "intentional unlawful elimination, destruction or damage to cultural heritage sites or parts thereof" (Criminal Code of Ukraine, 2001).

The authors wish to draw special attention to the sanctions of Part 2 of Article 298 of the Criminal Code of Ukraine. Indeed, this part stipulates such punishments as fines, restriction of liberty, and imprisonment. An additional penalty is also provided for in Part 2 of Article 298 of the Criminal Code of Ukraine (Chyzhmar et al., 2019).

The authors are convinced that when imposing a penalty for committing a criminal offense defined in Part 2 of Article 298 of the Criminal Code of Ukraine, the court should take into account both the form of the act and the specific object of the criminal offense. For example, damage to a part of a cultural heritage site poses the least public danger. Therefore, such a form of a criminal offense may well be punishable by a fine, which is closer to the lower limit. At the same time, the destruction of a cultural heritage object represents the highest possible degree of societal danger, according to Part 2 of Article 298 of the Criminal Code of Ukraine, deserving the most severe punishment - imprisonment closer to the upper limit.

An interesting situation arises concerning the desecration of cultural heritage objects or their parts. The degree of societal danger the court considers in imposing a penalty is average, allowing for applying all three types of punishment, namely:

- a fine (closer to the upper limit);
- the restriction of liberty;
- an imprisonment (closer to the lower limit) of the guilty person.

Additionally, while studying Part 2 of Article 298 of the Criminal Code of Ukraine, the authors noticed another exciting feature of this type of criminal offense. The object of this criminal offense is formulated in the plural - "objects of cultural heritage or their parts." However, it is difficult to imagine that several objects of cultural heritage were destroyed, ruined, or damaged simultaneously. It is more likely for their part, but then the destruction, ruin, or damage of one piece of cultural heritage remains beyond legal regulation. In the authors' opinion, there is a flaw in legislative technique rules here, and this situation needs to be rectified. Part 2 of Article 298 of the Criminal Code of Ukraine should be amended to provide for the subject matter of this criminal offense in the singular - "a cultural heritage site or part thereof." Additionally, it is desirable to specify the types of such parts (tangible/intangible) for more detailed regulation.

It is interesting to note that criminal legislation does not provide for an expansive interpretation. Therefore, under a literal approach, it is impossible to hold criminally responsible a person who has destroyed, ruined, or damaged one object of cultural heritage or its part.

Let us also focus on differentiating the concepts of "destruction," "ruin," and "damage." Destruction involves such a mechanical impact on an object of cultural heritage or its part that the object or its part ceases to exist in the physical world. Ruin is similar to destruction but involves causing significant harm to the object of cultural heritage or its part, rendering it completely non-functional. The term "damage" refers to causing such material harm to an object of cultural heritage or its part that the object or its part partially loses its functionality.

In general, the legal framework of Article 298 of the Criminal Code of Ukraine is quite interesting. Parts 1 and 2 provide for two separate components of the criminal offense. At the same time, parts 3, 4, and 5 of Article 298 of the Criminal Code of Ukraine outline qualified forms of the same criminal offense stipulated in part 2 of Article 298 of the Criminal Code of Ukraine (excluding part 1 of Article 298 of the Criminal Code of Ukraine, which is not typical for the structure of the Criminal Code of Ukraine).

Indeed, part 3 of Article 298 of the CC of Ukraine specifies a distinct object of this criminal offense – a monument of national significance with a more severe sanction (mandatory imprisonment and/or without additional punishment). However, this situation has its drawbacks, as the court must impose imprisonment on the guilty party in any case. Therefore, we propose supplementing the sanction of part 3 of Article 298 of the Criminal Code of Ukraine with the punishment of "restriction of liberty" or a substantial fine.

Overall, the legislator's approach (isolating a separate qualified component of the criminal offense based on the subject matter) seems logical, as the destruction, elimination, or damage to a monument of national significance is more socially dangerous than the destruction, elimination, or damage to an ordinary object of cultural heritage or its part.

The provision in part 5 of Article 298 of the Criminal Code of Ukraine is interesting, as it introduces an optional additional punishment. However, the disposition of this part of the Article provides for such a qualified type of it as committed by an official using their service position (Criminal Code of Ukraine, 2001).

Now, let us focus on distinguishing Part 2 of Article 298 of the Criminal Code of Ukraine about related criminal offenses. Article 179 of the Criminal Code of Ukraine provides criminal liability for destroying religious buildings. At the same time, Part 1 of Article 194 of the Criminal Code of Ukraine addresses intentional destruction or damage to another's property causing significant harm. The differentiation between these criminal offenses can be based on their subject matter: Article 179 concerns religious buildings, and Article 194 pertains to other people's property.

The full-scale invasion of the Russian Federation into the territory of Ukraine has not only jeopardized the lives and health of Ukrainian citizens but also raised concerns about the integrity of cultural heritage sites. Clearly, the actions of the perpetrators constitute elements of a criminal offense, as defined by Article 437 of the Criminal Code of Ukraine. However, in the case of damage to cultural heritage sites, the actions of the perpetrators must be qualified as a combination of criminal offenses (Criminal Code of Ukraine, 2001).

While Articles 307 and 316 of the Criminal Code of Ukraine do not explicitly address cultural heritage as a subject of criminal offenses, they can effectively characterize the locations where criminal offenses are committed (Criminal Code of Ukraine, 2001). It is evident, in particular, in the formulation "in places designated for cultural events."

## 6 Discussion

Mahnad P. (2017) notes that war has led to mass destruction and human casualties. Relying on the responsibility of third states to "respect and ensure respect" for the norms of international humanitarian law, the author examines the legal framework for the protection of cultural values and recent innovative protection measures that contribute to compliance with international law in Syria, excluding military assistance and intervention.

Cunliffe E., Muhesen N., and Lostal M. (2016) provide an overview and explanation of the national and international legal basis for protecting cultural values during the conflict involving the Syrian state and non-state actors, using practical examples from the current situation. They demonstrate that the destruction of all types of cultural values, regardless of their importance, can be considered a violation of these laws and subject to legal prosecution. The authors explore the real possibilities of such legal prosecution of the perpetrators. Overall, Cunliffe E., Muhesen N., and Lostal M. (2016) affirm a significant level of protection for cultural values in both national and international legislation regulating archaeology and cultural heritage. Criminalizing attacks on cultural values, as well as efforts to protect the country's heritage, should be considered not only as a Syrian problem but rather from a global perspective as a specific threat to contemporary and diverse societies. Targeting and destroying cultural values and heritage in Syria, according to Cunliffe E., Muhesen N., and Lostal M. (2016), can be seen as attacks on the very essence of humanity.

Seršić M. (1996) questions the adequacy of international rules to protect cultural values during armed conflicts. This article aims to explore this issue by analyzing the main international norms dedicated to the protection of cultural values in the event of an armed conflict. Lowenthal D. (2013) writes that heritage means everything we consider handed down to us from the past. Although not all heritage is equally desired, it is widely seen as a precious and irreplaceable resource necessary for personal and collective identity and self-respect. The definition of heritage is very different between peoples and across time, but its meaning is versatile. People at all levels of technology and political beliefs express this sense. Gillman D.'s (2010) work is dedicated to the ideas of cultural heritage. Silverman H. and Ruggles D. F. (2007) wrote about the relationship between cultural heritage and human rights. The topic of the study by Donders Y. (2020) is also similar.

The fundamental work of Timothy D. J. (2011) on the influence of the presence of cultural values on tourism waves is significant. Vecco M. (2010) analyzes the evolution of the concept of cultural heritage in Western European states. In the last decades of the XX century, the term "heritage," as described by Vecco M. (2010), has been characterized by expansion and semantic shifting. It led to the broadening usage of this word, often employed interchangeably with others, such as monuments and cultural assets. However, all these terms cannot encompass a single semantic field.

Beginning with reflections on the semantic evolution of the concept of cultural heritage in France, Vecco M. (2010) approaches the international definition of heritage provided by directives, charters, and international resolutions to delineate a global understanding of the meaning of heritage that is not limited to a specific national dimension. From a purely normative approach, Vecco M. (2010) has moved to a less restrictive approach based on the ability of an object to evoke specific values that have led a given society to consider it as heritage and, therefore, to the next step. Thus, heritage is no longer defined solely based on its material aspect. This elaboration also allowed the recognition of intangible cultural heritage, which has long been ignored, as a heritage that needs to be protected and preserved.

The study by Sesana E., Gagnon A. S., Ciantelli C., Cassar J., and Hughes J. J. (2021) on the impact of climate change on cultural heritage is intriguing. In their literature review, the authors state that climate changes, evidenced by gradual shifts in temperature, precipitation levels, atmospheric humidity, wind intensity, sea level rise, and extreme events, are already affecting cultural heritage objects. Accordingly, there is a rapidly growing number of studies reporting on the impact of climate factors on cultural heritage and assessing the impact of climate change on cultural heritage assets.

Baglioni M., Poggi G., Chelazzi D., and Baglioni P. (2021) have chosen an interesting research topic on the restoration practices of cultural heritage objects. The paper by Fiorucci M., Khoroshiltseva M., Pontil M., Traviglia A., Del Bue A., and James S. (2020) is dedicated to statistical approaches to cultural heritage objects.

The fundamental work of Harrison R., DeSilvey C., Holtorf C., Macdonald S., Bartolini N., Breithoff E., and Penrose S. (2020) addresses the future of heritage, specifically comparative approaches to natural and cultural heritage practices. The research by Rafiqi R. and Marsella M. (2021) is intriguing as it considers tobacco as an object of cultural heritage. Brahma K. (2020) has also researched cultural heritage.

Kim S., Whitford M., and Arcodia C. (2021) wrote about the development of intangible cultural heritage as a resource for sustainable tourism and the perspectives of practitioners on intangible cultural heritage. According to Kim S., Whitford M., and Arcodia C. (2021), authentic and intangible cultural heritage provides a unique advantage to communities in the global tourism industry. However, the commercialization of intangible cultural heritage has threatened its authenticity. Therefore, innovative approaches to sustainable tourism are necessary to achieve successful transmission and promotion of intangible cultural heritage as a sustainable tourism resource. Kim S., Whitford M., and Arcodia C. (2021) explore the priorities of intangible cultural heritage practitioners regarding developing intangible cultural heritage as a resource for sustainable tourism. In their papers, Kim S., Whitford M., and Arcodia C. (2021) used South Korea as the research region.

Król K.'s (2021) research addresses the assessment of the potential of cultural heritage in Poland. According to the author, cultural heritage is a complex and multifaceted concept that cannot be defined. Therefore, it is a difficult task to clearly assess the cultural heritage potential of a country, region, or community.

The article by Król K. (2021) defines "cultural heritage potential" and presents an example of a synthetic assessment of the potential in the Polish region. The evaluation included several normalized diagnostic variables grouped into four thematic fields. Thus, a "Synthetic Quality Index" can represent the cultural heritage potential. Consequently, very few studies have been devoted to the issue of criminal legal protection of cultural heritage.

## 7 Conclusions

The article presents a comprehensive review of the criminal offenses system designed to protect cultural heritage sites in Ukraine (Articles 178, 193, 201, 298, 307, and 316 of the Criminal Code of Ukraine).

Among the preceding provisions, only part 2 of Article 298 of the Criminal Code of Ukraine directly relates to the protection of cultural heritage from destruction, damage, and elimination. The author developed recommendations for the courts to impose criminal penalties for the criminal offense under Part 2 of Article 298 of the CC of Ukraine, considering such an indicator as the level of public danger.

The authors provide the criteria for distinguishing Article 298(2) of the Criminal Code of Ukraine from Articles 179, 194, and 437 thereof. The issue of criminal legal protection of cultural heritage sites in the context of military conflict may serve as a basis for further scientific research.

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## Primary Paper Section: A

## Secondary Paper Section: AG, AL

## FEATURES, ATTRIBUTES AND CRITERIA OF DEMOCRATIC POLITICAL REGIMES (COMPARATIVE ANALYSIS)

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**Abstract.** In the context of the continual and sustainable development of social order and civil society, the comprehension of the features, signs, and criteria of a democratic political regime is transforming and necessitates reconsideration, rendering this work pertinent. The objective of this article is to delineate the substance of the array of features and characteristics inherent to a democratic political regime, contrasting them with those of an authoritarian and totalitarian political regime. Additionally, it aims to elucidate the criterion by which distinctions between various types of political regimes can be made. The present publication employs analytical, synthetic, scientific generalization, theoretical comparison, and formal logical methods. The article explicates the contentious nature of the concept of "political regime" and presents diverse scientific approaches to its comprehension. It posits that the criterion for categorizing political regimes into democratic, authoritarian, and totalitarian forms hinges on "the peculiarities of interaction between civil society and the State, the degree of permeation of private life of citizens, and various spheres of the social reality of State power." The author provides a comparative analysis not only of democratic political regimes but also of authoritarian and totalitarian ones. The author conducts a detailed examination of the content associated with political science categories such as "features," "signs," and "criteria" of a political regime. Furthermore, the author introduces a personalized understanding of these concepts and offers insights into the interrelations among the terms under consideration. The article delineates an approach wherein the fundamental classification of political regimes is proposed to be nuanced. According to the author, political regimes ought to be categorized into democratic and non-democratic, with the latter further subcategorized into authoritarian and totalitarian. The author delineates the conventional features of a democratic political regime from the perspective of political science and expounds upon additional features which, in the author's estimation, might signify the presence of a democratic political regime in a given state. The assertion is made that a direct correlation between the form of government and the political regime in the state does not exist, and illustrative examples supporting this perspective are provided.

**Keywords:** Political regime, Democratic values, Signs of a political regime, Features of a political regime, Criteria of a political regime.

### 1 Introduction

Nearly every contemporary state possesses a constitution that delineates a spectrum of human and civil rights and freedoms, representing fundamental democratic values that ought to constitute the primary objective and purpose of the country. In addition to the codification of human and civil rights and freedoms, democratic values are commonly regarded as the embodiment of principles such as the separation of powers division of powers into legislative, executive, and judicial branches, the implementation of checks and balances election of governing state institutions, citizen equality in elections, the presence of political opposition, the unrestricted activity of opposition and political figures, and equitable judicial protection, among various others. These democratic values are intrinsically linked to the establishment of a democratic political regime. Simultaneously, it is crucial to recognize the necessity of assessing the actual state of affairs in each specific state, as the proclamation of all the aforementioned democratic values may be merely formal and not upheld in practice.

In the broader context, a democratic political regime is conventionally juxtaposed with totalitarian and authoritarian political regimes. Simultaneously, terminological ambiguity exists within categories such as the "signs" of a political regime, its "features," and "criteria." Furthermore, the political science nature of the concept of a "political regime" is subject to debate. This publication seeks to address these ambiguities and elucidate

the problematic aspects inherent in the features, attributes, and criteria of a democratic political regime.

### 2 Literature Review

Bjørnskov C. and Rode M. (2020) focused on regime types and regime change utilizing a novel dataset encompassing democracy, coups, and political institutions. Frey C. B., Chen C., and Presidente G. (2020) examined the response of political regimes to COVID-19, emphasizing the role of democratic institutions. Annaka S. (2021) also investigated the correlation between a country's political regime and the mortality rate from COVID-19. Chen C., Frey C. B., and Presidente G. (2023) pursued a similar theme in their publication. Welzel C. (2021) investigates the prospects of a democratic future. Siaroff A.'s (2022) work on the comparative analysis of political regime characteristics holds foundational significance. Mukand S. W. and Rodrik D. (2020) contribute to the discourse on the political economy of liberal democracy. Bickerton C. J. and Accetti C. I.'s (2021) book discusses the novel logical content of democratic politics. Ștefanachi B., Grecu S. P., and Chiriac H. C. (2022) focus on the characteristics, challenges, and opportunities for democratic countries. Mauk M. (2020) authored an article exploring democratic value orientations and their impact on political trust across different regimes. In another publication, Mauk M. (2020) addressed issues related to citizens' support for democratic and autocratic regimes. Croissant A. and Haynes J. (2021) provided an introduction to democratic regression in Asia. Stokke K. and Aung S. M. (2020) focused on the democratization process in Myanmar. Edgell A. B., Wilson M. C., Boese V. A., Grahn S. (2020) examined the democratic legacy. An article by Umpierrez de Reguero S. A., Yener-Roderburg I. Ö., and Cartagena V. (2021) presents a cross-national comparison of political regimes and external electoral rights.

Broadly, extant doctrinal political science research on the democratic political regime manifests considerable diversity and dissimilarity in content. Scholars have scrutinized not only the democratic political regime itself but also related phenomena, encompassing democracy as a broader concept, the political economy of liberal democracy, democratic value orientations, and democratic regression. Nevertheless, a notable absence is observed regarding comprehensive and systematic works that address the features, attributes, and criteria of a democratic political regime.

### 3 Research Objectives

The article aims to delineate the content of the array of features and characteristics of a democratic political regime in contrast to authoritarian and totalitarian political regimes. Additionally, the article seeks to characterize the criterion that facilitates the differentiation of various types of political regimes. To achieve these objectives, the following goals were established:

1. Describe the factors contributing to the contentious and substantive content of the concept of "political regime" and explore its contemporary interpretation in political science.
2. Define the criterion for categorizing political regimes into democratic, authoritarian, and totalitarian.
3. Provide characterization not only of democratic but also authoritarian and totalitarian political regimes to enhance understanding of the former.
4. Systematically present, from the author's perspective, a clear understanding of the concepts of "features," "signs," and "criteria" of a political regime.
5. Identify a set of traditional features of a democratic political regime and augment them with the author's viewpoint.
6. Highlight the contentious aspects associated with the features of a democratic political regime.

#### 4 Methods

The publication employs various scientific methods, including the method of analysis, the method of synthesis, the method of scientific generalization, the method of theoretical comparison, and the formal logical method. Specifically, the method of analysis is utilized to scrutinize the contentious interpretation of the content of the political regime concept and to present scientific and theoretical approaches to its understanding within the political science doctrine. The synthesis method facilitated the systematic presentation and summarization of the primary, including classical, features of a democratic political regime. Utilizing the method of scientific generalization, we described existing scientific studies not only on democratic political regimes but also on political regimes in general, delineating their content and comparing them with the findings of this publication. The method of theoretical comparison was employed to scrutinize the features of a democratic political regime in contrast to totalitarian and authoritarian political regimes. Additionally, the formal logical method was applied by the author to discern such political science concepts as "features," "signs," and "criteria" of a political regime, elucidating their content and interrelations.

#### 5 Results

Examination of doctrinal approaches to comprehending the political regime as a distinct state and political phenomenon enables the formulation of several perspectives in this context. The contentious interpretation of the political regime concept is fundamentally associated with its multidisciplinary nature. It serves as a subject of study in both jurisprudence and political science, reflecting the intricate character of the political regime as a phenomenon comprising numerous socio-political institutions. Furthermore, the lack of precise criteria for delineating the political regime from other political and legal phenomena related to the process of political governance, such as state-legal or political and legal regimes, further contributes to the controversial nature of its interpretation. Kolesnyk Yu.M. (2014) references the viewpoint of M. Duverger, who conceptualized the political regime as a specific amalgamation of voting methods, party systems, and diverse forms of decision-making by one or more pressure structures. An alternative perspective, posited by the French political scientist J.-L. Kermonne, defines a political regime as a collection of elements encompassing sociological, institutional, and ideological content. These elements are designed to facilitate the establishment of political power during a specific period within a particular country (Kolesnyk, 2014).

A democratic political regime is categorized as one of the types of political regimes, alongside authoritarian and totalitarian, based on the criterion of division, namely, the "peculiarities of interaction between civil society and the state, the degree of penetration into the private life of citizens, and various spheres of the social reality of state power." Recognizing that a comprehensive examination requires an understanding of authoritarian and totalitarian political regimes, the subsequent sections will provide definitions for these categories.

A totalitarian political regime is distinguished by the exertion of comprehensive and all-encompassing control over society, wherein the social system is subjected to the authority of the state, collective objectives, and an overarching ideology. The characteristics of an authoritarian political regime encompass the subordination of political actors, the presence of a robust central authority concentrating power, and the potential for widespread utilization of coercion or violence. In contrast, a democratic political regime is defined more broadly and conceptualized through the lens of the generalization of socio-political life founded on the egalitarian principle among its members. This entails processes such as the periodic election of state bodies and decision-making that reflects the majority's will (Democracy, totalitarianism, and authoritarianism...).

From a theoretical standpoint, comprehending the meanings of the concepts "features," "signs," and "criteria" of a political regime is pivotal in this study. It is essential to ascertain whether these terms are interchangeable and, if not, to delineate their distinctions. According to the author, the concepts of "features," "signs," and "criteria" of a political regime are not synonymous and should be treated as distinct entities. The author's position on this matter is as follows: the concept of a "feature" of a political regime holds primacy. Notably, the academic explanatory dictionary of the Ukrainian language defines the term "sign" as a feature, property, or peculiarity of someone or something (Dictionary of the Ukrainian Language..., 1970-1980). In essence, according to the lexicographer's definition, a sign can be interpreted as a feature. While it is not definitively asserted that this perspective is incorrect, within the context of a political regime, these concepts are better understood in correlation as general and specific (feature and peculiarity, respectively). We contend that it is more appropriate to discuss the features of a political regime, which, contingent upon its type (democratic, authoritarian, or totalitarian), assume distinct content at the specificity level. Allow us to illustrate with an example: a general feature of a political regime may be articulated as "the presence or absence of political pluralism." The specific feature of a democratic political regime is a multiparty system, whereas that of an authoritarian or totalitarian political regime is a one-party system. Our standpoint asserts that a feature is a characteristic or property that delineates a political regime in a general sense, and a specific feature represents the unique content of a feature specific to a particular political regime. In essence, it is accurate to discuss the characteristics of a political regime and the peculiarities of its types - totalitarian, authoritarian, or democratic.

Concerning the comprehension of the concept "criterion" of a political regime, we suggest considering it as a generalized condition that characterizes a specific method of governance within a particular political regime (democratic, authoritarian, and totalitarian). A "criterion" represents a system of features of a political regime that enables a concise description and contrast of numerous types of political regimes. Accordingly, the traditional classification of political regimes into democratic, authoritarian, and totalitarian regimes necessitates refinement, considering the criteria for their understanding. We assert that the adherence to democratic rights and liberties of individuals is a pivotal criterion for identifying a democratic political regime. Conversely, the transgression or non-compliance with these democratic rights and liberties can be regarded as criteria indicative of authoritarian and totalitarian political regimes. However, this proposition raises a significant question: how to differentiate between authoritarian and totalitarian political regimes? It prompts the consideration of whether the idea of the criterion should be modified. In addressing this issue, a meaningful comprehension of the political regimes under discussion becomes imperative. Frequently in politics-related science, democratic and totalitarian political regimes are perceived as two extremes, with authoritarian political regimes regarded as transitional from totalitarian to democratic. We believe that the criterion for differentiating between political regimes, as formulated by us, is accurate. Nevertheless, there exists a need to refine the typology of political regimes by introducing a slight complication, such as categorizing them into democratic and non-democratic, wherein the latter is further subdivided into authoritarian and totalitarian.

Concerning the focus of the study, specifically the features and characteristics of a democratic political regime, it is pertinent to consult political science literature. The features of a democratic political regime encompass:

- The constitution, serving as the foundational law of the country, delineates the powers (competence) of state authorities in charge of wielding state power and describing their formation process.
- The legal status of individuals is codified at the regulatory level, with consideration given to the standard of equality under the law.

- The division of powers into the legislative, executive, and judicial branches, where the functions of each branch are delineated to implement a system of "checks and balances."
- Political and public organizations enjoy the freedom to conduct their activities.
- Government bodies are established through an elected process.
- The spheres of state power and public society action are distinct and varied.
- Economic pluralism, besides political and ideological pluralism (with the caveat that only anti-human ideologies are prohibited), coexist (Democracy, totalitarianism, and authoritarianism...).

In a comprehensive analysis, these features can be elaborated and complemented by additional characteristics, including:

- Not only the codification of human and public rights and liberties at the regulatory level but also ensuring that the mechanism of public authorities' operation effectively upholds and enables the fulfilment of these rights and liberties.
- A low incidence of corruption within governmental structures.
- The presence and active engagement of political opposition, coupled with the absence of politically motivated criminal prosecution against opposition figures.
- In the European context, a minimal proportion of citizens' applications to the European Court of Human Rights and a low point percentage of judgments by the European Court of Human Rights in favor of citizens against their states.

The author poses a crucial question: what is the correlation between the government form in a state and the political regime? Does the existence of a particular government form indicate the functioning of a particular political regime in the country? It is widely acknowledged that there are classically two government forms: monarchy and republic. In a simplified manner, the main distinguishing factors between these governmental forms hinge on the election of the head of state (republic) or the hereditary nature of the head of state's office (monarchy). In our perspective, the concepts of political governance and form of government in the modern world do not inherently correlate and should be individually characterized in each state. This is evident since it is entirely conceivable for a republic to have an authoritarian political regime, and conversely, a monarchy may harbor a democratic one. A classic example is the United Kingdom, as a monarchy, which unequivocally embodies a democratic political regime (Buryachenko, 2023).

In the examination of the features, signs, and criteria of a democratic political regime, it is essential to acknowledge that some of these components may be declarative at the state level and do not invariably signify the presence of a democratic political system in the country. A noteworthy illustration is the situation in the Russian Federation and the Republic of Belarus. These states adopt a republican form of government, with the constitution enshrining the division of powers into judicial, executive, and legislative branches. Nevertheless, the presence of a democratic political regime cannot be asserted in the Russian Federation and the Republic of Belarus. These nations exhibit an authoritarian political regime, evidenced by the violation of democratic rights and freedoms, restrictions on the right to peaceful assembly, protests, and rallies, along with the legal prosecution of political figures opposing the incumbent government. Additionally, the prevalence of unfair criminal verdicts and the presence of imperfect legislation concerning European values further contribute to this characterization. Hence, the determination of defining characteristics for a democratic political regime is a nuanced matter that consistently necessitates comprehensive political science research.

## 6 Discussion

Bjørnskov C. and Rode M. (2020) observe that social scientists have generated various datasets in recent years to quantify

political regimes but often offer limited data on the phases of regime change. The objective of their study is to address this gap. The authors approach the matter of their paper in three distinct ways. Firstly, they broadened the scope to encompass 192 sovereign countries and 16 currently self-governing territories spanning from 1950 to 2018, which also includes periods of colonial rule for over ninety entities. The authors additionally furnish more institutional details, a significant aspect in the relevant literature. Moreover, they introduce a novel, self-constructed indicator differentiating successful and unsuccessful coups d'état. The authors further demonstrate the utility of the new dataset by elucidating the significance of political establishments during colonial rule for post-independence democratic development, employing more comprehensive data on colonial institutions. The findings of the study indicate that colonial institutions with heightened activity exert a positive and enduring impact on democratic development following the transition to independence.

Frey C. B., Chen C., and Presidente G. (2020) assert that there exists a prevailing belief suggesting that autocratic governments have proven more effective in restricting the movement of people to mitigate the spread of COVID-19. The authors discovered that autocratic regimes implemented more stringent quarantine measures and closely monitored contacts. However, their findings did not support the notion that autocratic governments were more successful in curtailing travel. Conversely, countries with democratically accountable governments introduced less stringent quarantine measures but demonstrated approximately 20% greater effectiveness in reducing geographic mobility at an equivalent level of policy stringency. Moreover, leveraging an extensive body of research in cross-cultural psychology, the scholars illustrated that nations exhibiting more docile and collectivist cultural traits experienced a significant decline in geographic mobility compared to their more individualistic counterparts at the same level of policy severity. This methodology led the researchers to the conclusion that, in the context of reducing mobility, collectivist and democratic nations have implemented comparatively effective measures against COVID-19.

Similarly, the study conducted by Cepaluni G., Dorsch M. T., and Branyiczki R. (2022) explores the role and significance of political regimes during the COVID-19 pandemic. Interestingly, the authors reach conclusions that differ from those of Frey C. B., Chen C., and Presidente G. (2020).

Cepaluni, G., Dorsch, M. T., and Branyiczki, R. (2022) quantified the association between political institutes and deaths within the initial 100 days of the COVID-19 pandemic. They illustrated that nations having more democratic political institutions encountered a higher per capita death rate compared to less democratic nations. This outcome remains robust when accounting for numerous pertinent controls, employing various estimation methods, and evaluating instrumental variables for institutional measures. The authors delineated the influence of diverse types of political institutes on the mortality rate from COVID-19. As per their analysis, the response of political regimes in democratic countries proved to be less effective in mitigating mortality during the initial phases of the crisis. The findings posit that democratic political institutions might face a disadvantage in mounting swift responses to pandemics.

Welzel, C. (2021) scrutinizes the recent State of Democracy reports and identifies a neglect of the cultural foundations distinguishing autocracy from democracy. This paper explores the explanatory capacity of cultural zones in delineating the contrast between autocracy and democracy, anchored in the categorization of cultures into "authoritarian values versus emancipation." Consequently, both the trajectory and extent of regime change are intertwined with the widening disparities between regime and culture, stemming from shifts in generational values predominantly toward emancipatory ideals. The author concludes that the trajectory of democracy development tends toward authoritarianism and is circumscribed

by the societal state wherein emancipatory values remain underdeveloped.

Mukand S. W. and Rodrik D. (2020) formulated a taxonomy of political regimes, differentiating among three categories of rights: property rights, political rights, and civil rights. The authors posit that the essence of liberal democracy lies in safeguarding civil rights, besides the other two sets of rights. Their article delineates how democratic transitions, arising from a settlement between the elite (primarily concerned with property rights) and the public majority (prioritizing political rights), generally face challenges in establishing a liberal democracy. Overall, as per Mukand S. W. and Rodrik D. (2020), the evolution of liberal democracy may be contingent upon substantial inequality levels and a weak identity divide.

Helms L. (2023) has compiled an overview of the status of political opposition in both democratic and authoritarian regimes. The author asserts that political opposition has historically been among least-explored facets of real-world politics in contemporary democratic and authoritarian systems. Nevertheless, the past decade has witnessed a surge in new studies on opposition, prompting a thorough examination. Notably, contemporary scholarly endeavors have placed a greater emphasis on studying opposition within authoritarian and hybrid systems than within democratic ones. This trend suggests a subtle reconceptualization of political opposition, setting aside the conventional distinction between regime-loyal opposition and various forms of resistance and dissent that confront the regime. Concentrating on party-based manifestations of opposition, widely acknowledged as the most potent, the review article succinctly encapsulates and underscores pivotal issues for future studies. It also considers some of the inherent challenges that impede the progress towards a more integrated field of inter-regime opposition studies.

The article by Kwakwa P. A., Adzawla W., Alhassan H., and Achaamah A. (2022) examines the influence of the political system on the state of natural resources and economic growth in Tunisia. Accordingly, the political regime engages with oil, mineral, and forestry rents to promote growth in the agricultural sector. The researchers posit that a democratic system plays a pivotal role in the effective utilization of resources for sustained economic growth in a country.

Asutay M. and Mohd Sidek N. Z. (2021) explored political economy issues within the framework of political regimes and institutions. In this context, the authors delved into the effectiveness of Islamic bank loan growth from three distinct perspectives: political regime and institutions, governance, and political risks under both regimes. The study's findings indicated that loan growth is positively influenced and has a significant impact in democratic regimes where political and public rights are upheld.

Ghardallou W. and Sridi D. (2020) conducted a literature review on the correlation between democracy and economic growth. Acknowledging the significance of simultaneously examining the economic and political processes, the authors highlight that some researchers have investigated the influence of the political regime on economic growth and development. The mass of these scholars have concentrated on assessing the economic implications of a democratic political system in comparison to an autocratic political regime. The authors' review aims to scrutinize the existing theoretical literature emphasizing the influence of a democratic political system on economic growth, accompanied by a concise overview of pertinent models. Specifically, the paper explores the mechanisms by which democracy can shape economic growth and development.

Kalaycıoğlu E. (2020) considered the reposition in the political regime in Turkey. According to the author, the relationship between Turkey and the European Union has been pertinent starting from 1959. However, it was solely in the post-Cold War era that the international relations between these two entities gained momentum, significantly impacting Turkey's socio-

political development. One of these influential spheres was Turkey's political regime. To bring Turkish democracy in line with the Copenhagen criteria, several Turkish administrations have proposed constitutional amendments. The article examines the context and characteristics of constitutional modifications introduced over the past three decades and explores the role played by the European Union-Turkey relationship in the transformation of the political regime in Turkey.

Saha S. and Sen K. (2021) investigated the correlation between corruption and political regimes. While there exists a widespread belief that corruption detrimentally impacts a country's economic performance, the phenomenon of impressive economic growth coexisting with prevalent corruption within many East and Southeast Asian countries, known as the East Asian paradox, challenges this notion. Notably, these countries share the common feature of having an autocratic political regime. The authors reassess the relationship between corruption and economic growth in the context of the East Asian paradox. The authors investigate the mediating role of political regimes in the interrelation between corruption and economic growth using panel data spanning 100 countries from 1984 to 2016. Their results provide convincing evidence that the correlation between corruption and economic prosperity fluctuates based on the type of political regime. They note that the influence of corruption on economic growth is more noticeable in autocratic systems compared to democracies. The researchers assert that democracy may not foster economic growth in the presence of high corruption levels. Moreover, they provide persuasive confirmation that the mechanism through which corruption facilitates growth in autocratic systems is linked to the perceived trust in the dedication of governing political elect to economic liberty.

Zagrebin A. (2020) authored a scientific article exploring the conceptualization of democracy within both democratic and non-democratic political regimes. The democratic experience significantly shapes individuals' worldviews and influences their comprehension of democracy. The author posits that this assertion finds support in data from the World Values Survey, indicating distinctions in the apprehension of democracy among citizens in democratic and non-democratic societies. In democratic societies, citizens primarily associate democracy with gender equality, whereas individuals in non-democratic countries tend to associate it more with economic prosperity and social control. Furthermore, citizens in democratic countries are less likely to link democracy with military rule and religious authority in political life compared to their counterparts in non-democratic countries.

The thesis of democracy and citizenship is the focus of Zilla C.'s (2022) scientific work. The author contends that in political science, a set of ideas primarily constitutes political ideals. Comparative politics necessitates concepts capable of transcending national and regional boundaries and being quantifiable. Inclusion, as perceived by the author, is a vague concept where normative expectations for aspects such as participation, equality, social impartiality, and recognition converge. Concurrently, it functions as an analytical instrument to assess the status of political regimes. The author poses the question: How can inclusion be defined to maintain its value orientation while also using it as an empirical concept for systemic and qualitative comparative research? By integrating perspectives from democracy and citizenship theory—two fields that have historically run parallel with minimal interaction—the author establishes and operationalizes inclusion as an attribute of democratic political systems. Beginning with a normative conception of democracy and citizenship that results in a procedural definition, the researcher interprets democratic inclusion as encompassing civic and political inclusion. The study then outlines dimensions for the comparative evaluation of political regimes based on inclusive exclusion.

Wegscheider C. and Stark T. (2020) investigate citizens' evaluations of democratic activities and the interplay between citizens' democratic knowledge and the institutional level of

democracy. Highlighting the crucial role of public support for the survival of democratic political systems, in conjunction with citizens' belief in the legitimacy of democracy, the authors underscore the limited availability of information on the correlation between citizens' democracy-related knowledge and their assessment of democratic outcomes on a global relative scale. This research suggests that the cognitive capacity of citizens to distinguish between features of democratic and authoritarian systems functions as an individual criterion for evaluating the practical aspects of democracy. The authors predict that the influence of citizens' democracy-related knowledge on their assessment of democratic performance is tempered by the institutional democracy level.

The significance of the study by Croissant A. and Haynes J. (2021) is linked to the heterogeneity of the Asia-Pacific region and the extensive range of potentially influential causal factors. Sociologists consider this region a natural laboratory for assessing competing theories related to democratic erosion, decline, and resurgence, as well as for discovering new patterns and relationships.

The investigation undertaken by the author of this article diverges notably in content and structure from the aforementioned scientific and theoretical works. This study encapsulates the author's perspectives on the interpretation of the term "political regime," the conceptual underpinnings of the categories "features," "signs," and "criteria" of a political regime, methodologies for classifying political regimes, indicators and attributes of a democratic regime, and contentious aspects linked to the subject matter of the publication. This facet of the democratic political regime remains unexplored in existing scientific literature.

## 7 Conclusions

The article delineates the constituents of the intricate set of features and characteristics inherent in a democratic political regime as compared to an authoritarian and totalitarian political regime. Additionally, it delineates the criterion that facilitates the differentiation among various types of political regimes. The comprehensive nature of the political regime category, examined within the realms of both legal and political science, underscores its interdisciplinary and contentious theoretical essence. The overarching categorization of political regimes into democratic, authoritarian, and totalitarian is predicated on the criterion of the "peculiarities of interaction between civil society and the State, the degree of penetration into the private life of citizens, and various spheres of the social reality of the State power."

In the context of this study, a precise comprehension of the concepts of "features," "signs," and "criteria" of a political regime holds paramount significance. The author's standpoint posits that a sign is a feature, a characteristic that delineates a particular political regime in general, while a feature encapsulates the specific content of a sign pertinent to a specific political regime. In essence, it is appropriate to consider the attributes of a political regime and the idiosyncrasies associated with its various types—totalitarian, authoritarian, or democratic. A criterion constitutes a system of features of a political regime, enabling a concise depiction and differentiation of political regime types. The author's perspective necessitates a reevaluation of the conventional, classical classification of political regimes. The author contends that a more accurate classification would involve a division into democratic and non-democratic regimes. The latter, in turn, should be further categorized into authoritarian and totalitarian.

The manuscript introduces both the conventional set of features and attributes associated with a democratic political regime, alongside the author's unique perspective on this matter. The publication raises pertinent inquiries concerning the correlation between the political regime and the form of government. This methodology has enabled the author to argue that a specific form of government (monarchy or republic) does not inherently denote the existence of a specific political regime (democratic,

authoritarian, or totalitarian) in a given state. It is imperative to consider the actual state of affairs concerning the adherence and implementation of democratic values, steering clear of merely declarative normative provisions evident in both constitutions and legislative acts. This perspective is substantiated by instances from nations such as the UK, the Russian Federation, and the Republic of Belarus.

The author contends that future scientific investigations necessitate a precise substantive delineation of the definition of the system (complex) of features and characteristics inherent to a political regime, considering the interpretations elucidated in this paper.

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**Primary Paper Section: A**

**Secondary Paper Section: AD**

# FOREIGN LANGUAGE COMMUNICATIVE COMPETENCE OF FUTURE AND CURRENT SPECIALISTS IN THE LEGAL SPHERE, PUBLIC ADMINISTRATION AND LAW ENFORCEMENT AGENCIES AS A COMPONENT OF GENERAL PROFESSIONAL COMPETENCE

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**Abstract:** In the context of globalization, the foreign language communicative competence of lawyers and police officers becomes especially important. Such competence allows for a better understanding of the persons when they do not speak the native language of the lawyer or the police officer. The study aims to identify cases where foreign language communicative competence has a special significance for lawyers and police officers. The research employs analysis, synthesis, generalization, and formal-structural methods. The paper examines a set of norms regulating the use of foreign language communicative competence by lawyers and police officers in civil, criminal, administrative, and economic legal proceedings. The study analyzes the necessity of proficiency in a second, non-native language based on various legislative acts, including the Constitution of Ukraine, the Law of Ukraine "On Security Activities," the Law of Ukraine "On the Judiciary and the Status of Judges," the Law of Ukraine "On the National Police," the Law of Ukraine "On the Bar and Legal Practice," and the Law of Ukraine "On Notariate." A positive aspect of criminal procedural legislation is noted regarding the requirement to ensure the competence of a translator when involved in criminal proceedings.

**Keywords:** Foreign language communicative competence, English language, Lawyer, Police officer, European Education Area.

## 1 Introduction

Nowadays, it is hard to imagine the modern world without knowledge of a foreign language. In the context of globalization processes, lawyers' and police officers' proficiency in foreign language communicative competence is becoming increasingly important. At the same time, Ukrainian legislation provides for the participation of an interpreter in criminal, civil, administrative, and commercial proceedings. Curiously, the relevant procedural codes do not contain any special requirements for an interpreter to speak a second foreign language in the legal aspect.

There are also no special requirements for a police officer, lawyer, notary, or judge to speak a foreign language. The current situation creates a particular need to study the issues covered by the subject matter of this article. After all, proficiency in a language other than the official Ukrainian language allows to unify the practical activities of police officers and lawyers. It also allows to study foreign experience in a particular legal area.

This study aims to analyze the cases when proficiency in a second foreign language is really necessary for police officers and those categories of people who can be called lawyers (attorney, judge, detective, prosecutor, notary, ordinary lawyer, or legal consultant).

## 2 Literature review

Savington S.J. (2018) dedicated his work to the concept of "communicative competence." Kokorina L. V., Potreba N. A., Zharykova M. V., and Horlova O. V. (2021) wrote about distance learning tools for the development of foreign language communicative competence. The paper by Larsari V. N. (2011) is devoted to communicative competence in the context of English as a foreign language. The article by Turko O., Kravchuk T., Kashuba O., Navolska H., and Kutsyi I. (2021) is relevant to the latest tools for forming the foreign language communicative competence of students in language specialties.

Ho Y. Y. C. (2020) addressed the issue of communicative competence for master's students in the context of learning English for the tourism business sector. Tursunovich R. I. (2023) considered the development of communicative competence in foreign language teaching with a professional focus. Huang L. J. D. (2021) specializes in the development of intercultural communicative competence in foreign language classes, using Taiwan as an example.

Djalilova N. (2022) states that the formation of communicative competence plays a managing role in the foreign languages teaching. This approach precisely determines the potential of future specialists in various fields, as there are growing demands for professionals with knowledge of foreign languages.

Aldahhan A. and Razak N. A. (2023) prepared a literature review on the use of digital platforms to enhance the communicative competence of undergraduate students. These digital platforms included mobile learning and artificial intelligence. Aldahhan A. and Razak N. A. (2023) conducted their research from 2010 to 2023. The authors considered all four components of communicative competence: linguistic, discursive, strategic, and sociolinguistic.

Venzhynovych N., Poluzhyn M., Banyoi V., and Kharkivska O. (2021) wrote about means of teaching foreign languages during the COVID-19 pandemic in Ukraine. The study by Davtyan A. (2019) is dedicated to the foreign language communicative competence of lawyers, specifically the problems of studying legal English as a language for particular purposes.

Since the issue of foreign language communicative competence of police officers and lawyers has hardly been addressed in scientific papers, the topic of this article becomes extremely important.

## 3 Aims

The study aims to identify cases when foreign language communicative competence has a special significance for lawyers and police officers. The following tasks were set to achieve this goal:

- to analyze the status of an interpreter in civil, criminal, commercial, and administrative proceedings;
- to consider the legislative requirements for a lawyer, notary, or police officer in terms of the need for them to be proficient in a second foreign language;
- to distinguish between the concepts of "lawyer" and "police officer" through the prism of the terms "person with a legal education" and "person engaged in legal or practical activities."

## 4 Methods

The authors used the following methods when conducting the study:

- *Analysis method.* This method was used while examining legislative acts that regulate requirements for police officers and individuals engaged in legal activities.
- *Synthesis method.* It was applied in providing a comprehensive description of situations where a lawyer or police officer may need a language other than the official state language, including Ukrainian or a foreign language.
- *Generalization method.* This method was employed in the systematic review of scientific sources related to the publication's thematic content.

- *Formal-structural method.* It was used in distinguishing between the concepts of "lawyer" and "police officer" through the terms "person with legal education" and "person engaged in legal practical activities."

## 5 Results

Only a few Ukrainian legal documents require lawyers to know and speak a foreign language. In the the Law of Ukraine "On Judicial System and Status of Judges," it is mentioned that in response to a request from a member of the first composition of the Tender Committee, both assistants and translators can be involved. The purpose of such involvement may be to provide organizational and technical support for the duties of the relevant member of the Tender Committee. International technical assistance may be utilized for the proper financing of the activities of these assistants and translators (Law of Ukraine "On the Judiciary and the Status of Judges," 2016).

The Law of Ukraine "On Security Activities" does not address the necessity of proficiency in a second foreign language or the use of translator services (Law of Ukraine "On Security Activities," 2012). These requirements are also absent in the Constitution of Ukraine (Constitution of Ukraine, 1996).

Article 29 of the Criminal Procedural Code of Ukraine regulates the language in which criminal proceedings are conducted. It also allows for engaging a translator when necessary (Criminal Procedural Code of Ukraine, 2012). We should pay attention that articles related to the language of civil, administrative, and economic legal proceedings and the possibility of translator participation in civil, administrative, and financial processes are formulated in the respective codes almost identically (Article 9 of the Civil Procedural Code of Ukraine, Article 15 of the Code of Administrative Proceedings of Ukraine, Article 10 of the Economic Procedural Code of Ukraine) (Civil Procedural Code of Ukraine, 2004; Code of Administrative Proceedings of Ukraine, 2005; Commercial and Procedural Code of Ukraine, 1991).

Article 75 of the Civil Procedural Code of Ukraine, Article 71 of the Code of Administrative Proceedings of Ukraine, and Article 71 of the Commercial and Procedural Code of Ukraine also contain almost identical understandings of such a participant in civil, administrative, or economic proceedings as an interpreter.

Curiously, the requirements for a translator in these codes are quite superficial. The only requirement to be a translator is to speak Ukrainian and, as the codes state, "another" language. The regulatory framework for the legal status of an interpreter in criminal proceedings differs from the regulatory framework for an interpreter in civil, administrative, and economic processes. This framework is contained in Article 68 of the Criminal Procedure Code of Ukraine.

In that article of the Criminal Procedural Code of Ukraine, a requirement for the proper competence of the interpreter is stipulated. This, in our opinion, should be extended to the status of an interpreter in civil, administrative, and economic processes. After all, the interpreter should not only be fluent in Ukrainian and another language but also be competent in translating various legal terms (Rusakova et al., 2023). This is especially true when it comes to the translation of a court decision.

Proficiency in a foreign language, according to Article 6 of the Law of Ukraine "On the Bar and Legal Practice," is not mandatory for a person intending to obtain a lawyer's certificate (Law of Ukraine "On the Bar and Legal Practice," 2012). The same applies to a person planning to become a notary (Part 2 of Article 3 of the Law of Ukraine "On Notariate") (Law of Ukraine "On Notariate," 1993).

We would also like to focus on the differences between the concepts of a lawyer and a police officer. In our opinion, it is also necessary to note the existence of such notions as "person with a legal education" and "person engaged in legal activities."

Part 1 of Article 49 of the Law of Ukraine, "On the National Police," does not include requirements for legal education for future police officers. For them, a sufficient level of general secondary education is considered satisfactory (Law of Ukraine "On the National Police," 2015).

At the same time, the concept of a "lawyer" is quite broad and includes lawyers, prosecutors, investigators, judges, notaries, as well as common legal specialists and consultants engaged in legal activities. Legal education is mandatory for all these positions. However, not every person with legal education practices legal activities. Thus, these concepts are not identical and should be distinguished.

Now, let us consider the purpose of a second language for a police officer and a lawyer. For a police officer, it is quite possible to face a situation where it is necessary to detain a foreigner who commits an offense and does not speak the official Ukrainian language. While waiting for an interpreter to be involved in this process, the ability to speak at least English (not exclusively) will significantly facilitate communication between a policeman and a person who has committed an offense and does not speak Ukrainian.

The same applies to investigators and prosecutors who may conduct criminal proceedings where the accused or suspect does not speak Ukrainian language. This situation is also possible for a defense attorney representing such a person. There is also the possibility that a person who does not speak the Ukrainian language will be a party (plaintiff or defendant, etc.) in civil, administrative, or commercial legal proceedings. In such cases, the lawyer should be proficient in at least one foreign language (preferably English because it is the most widely used).

For judges, the situation is more serious, as in judicial practice, there is often a need to refer to decisions of the European Court of Human Rights. Although Article 4(1) of the Law of Ukraine "On the Enforcement of Judgments and Application of Practice of the European Court of Human Rights" provides that judgments against Ukraine shall be published in Ukrainian, judges may need to refer to those judgments of the European Court of Human Rights (where Ukraine was not a party). Such judgments are usually accessible in English or French (Law of Ukraine "On the Fulfillment...", 2006).

In addition, attorneys may need foreign language communicative competence when representing clients (individuals and legal entities) at international arbitration bodies. Let us not forget about scholars in the legal field. Proficiency in at least English allows legal scholars not only to analyze foreign sources but also to submit scientific papers to publications indexed in the international scientific and metric databases Scopus/WebOfScience. Notably, proper mastery of a foreign language is required in the Doctor of Philosophy in Law educational program.

It is important to remember that a person who does not speak the Ukrainian language can also apply to a notary. Thus, a notary's proficiency in a foreign language will speed up the notarial process without involving an interpreter. Proficiency in a second (other than native) foreign language for police officers and lawyers is essential for the integration of Ukraine into the European linguistic space.

## 6 Discussion

Savington S.J. (2018) notes that the introduction of the doctrinal construct of communicative competence into the discussion of proficiency of second/foreign language were quite revolutionary. Kokorina L. V., Potreba N. A., Zharykova M. V., and Horlova O. V. (2021) described an empirical study based on distance learning methods in education of linguistics. The main goal of this study was to evaluate the effectiveness and analyze the peculiarities of the distance method of learning/teaching foreign languages.

Larsari V. N. (2011) rightly points out that there is an acute problem nowadays. The ability of learners to effectively express themselves in a foreign language is reduced. The author proposes an integrative approach to integrative computer-mediated communication to solve such difficulties.

Turko O., Kravchuk T., Kashuba O., Navolska H., and Kutsyi I. (2021) demonstrate the effectiveness of modern methods for developing English communicative competence in students majoring in non-language disciplines. The authors share their experience of a three-year teaching approach using gaming technologies, project technologies, interactive technologies, tasks in the Moodle electronic system, etc. They also discuss the advantages of using these tools at the university. The central focus of their research is the effectiveness of these tools in shaping the foreign language communicative competence of students. The authors highlight the benefits of teaching with modern linguistic and technical tools. Survey results indicate these tools' effectiveness when combined to develop English language skills. The findings of Turko O., Kravchuk T., Kashuba O., Navolska H., and Kutsyi I. (2021) can be applied to English language education for students of non-linguistic majors.

Ho Y. Y. C. (2020) emphasizes the increasing demand for English-speaking specialists in the tourism and hospitality industry. The author conducted research involving 70 Taiwanese students, offering them various paper and oral tests, surveys, and focus group interviews.

Tursunovich R. I. (2023) identified general trends in global and national education, as well as principles and methods of forming professional, communicative, intercultural competencies when foreign language teaching for vocational purposes within the context of engineering, economic, and other non-linguistic specialties in technical universities. Huang L. J. D. (2021) notes that internationalization has emphasized the importance of intercultural communicative competence among language learners in higher education in the 21st century. Like Taiwan, many universities worldwide have begun to learn "literacy" of intercultural character in language classrooms. Thus, the study by Huang L. J. D. (2021) aims to evaluate the explicit instruction effectiveness on the development of communicative competence in EFL learners using both other assessment and self-assessment tools. It also examines the relationship between communicative competence development and two other factors of background. The results of the research show that clear instructions are effective in enhancing students' development of communicative competence, especially in the aspects of knowledge and skills. Moreover, English language proficiency is closely related to acquiring communicative competence skills.

Aldahhan A. and Razak N. A. (2023) noted that in most studies, digital platforms positively and significantly impacted students' communicative competence acquisition. However, most literary sources focus on one communicative competence component, namely a linguistic one. These studies primarily used an experimental plan in the methodology, following an approach of combined character. Students of high school were the main sample in most studies. Meanwhile, only a few of them focused on undergraduate students. The review's findings have an essential impact on university management. They make it possible to use the experience of other universities and countries.

Venzhynovych N., Poluzhyn M., Banyoi V., and Kharkivska O. (2021) described and analyzed the most important methods for teaching a foreign language. The authors examined the teaching of English in Ukraine during the global pandemic caused by the spread of the COVID-19 coronavirus in the early spring of 2020. The research identified the restructuring of the educational process in universities of Ukraine according to European quality education requirements/ During the pandemic, it was crucial to ensure a personality-oriented education. This knowledge provides optimal conditions for the harmonious development of each student.

The main idea of the study by Davtyan A. (2019) is to analyze the general features of competence-based approaches relevant to the study of SPL used in the professional communication of lawyers. These approaches are based on both the theory of SPL and jurisprudence (in a particular area of law), as well as on the practical use of legal English in the professional communication of lawyers, including the development of their skills and competencies. The author is convinced that competencies and their features are essential in all types of professional communication. They should be carefully studied as a subject in the theory and practice of a special purpose language.

The scientific novelty of the study by Davtyan A. (2019) lies in the fact that he considered the following aspects:

- the structure of a lawyer's professional/communicative competence, implemented through the use of legal English (theoretical and practical aspects);
- the relationship between foreign language communicative competence and the professional competencies of future lawyers;
- the problems and difficulties faced by lawyers in real-life learning practice;
- the solutions to the analyzed problems and learning tasks essential for developing the abilities required for mastering vocational foreign language competence.

Samely U. (1995) addresses the foreign language needs of future legal practitioners. Another exciting research was conducted by Rodríguez G. L. A. and Flórez E. E. R. (2020) on using legal cases to develop foreign language communicative competence in law majors. Nóvoa A. (2001) described the reorganization of the European Education Area among educational communities, citizens and states. There are few studies that focus on the issue of foreign language communication competence of lawyers and police officers.

## 7 Conclusions

After analyzing the status of an interpreter in civil, criminal, administrative, and commercial proceedings, the authors have concluded that it would be beneficial for civil, administrative, and commercial proceedings to adopt the experience of criminal proceedings, where the requirements for an interpreter's competence are set forth.

The majority of Ukrainian legal acts do not contain requirements for proficiency in any foreign language besides the state language. In particular, this concerns police officers, lawyers, and notaries.

This study systematizes the cases when police officers and lawyers may need to acquire foreign language communicative competence and provides an example of such situations.

After a comprehensive review of the "police officer" and "lawyer" concepts, the authors believe that these concepts are not related to each other at all. In fact, the current legislation of Ukraine does not require legal education for police officers.

Further scientific research may be based on the need for police officers and lawyers to be proficient in another foreign language besides the official one. In other words, police officers and lawyers should be fluent in two foreign languages.

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**Primary Paper Section: A**

**Secondary Paper Section: AE, AG, AI, AM**

## LIABILITY FOR VIOLATION OF FAMILY RIGHTS AND OBLIGATIONS UNDER UKRAINIAN AND THE EU LEGISLATION

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**Abstract:** The issue of liability for violation of family rights and obligations under the laws of Ukraine and the EU has always been of interest to domestic and foreign scholars. The main objective of our state in the field of family law is to harmonize the legislation with the norms of the European Union. The observance of human rights is a fundamental provision in international law and in Ukraine. After all, the rights of children, women, and parents in the family should be the highest legal and social value and they should be protected by the state in every state governed by the rule of law. The norms of international legislation enshrined in the fundamental documents must be observed in the states that have ratified them. The purpose of the research is to theoretically analyze the liability for violation of family rights and obligations under the legislation of Ukraine and the EU, to study the legal sources and to search for ways to solve the main current issues by studying domestic and international legislation and analyzing the scholars' works. The regulatory framework governing the consequences of violating family rights and obligations is the subject of discussion.

**Keywords:** Liability, Family rights, Family responsibilities, Legislation, EU states, Industry, Family Code (FC), Family legal relations, The rights of the child, Human rights, International legislation, Alternative dispute resolution (ADR).

### 1 Introduction

The rights of the child and the responsibilities of each family member are enshrined both at the national and international levels. They are legally regulated and apply to everyone.

The state should provide all the conditions, regardless of risks and circumstances, to ensure that every member of society feels safe and knows that in case of violation of family norms, the liability is incurred. After all, the primacy of legal norms is an extremely important step in the development of the law-governed state. In family law, relations should be based on the principles of democracy and equality, regardless of age.

A theoretical study of the regulatory framework and the works of scholars will provide an opportunity to analyze liability for violations of family rights and obligations under the laws of Ukraine and the EU.

### 2 Analysis of recent studies and publications

The research sources are the national and international legal framework that examines liability for violation of family rights and obligations. The Constitution of Ukraine is the primary law of our country that guarantees the observance of family rights (1996). The Law of Ukraine "On Protection of Childhood" (2001) has been also analyzed and studied. By the way, the Declaration of the Rights of the Child (1959) and the Convention on the Rights of the Child (1989) have been considered.

The Family Code (2002) is the primary source of family law in Ukraine and it was used in the course of the present research. In addition, the scientific works of scholars in the civil and family law field have been theoretically analyzed, namely: I. V. Apopii (2006), O. M. Hryshko (2020), I. S. Kanzafarova (2007), M. V. Mendzhul (2021), M. V. Lohvinova (2006), M. V. Mendzhul (2022), V. P. Myronenko (2001), A. O. Solovei (2022).

The scientific works of M. V. Hrushko (2019), V. V. Ilkov (2020), T. V. Lysenko (2020), S. P. Myrnyi (2020), S. S. Tuchkov (2020), Yu. O. Shekhovtsova (2020) have also been

considered and studied. They are theoretical and criminal researchers and scientists who discuss the rule-of-law state, human rights, legality and positive foreign experience.

N.A. Bondar (2023), M.S. Mishchenko (2023), V.V. Gutnik. (2021), and O. Dufeniuk (2021) analyze human rights in their publications. It should be emphasized that their observance is crucial both in the family and in society.

In the process of studying the subject of the research, the methods of cognition that exist in the theory of each country have been used, including synthesis, analysis, and the systemic method. Besides, formal legal methods of studying liability in family law have also been applied. The subsequent regulatory and dogmatic analysis has been conducted.

The historical method is used, for instance, when analyzing national and international documents. The method of comparison is observed in comparing the liability for violation of family rights and obligations under the laws of Ukraine and the EU states.

### 3 Research results

Urgent issues in the field of family law must be addressed at the global level, taking into account all the risks and unfavorable circumstances of modern times. These may include military hostilities, lack of communication, electricity, etc., the person to be held liable is out of the area of access due to unforeseen and independent circumstances, for instance, a parent who must pay the child support payment is physically in the combat zone and cannot fulfill the obligation due to a situation beyond his control. In such cases, all unforeseen circumstances must be taken into account when resolving the case and it is unreasonable to bring a person to legal liability. However, it should also be borne in mind that, according to the legislation, parents are obliged to take care of their children, who have needs for food, clothing, education, etc. Therefore, we believe that the legislation should be flexible and loyal, and that a person should be held liable in cases where he or she deliberately evades his or her duties. It is proposed for lawmakers to take into account all risk factors; for instance, in the situation outlined, it is necessary to calculate alimony under a simplified procedure in order to avoid the suffering of children and meet and support their interests. We also propose to revise the rulemaking process and implement simplified state procedures to meet the interests of society. Consequently, after the above-mentioned norms are implemented at the legislative level, and rule-making in the area of family responsibility is improved, the state bodies that are supposed to satisfy and protect the interests of society will develop more effectively.

After conducting the research, it is suggested to improve public awareness about alternative ways of resolving disputes. This will develop the legal culture and consciousness of people and open up the possibility of resolving conflict situations peacefully.

It is suggested to develop mediation since it works effectively in Europe. The mentioned provision of the legislation has not been widely recognized in Ukrainian society. It is believed that it is necessary to review the EU practice and elaborate on it, to borrow positive experience, because mediation in many cases contributes to the peaceful resolution of a dispute, outside the judiciary, which is positively beneficial for every family member, including women and children, who manage to avoid stressful situations. Mediation is crucial in many areas, and we believe that mediation rules should be introduced into the FC. Mediation is mandatory in many countries. We believe that we should improve the legislation in Ukraine and make this procedure compulsory since it is very relevant now and will solve a number of problems.

The issue of bullying in Ukraine has been theoretically analyzed. It is proposed to take into account the conditions when children study remotely and the educational activities of law enforcement authorities on the issue of bullying should be mandatory, even in online mode.

European regulations on the protection of family rights are the fundamental standards to which our state should aspire. The proposal of their theoretical study and exploration in the future and the implementation of positive experience in practice can avoid gaps in national legislation and improve the work of many government bodies.

We have distinguished family law into a separate branch of law and proposed amendments to the Family Code of Ukraine to bring it in line with the EU. This will improve the work of national government authorities and help avoid violations of children's and women's rights, and generally regulate family ties.

A proposal has been made to regulate the legislation in our country in accordance with international standards in order to avoid gaps in the field of legal liability in family law. It is crucial to explore ways to solve urgent issues; consequently, this topic is important for analysis and should be studied in the future.

A theoretical study of liability for violation of family rights and obligations under the laws of Ukraine and the EU states makes it possible to clarify the problems and identify gaps in the rulemaking activities of our state and find ways to solve them. The Family Code (2002) must be amended in order to facilitate European integration, in particular, to notify the parent from whom the child lives separately of the new place of residence. Furthermore, the Family Code of Ukraine should be amended to address the issue of the child's place of residence since it is necessary to take into account the child's views, relationship with his or her father or mother, physical condition, the conditions in which the parents live, etc.

It is very important to introduce mediation to resolve family disputes. In her research, M. V. Mendzhul has noted that an institution of a special representative who would support the child should be established in Ukraine, and that the legislation should contain guarantees for renting housing for a husband and a wife (Mendzhul, 2022). These are the gaps that exist in our legislation nowadays and require addressing.

T. I. Shinkar considers the main alternative ways of resolving disputes, such as: mediation, arbitration, negotiations. When we talk about negotiations, it is appropriate to note that, in this case, in a bilateral format, the parties independently complete and resolve the conflict (Shinkar T.I., 2017).

It is important to note that disputes can be resolved not by a state court, but by a private court, namely by arbitration. In this case, an arbitrator is needed, that is, an outsider who helps to resolve differences and reach a consensus (Shinkar T.I., 2017).

I. Yu. Levandovska also argues in her scientific works that in European countries, as well as in the United States and Japan, there is mediation before resolving family disputes in the court (Levandovska, 2022).

In Ukraine, this practice is enshrined in the legislation, but in contrast to foreign countries and European states, it has not been widely and actively applied. Its active dissemination and implementation make it possible to solve the issue of avoiding litigation and provide an opportunity to resolve conflicts peacefully. No legal liability is imposed on individuals.

It is proposed to develop mediation at the legislative level since it functions effectively in Europe. The mentioned provision of the legislation has not been widely spread in Ukrainian society. Mediation is significant in many areas, and we believe that mediation norms should be introduced into the FC of each country.

We believe it is relevant to review the EU practice and elaborate on it, to borrow positive experience because mediation in many cases contributes to the peaceful resolution of court disputes outside the court system, which is necessary for every family member, including women and children, who can avoid stressful situations. Mediation is a mandatory procedure in many countries. We consider that it is necessary to improve the legislation in Ukraine and make this procedure compulsory since it is very relevant now and will solve a number of problems in the future. The experience under discussion requires further study and application in practice.

In international practice, there is another type of dispute resolution, namely with the help of an ombudsman. We believe that in the resolution of disputes, reconciliation takes the main place and contributes to the resolution of conflict situations in family law and deserves special attention and research in the future.

We draw your attention to the fact that it is necessary and important to provide people with more information about the consideration of issues of dispute resolution by alternative means, because the population must have legal awareness and it is possible that cases will not be opened in courts, and family conflicts will be resolved peacefully, or disappear altogether.

According to the Constitution of Ukraine, parents are obliged to support and care for their children (1996). By the way, the Law of Ukraine "On Protection of Childhood" (2001) is also in force in our country.

The Declaration of the Rights of the Child (1959) and the Convention on the Rights of the Child (1989) are in force at the international level. Ukraine has ratified these fundamental legal acts; consequently, the main objective is always to bring national legislation in line with the international criteria. This, of course, also applies to family rights.

For instance, the European Convention for the Protection of Human Rights and Fundamental Freedoms includes provisions on non-property rights (1950). These norms are also applied in the Family Code, for example, the non-property rights of the wife and the husband, for the violation of which liability is incurred. It should be noted that liability in some cases, such as domestic violence, can also constitute criminal liability under Ukrainian law (2001). It may also be regulated by the Civil Code (2003) and the Code of Civil Procedure (2004).

It is important to emphasize that as a result of Ukraine's ratification of international European agreements any prosecution for a family relationship infringement must be legal and adhere to EU standards, which are accepted by all civilized states.

A.O. Solovei, conducting his study, argues that there is civil, administrative and criminal liability for non-payment of funds (alimony). However, we are currently under martial law in Ukraine, and many men have been defending our country. The scholar has analyzed the feasibility and relevance of bringing individuals to liability since there are particular factors, such as military hostilities, possible lack of communication, etc. (Solovei, 2022). These issues should be regulated at the legislative level, taking into account all the risks, in order not to violate children's rights and human rights.

#### 4 Discussion

Family responsibility, as an independent concept and its theoretical use in science and in practice, is still controversial in Ukraine since the state requires improvement of rulemaking in the field of family law. A theoretical study of foreign experience and the adoption of positive aspects may resolve this urgent issue in the future.

We strongly believe that the concept of family responsibility is extremely important for regulating family relations and avoiding

offenses, such as bullying in the family, non-payment of alimony, moral and material damage, etc.

I. O. Yefremova argues that “liability in family law is a particular legal status of a participant in family relations, which consists in the endurance of negative consequences of a personal non-property or property nature by the person who committed a family offense based on the decision of jurisdictional bodies” (Yefremova, 2007, p. 122-123).

Liability for violation of family rights and obligations under the laws of Ukraine and the EU is an essential component for regulating relations in society, and, thus, EU legislation is an example for our country. M. V. Mendzhul argues that the Family Code (hereinafter referred to as the FC) is an innovation in Ukraine. The provisions must comply with European legislation, and our lawmakers took this into account when drafting it. While some scholars claim that family law is a sub-branch of civil law, the scholar M. V. Mendzhul, on the contrary, states that the Family Code and the Civil Code should exist separately. It is necessary to take into account the family traditions of our people (Mendzhul, 2021) and to separately distinguish family liability.

I. O. Yefremova reasonably notes that the Family Code (2002) does not contain provisions on liability for violation of family norms. There is no consensus among scholars in Ukraine since some consider family law to be an independent branch while others consider it a sub-branch of civil law (Yefremova, 2007). It is necessary to allocate family law into a separate branch; this is the only way to ensure Ukraine’s European integration into EU legislation. O. I. Apopii rightfully emphasizes the differences between civil and family relations. Having analyzed the scientific works of researchers, the scientist agrees with the opinion that moral values are the most important factor in family relations, and certain property and economic relations with particular freedom are crucial in civil relations. There are different cases in family relations: for example, marriage has freedom for the parties, and there is no choice and freedom in the relationship between children and parents (Apopii, 2006).

The opinion of O. Hryshko and V. Ryndiuk, who have conducted a scientific study on the concepts of state coercion and legal responsibility, is reasonable. As a result of the analysis, the authors have concluded that these concepts are different since the purpose of applying liability in family law is to punish a person, and the purpose of coercion is usually to prevent punishment. The concept of state coercion is believed to be broader (Hryshko, 2020).

The issue of bullying is gaining more and more publicity in our country nowadays. Such violations are, unfortunately, very common in family law. It’s awful when children and women suffer from bullying because they believe they cannot defend themselves. However, law enforcement authorities are actively engaged in educational activities on this issue at the state level in order to ensure that women and children understand that they can be protected by the state and that the offender can be brought to justice or sent for correctional education.

Currently, there are departments and public organizations in Ukraine that in addition to government authorities are engaged in supervising offenders and providing correctional education. Psychologists also work with such individuals. Positive foreign experience, in our opinion, is effectively being applied in this regard in our country and aids in the prevention of crimes for which people are held legally accountable. The state has set up its activities in such a way that law enforcement bodies, namely public relations departments, attend schools, educational institutions and work with children to raise awareness about bullying, to avoid offenses in the family, in educational institutions.

I. V. Apopii emphasizes that Z. V. Romovska (2009) supports the idea in her studies that sanctions of a personal nature are, for instance, divorce, deprivation of the right to paternity, etc., and sanctions of a property nature are forced payment of alimony or

finances, etc. (Apopii, 2006). This means that there should be liability for any violations of family law, and this is how it differs from coercion, that is, warning. In her scientific articles, Z. V. Romovska highlights the existence of both material and moral responsibility in family law relationships (Romovska, 2009). This makes it possible to distinguish family law as a separate branch rather than a sub-branch of civil law.

Mendzhul M. V. reasonably points out that despite all the dangers and internal and external influences, family law in Ukraine is presently attempting to establish and regulate family relationships (Mendzhul, 2021). The scholar’s standpoints are relevant and valuable.

Military hostilities have a negative impact on the prosecution of violations of family rights and obligations under Ukrainian legislation; however, the positive experience of EU states will help solve urgent issues, taking into account all the risks.

Lawmakers must take into account all the issues of liability for violation of family relations in Ukraine. After all, the main objective in the country nowadays is to introduce effective legislation and rulemaking at the state level, despite the circumstances outlined.

## 5 Conclusions

Having analyzed the scholars’ scientific works, the theoretical analysis of the concept and role of liability in family law is conducted and proposals are made to address the current issues of modernity.

It is proposed to support the scientific and theoretical statements that family law is a separate branch of law. Family responsibility as an independent concept still remains controversial in Ukraine since the state must improve its rulemaking in the field of family law.

An analysis and proposal of the need to amend national legislation is made, namely, the FC requires additional provisions in accordance with the EU’s international rule-making activities. It has also been established that mediation is significant in many areas. Consequently, we believe that mediation rules should be introduced into the Code of Criminal Procedure of each country, which will allow for the peaceful resolution of court cases in most cases. We propose to revise the rule-making activity on mediation in Ukraine and develop this sector, because the demand for mediation is currently very low among the population, and society should be more aware of this procedure. We are convinced that by using and enshrining mediation as a mandatory procedure, borrowing from the experience of foreign countries, many urgent issues will be resolved in the country.

Informing the population about alternative dispute resolution issues will improve legal awareness and culture in all countries of the world and in Ukraine and will make it possible to resolve conflicts peacefully.

Urgent problems in the field of family law should be addressed at the global level, taking into account all the risks and unfavorable circumstances of contemporary times. This will improve the activities of national government bodies and help avoid violations of children’s and women’s rights and generally regulate family relations.

A theoretical study of liability for violation of family rights and obligations under the laws of Ukraine and the EU states makes it possible to clarify the challenges and identify gaps in the rulemaking activities of our state and find ways to address them. The positive foreign experience of implementing anti-bullying measures in Ukraine, including in the family, has been studied. We believe that the state has been taking all possible measures to resolve this issue. It is proposed to take into account the conditions when children study remotely and the educational



activities of law enforcement bodies on this issue should be mandatory, even in online mode.

The public should be aware of their rights and be legally responsible in case of their violation. It has been theoretically analyzed that state bodies and public organizations are engaged in the correctional education of offenders. There are also shelters where people can find protection for themselves and asylum from difficult life circumstances. We believe that it is necessary to further develop the educational activities of law enforcement bodies of the state, because the victim also needs help, including psychologists.

This topic is very important for analysis and should be studied in the future by scholars, researchers and practitioners. The theoretical analysis of the issue of liability for violation of family rights and obligations under the laws of Ukraine and the EU is relevant and requires further elaboration and research.

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#### Primary Paper Section: A

#### Secondary Paper Section: AG

## PERFORMANCE STYLE OF A CONTEMPORARY CHORAL CONDUCTOR IN THE CONTEXT OF THE CURRENT ARTISTIC SPACE: FROM REHEARSAL TO MEDIA PRESENTATION

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**Abstract:** The article examines the performing style of contemporary choral conductors, including their typology and evolution in the modern artistic space. It explores the theoretical foundation and definitions of conducting styles and discusses the two main types: emotional and rationalistic. Additionally, it presents the perspectives of past conductors on the conducting process that remain relevant today. The skills of a conductor are evaluated by categorizing them into hard and soft skills. Hard skills include mastery of gesture, facial expression, general music theory preparation, and skills in analysing musical scores. Soft skills consider emotionality, charisma, and organizational abilities. The text traces the connection between the conductor's conducting style and their soft and hard skills. This study examines the impact of digital technologies on the role of choral conductors and the formation of conducting styles. It investigates the peculiarities of the rehearsal and concert process in remote music-making conditions, which are characterized by the asynchrony of the creative process. The study reveals the influence of asynchrony on the character and style of the conductor's work. It has been demonstrated that asynchronous performing processes can reduce feedback between the conductor and performers, resulting in aberrations in conducting style and a shift from managerial to decorative specificity.

**Keywords:** Conductor, Choirmaster, Performance style, Choir schools, Artistic space, Media presentation, Rehearsal, Transformation.

### 1 Introduction

The profession of a choral conductor in the modern era is evolving due to the implementation of digital technologies, the increasing role of sound recording, and the adoption of remote forms of education and music-making. As a result, the understanding of an individual conducting style is also changing. This evolution is influenced not only by the character or personal traits of the conductor, but also by the conditions in which the musician engages in creative activities.

The objective of this research is to identify an individual's performing style specificity in the context of choral art and its transformations in the digital age. To achieve this goal, the following tasks were addressed: summarizing and systematizing theoretical knowledge about the individual performing style as presented in musicological literature; analysing the concepts of "musical style" and "performing style" and defining their components; examining the factors that led to a reassessment of the conductor's role in the choral ensemble and, consequently, changes in applied conducting techniques and, therefore, conducting styles as a whole.

### 2 Literature Review

Recent research reveals several trends. Many studies explore the benefits of choral singing for health, emotional well-being, and education. Additionally, recent works justify the positive impact of choral singing on the older generation. Research has demonstrated that choral singing has positive effects on interpersonal relationships and social connection (Moss et al., 2020), life satisfaction (Radočaj-Jerković, 2022), and mental and emotional well-being (Maury and Rickard, 2022). Furthermore, P. Tremblay and M. Perron (2023) attempted to prove that choral singing slows down the ageing process, but they did not obtain convincing results to support this hypothesis.

The positive role of choral singing is also noted in groups involving younger individuals. Studies have demonstrated positive effects of choir singing practice on shaping personal

values (O'Reilly Viamontes, 2020), enhancing mood, and reducing stress (Linnemann et al., 2017).

Numerous articles have been written about the effects of the COVID-19 pandemic and its associated restrictions on the field of musical arts. Studies conducted in the USA suggest that participating in musical activities during the pandemic can reduce stress, alleviate feelings of isolation, improve emotional and social well-being, increase self-confidence, and enhance overall comfort (Lewis, 2023). According to Herschel et al. (2022), this can also lead to reducing anxiety and an increase in global well-being. Research conducted in India has shown that "choral music impinges on a notion of personal intimacy that combines a collective sense of creativity and community" (Chatterjee, 2022). However, quarantine measures have had negative impacts on choir participants, including the deterioration of their well-being due to cancelled rehearsals (Youngblood et al., 2021) and negative effects on the social dynamics of the choir (Takala-Roszczenko, 2023).

Certain articles discuss different aspects of vocal voices in choirs. For example, N.S.V. Cardoso, T.C. da Silva Brito, and A. de Oliveira Camargo Gomes investigated the vocal range passaggio and found that "the passaggio identified in the vocal range profile of choristers, based on their frequencies and intensities were more frequent in soprano and tenor, compared to alto and bass, in changes to the low and high registers".

Several studies have investigated the influence of digital technologies on the advancement of musical arts, specifically in the realm of professional education (Semennyk et al., 2022) and sound recording (Bonshor, 2017; Adams, 2019).

A limited number of articles focus specifically on the practice of choral conducting. In a survey of 294 conductors in Norway, a group of Norwegian researchers found that the assessment of the role of conductors largely depends on their practice and experience. The researchers identified 17 competence elements of conductors (Jansson et al., 2023). The study compared the level of technical and expressive skills mastery among conducting students from choral faculties (Regier et al., 2022). Additionally, it investigated the communicative practices of conductors during the rehearsal process from the perspectives of two models of communicative behaviour: "communicative behaviours – assessments and directives", as conducted by K. Emerson, V. Williamson, R. Wilkinson (2019).

### 4 Methodology

The study of literature on performance stylistics involves several methodologies. These include examining memoirs and recollections of works by prominent conductors of the past, studying scientific and theoretical materials devoted to this problem, observing conductors at work or on video recordings, and surveying contemporary practising conductors regarding various elements of the profession and educational aspects of conductor mastery formation (Broiako et al., 2022).

At this stage of the research, it is relevant to combine the first three methodologies. However, studying the experience of conductors from past eras is only partially accessible to the modern audience. Only a portion of it has been digitized and translated into English, while others are available only in print sources and have not been translated into English. On the other hand, the study of video materials is becoming increasingly important, particularly for analysing modern forms of remote conducting that involve temporal and spatial distance between performers and conductors.

Surveys, as used by researchers (including in the work by Jansson, Elstad and Døving, 2023), provide relevant results for studying methodological and social issues of collective

performance. However, they do not reveal the individual stylistic nuances of conductors that cannot be reduced to a list of separate positions.

## 5 Results

The study of musicological literature enables us to draw conclusions about the complexity of the concept of musical style. According to V. Moskalenko, musical style is defined as the psychologically conditioned specificity of musical thinking, expressed through the corresponding systematic organization of resources of musical language in the process of creating, interpreting, and performing a musical work (Moskalenko, 1998, p. 88). N. Ocheretovska states that musical style refers to “characteristic features of creative handwriting that are manifested in the music of a certain era, nation, and creativity individual composer” (Ocheretovska, 2008, p.104). O. Komenda highlights the stability, semantic inexhaustibility, creativity, adaptability in new conditions, and significant methodological potential of the concept (Komenda, 2009, p.116).

Researchers distinguish between historical, national, individual, and other styles. The historical style pertains to the stylistics of a particular era, the national style is inherent in a specific national culture, while the individual style characterizes the specific thinking of a particular composer or performer. However, the characteristics mentioned above, such as stability or the ability to unite various musical phenomena, apply to all styles (Tkach, 2018, p. 360).

The system of levels of musical style allows for distinguishing compositional and performing components. The former is used to characterize compositional creativity, while the latter is used for performance and can be used to identify the stylistic features of individual instrumental soloists, vocalists, conductors, and so on.

The concept of performance style is specific and is reflected in the works of researchers. According to O. Katrych, performance style is “a system of expressive means corresponding to the specificity of its musical worldview, which, preserving integrity, functions as a supporting factor for reinterpreting various compositional styles” (Katrych, 2000, p. 90). S. Kopylova mentions that performing style is defined as a set of performance tools and personal qualities that are inherent to a given performer or performance school. These factors determine the artistic integrity of the performance product, also known as interpretation (Kopylova, 1999, p. 256). According to Yu.Tkach, performing style is defined as a system of performing techniques and means that are formed under the influence of the components of the artist's creative method and realized in the process of interpreting a specific musical work (Tkach, 2018, p. 361). V. Zhyvov views the performing style of a conductor as a holistic phenomenon, encompassing the individuality of the artist, their stylistic orientation, and manner (Tkach, 2018, p. 361). The individual performing style of a conductor can extend to the choral ensemble, particularly if the conductor is a vivid personality.

Several factors influence the performing style of a conductor, among which professional and personal qualities of the musician can be compared to hard and soft skills. Hard skills, in turn, are divided into technical skills (mastery of gesture, mimicry) and intellectual skills (ability to analyse musical works, thoroughly understand the author's intentions). Soft skills include the ability to manage a collective, persuade the collective through explanations, convictions, and emotionally inspire the collective. The requirements for the profession of a conductor, as noted by practising conductors themselves, will be analysed in more detail.

H. Berlioz believed that a conductor “should be *active and vigorous*, should know the *composition* and the *nature and compass* of the instruments, should be able to *read* the score, and possess [...] other indefinable gifts, without which an invisible

link cannot establish itself between him and those he directs” (Berlioz, 2008).

The first aspect, which suggests being active and vigorous, is more related to soft skills and is commonly referred to as charisma. Essentially, a conductor must ignite the enthusiasm of choir musicians and emotionally engage the audience for the music to sound lively. According to A. Pazovskyi, this ability is characterized as “artistic-emotional influence of the performer on the recipient, thanks to which the performer can reflect the idea, theme, image in the listener's consciousness” (Tkach, 2018, p. 361).

On the other hand, a conductor must acquire hard skills such as the ability to analyse a musical work, knowledge of musical instruments, and vocal voices through a profound study of music history, theory, and choral studies. It is necessary for a conductor to have in-depth knowledge and the ability to grasp the main idea of the work to arrive at the correct tempo and performance style, as emphasized by R. Wagner (Waktan, 2008). K. Kondrashyn describes these skills as the ability to perceive the integrity of the work, sense tempos and their relationships, dynamic contrasts, climaxes, and the principles of performing *sforzando* and accents (Tkach, 2018, p. 361).

According to V. Zhyvov, a conductor's individual performing style depends on the specific psychological and spiritual organization of their personality, their way of thinking, and their emotional composition as an artist. Different understandings and emotions of the performed music, as well as a unique way of conveying it, are derived from these components.

By studying the memoirs of conductors, it is possible to discuss a historically formed typology of performing styles, which can be reduced to two main types: rationalistic and emotional. For instance, H.Iudin characterizes emotional conductors as those “who only need to strike a match to ignite the orchestra and lead it even without rehearsals”, while rationalistic conductors are described as those who “create the future concert performance gradually, layer by layer, like a beautiful building” (Tkach, 2018, p. 362).

Similarly, V. Zhyvov proposes a differentiation that includes intellectual aspects. The conductor characterizes the rationalistic type with “precise calculation of interpretation, logic of performing design, ability to build monolithic structures from details”; the emotional type with “artistic freedom based on subjective feeling, intuition, impulsiveness, spontaneity”, and the intellectual type with “depth, penetrability of performance, argumentation, and thoughtfulness” (Tkach, 2018, p. 362).

O. Katrych's typology distinguishes between the “classical” and “romantic” performing types based on differentiations. The classical type is characterized by the dominance of intellectual conception over direct emotional experience, a tendency towards proportion, harmony, and symmetry (Katrych, 2000, p.65). In contrast, the romantic style is characterized by a preference for the image over the idea, emotional experience over analytical generalization, and a tendency towards openness, permeability, and asymmetry (Katrych, 2000, p.65).

The correlation between the emotional and rationalistic is closely linked to the correlation between the conductor's hard skills and soft skills. Yu.Tkach identifies three components of conducting style: technical, artistic, and intellectual (Tkach, 2018, p. 360). The technical component encompasses the conductor's technical arsenal, including command over gestures, facial expressions, and overall body movement, which are basic hard skills acquired in higher educational institutions. The artistic component is more related to the emotional understanding of the musical work and the ability to convey emotions, which are soft skills that are often considered talents. The third component pertains to the conductor's analytical thinking, which primarily consists of hard skills acquired through experience and studying theoretical material in educational institutions.

A rationalistic conductor relies more on “hard skills”, specifically knowledge of the history and theory of music, allowing them to calculate necessary tempos and intellectually create the required sound image of the piece. In contrast, the “emotional” style is more characteristic of a conductor with vivid charisma and a gift for emotional conviction, grounded more in “soft skills”. However, it is important to note that emotional involvement does not exclude hard skills. The conductor's emotional intelligence is crucial in the creative process and is based on an in-depth understanding of the history and theory of music.

Soft skills also encompass the capacity to coordinate and lead a group. As stated by R. Kofman, the most demanding aspect of the conducting profession is the interaction between the conductor and the ensemble. The conductor's decision-making process is guided by a combination of amicability towards individuals and accountability to the composer (Kofman, 2009, p. 36). The interaction between the conductor and the collective is crucial during the rehearsal process. This interaction is referred to as the “communication style with the collective” and can be categorised as either “authoritarian” or “tolerant” (Tkach, p. 363). An authoritarian conductor issues commands without discussion, whereas a tolerant (democratic) conductor consults with subordinates (Prokulevych, p. 8).

The above observations primarily apply to the pre-digital era when activities occurred exclusively in real-time and involved direct contact with the performing ensemble, both in concerts and rehearsals, as well as with the audience during concerts.

The development of digital technologies and their integration into the field of musical arts has given rise to a fundamentally new type of musician's activity: remote conducting. This musical activity involves collective music-making through communication technologies, enabling musicians to collaborate despite being physically separated by hundreds or thousands of kilometres. It became particularly relevant in 2020-2021 due to the COVID-19 pandemic and the introduction of unprecedented quarantine measures in many countries, which included a categorical prohibition on collective gatherings, even for the purpose of musical performance. Due to the risk of incurring significant fines or even imprisonment for violating bans on collective gatherings, musicians, including choir ensembles, have been forced to resort to remote forms of music-making. This applies to both professional concert collectives and educational ones. Regular concerts, which are the result of the educational process of choir singers, have now changed to online performances (Krechko, 2021, p.153).

The most significant feature of remote ensemble musicianship is the impossibility of synchronous communication due to the specific delay of the digital signal, which is usually about 0.2 s when transmitting a signal between opponents. This is how the difficulties of such music-making are described in the work: if musicians play a duet and start to play one after another and the second musician starts exactly focusing on the first one, the latter will hear the partner in 0.4 second later than they should. Obviously, this will make the musician stop and wait for 0.4 seconds to synchronise the performance. Instead such behaviour of the first musician will surprise the second, and at least will similarly make them stop and wait for 0.4 seconds for the partner to restore synchronicity. Obviously, this chain of “waitings” would stretch endlessly, making the artistic performance unsuitable (Bondarenko et al., 2023, p. 252).

The challenges of remote conducting significantly affect the conductor's role and conducting style. Remote conducting is characterized by the lack of direct feedback on the sound production of the ensemble members, which means that the conductor's gesture is no longer effective in this regard. Even if a performer carefully watches the conductor's video during the recording of their choral part, the conductor cannot adjust their gestures in real-time to influence the character of the performer's singing. This loss of simultaneity in the performance process leads to asynchronization. As a result, asynchronization in

performance reduces the conductor's directing role and increases the decorative aspect.

Video recordings of virtual choir performances have been created to show different facial expressions of choir members and a video frame of the conductor. Experienced musicians can observe the desynchronization between the performance and the conductor's gestures, indicating a disconnect between the gesture and the timbral-articulatory characteristics of the sound. It is important to note that the final product is greatly influenced by the sound engineer who mixes all recorded choir voices and the video editor who handles the integration of video and audio. This can further diminish the conductor's leadership role. If the video editor lacks sufficient competence, it may exacerbate the desynchronization between the conductor and the choir, enhancing the decorative effect of the conductor's presence.

The conductor's role is reduced in the case of digitally recording a choir ensemble. The choir's track is part of the musical composition's score, while the other part is recorded by the orchestra or generated electronically. The rhythmic organization of the performance relies on a metronome signal activated by the sound engineer to synchronize the choral soundtrack with the instrumental one. The conductor's role in this case is limited to organizational aspects and partial corrections.

## 6 Discussion

The prospects for the development of conducting styles in the future will depend on the advancement of digital technologies and their application in asynchronous music-making. The prospects of asynchronous music-making remain insufficiently studied at the moment, but even now, we can identify areas of its application, which include at least the following circumstances:

- music-making in conditions of extraordinary situations that hinder or make it impossible for musicians to gather collectively (such as pandemics or wars);
- preparation of digital sound recordings involving many ensembles or with electronically generated components, typically achieved by recording individual choral parts and subsequent editing;
- the practice of choral ensembles performing to pre-recorded accompaniment.

Asynchronous forms of music-making imply a weakening or even a break in the feedback loop between the performer and the conductor, which will inevitably affect the performing style. It is anticipated that the “emotional” type of style, which relies more on “spontaneous” creative decisions, may lose its significance, as such a style heavily depends on the feedback between the conductor and the performer. However, this does not devalue the importance of the soft skills of the conductor. Soft skills will continue to be necessary for addressing organizational issues, influencing performers through prior instructions and feedback, emotional motivation of performers, and so on. In the realm of creating media products, there is a likely increase in the decorative role of the conductor, emphasizing the aesthetics of conducting gestures and their visual appeal to the audience. This highlights the question of the aesthetics of conducting gestures and their attractiveness from the audience's visual perception perspective.

## 7 Conclusion

The performing style of a choral conductor is considered to be a set of techniques and methods used to interpret a particular musical work. In each case, the conductor's style depends on their personal qualities, including their temperament and charisma, as well as their hard skills. These skills include mastery of the motor apparatus, knowledge of music theory and history, the ability to analyse a musical score, and the expressive means laid down by the composer.

A typology of conducting styles can be categorized as either "rationalistic" or "emotional". The former relies more on hard skills, while the latter relies on the conductor's charisma.

In the context of distance music-making, which has become widespread during the COVID-19 pandemic, conducting styles have been affected by the asynchronization of the creative process, resulting in reduced or prevented feedback between the conductor and the performers. The conductor's role shifts from being directive to becoming more decorative.

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#### Primary Paper Section: A

#### Secondary Paper Section: AL



## POLITICAL LEADERSHIP IN THE REPRESENTATIVE POWER OF UKRAINE IN THE CONTEXT OF GLOBAL CHALLENGES

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**Abstract:** Political leadership in the modern world is becoming increasingly relevant against the backdrop of new challenges that require a quick and effective response on the part of politicians as representatives of particular political institutions. As a matter of tradition, parliaments are collegial bodies, in contrast to the institution of the president, which possesses sole decision-making power. However, representative bodies of power have the right to adopt laws that define the principles of life in the country and society. Parliamentary leaders play a crucial role in drafting and adopting bills, which requires studying this phenomenon. The purpose of the academic paper is to analyze parliamentary leadership as a significant element of representative democracy. The research methodology is based on a combination of three key approaches that allow analyzing political leadership – the theory of traits, behavioral and situational theories. The main research methods are as follows: analysis of documents, secondary analysis of sociological data, the case study method, and general scientific methods (analysis and synthesis, deduction, generalization, and classification). Representative democracy has been undergoing a process of transformation due to the challenges of postmodernity.

**Keywords:** Parliament, Parliamentarism, Representative democracy, Leadership, Political leadership, Gender equality, Corruption, Anti-corruption, Power, Representative power.

### 1 Introduction

The issue of political leadership is becoming particularly relevant against the backdrop of global challenges faced by the world and Ukraine. Timely response to crises is just one of the functions of a political leader, who has to find the best ways to solve existing problems.

However, as a rule, political leadership in Ukraine is associated only with the presidency, and sometimes with the post of prime minister if it is held by an influential politician (V. Yanukovych, Yu. Tymoshenko, A. Yatsenyuk). Representatives of the parliamentary authorities of Ukraine are almost never considered in the context of political leadership, although they play an important role in making key political decisions that determine the country's development path.

Representative power around the world and in Ukraine is experiencing a crisis: the decline in public confidence in parliaments, the decrease in voter turnout, and the distancing of citizens from politics. The formation of political parties by financial groups for elections remains a serious challenge for Ukraine, which hinders the evolutionary development of the country's party system. This set of problems requires new approaches to the functioning of parliaments and an increase in the leadership component of their activities.

Political leadership in the Ukrainian parliament is closely linked to party leadership – the leaders of parliamentary political parties play a crucial role in ensuring the functioning of the country's main representative body. Accordingly, party leaders are trying to implement the program tasks of their parties to demonstrate their own effectiveness and efficiency, which will help ensure their re-election in the next elections.

### 2 Literature Review

It is expedient to divide the literature on the subject of the present research into groups related to the following thematic directions. The first group deals with the issues of the functioning of representative bodies of power in the modern world and is represented by works of Ukrainian and foreign authors. The main challenges to representative democracy

include attempts to undermine the principles of parliamentarism by illiberal democrats in favor of the executive branch, which poses significant threats to representative power (Schneiderman, 2021). One can observe particular manifestations of this threat in Ukraine in the process of strengthening the presidential branch of power and weakening the parliamentary branch.

According to the viewpoint of S. Tornei, the main challenge for parliaments is not the alienation of citizens from politics or the decline of politicians themselves but a far more serious problem related to the transition from “vertical” interaction of representation to “horizontal” modes of social interaction (Tornei, 2014).

The Ukrainian scholar V. Goshovska suggests considering these events as an objective given, a product of postmodernism with its ideas of deconstructing “institutions of political practice...that contradict the basic democratic norms of social development”. Postmodernism considers “the development of the abilities of a universally developed person capable of creating the modern political world in the relevant democratic mode” as the main criterion for development, which opens up new prospects for political leadership (Goshovska et al., 2019).

The second direction focuses on studying the political leadership in modern conditions. This issue has become the focus of scientific studies by O. Traverse, I. Pokhilo, V. Kornienko, F. Greenstein, D. Riesman, A. Nawaz, S. Burmina, M. Agbula, etc. F. Greenstein notes that political institutions function through the activities of people who have certain qualities. Therefore, “the personal qualities of political actors influence political events, often with important consequences” (Greenstein, 1992).

S. Birmina and M. Agbula systematized the basic theories of political leadership in the context of their evolution (Birmina et al., 2021). The Turkish researcher A. Nawaz and his colleagues combined the main theories of political leadership with the styles of political leadership (Khan et al., 2016).

Ukrainian scholars consider the issue of political leadership in several dimensions: in the theoretical format, focusing on the analysis of political terminology (Traverse, 2005); the general process of forming political leaders in the country (Boiko, 2009); the effectiveness of the political leadership (Kornienko and Pokhilo, 2009).

However, the issue of developing political leadership in representative bodies of power has not been reflected in the scientific works of modern times, which requires a comprehensive study of this problem.

The purpose of the research is to conduct a comprehensive analysis of the political leadership as a significant component of representative democracy in Ukraine.

### 3 Methods

The methodological basis of the present research combines three theories: the theory of traits, the theory of behavior, and the situational theory. The theory of traits focuses on a leader's basic qualities that can be inherited or acquired through training and practice. By using these theoretical developments, it is possible to analyze the personal qualities of the leaders of the Ukrainian parliament. The theory of behavior follows the theory of traits, emphasizing that leaders are mostly made but not born. Consequently, the basic skills of leadership behavior can be acquired to ensure effective leadership (Denison et al., 1995).

The situational theory suggests that leadership depends on a particular situation that allows a person to become a leader and on the environment, which requires the leader to adapt to a particular situation (Greenleaf, 1996). The theorists of this

approach believe that the environment plays a key role in the leader's activity, which influences his behavior and style.

Special methods (analysis of documents, secondary analysis of sociological data and the case study method) and general scientific methods (analysis and synthesis, deduction, generalization, classification) were used in the course of the research.

#### 4 Results

The major problem of modern studies on political leadership is the development of this definition. The term "leader" has several dimensions: from "the one who is ahead in a competition" to "a person who controls or influences what other people do; a person who leads a group, an organization, or a country" (The Britannica Dictionary, 2023).

J. Blondel emphasizes that "leadership is generally more than analyzing the situation and making decisions, it also includes exerting pressure on those people's minds and energies who will have to play a role in implementing actions" (Blondel, 1987). According to the viewpoint of P. Shliakhtun, a political leader is "an authoritative person who exerts a predominant influence on other people in order to integrate their activities to achieve common political and other goals" (Shliakhtun, 2002). The aspect of leadership in the process of state-building, in the opinion of O. Traverse, is primarily a form of manifestation of political life within political processes and institutions (Traverse, 2011)

The parliamentary activity of politicians is one of the forms of implementing political leadership in the framework of political institutions.

A representative form of democracy prevails in the modern world, based on the exercise of public power on behalf of the people and in the interests of the whole people through elected collegial bodies. These authorities interact with the entire system of state and local self-government bodies on the basis of democratic procedures and are responsible for their actions to the people (Zaiats, 2013).

The representative bodies in Ukraine are represented by several levels: 1) the Verkhovna Rada of Ukraine; 2) the Verkhovna

Rada of the Autonomous Republic of Crimea; 3) regional and district councils; 4) village, town and city councils. The analysis of the political leadership in the Ukrainian parliament will be the main topic of the present research.

According to the standpoint of V. Goshovska, the phenomenon of parliamentarism in the system of state power is caused by: firstly, "the need for popular representation as a guarantee of democratic development of the state, country, society and nation; and secondly, the complication of the system of organization, functioning and exercise of state power" (Goshovska et al., 2019).

Obtaining a "representative mandate" in the elections requires parliamentarians to take into account the interests of society in their activities and implement them in the norms and rules of state policy. However, it is not always possible to accomplish this since the citizens' interests may contradict the state's interests. On the other hand, the members of parliament often distance themselves from their voters after the elections and this leads to disappointment in society and a decrease in trust in the representative body.

This disillusionment in Ukraine has become especially noticeable after the Revolution of Dignity, which gave hope for a change not only in the political elite but also in political practices. However, the representatives of civil society who entered the parliament in 2014 failed to overcome old practices and become new political leaders. As a result, the citizens' trust in the Ukrainian parliament declined in 2015-18 and it was the lowest among all government institutions – at 5-6% (Trust in social institutions and groups. KIIS Press Release, 2015; Trust in Social Institutions. KIIS press release, 2016).

Against the backdrop of V. Zelenskyy's victory in the presidential election and the victory of the presidential party "Servant of the People" in the parliamentary elections, the level of trust in the parliament grew, but it decreased a year later due to the failure of members of parliament to fulfill their obligations to voters (Trust in social institutions and parties, 2020; Trust in social institutions and politicians, electoral orientations of Ukrainian citizens, 2021).

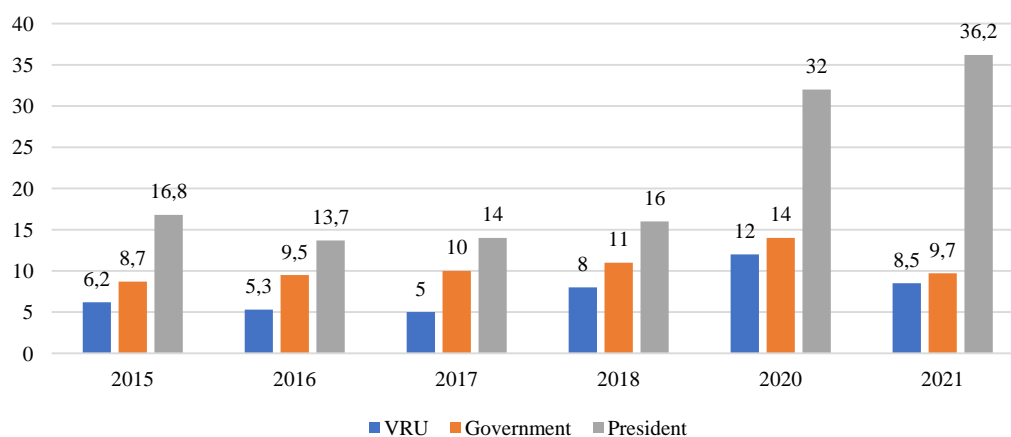


Figure 1. Citizens' trust in central authorities in 2015-2021, in %.

The situation with local councils is slightly better, with about 20% of citizens trusting the councils, which is due to the first successes of the decentralization reform and bringing local authorities closer to the people (Trust in social institutions and politicians, electoral orientations of Ukrainian citizens, 2021).

Another serious problem for representative democracy is that it gives more chances to get into the parliament not to the best representatives but to those who have financial resources. The 2019 elections were supposed to break this system: the "Servant

of the People" party, which did not have time to form a team, opened the door for everyone to enter big politics. As a result, random people were elected to the parliament, which is also a manifestation of the crisis of representative democracy in Ukraine.

One of the primary objectives of Ukrainian politicians is to restore trust in representative institutions. Responsible political leadership could play an important role in this process when

members of parliament actively cooperate with society and are ready to take responsibility for their own political actions.

It should be noted that political leadership is logically considered in a dichotomy with political management, that is, the interconnection of leadership qualities and the possibilities of influence of their power, which gives them status in the system of state and political hierarchy (Traverse, 2011). This is especially relevant for parliamentary leadership, which is often associated with leadership within a faction.

In the parliament, the governing functions are exercised by the speaker of the parliament (R. Stefanchuk) and his deputies (O. Kornienko and O. Kondratiuk). The Speaker of the Parliament, R. Stefanchuk, embodies a pure type of leader, in contrast to his predecessor, D. Razumkov, who had serious leadership ambitions and tried to use the speaker's position to shape his own political image.

The electoral system plays a crucial role in the formation of parliamentary leaders. The majority system allows candidates to demonstrate their leadership qualities, while the proportional system is more focused on programmatic theses than on personalities.

The leading role in Ukraine is played by personalized parties (Petro Poroshenko's Block, Oleh Liashko's Radical Party). In the last composition of the Rada, the names of the leaders do not appear in the parties' titles but everyone knows that the "European Solidarity" party is P. Poroshenko's party, and the "Batkivshchyna" party belongs to Y. Tymoshenko. The "Servant of the People" party does not need a strong leader since it positions itself as the party of the President – V. Zelenskyy. In the 2019 elections, the famous singer S. Vakarchuk was elected the leader of the "Holos" party in order to quickly get involved in the political process and overcome the electoral threshold. As a result, he resigned as a party chairman after the election.

Therefore, the very approach to the formation of political parties and, accordingly, political factions in the Ukrainian parliament is based on using political leadership. Consequently, party leaders tend to play a dominant role in the Verkhovna Rada, while leaders of parliamentary factions play a secondary role.

According to the viewpoint of V. Rhodes (Rhodes et al., 2009), such personalization in party leadership is a dangerous factor since it turns parties into a political tool in the leader's hands. Factions in the parliament are also controlled by leaders. The fact that parties serve as oligarchs' political instruments rather than as true supporters of the interests of society is a major issue with the Ukrainian party system. They come to power not because of their value-based program documents but because of criticism of their predecessors.

Political rivalry and the battle for leadership inside the party are factors in the formation of a party leader. At the same time, the struggle for power is rare in the Ukrainian party segment since parties become the personification of individual politicians (P. Poroshenko and Yu. Tymoshenko). There is no competitive struggle in these parties because it is the leader who ensures the party's existence and its entry into parliament.

The situation was slightly different in the "Holos" party after S. Vakarchuk's resignation, where there was an attempt to fight for power. However, K. Rudyk, who had come to politics from the IT sector, did not allow her competitors to participate in the elections and became the leader of the party. The analysis of Ukrainian parliamentary leaders by the classification of M. Weber shows the absence of charismatic leaders and the dominance of the rational-legal type of leadership (Weber, 1998).

According to Ye. Vyatr's typology (Vyatr, 1977), most Ukrainian party leaders are representative leaders who only express the will of those behind them, and do not formulate it as charismatic leaders. P. Poroshenko, who is the de facto owner of

the party, may be an exception to this rule. However, he can hardly be considered a leader who shapes and offers new ideas. According to H. Laswell's typology, Ukrainian parliamentary leaders are mostly "administrators": they do not create new ideas, but only implement a ready-made pattern. They try to manipulate a particular group (parliamentary faction) in order to achieve their goals (Laswell, 1977).

Following M. Herman's typology, the parliamentary leaders of Ukraine most closely correspond to the type of a salesman leader whose behavior is adjusted depending on the situation in the course of political activity (Herman, 1986). This typology coincides with the theory of J. Schumpeter, who compares leadership in politics to a market economy, where politicians sell their product (program) in the election process to win the sympathy of voters and get into parliament (Schumpeter, 1976).

The modern Ukrainian parliament, according to the viewpoint of R. Tucker, is dominated by reformist leaders who support change and gradual improvement of the political system (Tucker, 1995). However, the leader of the "Servant of the People" party, O. Shuliak, occasionally demonstrates revolutionary ideas, believing that the parliament should make decisions faster. "The mono-majority has shown the pace at which it will work. It's possible that you recall them stating that the mono-majority began by becoming printers. No other cadence has ever shown such intensity. But it seemed to me that it could have been even faster", she said in an interview (Elections during the war – an unrealistic story, 2023).

An analysis of the behavior of Ukrainian parliamentary leaders demonstrates the dominance of authoritarian traits. Even new party leaders who have recently entered politics do not demonstrate a desire to apply horizontal techniques of cooperation with subordinates, using the old vertical model of subordination.

For instance, deputies from the new political force "Holos" accused the party leader K. Rudyk of usurping power. The nature of the conflict is that at the party congress, the chairman of the party received the right to form the party secretariat, nominate candidates to the political council and manage party finances under the pretext of the need for quick decision-making in the fall of 2020 (on the eve of the local elections). These changes were supposed to be in effect only until the elections, but they remained after them (Goshovska et al., 2019).

In March 2021, half of the faction (10 deputies) demanded the re-election of the party leadership and the parliamentary faction (Y. Zhelezniak), accusing them of conducting backroom negotiations to form a coalition with the "Servant of the People" party. The party crisis led to a change in the faction's leadership: at the end of 2021, O. Ustinova was elected the head of the faction.

European parliamentary practices require the active involvement of women in parliamentary leadership processes. There are four parties currently represented in the parliament, three of which have women leaders: O. Shuliak ("Servant of the People"), Yu. Tymoshenko ("Batkivshchyna") and K. Rudyk ("Holos"); parliamentary factions in two parties are headed by women: Yu. Tymoshenko ("Batkivshchyna") and O. Ustinova ("Holos"). The "EU" party is headed by I. Herashchenko as a co-chair of the faction. "Servant of the People" is the only party with no women in its faction leadership.

D. Thompson (Thompson, 2003) offers a typology of leadership qualities: 1) forming a political coalition and negotiating skills; 2) defining a program of action and policy making; 3) the ability to inspire enthusiasm and optimism (leading); 4) shaping and supporting your own image; 5) selecting and training effective management personnel; 6) collecting and using information; 7) timely addressing pressing issues of society. This typology is suitable for analyzing different types of political leaders, including parliamentary ones (Table 1).



Table 1. Leadership qualities of parliamentary leaders (according to D. Thomson's typology)

Qualities	Leaders			
	O. Shuliak	Yu. Tymoshenko	P. Poroshenko	K. Rudyk
Creation of a political coalition and ability to negotiate	–	+	+	–
Determining the program of actions and policy making	–	+	+	+/-
Ability to inspire enthusiasm and optimism	–	+	+	–
Shaping and supporting your own image	+	+	+	+
Selection and training of management personnel	–	+	+	+
Collecting and using information	–	+	+	+
Timely addressing pressing issues of society	+	+	+	–

According to the results, the representatives of the old guard of Ukrainian politics – P. Poroshenko and Yu. Tymoshenko – meet the main criteria among the party leaders. The new leaders, O. Shuliak and K. Rudyk, do not correspond to their leadership status.

It should be noted that it is quite difficult for O. Shuliak to become a real party leader because of the party's constant association with the President V. Zelensky. Therefore, the head of the party, as well as the head of the parliamentary faction (D. Arakhamia), must fulfill the tasks set by the Presidential Office. However, in some cases, O. Shuliak tried to use her status as a party leader to lobby for the adoption of a controversial draft law (No. 5655) that significantly expands the rights of construction companies. During the parliamentary campaign, O. Shuliak actively lobbied for the interests of construction companies since she came to politics from this business.

After being elected the head of the party at the end of 2021, O. Shuliak focused exclusively on the process of reforming it for the upcoming elections, rather than on establishing a political vision since she believes that her main goals are to implement the President's ideas and explain his standpoint to the public.

K. Rudyk has a successful experience of implementing her own strategy in the 2020 local elections, which allowed the "Holos" party to obtain more than 300 mandates in local councils and create local factions in Kyiv, Lviv and other cities. However, the party leader has no strategic vision for the country's development. In addition, her image suffered as a result of the faction's political confrontation in 2021.

Thus, the Ukrainian parliament, as well as Ukrainian politics in general, has problems with the circulation of elites and the formation of new leaders who would meet the requirements of the times. The Ukrainian political system requires political leadership based on national and state priorities, which will create the preconditions for effective state administration. The new leaders should be politically responsible for their decisions and willing to sacrifice their own political careers in case of violation of their commitments.

## 5 Discussion

The conducted analysis demonstrates the existence of a significant number of problems in the Ukrainian parliament as an institution of representative democracy that should be addressed. To begin with, Ukrainian politics keeps pace with global trends in the context of forming a certain imbalance of power due to the growing influence of executive institutions. This poses challenges to the democratic political system, which is based on the principle of separation of powers. At the same time, there is a certain "personification" of power in the face of the president, which creates a danger of growing authoritarian tendencies.

For instance, a significant number of draft laws in Ukraine come to the Verkhovna Rada from the Office of the President, and the ruling party ("Servant of the People"), with its majority, adopts them almost without discussion. That is, the parliament turns into a "printer" that "prints" laws. This neutralizes its importance as a political institution.

Secondly, the level of trust in Ukraine's parliament before the full-scale invasion was catastrophically low – less than 10%. This figure ranges from 30-40% in democratic countries (Trust in public institutions, 2023). In 2022, trust in the Verkhovna Rada increased to 58%; however, it decreased almost 3 times to 21% in 2023 (Dynamics of Perception of the Course of Affairs in Ukraine and Trust in Individual Institutions, May 2022 - October 2023). Though it is unlikely to be resolved before the upcoming parliamentary elections, this issue should be addressed.

The third problem relates directly to parliamentary leaders, who in Ukraine are represented by the heads of parties and factions. The issue of self-identification of the political party "Servant of the People" is quite serious since its leaders (initially – O. Kornienko, currently – O. Shuliak) constantly emphasize the main objective of their work – the implementation of the President's program. However, the function of an executor is more typical for managers than for party leaders (Goshovska et al., 2021).

The issue of the effectiveness of parliamentary leaders will also remain a debatable topic. Efficiency can be measured by counting the number of bills that are approved, but there are other factors to consider, such as how these laws influence constructive social improvements. Thus, the primary objective continues to be the establishment of a new political elite that satisfies efficiency standards.

## 6 Conclusions

Overcoming the low level of public trust in the parliament remains one of the major issues. Experts believe that it will be difficult to accomplish this because of the general negative attitude of Ukrainians toward the government. This is conditioned by being under the control of outsiders for a long time, and power is a priori perceived as something negative. Consequently, despite V. Zelenskyy's strong support in the presidential election and the "Servant of the People" party's majority in parliament, the degree of public confidence in the Verkhovna Rada has not been significantly increased. The indicators returned to the previous level over the year.

The solution to this problem requires significant changes in the parliament's activities, expanding communication with the public, involving interested parties in discussing controversial draft laws and support for their proposals by the members of parliament. Increasing the number of communication formats available to the parliament should be a major priority for both the parliamentary leadership and parliamentary leaders.

The proportional electoral system promotes the dominance of the party leadership in the Ukrainian parliament: leaders of parliamentary parties become key figures in the Verkhovna

Rada. Leaders of parliamentary factions, as a rule, play a secondary role, performing more technical (managerial) functions. Yulia Tymoshenko combines both functions – the head of the party and the faction, not willing to share power.

Party leadership has significant advantages in parliamentary activities. The party leaders who have been in politics for a long time are well aware of the rules of the game. They offer a vision of the country's development that meets the public demand; they are good speakers and possess powerful communication skills, which allows them to convey political ideas to the public. They use the party apparatus in their parliamentary work and constantly improve their own image, taking into account current trends. Such leaders in the parliament are P. Poroshenko and Yu. Tymoshenko.

The new parliamentary leaders, O. Shuliak and K. Rudyk, have not met most of the criteria for political leadership yet, which requires them to further develop their personal skills.

The issue of gender, that is, maintaining a balance of women's and men's participation in political institutions and processes is an important component of political leadership in a democratic world. The Ukrainian parliament sets a positive example in this regard: almost 70% of parliamentary leaders are women, which violates the principle of gender balance in the opposite direction.

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#### Primary Paper Section: A

#### Secondary Paper Section: AD

## TRAINING TEACHERS TO WORK IN THE CONDITIONS OF DIGITAL TRANSFORMATION OF EDUCATION

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**Abstract:** In the modern educational paradigm, determined by the rapid development of digital transformation, training teachers to work in new conditions has reached a strategically important stage. The academic paper analyzes the process of preparing teachers for the effective use of digital technologies in the educational environment. Particular attention is paid to the key stages of training and assessment of the results of the experiment. The authors present empirical data in the form of tables that reveal the level of teachers' competence of the experimental and control groups at different stages of training. Analysis of these data shows that the program was successful in training of teachers for the new challenges of the digital age. The academic paper is intended for researchers and practitioners in the field of education seeking to understand and optimize the process of teachers' training. The research results provide a basis for developing more effective curricula and strategies aimed at successfully adapting teachers to the dynamics of digital transformation in modern education. The academic paper highlights not only the technical aspects of teaching digital technologies to teachers but also the importance of the pedagogical approach and adaptation of teachers to the new requirements of the educational environment. The training programs were evaluated using statistical methods, such as the calculation of chi-square values, which allow determining the statistical significance of differences between the experimental and control groups.

**Keywords:** Digital transformation, Training teachers, Digital technologies in education, Teacher's competence, Professional development, Educational innovations, Learning efficiency, Modern pedagogy, Pedagogical strategies.

### 1 Introduction

Education has become one of the key segments subject to global changes in the modern world, following the rapid development of technology. Digital transformation is penetrating every aspect of our lives, including education. Teachers who are faced with the task of teaching the knowledge and skills of a new generation are forced to adapt to changing conditions and introduce digital technologies into the learning process. Training teachers to work in the conditions of modern digital transformation is becoming a crucial success factor in ensuring high quality education. Teachers are required not only to master traditional teaching methods but also to actively learn innovative approaches and effectively use digital tools in the learning process. The role of the teacher in the era of digital change is becoming a key component of the educational process. More and more educational institutions are faced with the need to integrate modern technologies into the educational process in order to effectively meet the challenges of modern society. Successful overcoming of this challenge requires competent training and support of educators. Teachers equipped with the relevant knowledge and skills are able not only to use modern educational tools effectively but also to inspire students to think critically, be creative and learn independently.

### 2 Research purpose and objectives

The research purpose is to analyze the stages and programs of training teachers to work in the conditions of digital transformation of education in order to identify key components and successful strategies.

The Research Objectives:

1. To identify the main parameters that influence the success of teachers' training, including technical skills, pedagogical strategies and psychological well-being.

2. To review the main stages of teachers' training for digital transformation, identifying their key features.
3. To determine the levels of teachers' training to work in the conditions of digital transformation of education.
4. To compare and statistically verify the results of the training of teachers who have completed the program with the results of the control group, identifying differences in the levels of competence.

### 3 Literature Review

The scientific article by Oleksenko S. and Khomenko O. (2023) describes the implementation of the need for professional development of teachers of social studies in the context of the crisis. The study by Petrenko L. (2023) examines the conceptual principles of training future teachers in a higher pedagogical educational institution in the conditions of digital transformation of society. The publication of Anishchenko O. (2018) is devoted to the models of centers of adult education in Ukraine. Dotsenko N. et al. (2021) consider the organizational and pedagogical conditions for teaching higher education seekers using competency-based learning tools. Kyrychenko M., Otich O. and Oliinyk V. (2018) examine the challenges and prospects for developing postgraduate education in the information society. Safronova S. (2023) studies the development of a teacher's professional competence in a new Ukrainian school. Sobchenko T. M. devotes her research to the problems of blended learning, highlighting its concepts and tasks. Solohub O. S. and Humeniuk V. V. (2022) consider the preparation of andragogues for the organization of the educational process using distance learning technologies. The scientific article by Stechkevych O and Bukach A (2023) is devoted to the methodological aspects of forming the teacher's digital competence in non-formal education. The publication of Batsurovska I. (2021) is devoted to MOOCs in the system of e-learning for masters.

Hryhorova M. O. and Hryhorov G. O. (2023) explore online education and hybrid learning models in the conditions of adaptation of traditional pedagogical approaches in the era of digital transformation. The study by Hrynevych L. M., Morse N. V., Boiko M. A. (2020) is devoted to teaching scientific pedagogy as a basis for the formation of innovative competence in the context of digital transformation of society. Dushchenko O. (2021) considers the current state of digital transformation of education. Zhupanik O. (2023) explores the essence and structure of professional training of future teachers for teaching foreign languages in the context of digitalization of the educational process. Kucherak I. (2020) considers digitalization and its impact on the educational space in the context of the formation of key competencies.

The scientific work by Korsun S. (2022) is devoted to the issues of global civil society in the context of digital transformation. Magilias Y. (2022) also emphasizes the leading aspects of the digital transformation of society. The research of Ovcharuk O. (2023) is devoted to monitoring teachers' readiness to use digital tools in the conditions of war in Ukraine. Orshanskyi L., Nishchak I. and Yasenyskyi V. (2024) consider the challenges and benefits of digital transformation of the vocational education system. Stiika O. Ya. (2023) examines the formation of information and digital competence of future teachers in the conditions of distance learning and explores the features of digital transformation of teachers' professional training in Ukraine.

The scientific article by Tsiuniak O. P. and Sultanova L. Yu. (2021) is devoted to the issues of understanding the problem of professional training of future primary school teachers in the conditions of digital transformation of education. Chemerys R., Briantseva R., and Briantsev O. (2022) explore ways to improve design education in the context of the strategy of digital

transformation of education and science in Ukraine. The study by Moshennyk T. (2023) highlights modern educational paradigms in the professional development of a teacher. The studies of Yasinska O. (2022) consider the challenges and prospects of electronic document management in the context of digital transformation. The publication of Shulzhyk Y. O., Hrytsko R. Y. and Pekanets S. R. (2022) is devoted to the leading aspects of change management in the conditions of digitalization.

At the same time, the issue of training teachers to work in the conditions of digital transformation of education remains insufficiently studied.

#### 4 Methods Applied

The analysis of literature sources provides an assessment of current scientific studies in the context of training teachers to work in the conditions of digital transformation of education. The application of statistical methods in the research was used to assess the degree of statistical significance of differences between the groups. The  $\chi^2$  value is calculated to determine whether there are statistically significant differences in competence levels between the experimental and control groups. Structured interviews and questionnaires were conducted with participants of the teacher training program to better understand their perceptions of the program's effectiveness, identify successful strategies, and pinpoint possible areas for improvement. A qualitative analysis of the data was conducted to identify common themes and patterns, as well as to reveal non-obvious factors that influence the results of the training program.

These methods provide a comprehensive and in-depth analysis of the effectiveness of teachers' training in the conditions of digital transformation, as well as the identification of key factors influencing the success of this process.

#### 5 Results

Digital transformation covers all areas of our lives and education is no exception. Modern technologies are transforming traditional teaching methods, requiring teachers to adapt to new conditions. The preparation of teachers to work in the digital environment is becoming a crucial factor in successful education in the modern world. There are several important aspects of this issue.

1. *Strategies for integrating technology into the educational process.* Teachers' training should include mastering modern educational technologies and the development of strategies for their successful integration into the educational

process. This involves the use of interactive whiteboards, online platforms, educational applications, and other tools that facilitate more effective learning.

2. *Development of digital literacy skills.* Teachers should be digitally literate to effectively use modern technologies in the educational environment. This includes the ability to work with various programs, understand the basics of digital security, and the ability to critically evaluate information from the Internet.
3. *Learning online pedagogy.* The development of online education necessitates training teachers to use the methods of online pedagogy. This includes the ability to create interesting and engaging online lessons, effectively manage groups of students in a virtual environment, and use various online resources.
4. *Support for psychological well-being.* Digital transformation can cause stress and anxiety for teachers, especially for those who have no experience in working with technology. Therefore, an important aspect of teachers' training is teaching methods of coping with stress and supporting psychological well-being.
5. *Collaboration and exchange of experience.* It is useful for teachers to share experiences and best practices in using digital technologies. Training should stimulate collaboration between teachers, creating conditions for the exchange of ideas and the development of joint projects.
6. *Permanent updating of knowledge.* The digital environment is changing all the time and it is important for teachers to be prepared to constantly update their knowledge. Advanced training courses, seminars and webinars on using new technologies should become an integral part of professional development.

In general, training teachers to work in the conditions of digital transformation of education requires a comprehensive approach. Modern teachers should be ready to use technologies, developed in the field of digital literacy; they should be able to teach effectively online and maintain their psychological stability in a rapidly changing educational context. In this way, they will be able to provide quality education to the new generation, prepared for the challenges of the modern world.

Training of teachers to work in the conditions of digital transformation of education was carried out in four stages (Table 1).

Table 1. Stages of training teachers to work in the conditions of digital transformation of education

Stages	Features
1. Getting an overview	At this stage, teachers get an overview of the main technologies and tools used in the digital learning environment. They learn the principles of interactive whiteboards, online platforms, and other modern educational tools. This stage is aimed at forming a basic understanding of digital technologies.
2. Development of skills	At this stage, teachers actively develop their digital literacy skills. They learn how to effectively use various programs, applications and resources, and understand the principles of digital security. This stage focuses on deepening knowledge and skills for successful work in the digital environment.
3. Mastering online pedagogy	At the stage of mastering online pedagogy, teachers learn how to create interesting and engaging online lessons. They master the skills of effective management of virtual groups of students and optimal use of online resources in the educational process. This stage focuses on the use of digital tools in pedagogical activities.
4. Support for well-being	At the last stage, teachers receive training on how to support their psychological well-being in the context of digital transformation. This includes strategies for coping with stress, developing emotional resilience, and creating conditions for psychological support for colleagues. This stage is aimed at providing teachers with resources to work effectively in the new environment.

Based on these stages, teachers were trained to work in the conditions of digital transformation of education. We have identified three levels of teachers' training to work in the conditions of digital transformation of education.

1. *Primary level of training.* At the primary level, teachers are introduced to the basics of digital technologies and their potential in the educational process. The training includes familiarization with basic tools such as interactive whiteboards and basic programs. At this level, teachers acquire basic computer skills and an understanding of the use of technology in teaching.
2. *Intermediate level of training.* At the intermediate level, teachers expand their knowledge and skills in the field of digital learning environments. They learn in depth about the possibilities of online platforms, various educational programs, and methods of using interactive technologies to enhance the learning process. At this stage, teachers can undergo specialized courses aimed at developing online lessons, efficient use of online resources, and development of individualized educational materials.
3. *Advanced level of training.* At the advanced level, teachers become experts in the field of digital transformation of education. They possess profound knowledge not only of technology but also of methods and strategies for its effective use in a variety of educational scenarios. At this level, teachers can implement innovative approaches, train colleagues, and actively participate in the development of educational programs adapted to the digital environment. They are able to integrate modern technologies to create

individualized educational pathways and ensure a high level of student engagement.

On the basis of the levels outlined, the research was conducted among teachers who were undergoing in-service training at postgraduate pedagogical educational institutions in Ukraine. The experiment involved 211 secondary school teachers. There were 105 teachers in the experimental group and 106 colleagues in the control group. The experimental group had to work with operating systems, office programs, and basic Internet functions. Teachers gained insight into how to integrate technologies into the learning process to increase learning efficiency. At the intermediate level, teachers are taught more complex and advanced aspects, namely, how to effectively use various educational resources online to improve the learning process. The training includes methods for creating engaging and interactive online lessons using a variety of multimedia tools. Teachers are trained to ensure the safety of their students in the digital environment. At the advanced level, teachers are prepared for more complex tasks. Teachers deeply study advanced technologies such as artificial intelligence, virtual reality, etc. and their application in education. The training includes the skills of transferring knowledge and experience to other teachers, conducting workshops. Teachers can be involved in developing research projects on integrating technologies into education and adapting educational programs to new requirements.

The results of the experiment were verified using Pearson's  $\chi^2$  statistical criterion before and after the experiment on training teachers to work in the conditions of digital transformation of education, and they are presented in Table 2.

Table 2. The results of training teachers to work in the conditions of digital transformation of education after the experiment: calculation of the empirical value of  $\chi^2$  based on the results of the input control

Level	Number of percent (EG), %	Empirical frequency $n_i$ (EG)	Number of percent (CG), %	Empirical frequency $n_{i1}$ (CG)	$(n_i - n_{i1})^2$	$(n_i - n_{i1})^2 / n_{i1}$
Primary level	11,43	12	27,36	24	144	6,00
Intermediate level	65,71	69	68,87	73	16	0,22
Advanced level	22,86	24	3,77	9	225	25,00
Total amount	100	105	100	106		31,22

Empirical value  $\chi^2=31,22$ . Critical value for the degree of freedom  $v=2$ . Let us determine the critical value for a given degree of freedom for levels of statistical significance  $\chi_{kp}^2$   $\rho \leq 0,05$  and  $\rho \leq 0,01$ .

$$\chi_{kp}^2 = \begin{cases} 5,991; (\rho \leq 0,05) \\ 9,210; (\rho \leq 0,01) \end{cases}$$

$\chi_{ev}^2 \geq \chi_{cv}^2$ , which means that there are significant deviations between the distributions; this means that they belong to the zone of significance. It is obvious that training teachers to work in the conditions of digital transformation of education, which was carried out in the context of the experimental group, is promising.

A statistical and comparative diagram of the results of training teachers to work in the conditions of digital transformation of education at the end of the experiment is presented in Figure 1.

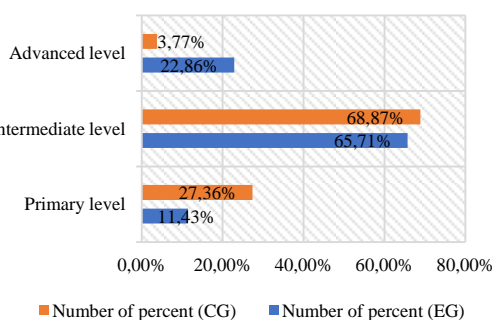


Figure 1. Statistical and comparative diagram of the results of training teachers to work in the conditions of digital transformation of education at the end of the experiment

The diagram shows the results of the research on the effectiveness of the program of teachers' training by different levels of competence in the experimental and control groups. The values in the table are expressed as percentages and show the distribution of teachers according to their level of training.

At the primary level, the training program in the experimental group is characterized by a low percentage of teachers who are at the primary level of training compared to the control group. The difference between the indicators exceeds 15%. At the intermediate level, there is a similar distribution of teachers in both groups. The difference in indicators does not exceed 5%. The training program allowed the majority of teachers to reach

an intermediate level of competence, and the results of the experimental and control groups are almost identical. At the advanced level, the training program proved to be particularly effective in the experimental group, where significantly more teachers reached a high level of competence compared to the control group. The indicators of the experimental group exceed almost 20% in comparison with the control group.

## 6 Discussion

The digital transformation of education is undoubtedly bringing significant changes to the teaching profession, requiring new skills and approaches to teaching. At the first stage of the discussion, it is worth noting that the low percentage of teachers at the primary level in the experimental group may indicate the need for more effective methods of introducing teachers to the world of digital technologies. Those who are just starting their learning curve might require a more customized approach or extra resources. It is also important to note the high percentage of teachers at the advanced level in the experimental group. This may indicate the success of the program to support teachers in developing advanced digital skills. Nevertheless, it should also be borne in mind that the low percentage of teachers at the advanced level in the control group emphasizes the importance of lifelong learning and updating programs in the face of rapid technological development.

## 7 Conclusions

The results of our research demonstrate the importance and relevance of teachers' training programs in the conditions of digital transformation of education. Digital transformation requires teachers to possess both technical skills and a deep understanding of innovative teaching methods. Training programs play a crucial role in meeting this requirement. The results of the analysis show that teachers have different levels of digital competence at different stages of the program. This emphasizes the need for individualized and adaptive approaches to learning. The differences between the experimental and control groups indicate the significance of the chosen training program.

In the context of the prospects for further studies, it is possible to identify the need for additional research with a focus on the analysis of complementary factors, such as teachers' individual characteristics, quality of support for educational institutions, etc. for a more complete understanding of the diversity of results; studying the long-term effects of the training program on the professional career of teachers, including their adaptation to the constantly changing educational environment; studying the impact of preparation for digital transformation on the psychological well-being of teachers and their stress resistance in the face of constant change. These research directions provide an opportunity to deepen our understanding of the process of training teachers for the digital transformation of education and develop recommendations for further improvements in this area.

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**Primary Paper Section: A**

**Secondary Paper Section: AM, IN**



## **D EARTH SCIENCES**

DA	HYDROLOGY AND LIMNOLOGY
DB	GEOLOGY AND MINERALOGY
DC	SEISMOLOGY, VOLCANOLOGY AND EARTH STRUCTURE
DD	GEOCHEMISTRY
DE	EARTH MAGNETISM, GEODESY, GEOGRAPHY
DF	PEDOLOGY
DG	ATMOSPHERIC SCIENCES, METEOROLOGY
DH	MINING INDUSTRY INCLUDING COAL MINING AND PROCESSING
DI	POLLUTION AND AIR CONTROL
DJ	POLLUTION AND WATER CONTROL
DK	CONTAMINATION AND DECONTAMINATION OF SOIL INCLUDING PESTICIDES
DL	NUCLEAR WASTE, RADIOACTIVE POLLUTION AND CONTROL
DM	SOLID WASTE AND ITS CONTROL, RECYCLING
DN	ENVIRONMENTAL IMPACT ON HEALTH
DO	PROTECTION OF LANDSCAPE



## THE USE OF GIS FOR ECOLOGICAL AND LANDSCAPE LAND MANAGEMENT OF HUMAN SETTLEMENTS

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**Abstract:** The issue of forming an analytical and informational base for management decisions in the field of land affairs is particularly relevant given the global trend of systemic social transformations. It requires active implementation of the latest information technologies. The study aims to comprehensively analyze the aspects of using geographic information systems (GIS) for ecological and landscape land management of human settlements. The research was carried out using general scientific methods of cognition: logical and structural analysis, induction and deduction, comparison, abstraction, specification, generalization, and formalization. The article investigates the basics of GIS and variations of their implementation in the field of land management. It highlights the main provisions and algorithmic structure of the process. The authors described the typical features of modern GIS technologies and their capabilities in the spheres of mapping, monitoring, and other aspects of land management. The main problems, challenges, and achievements of the GIS utilization process are considered. It has been determined that the effective utilization of GIS capabilities is a promising priority area for optimizing the land utilization system. The practical significance of the findings of this paper is manifested in the feasibility of using them in developing suitable programs to improve the efficiency of ecological and landscape land management of settlements. Also, the study's results can be used to form a universal effective model of GIS technologies application during the process of land utilization management.

**Keywords:** Purpose or intended use, Mapping, Sustainable development, Process automation, Spatial analysis, Modeling.

### 1 Introduction

The land relations system's prospective development significantly increases the requirements for information support of management decisions on the territorial organization of land use. This includes ecological and landscape land management of the human settlements. The rapid development of geographic information systems with various functionality marks the current stage of land use and land relations system development. Their significant advantage lies in integrating diverse sources and methods of information processing. This allows for effective assessment and forecasting of the situation, as well as for making appropriate management decisions. Such a concept helps optimize land management processes in the territories of human settlements, particularly in the ecological and landscape aspects. It ensures the synergistic development of various spheres of life.

Numerous scientific publications by contemporary Ukrainian and foreign scholars are devoted to the study of this topic. Some scholars study the functionality of GIS in the land management system (Chen, 2022). Others address the concept of GIS technology. The concept includes the creation of multilayer electronic maps. The basic layer of these maps describes the geographical aspects of the territory. Each subsequent layer defines one of the vectors of the functional state of the territory (Tretiak et al., 2022). The problem of the practical utilization of GIS during ecological and landscape land management is thoroughly studied in the works of modern scientists (Liu et al., 2023). Currently, technologies created based on geographic information systems are used in urban planning design work. Usually, the urban cadaster contains informative registers and results of an analytical assessment of the settlements' territories (Vardopoulos et al., 2023).

Despite the significant scientific value of the research papers released, there are still some aspects left unresolved. The issue of forming an algorithm for the successful implementation of modern GIS capabilities in the ecological and landscape land management system remains understudied and requires further research.

The article aims to analyze the modern innovative capabilities of GIS in the sphere of ecological and landscape land management of the human settlements' territories.

### 2 Literature Review

The scientific and methodological basis for the study was set by researchers who focused on aspects of implementing geographic information technology tools in the ecological and landscape land management system, as well as the problems of digital transformation of land use and finding ways to solve them.

Scientific journals contain numerous publications on the topics studied in this paper. Some aspects of GIS mechanisms regarding the transformation of the land use system at the municipal level are considered in the studies of modern scientists (Degerli & Çetin, 2022; Liu et al., 2022). Among the most recent publications, we should highlight the studies by Gabriele M., Brumana R., and Previtali M. (2023), Kazemi F. and Hosseinpour N. (2022). The authors substantiate the principles of effective implementation of GIS tools in modern global digitalization processes. At the same time, some scientists like Yu J., Zeng P., Yu Y., Yu H., Huang L., and Zhou D. (2022) emphasize the need for proper preventive preparation of society for the dynamics of management processes in land management within settlements.

Xu L., Liu X., Tong D., Liu Z., Yin L., and Zheng W. (2022) identified the main conceptual principles of effective GIS implementation. In addition, some works by Abdel Rahman M. (2023) emphasize the need to pay special attention to the opportunities opening up in land management due to geographic information system technologies. At the same time, Battisti F., Campo O., and Manganelli B. (2022) draw attention to the complexity of implementing some aspects of GIS tools in the modern world.

Despite the significance of the scientific and practical achievements of scholars on the subject, it is necessary to note the need to develop scientific research toward the effective implementation of GIS technologies in the ecological and landscape land management system of human settlements.

### 3 Materials and Methods

While working on the research, we employed various general scientific methods of cognition. They include methods of analysis, synthesis, abstraction, induction and deduction, comparison, specification, and formalization.

The theoretical and methodological background of the study is based on numerous articles in specialized journals, conference proceedings, monographs, and the results of practical and analytical developments of contemporary scholars.

The study was carried out taking into account the principles of comprehensive research and a systematic approach. The complexity principle allowed us to analyze the research object as a system with a corresponding set of interconnections.

The methods of analysis and synthesis were applied to identify the factors and stages of development of the object under study and its key elements. The method of comparison was used to highlight the specific features of GIS application during land management of human settlements. The deductive method was employed while formulating proposals for optimizing management processes in ecological and landscape land management. The induction method was used to identify prognostic indicators of the development of the studied object.

The method of abstraction was applied to formulate theoretical generalizations, identify the main concepts and categories, and

draw conclusions. The general scientific method of formalization was used to identify priority vectors for optimizing the system of ecological and landscape land management of human settlements using GIS technologies. This method was also employed to structure the principles, priorities, and functions of GIS.

The method of concretization was applied to prove the feasibility of using GIS tools during land use reforms. It was also used to identify priority solutions for optimizing the system of ecological and landscape land management of human settlements.

#### 4 Results

Geographic information systems are currently positioned as the most effective tool for understanding and describing the dynamic geographic environment. These systems are widely used to solve many problematic aspects related to the use of spatially distributed information arrays to ensure environmental safety and sustainable development of territories. At the same time, GIS can be effectively used to analyze environmental and landscape monitoring data, create digital maps, and analyze the dynamics of the situation in regional land use and its prognostic study (Battisti et al., 2022). In developed countries, the use of GIS has become widespread and popular.

GIS is a complex, multi-component system characterized by the use of specific methods of spatial data analysis. In synergy with measures to generate, accumulate, process, and present spatially coordinated information, such a system forms the basic principles of geographic information systems technology.

Another result of such integration was the emergence of geographic information mapping. It is an automated information and cartographic modeling of natural and socio-economic geosystems based on GIS and relevant databases. At the same time, GIS-based maps can be both analytical and predictive or reflect the targeted zoning of the territory (Abdel Rahman, 2023). GIS technologies are also used for operational mapping in real-time. This allows for an adequate level of information and the ability to influence the process. Such functional maps are mainly created to inventory objects, respond quickly to adverse processes, monitor their dynamics, and provide forecasting analytics.

Currently, electronic cadasters are being created using GIS tools as an alternative to the State Land Cadaster. They simplify the functioning of land relations and regulate the state of land in populated areas. The introduction of such cadasters will allow for the optimization of the management of investment projects and environmental and landscape land management. The creation of a unified system of state cadasters is considered a priority. It is necessary to provide an adequate information base for the implementation of socio-economic processes in settlements, environmental monitoring, and preventive prevention of irrational use of resources (Mathenge et al., 2022).

As a result, the use of GIS is associated with the actualization of spatial and analytical operations in the ecological and landscape land management of settlements, in particular, buffering (Čustović et al., 2021). The buffer zones are sanitary protection zones, security zones, and zones of identified restrictions. Modern GIS tools allow the formation of buffer zones automatically.

Implementation of GIS for ecological and landscape land management of the settlements' territories is effectively manifested in cartometric functions that include measures for measurement operations (Li, 2022). Other popular aspects of GIS application in the land management process include network analysis. This analysis is carried out to determine the optimal network route or zones of influence on network objects by other objects, as well as 3D analysis and modeling of spatial tasks.

Such a model is a mathematical or visual way of describing objects, processes, or phenomena that are impossible or

impractical to observe directly. The creation of a spatial model is a process of analyzing the characteristics of various factors for each location, which is used to solve spatial issues (Papaskiri et al., 2021). The organization of sustainable land utilization of the settlements' territories involves the development of such models of landscape land management that could ensure the synergy of economic potential development together with the level of environmental safety. In this case, the top priority should be a balance between the use and reproduction of land resources and strict control over the observance of such a balance.

It is necessary to emphasize another comparatively new function of GIS in the system of ecological and landscape land management of settlements. In particular, such a function is a decision support function in administration, planning, and design activities.

The results of the effective use of GIS in such functionality include:

- optimal decisions on urban planning projects;
- proper geographic information support for emergencies;
- application of artificial intelligence technologies;
- leveling the human factor in risky situational choices.

The GIS makes it possible and affordable to create a flexible and adaptive decision-making coordination function. Through the processing of informative databases, such a supporting system allows for static, dynamic, and predictive analysis of the situation (Liu & Cheng, 2020).

Furthermore, it is advisable to implement a system of monitoring environmental parameters through GIS. It allows timely identification of problem areas and recording of environmental violations in the use of land resources. Also, modeling tools can be used to determine the necessary algorithm of measures to offset the effects of destructive processes.

Thus, it can be argued that the use of geographic information technologies in developing and implementing ecological and landscape land management programs for human settlements provides an opportunity to effectively assess parameters in real-time while simultaneously allowing for predictive analytics. The advantage of using GIS in this case is the ability to integrate statistical methods, geoinformation and digital modeling, and business graphics methods. Together, they allow identifying a specific type of information as the basis for a management decision.

The integration and unification of diverse spatial information on ecological and landscape land management of human settlements into the spatial data infrastructure is implemented using GIS through generalization procedures, conceptual communication, and extrapolation of data processing results. The information processed in this way forms models of objects in the form of thematic maps, digital dynamics models, vector images, and 3D models. This considerably simplifies and optimizes the land management process (Chen, 2022).

At the same time, geoinformation data is characterized by the time factor. It allows for analyzing the specifics of the ecological and landscape aspects of land use at a particular point in time, identifying trends in future dynamics, and assessing changes in territorial characteristics over certain periods.

Therefore, it is advisable to form geoinformation support bodies for municipalities to optimize the ecological and landscape land management of the populated areas. This will minimize the cost of GIS implementation and significantly increase the level of efficiency of using spatial data arrays. Furthermore, the municipal GIS should integrate vector and raster data, information from online mapping services, and attribute information, reflecting logical and functional system interaction between separate components.

## 5 Discussion

The issue of using geographic information systems for ecological and landscape land management of populated areas is studied by many scientists in the modern scientific school. Scholars of current scientific directions (Choi, 2020) argue that through mapping, GIS allows the following activities:

- to form detailed spatial analytics of territories;
- to assess the properties of environmental objects;
- to reflect the real situation of territories.

Some scientific papers consider the need to update the information support of GIS technologies for the optimal implementation of local management processes (Sisman & Aydinoglu, 2020). Modern scientists' research shows the effectiveness of the use of GIS tools to optimize management processes (Kumar, & Khan, 2021).

According to research by Jia J. (2021), the rejection of outdated technologies and action algorithms in favor of GIS, as well as the use of innovative technologies, are priorities at the present stage of the transformation of ecological and landscape land management of human settlements.

The studies by Nowak M., Dziób K., Ludwisiak L., and Chmiel J. (2020) emphasize the need to optimize the efficiency of managing the potential of settlements and also substantiate the need to create a unified state strategic concept for ecological and landscape land management of settlements. According to some scholars (Paul et al., 2020), such a concept should level socio-economic disproportions of settlements by regulating their natural resource potential, considering geographical features. Modern studies highlight the need to identify optimal approaches to land use management based on the ecological and landscape approach (Nuriddinov et al., 2022). Wang (2023) focuses on the need for synergy between territorial and land management.

In addition, scientists are considering the possibility of using GIS as an effective management tool that can provide systematic monitoring of the ecological and landscape conditions of populated areas to identify and assess the dynamics, prevent destructive processes, and eliminate the consequences (Opara et al., 2020).

Based on research findings, it can be argued that there is currently a need for coherence between the adoption of measures to manage the ecological and landscape development of territories and the functional use of land resources. They are both components of the natural ecosystem, means of production, territorial structural unit, and real estate object.

Based on the results obtained in this research and the conclusions of the authors in the aforementioned studies, it is possible to insist on the expediency of using geographic information systems in the management of ecological and landscape land management. The main task of such management is to create appropriate conditions for dynamic and balanced territorial development, rational use of natural resources, and preventive environmental protection. Under current conditions, geographic information systems can serve as the basis for effective territorial management in human settlements. The methodological basis for data formalization in GIS usually includes digital terrain modeling. It integrates the processes of accumulating primary information, its modeling, processing, and document generation. Thus, it can be argued that GIS tools should be effectively used when it is necessary to take into account, process, and display geographically dispersed information.

Based on the results of this study and the conclusions of the authors mentioned above, we can predict the growing role of digital optimization tools in the successful implementation of public administration policy transformation. This approach will significantly increase the productivity of management decisions,

introduce innovative management capabilities, and ensure compliance with the requirements of sustainable development.

## 6 Conclusion

In this paper, we managed to analyze the aspects of GIS technologies implementation in the system of ecological and landscape land management of human settlements. During the study, it was found that the effective use of geographic information systems is a basic prerequisite for intensifying the efficiency of land use management. The main functions of GIS during the implementation of territorial management of land resources have been highlighted.

The article succeeded in summarizing the main issues of using modern geographic information technologies and outlining ways to solve them. It has been established that one of the main features of GIS technologies is the vast possibilities for processing geodetic data arrays.

Based on the results obtained in this study, we have proposed priority vectors for further research on the topic. Also, we argued the need to organize the availability and systematization of practical information on the possibilities of using GIS in municipal management processes.

A practical approach to the introduction of geographic information technologies into the system of ecological and landscape land management of the settlements' territories involves a set of modern methods that can ensure an increase in the level of productivity of communication and integration processes. It should be based on the implementation of a development strategy formed on the principles of sustainable development as an integral part of the management paradigm.

The research has shown that the use of GIS technologies for addressing land management issues allows for initiating fundamental changes in the field of ensuring effective management decisions.

There is a need for further research into the possibilities of using GIS tools to develop and implement optimal programs for improving the efficiency of ecological and landscape land management of human settlements.

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**Primary Paper Section: D**

**Secondary Paper Section: DO, EH, BC**

## **F MEDICAL SCIENCES**

FA	CARDIOVASCULAR DISEASES INCLUDING CARDIO-SURGERY
FB	ENDOCRINOLOGY, DIABETOLOGY, METABOLISM, NUTRITION
FC	PNEUMOLOGY
FD	ONCOLOGY AND HAEMATOLOGY
FE	OTHER FIELDS OF INTERNAL MEDICINE
FF	ENT (IE. EAR, NOSE, THROAT), OPHTHALMOLOGY, DENTISTRY
FG	PAEDIATRICS
FH	NEUROLOGY, NEURO-SURGERY, NUERO-SCIENCES
FI	TRAUMATOLOGY AND ORTHOPAEDICS
FJ	SURGERY INCLUDING TRANSPLANTOLOGY
FK	GYNAECOLOGY AND OBSTETRICS
FL	PSYCHIATRY, SEXOLOGY
FM	HYGIENE
FN	EPIDEMIOLOGY, INFECTION DISEASES AND CLINICAL IMMUNOLOGY
FO	DERMATOLOGY AND VENEREOLOGY
FP	OTHER MEDICAL FIELDS
FQ	PUBLIC HEALTH SYSTEM, SOCIAL MEDICINE
FR	PHARMACOLOGY AND APOTHECARY CHEMISTRY
FS	MEDICAL FACILITIES, APPARATUS AND EQUIPMENT

## SOCIOCULTURAL FACTORS OF THE EMOTIONAL STATE OF CANCER SURVIVORS (ON THE EXAMPLE OF UKRAINE AND ISRAEL)

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**Abstract:** During the phase of remission, cancer patients commonly experience the psychological impact of fearing the return of traumatic events, namely the disease, hindering their ability to fully engage in life. The aim of the paper was to study the peculiarities of the psycho-emotional state, namely anxiety and the level of fear of cancer recurrence, in cancer survivors from Ukraine and Israel. The peculiarities of providing medical and psychological care for cancer patients in these countries were considered, and it was found that Israeli society had much more psychosocial support for patients. Additionally, the research examined how beliefs surrounding the myth causes of cancer and the option of alternative unofficial remedies influenced the information landscape of both countries. The paper described the obtained patterns and drew preliminary conclusions about the perception of their own illness by cancer survivors during a full-scale war in Ukraine. The Israeli respondents were in a relatively peaceful phase of the Arab-Israeli conflict at the time of this study. The results obtained in this research, which is preliminary, indicate that there are differences in self-perception of illness and outlook on the future between cancer survivors who have achieved remission in Ukraine and Israel. Research has revealed that Ukrainian survivors experience a greater degree of fear of cancer recurrence compared to cancer survivors from Israel.

**Keywords:** Myths about cancer, Cross-cultural research, Anxiety, Fear of cancer recurrence, Psychological well-being of immigrants.

### 1 Introduction

The problem of psychological well-being among cancer patients is recognized, although it remains relatively under-researched. Even less attention is paid to the needs of immigrant cancer survivors who face both the problem of adaptation in a new country and the need to overcome the medical and psychological consequences of the disease. The war is currently ongoing in Ukraine, and many cancer patients have been forced to take advantage of medical evacuation, effectively becoming forced immigrants. The country of Israel has been in a state of heightened military threat for many years, so it can be chosen for comparison, especially since it has a fairly large diaspora of immigrants from Ukraine. Also, uncertainty and anxiety can be added to cancer survivors by the presence of myths about cancer treatment in the media to varying degrees. Usually, in different countries and cultural environments, the tendency to accept these myths on faith varies from reasonable critical thinking to complete acceptance of any, even rather strange, mythical ideas. This problem is known all over the world, so the impact of attitudes towards the disease and psycho-emotional state on treatment adherence is important for Ukrainian cancer patients who do not change their mentality as quickly as the host country when they are forced to immigrate.

Even when cancer patients successfully overcome the disease, they still have unresolved psychological problems. One of the main psychological problems at the stage of cancer remission is the fear of cancer recurrence (hereinafter referred to as FCR), which can take on dysfunctional forms and worsen the quality of life. Some scientific studies have previously shown that the perception of the disease and its coping are to some extent influenced by personality traits, as well as the social and cultural context. This article explored the psychological differences in fear of cancer recurrence between three groups of older cancer survivors: residents of Ukraine, residents of Israel, and immigrants from Ukraine to Israel.

### 2 Analysis of previous studies

As advances in medical treatments extend the lives of cancer patients from an incurable disease to a chronic one, the challenges of psychological support of treating the disease become more important. The importance of discovering solutions to psychological support individuals in dealing with chronic, life-threatening illnesses, handling the adverse effects of intense treatment, and navigating the personal, social, and professional impacts of disability caused by the disease is

steadily growing. The increasing fascination with the relationship between the mind and body in mainstream literature has led to a surge in demand for supplementary and alternative therapies and concepts, both beneficial and detrimental (Spiegel *et al.*, 1998). Studies from the end of the last century show that more than 40% of Americans used complementary therapies, and most did so in addition to traditional medical care, not instead of it, which was positive (Eisenberg *et al.*, 1998). However, two-thirds of patients who used complementary therapies did not inform their doctors about their additional therapy, which became a problem (Eisenberg *et al.*, 1993). We expect that the figures would be equally high if a survey were conducted today among Ukrainian patients.

According to the International Agency for Research on Cancer Globocan 2020, the incidence of cancer is 19.3 million cases worldwide with over 10 million deaths from cancer in 2020. Because the etiology of cancer is multifactorial and has a variety of manifestations, many myths and misconceptions are invariably associated with it (Dantis *et al.*, 2021).

Misconceptions about cancer can increase the level of fear among the general public, impair the psychological well-being of cancer patients, and make it more difficult to cope with cancer. The results of specialised studies (e.g. Carlsson & Strang, 1997) emphasise the importance of adequate information about cancer and its treatment, with those with the least formal education being a particularly important target group for information.

The psychological well-being is a complex and multidimensional concept. It has many aspects: physical, economic, social, functional, emotional, spiritual, and subjective. Like any other serious illness, cancer has a detrimental effect on the psychological well-being of an individual, and therefore on their psychological state (Nefedova, 2021).

Even in a socioeconomically developed American society, it is observed that the escalating expenses associated with cancer treatment pose a significant challenge to achieving success in this discipline. Multiple stakeholders argue that the absence of financial resources among cancer patients can undermine the overall progress in combating this disease (Newcomer, 2014). In contrast to the rising cost of treatment, certain sources in the information space offer dubious but cheap alternatives. Certain researchers expose myths about cancer treatment (Goldman & Philipson, 2014), refuting claims that the official medicine's war on cancer is unsuccessful and that treatment costs are unacceptable. In addition, they provide evidence that patients highly value the opportunity to use these treatments. However, there are also other opinions in society, such as that cancer treatment is currently a conspiracy between oncologists and pharmaceutical companies to make excessive profits. And there are followers "alternative" treatments that are promoted as alternatives to official cancer treatment. They typically lack biological plausibility and scientific evidence of safety and efficacy, and some are outright frauds (Deng & Cassileth, 2013).

Unfortunately, the Ukrainian media space is overloaded with information about "alternative" methods of cancer treatment. Moreover, it has been established that the assessment of media messages by cancer survivors largely depends on their educational level, linguistic-cultural competence, psychological and religious-ideological characteristics, and the features of their native sociocultural layer of society. At the same time, each recipient is an active participant in the media space, who, perceiving any media material, passes it through their own perception of the value system, either approving or rejecting it, thereby contributing to its further dissemination (Kuznyetsova, 2022).

The cultural tradition in which a cancer patient lives determines not only their life perception but also their mentality with all its

peculiarities, including their attitude to the normality/pathology of their conditions and perception of their psychological problems. The latter implies that when seeking psychological care approaches, it is crucial to consider the socio-cultural background of the individual diagnosed with cancer, which is usually consistent with the socio-cultural norms of the ethnic community within which they live (Fed'ko, 2023).

Cancer is usually diagnosed in middle or old age. Some Ukrainian studies on resilience have developed the concept of age-related crises in old age, with the crisis of adaptation to any changes in life being primarily caused by socio-cultural factors and manifesting itself quite individually. It is noted that its course depends on both social factors and entire person's previous experience (Lych, 2021). Likewise, the perception of one's oncological disease from stage to stages, as well as the accompanying emotional state depend on many crisis coping factors.

Participants in an Israeli study described that returning to normal life after achieving remission is quite possible, but many cancer survivors have to cope with the FCR for a long period of time, with every physical symptom arousing suspicion and reminiscent of previous experiences of insecurity and uncertainty (Levkovich, 2019). For example, from a quarter to almost all the interviewed cancer survivors reported about a FCR and that this fear had lasted for years. This study participants expressed their perceptions of the temporality and fragility of life and feelings of helplessness, defenselessness, and lack of control over the relapse of the disease.

Another Israeli study aimed to examine the perception of cancer and its personal and family consequences, emotional reactions, and coping strategies in the religious and cultural context of Arabs in Israel (Goldblatt, Cohen, Azaiza & Manassa, 2013). In the process of fighting the breast cancer and its consequences, some women gradually became more aware of their personal well-being, asserting their right to receive support from their families and do not caring about the needs of others exclusively. This new attitude was reinforced by meetings with Jewish patients, who introduced Arab women to a modern cultural alternative.

In the presented article, the psychological well-being of the immigrant social group (in the context of Israel, repatriates) was also addressed. Since many previous studies have noted that immigrants have a worse tolerance to cancer treatment and a more difficult recovery from it, both physically and psychologically, the results of the study may be useful for specifying the problem. The study (Butow et al., 2013) documented unmet needs and variables associated with them in a social group of first-generation immigrants compared to a group of Anglo-Australian cancer survivors. The result shows that immigrant cancer survivors are more likely to have an unmet need for care than Anglo-Australians several years after their initial diagnosis, and they are very keen to receive information and support in their own language.

In the United States, a meta-analysis study was conducted by searching PubMed, CINAHL, and Scopus databases to find studies in English (2009-2018) targeting Asian immigrant cancer survivors. A thematic analysis of the study elements revealed 4 themes with sub-themes: (1) coping strategies, (2) barriers, (3) culturally informed care, and (4) quality of life (Lockhart, Oberleitner & Nolfi, 2020). All of these topics were of interest to this study.

### 3 Objective

The aims of this research were:

- to investigate the peculiarities of the psycho-emotional state (reactive anxiety, the level of FCR, and peculiarities of perceiving their own diagnosis) in cancer survivors from Ukraine and Israel, as well as immigrants to Israel from Ukraine;

- to understand the distinctive features of medical and psychological support provided to cancer patients in both countries;
- to analyze the availability of information about the mythical causes of cancer and alternative ways of treating it in the media space of these countries, as well as the willingness of participants to accept this unreliable and scientifically unconfirmed information.

The purpose of the article was to highlight the perception of the possibility of cancer recurrence by cancer patients in remission from different cultural communities. Of particular interest was the study of the reactions of elderly people who belong to a relatively rigid group, which is usually the bearer of sociocultural traditions.

### 4 Methods

The way people respond to a cancer diagnosis is determined by their personal experiences, history and belief systems, social relationships, cultural context, and the clinical characteristics of the disease itself. In order to account for these differences, the research team developed a questionnaire to capture participants' socio-demographic data and medical information about their diagnosis and treatment. This questionnaire was part of a larger study and has been tested at the Faculty of Psychology of the Institute of Advanced Training of the State Employment Service of Ukraine, SESU (Lysnyk K. A., 2021). The structure of the questionnaire is presented in the Appendix.

The following standardised methodologies were also used.

The Big Five Inventory, a 44-item personality inventory, was chosen in order to obtain a psychological portrait of the individual on 5 scales as modified by O. John, L. Naumann, and S. Soto (BFI 44) (John, Naumann, & Soto, 2008). The Hebrew version for Israeli participants has been validated (Shmotkin & Keinan, 2011).

The Tolerance Ambiguity Scale (TAS) (Budner, S., 1962) was used to determine how tolerant a person is to uncertainty and at the same time intolerant of it, and the version adapted by (T. V. Kornilova & Chumakova, 2014).

The Spielberger State-Trait Anxiety Inventory, STAI (Spielberger, Gorsuch & Lushene, 1970) was chosen for self-assessment of situational anxiety (reactive anxiety as a state) and personality anxiety as a personality trait. The Hebrew version of this scale was adapted from (Teichman & Melinek, 1978).

The Berne Coping Forms Inventory (BEFO) was chosen as a method for assessing adaptive or maladaptive cognitive, emotional, and behavioral coping strategies that a participant chooses in a crisis situation (Heim, Augustiny, Schaffner & Valach, 1993).

The short version of the Fear of Cancer Recurrence Inventory, FCRI-SF (Simard & Savard, 2009) was used to screen for clinical FCR levels. Permission for use in this study was obtained from the author, Sebastian Simard (Toronto, Canada).

*Analysis of the information space.* A review of the media space was conducted using relevant queries in information search engines. Easily accessible information on 1) available medical and psychological official state assistance, 2) information on volunteer psychological support projects, and 3) information on alternative and scientifically unproven methods, as well as mythical causes of cancer and ways to treat it, was selected. The obtained information was analysed and systematised for comparison between the information spaces of Ukraine and Israel.

*Participants.* The study sought participants by utilising online platforms to distribute invitations predominantly to cancer patient groups and various social communities. The questionnaires and study design for Israelis and repatriates were approved by the Ethics Committee of Tel Aviv University. The



questionnaire for Ukrainians was approved by the ethics committee of the SESU.

The total number of participants was 65, divided into 3 groups based on their country of residence or repatriation: 22 citizens of Ukraine, 22 citizens of Israel (born or living in Israel for most of their lives), and 21 repatriates to Israel from Ukraine (and the former USSR). There were 57 women and 8 men among the respondents.

## 5 Results

Important features of the established ways of providing and consuming psychological care that affect the quality of life of cancer survivors are: 1) the specifics of the organisation of psychological care in the country; 2) the peculiarities of seeking psychological care for elderly Ukrainians and Israelis; and 3) cultural differences in accepting one's diagnosis, attitudes towards alternative medicine and the prevalence of myths about cancer. The state of psychological care for cancer survivors in Ukraine and Israel was studied, and the patterns identified are presented below.

### 5.1 Specifics of the organisation of psychological care in Ukraine

Ukraine has several healthcare facilities dedicated to cancer treatment, including the Kyiv City Clinical Oncology Centre, regional oncology centres, and the National Cancer Institute. Cancer treatment is also provided in local hospitals. Medical (and psychological, which is provided by a medical psychologist) care is regulated by the Law of Ukraine "Fundamentals of the Legislation of Ukraine on Healthcare" and "On Approval of the Global State Programme for Combating Cancer for the Period up to 2016" (the law has been extended). It is difficult for Ukrainian cancer patients to receive free psychological assistance, as not all hospitals have psychologists, and psychological assistance is not provided at all for those in remission.

The "Inspiration Family" NGO provides a psychologist voluntarily during active treatment in oncology clinics, and over the past 5 years, they have achieved significant success in this regard. There is also a volunteer hotline for psychological assistance to cancer patients called "Worth Living".

### 5.2 Specifics of the organisation of psychological care in Israel

In Israel, the National Health Insurance Law provides for universal health care, which is provided through four Health Insurance Funds with computerised administrative, pharmaceutical, and medical databases. Israeli cancer care is also regulated by the Patients' Rights Law. Psychological support during cancer treatment can be obtained in the hospital from a medical psychologist, if available, or by contacting a social worker. This support is part of the medical care and is covered by health insurance. It is more difficult to get psychological help through health insurance during remission, but it is possible. The Association for the War on Cancer has been leading the fight against cancer in Israel since 1952, with more than 70 branches. They provide free assistance to cancer patients and their families: the support in psychological groups, information, and classes that help in the personal and moral confrontation with the disease. The Association of Oncologists has a round-the-clock telephone help-desk. For repatriates, there is a telephone line in Russian (no Ukrainian).

### 5.3 Age-related peculiarities of seeking psychological help in Ukraine and Israel

Empirical evidence describing the unique needs of older cancer patients is strikingly limited in proportion to the cancer demographics of our ageing society. Historically, patients over 65 years of age have been excluded from clinical trials (and this continues to this day), resulting in a dearth of data for this age

group (Surbone, Kagawa-Singer, Terret & Baider, 2007). Nevertheless, some patterns are known.

In Ukraine, the older generation largely dislikes and doesn't want to use psychological assistance. They often confuse psychologists with psychiatrists and interact with them with extreme caution. This problem is also known outside of Ukraine. Historical misconceptions have distorted the older generation's perceptions of mental health, leading to embarrassment or shame about "impose your problems on others" and "ask for help".

In Israel, a more modern Western approach to psychological care prevails, and it is widely used by the elderly, as payment for psychological sessions through health insurance makes it quite affordable, it is widely used by older adults. However, repatriates in Israel are more likely to face the problem of receiving psychological assistance because they want to receive this service in their native language, which is possible for Russian-speaking repatriates from Ukraine, but significantly lengthens the wait.

### 5.4 Cultural differences in accepting one's diagnosis, attitudes towards alternative medicine, and the prevalence of myths about cancer

Several media resources in the Ukrainian information space have been found to promote alternative and potentially harmful treatment methods that lack scientific support (for example, Psychosomatics of Cancer: How to Treat Cancer Without Surgery, an online resource). Official resources, usually from oncology clinics or NGOs, are also available, but not sufficiently.

In the Israeli information space, such resources are found, however, the initial search engine results predominantly display official sources (for example, the Cancer War Association, an online resource - Cancer War Association).

The cognitive and emotional statements based on which people build their coping strategies are of great importance in relation to their own diagnosis. Therefore, the responses to the Heim Coping Strategies Questionnaire by participant group were analysed in detail. Both societies, Ukrainian and Israeli, are quite religious, so beliefs in the help of higher powers (Humility and Religiosity) are distributed accordingly: 13.6% for Ukrainians, 22.7% for Israelis, and 19% for repatriates. The idea of cancer as a punishment for sins is also present in all groups of respondents (about 9% in each group chose the emotional statement "I get what I deserve").

However, for Israelis, the top three priority is Maintaining Composure (adaptive cognitive), Optimism (adaptive emotional), and Appeal (adaptive behavioural), and the questions are more often formulated in the form of: What should I do to get better? Similar patterns are observed in to a group of repatriates for whom Problem Analysis (adaptive cognitive), Optimism (adaptive emotional), and Cooperation (adaptive behavioural) are in the first place, and the question is formulated as: Who can help me?

At the same time, Ukrainians are most likely to use the following coping strategies: Preservation of self-control (adaptive cognitive), Suppression of emotions (maladaptive emotional), and Distraction (partially adaptive behavioural), and the question is formulated as: How do I get through difficult times?

Based on the responses to the Heim BEFO questionnaire, the percentage of adaptive, non-adaptive, and partially adaptive strategies chosen by respondents was analysed. The following was found.

### 5.5 For a group of Ukrainians

Cognitive coping strategies: most often adaptive 50% (Preservation of self-control, Problem analysis, and Establishment of self-worth), then maladaptive 36.4% (Humility, Ignoring, Dissimulation, and Confusion), and 13.7% chose



partially adaptive strategies (Relativity, Religiosity and Adding meaning).

Emotional coping strategies: most often non-adaptive 45.4% (Suppression of emotions, Self-blame, and Aggressiveness), and adaptive (Optimism) and partially adaptive (Emotional release and Passive cooperation) equally, 27.3% each.

Behavioural coping strategies: most often adaptive, 40.9% (Altruism, Cooperation, and Appeal), then partially adaptive, 31.8% (Distraction, Compensation, and Constructive Activity), and least maladaptive, 27.3% (Active Avoidance and Retreat).

### 5.6 For a group of Israelis

Cognitive coping strategies: most often adaptive 50% (Preservation of self-control, Problem analysis, and Establishment of self-worth), then partially adaptive strategies, 27.3% (Relativity, Religiosity, and Adding meaning), and least maladaptive, 22.7% (Humility, Ignoring and Dissimulation).

Emotional coping strategies: most often adaptive, 59.1% (Protest and Optimism), then partially adaptive, 22.7% (Emotional Relief and Passive Cooperation), and least often maladaptive, 18.2% (Suppression of Emotions, Self-Blame and Aggression).

Behavioural coping strategies: most often adaptive, 59.1% (Altruism, Cooperation, and Appeal), then partially adaptive, 31.8% (Distraction, Compensation, and Constructive Activity),

and the least maladaptive, 9.1% (Active Avoidance and Retreat).

### 5.7 For a group of repatriates

Cognitive coping strategies: most often adaptive, 47.6% (Preservation of self-control, Problem analysis, and Establishment of self-worth), then partially adaptive strategies, 33.3% (Relativity, Religiosity, and Adding meaning), and least maladaptive, 19.1% (Humility, Dissimulation, and Confusion).

Emotional coping strategies: most often adaptive, 66.7% (Protest and Optimism), then non-adaptive, 23.8% (Suppression of emotions and Self-blame), and least partially adaptive, 9.5% (Passive cooperation).

Behavioural coping strategies: most often adaptive, 52.4% (Altruism, Cooperation, and Appeal), and partially adaptive (Distraction and Compensation) and maladaptive (Active Avoidance and Retreat) equally, 23.8% each.

### 5.8 Results of statistical analysis of the survey participants' responses

The groups of participants in the study based on the completed participant questionnaire were analysed. The socio-demographic and medical characteristics for different groups of participants are summarised in Table 1.

Table 1. Information about the study participants by group

Indicator	Gradations	A group of Ukrainians	A group of Israelis	Repatriates group
Age (by WHO classification)	young age, %.	40,91%	13,63%	14,28%
	average age, %.	36,37%	45,46%	52,38%
	old age, %.	22,72%	40,91%	33,33%
Age, average		49,7	56,7	54,5
Place of residence.	capital	14,28%	9,09%	4,76%
	regional city	76,2%	81,82%	85,72%
	rural countryside, kibbutz moshav	9,52%	9,09%	9,52%
Education	medium	4,54%	4,54%	-
	technical school, college	13,65%	36,37%	36,37%
	superior	81,81%	49,49%	63,63%
	Scientist degree (PhD, Doctor of Science)	-	9,10%	-
Marital status	never been to marriage	4,54%	9,09%	4,76%
	not registered, but live together	-	-	9,52%
	Married (married)	68,18%	68,18%	57,14%
	We live separately	9,09%	-	9,52%
	divorced	9,09%	9,09%	9,52%
	widow (widower)	4,54%	13,68%	9,52%
	Children	no	9,09%	4,54%
yes	90,91%	95,46%	85,72%	
Are the parents still alive	no	45,47%	36,37%	33,34%
	One 3 parent is alive	31,81%	22,72%	38,09%
	yes	22,72%	36,40%	28,57%
Work	work full time	45,45%	31,82%	23,81%
	work part-time	22,73%	22,73%	19,04%
	looking for a job	13,64%	4,54%	9,52%
	not work & not looking for work	-	4,54%	14,28%
	retired	18,18%	31,82%	19,04%
Years since the establishment of diagnosis, on average		6,59	5,6	7,96
Years in remission, on average		4,49	4,5	6,07
Diagnosed stage	I	36,37%	27,27%	23,81%
	II	27,27%	36,37%	33,33%
	III	27,27%	18,18%	19,04%

	IV	9,09%	18,18%	19,04%
Relapses	There was no	85,72%	81,82%	86,36%
	He was	14,28%	18,18%	13,64%
Do you Take maintenance medication therapy	Yes	52,38%	40,90%	38,09%
	No.	47,62%	59,10%	61,91%

The responses to the questionnaires on tolerance to uncertainty, anxiety, FCR, inherent coping strategies, and personal characteristics were statistically processed, and the obtained data are presented in Table 2.

According to the Mann-Whitney test, there were significant differences ( $p=0.05$ ) between the level of FCR for the group of Ukrainians and Israelis and for the group of Israelis and repatriates. No significant differences were found between the group of Ukrainians and repatriates.

Table 2. Results of statistical analysis of participants' responses by group

Indicator		A group of Ukrainians	A group of Israelis	Repatriates group
FCR level, average		19,45	12,57	19,24
Tolerance to uncertainty, average		4,28	6,7	4,4
Intolerance to uncertainty, average		6,04	4,5	5,7
Reactive anxiety, average		44,85	32,6	35,6
High level of reactive anxiety, number of participants		11	1	3
Personal anxiety, average		50,57	38,3	41,9
High level of personal anxiety, number of participants		14	3	6
Five-Factor Personality Inventory	Introversion, number of participants	3	2	1
	Extraversion, number of participants	3	5	6
	Antagonism, number of participants	-7	2	1
	Agreeableness, number of participants		8	9
	Impulsiveness, number of participants	1	1	-4
	Conscientiousness, number of participants	12	5	
	Emotional stability, number of participants	4	4	9
	Neuroticism, number of participants	7	3	2
Closedness to experience, number of participants		3	4	1
Openness to experience, number of participants		5	3	10

## 5.9 Results of the analysis of the answers of the elderly research participants

One elderly man and one elderly woman were randomly selected from each of the three groups (Ukrainians, Israelis, and repatriates) and described in detail psychological portrait.

After receiving the responses to the questionnaire and questionnaires, each participant was interviewed in order to assess their attitude to the disease and expectations about the possibility of cancer recurrence. For this purpose, the method of expert opinions (Stern et al., 2010) and a structured interview by Otto Kernberg (Kernberg, 1981) were used.

It was found that the Israeli elderly group had the lowest level of FCR, which was within the functional norm. Representatives of the Ukrainian elderly group had a bit higher level of FCR, but the Ukrainian woman's FCR was not dysfunctional, and the Ukrainian man's FCR was. Both elderly participants of the repatriates group had dysfunctional FCR and needed psychological help according to the results of the FCRI (Simard & Savard, 2015). At the same time, the level of FCR of women in all groups was lower than that of men (see Table 3).

Table 3. Fear of cancer recurrence according to FCRI-SF (in points).

Group	Women	Men
Ukrainians	16 +/- 1,24	22 +/- 2,16
Israelis	10 +/- 0,95	12 +/- 1,12
Repatriates	22 +/- 1,59	27 +/- 2,67

Let us consider in detail the results of each elderly participant from the three groups.

### 5.9.1 Ukrainian group

#### Participant 1

Ukrainian, 63 years old, breast cancer, stage III without recurrence, diagnosed 3 years ago, 2 years after treatment, currently not receiving supportive drug therapy. She has higher education, works full-time, lives in a regional city. She is married, has two adult children, one of her parents is alive.

Table 5. Quantitative characteristics for Participant 1

BFI 44	raw scores	transfer to 100 points
Introversion-Extraversion	- 26 average	56
Agreeableness/Antagonism	- 30 average	58
Conscientiousness/Impulsiveness	- 37 high	78
Emotional stability/Neuroticism	- 24 average	50
Openness/Closedness to experience	- 26 average	40

#### TAS

Intolerance to uncertainty – (raw 36) – above average.

Tolerance to uncertainty – (raw26) – slightly below average.

FCRI-SF fear of cancer recurrence – 16 increased.

#### STAI

Reactive anxiety – 33 – moderate.

Personal anxiety – 45 – high.

**BEFO**

*Cognitive:* 4. Maintaining self-control. Description: an attempt is made to maintain balance and (emotional) self-control in front of others and in relation to oneself. Type – adaptive.

*Emotional:* 4. Optimism. Description: The belief that a difficult situation can be overcome. Type – adaptive.

*Behavioural:* 3. Active avoidance. Description: Trying not to think, she stopped focusing on problems in every possible way. Type – maladaptive.

*Description:* Participant 1 is characterised by self-control and responsibility, as well as perseverance in achieving results. Her anxiety is moderate and her tolerance to uncertainty is reduced. Participant 1 uses maladaptive behavioural coping strategies, but adaptive cognitive and emotional ones. She has not consulted a psychologist about her illness.

*The Psychological conclusion from the interview:* Participant 1 considers that she is doing well because with her type of cancer and grade (9 out of 9 on the Nottingham scale), the statistics are 26% survival after 2 years. She considers herself lucky to be in this percentage. She tries not to think about the future but limits herself too much in physical activity and nutrition, considering certain foods “harmful” for people with cancer experience. It is difficult for her to tolerate the uncertainty associated with the future. As a compensatory mechanism, she considers everything that differs from the worst-case scenario as a success. She would benefit from working with a psychologist, having psychoeducation, and learning more adaptive coping strategies would be helpful.

**Participant 2**

Ukrainian, 75 years old, stage III non-relapsed penile cancer, diagnosed 3 years ago, 3 years after treatment, currently not receiving supportive drug therapy. He has secondary specialised education (technical school), is retired, lives in a rural area. Married, has an adult child, parents are deceased.

Table 6. Quantitative characteristics for Participant 2

BFI 44	raw scores	transfer to 100 points
Introversion/Extraversion	- 23 average	47
Agreeableness/Antagonism	- 37 high	78
Conscientiousness/Impulsiveness	- 37 high	78
Emotional stability/Neuroticism	- 18 low	31
Openness/Closedness to experience	- 29 average	47

**TAS**

Intolerance of uncertainty – (raw28) – average.  
Tolerance of uncertainty – (raw27) – slightly below average.

FCRI-SF fear of cancer recurrence – 22 high.

**STAI**

Reactive anxiety – 58 high.  
Personal anxiety – 54 high.

**BEFO**

*Cognitive:* 9. Giving meaning Description: The disease is given meaning. It is perceived as an opportunity to change one's outlook on life and values. Type - partially adaptive.

*Emotional:* 3. Suppression of emotions. Description: suppression of emotions in oneself. Type – maladaptive.

*Behavioural:* 1. Activity as a distraction. Description: familiar activities are engaged in as a distraction. Type – partially adaptive.

*Description:* Participant 2 has a stable personality structure with a high degree of cooperation, affection, and respect for others, self-control, emotional stability, and self-criticism. However, he has a high level of FCR, high anxiety, and uses maladaptive or partially adaptive coping strategies. He has not consulted a psychologist about his illness.

*The psychological conclusion from the interview:* Participant 2 considers that he is doing well for his age and tries to find support from his family. However, he does not believe that he is cured of cancer and thinks a lot about the possibility of the disease returning. He has anxiety about the future, and his FCR level is dysfunctional. The experience of previous losses causes a certain lack of faith in medical treatment of cancer – his adult daughter died of cancer 6 years ago. Psychological help would be very useful for him.

**5.9.2 Israeli group****Participant 3**

Israeli woman, 67 years old, stage IV non-recurrent uterine cancer, diagnosed 5 years and 5 months ago, 5 years since treatment, currently not receiving supportive drug therapy. She has a higher education, is retired, and lives in a regional city. She is married with two adult children, her parents are deceased.

Table 7. Quantitative characteristics for Participant 3

BFI 44	raw scores	transfer to 100 points
Introversion/Extraversion	- 19 low	34
Agreeableness/Antagonism	- 20 low	31
Conscientiousness/Impulsiveness	- 27 average	50
Emotional stability/Neuroticism	- 18 low	31
Openness/Closedness to experience	- 25 average	37

**TAS**

Intolerance to uncertainty – (raw 19) – slightly below average.  
Tolerance to uncertainty – (raw 27) – slightly below average.

FCRI-SF fear of cancer recurrence- 10 low.

**STAI**

Reactive anxiety – 45 high.  
Personal anxiety – 44 moderate.

**BEFO**

*Cognitive:* 5. Problem analysis. Description: Cognitive analysis of the disease and its consequences: recognition, careful consideration, decision-making. Type – adaptive.

*Emotional:* 5. Passive cooperation. Description: a person agrees to be cared for. A person feels in safe hands knowing that help is available and responsibility can be entrusted to specialists. Type – partially adaptive.

*Behavioural:* 7. Collaboration. Description: cooperation with significant people to overcome difficulties. Type – adaptive.

*Description:* Participant 3 has high emotional stability and self-sufficiency, practicality, and realism. Her tolerance for uncertainty is slightly below average. The level of FCR is low. All selected coping strategies are adaptive. She consulted a psychologist in connection with her treatment.

*The psychological conclusion from the interview:* Participant 3 has a personality profile with a strong trait of straightforwardness and intellectual self-esteem and has a high level of intelligence. She assesses her condition as quite satisfactory and uses problem analysis and cooperation in

difficult life situations. She trusts the medical care system, does not look for “alternative” ways of treatment, and is optimistic about the future. The increased anxiety may be related to her recent retirement. She does not tend to consider mythical causes of cancer.

#### Participant 4

Israeli male, 68 years old, stage IV leukaemia (had had recurrence), diagnosed 3 years ago, 2 years after treatment, currently receives supportive drug therapy. Higher education, retired, lives in the capital. He is married with three adult children, parents are deceased.

Table 8. Quantitative characteristics for Participant 4

BFI 44	raw scores	transfer to 100 points
Introversion/Extraversion	- 20 low	37
Agreeableness/Antagonism	- 21 low	33
Conscientiousness/Impulsiveness	- 24 average	42
Emotional stability/Neuroticism	- 18 low	31
Openness/Closedness to experience	- 24 average	34

#### TAS

Intolerance to uncertainty – (raw 35) - above average.  
Tolerance to uncertainty – (raw28) - slightly below average.

FCRI-SF fear of cancer recurrence – 12 low.

#### STAI

Reactive anxiety – 29 – low.  
Personal anxiety – 32 – moderate.

#### BEFO

*Cognitive:* 5. Simulation. Description: The disease is downplayed, denied, minimised, and ignored. Type - maladaptive.

*Emotional* 5. Passive cooperation. Description: a person agrees to be cared for. A person feels in safe hands knowing that help is available and responsibility can be entrusted to specialists. Type – partially adaptive.

*Behavioural:* 5. Constructive activities. Description: Something constructive is done, something is chosen as necessary, for example: the development of creative abilities, travelling, etc. (possibly for a long time). Type - partially adaptive.

*Description:* Participant 4 has a trait of straightforwardness and self-esteem, he is practical and realistic. Despite maladaptive cognitive coping, he uses partially adaptive strategies in the emotional and behavioural spheres. FCR level is functional. Trusts the medical system and cooperates with doctors. Has consulted a psychologist about the illness.

*The psychological conclusion from the interview:* Participant 4 considers that the disease does not limit his life, is just a part of life, and does not stop his activity according to his age. He would like to have more stability and confidence in the future, which correlates with the scores on tolerance to uncertainty - below average. He tries to rely on God for what is destined for him in life but follows all the recommendations of official medicine, does not miss medical examinations, and takes care of his health.

### 5.9.3 Repatriates group

#### Participant 5

Female repatriate (32 years in Israel), 64 years old, breast cancer,

stage IV, non-recurrent, diagnosed 4 years 3 months ago, 4 years after treatment, she currently receives supportive drug therapy. She has higher education, works part-time, lives in a regional city. The woman is married and has two adult children, one of the parents is alive.

Table 9. Quantitative characteristics for Participant 5

BFI 44	raw scores	transfer to 100 points
Introversion/Extraversion	- 28 average	62
Agreeableness/Antagonism	- 42 high	92
Conscientiousness/Impulsiveness	- 30 high	69
Emotional stability/Neuroticism	- 18 low	31
Openness/Closedness to experience	- 28 average	45

#### TAS

Intolerance to uncertainty – (raw25) – average.  
Tolerance to uncertainty – (raw25) – below average.

FCRI-SF fear of cancer recurrence – 22 high.

#### STAI

Reactive anxiety – 27 – low.  
Personal anxiety – 38 – moderate.

#### BEFO

*Cognitive:* 4. Maintaining self-control. Description: an attempt is made to maintain balance and (emotional) self-control in relation to others and to oneself. Type – adaptive.

*Emotional* 4. Optimism. Description: The belief that a difficult situation can be overcome. Type – adaptive.

*Behavioural:* 1. Activities as distractions. Daily or habitual activities are used as distractions. Type – partially adaptive.

*Description:* Participant 5 has a personality structure with a high degree of cooperation, affection, and respect for others, self-control, emotional stability, and self-criticism. She has not been to a psychologist and does not consider the time spent with a psychologist to be useful.

*The psychological conclusion from the interview:* Participant 5 considers that distracting herself from the disease and focusing on life will help her cope. She perceives the possibility of recurrence as her own guilt, letting down her loved ones.

Thoughts of such a possibility are driven away, but they return, which causes psychological discomfort and is probably the reason for the high level of FCR, especially due to the need to take care of her old mother.

#### Participant 6

Male repatriate (3 years in Israel), 60 years old, multiple myeloma, stage IV without relapse, diagnosed 4 years ago, 2.5 years after treatment, he currently receives supportive drug therapy. He has a secondary specialised education (technical school), is neither working nor looking for a job, lives in a regional city. He is married, has two adult children, one of his parents is alive.

Table 10. Quantitative characteristics for Participant 6

BFI 44	raw scores	transfer to 100 points
Introversion/Extraversion	- 23 average	47
Agreeableness/Antagonism	- 27 average	50
Conscientiousness/Impulsiveness	- 38 high	81

Emotional stability/Neuroticism	- 26 average	56
Openness/Closedness to experience	- 24 low	34

**TAS**

Intolerance of uncertainty – (raw34) -above average.

Tolerance of uncertainty (raw26) - slightly below average.

FCRI-SF Fear of cancer recurrence – 27 high.

**STAI**

Reactive anxiety – 46 – high.

Personal anxiety – 43 – moderate.

**BEFO**

*Cognitive:* 4. Maintaining self-control. Description: an attempt is made to maintain balance and (emotional) self-control in relation to others and to oneself. Type - adaptive.

*Emotional 5.* Passive cooperation. Description: a person allows others to take care of him/herself. A person feels in safe hands knowing that help is available and responsibility can be entrusted to specialists. Type - partially adaptive.

*Behavioural:* 3. Active avoidance. Description: Tries not to think, stops focusing on their problems in every possible way. Type – maladaptive.

*Description:* Participant 6 demonstrated traits of emotional stability, but at the same time has some depression and self-criticism. He is characterised by conservatism, excessive realism, and avoidance of talking about feelings. He does not treat stressful situations as opportunities for growth. FCR is dysfunctional, even paralysing, and assesses his psychological state as severe, but has not consulted a psychologist.

*The psychological conclusion from the interview:* Participant 6 considers that his illness severely limits his ability to work. He is also concerned about the need to care for his sick old mother, which does not allow him to take care of himself sufficiently. He would like more stability and certainty in his life. He tries not to think about troubles, which only increases his anxiety. He cannot cope with the uncertainty that accompanies his recent repatriation and cancer diagnosis. He has a high level of anxiety and catastrophises the future. Psychological correction is recommended

**6 Discussion**

According to the statistical data, it can be mentioned that the participants in the Israeli group are the most tolerant of uncertainty on average, the least anxious, and have the lowest FCR on average. Due to the limited number of participants in each group, we cannot make broad conclusions about characteristic personality traits, inherent to all members of each group. However, it is interesting to note that among the repatriates there were the most participants with a pronounced personality trait of Openness to Experience - almost half, 47.6%.

Regarding the data on FCR, it was found that there were no statistically significant differences between the group of Ukrainians and repatriates. We acknowledge that repatriates may retain elements of their country of origin's cultural context to some degree, and, like Ukrainians, they are not inclined to seek psychological help. Only representatives of the Israeli group of cancer patients sought psychological assistance. Thus, cultural peculiarities play a significant role in the patient's self-perception of the cancer diagnosis, identifying his/her psychological distress, feelings of suffering, loss, and uncertainty.

This finding aligns with previous research which has similarly observed that an individual's culture exerts a significant influence on their sense of identity, outlook on life, and value systems. For example, Surbone states that culture provides each

person with a reference point for interpreting the external world and establishing relationships with it. Everyone relies on their culture to make sense of what is happening to them, especially during difficult or traumatic times in their lives, such as a serious illness (Surbone, 2004).

Cultures differ in terms of the norms and belief systems that determine attitudes towards illness. Myths about cancer are still widespread in Ukraine. For instance, the disease may be attributed to negative thinking patterns, unresolved grudges, or other emotional experiences. There is also a widespread belief that cancer is a death sentence. Therefore, those who have survived the disease and are currently in remission are incredibly lucky, and in order not to anger fate, they need to be happy and grateful. Most of the information provided by dubious resources about the causes of cancer and, accordingly, treatment options, differs significantly from the scientific approach outlined in the book "The Emperor of All Diseases" (Mukherjee Siddhartha, 2013). Instead, a variety of mythical causes of cancer are promoted, which confuse patients and make them feel guilty for getting sick.

Five mythical "causes" of cancer diseases were identified, such as:

1. Behaviour type C: non-aggressive, patient, dependent, insecure, lonely and guilty people will definitely get cancer;
2. Unresolved life problems, a series of stressful situations from six months to a year and a half, a prolonged feeling of powerlessness – a person unconsciously launches a strategy of self-destruction;
3. Psychological carcinogens that have caused a "breakdown" of the immune system (life problems, impaired expression of emotions, conflicts, resentment and despair);
4. Punishment for sins;
5. The collusion of pharmaceutical companies to make excessive profits. As well as the "secret knowledge" of simple treatments that they hide.

Here are examples for each of the mythical "causes".

First, behaviour type C: "...some studies have shown that people with the so-called C personality type (or 'C behaviour pattern') may be at greater risk of developing cancer" (Your Health, online journal, 2015, an online resource).

For the second "cause", it is worth recalling the dubious Ukrainian doctor of philosophy V.L. Matrenytskyi, who in his book "Carcinogenic Mind" repeats the false (and repeatedly refuted) statements of "researchers" of the 80s of the last century: "The basis of the disease is the inability, of a person to cope with the problems of life, psychological trauma and intrapersonal conflicts arising from unmet needs" (Matrenytskyi, 2017).

An example of the third "cause" of cancer is the advertising of "psychosomatologists" who offer to "work through your resentments" in order to heal (Qui.help, an online resource). Websites that offer miraculous potions to help you regain your health as soon as possible can also be mentioned: The "Forgiveness" essential oil blend, which, according to the seller, "frees you from resentment, negative thoughts, emotions, and memories" for approximately 100 \$. (Advertising of the miraculous oil blend "Forgiveness", an online resource).

The fourth "cause", punishment for sins, is offered by fortune tellers of different levels, who are ready to tell cancer patients what exactly sins they have committed. For example, a TikTok fortune teller will tell you why you are being punished by the disease, and if you do not remember such sins, she will prescribe ginkgo biloba to improve your memory (Witches and fortune tellers, an online resource).

The fifth "cause" is demonstrated by an online resource selling food supplements: "Among the leaders in anti-cancer protection, lycopene is the first to be found, as it can enhance the anti-cancer

effect of vitamin D and also inhibit the transformation of normal cells into cancerous ones” (How to protect yourself from cancer, an online resource).

But some “sellers” go even further - they offer to starve cancer to death. That is, limit your diet by acquiring from them a detailed description of the secret knowledge of what not to eat and how to add sodium carbonate to your diet (Anti-Cancer Course, an online resource).

In Israel, certain categories of society also tend to believe myths about cancer. These are more often Orthodox Jews and representatives of the rural Arab population. Secular Israeli society relies more on evidence-based medicine and adequate psychological support. Another difference between Israelis and Ukrainians is that a much larger amount of Israeli cancer patients have examples of successful cancer overcoming among their acquaintances and therefore are more optimistic about future.

In the case of repatriates, one study (Zeissig et al., 2015), explored the utilization of psychosocial and information services by immigrant survivors of breast, colorectal, and prostate cancer in comparison to non-immigrant survivors. The study revealed that cultural disparities significantly affect the perception of these services. But the most interesting thing is that the authors propose stratifying not by immigration status as defined by the census, but by cultural background. In light of this perspective, we examine the distinctions between repatriates and native Israelis in our analysis.

### 7 Research limitations

The statistical differences in FCR levels between cancer survivors in Israeli, Ukrainian, and the repatriate group should be further examined by testing the results of this study on a larger sample size. But preliminarily, it can be seen that in a country with a high level of social protection (such as Israel) and access to psycho-oncological support, FCR among cancer survivors is lower than in a country with less support.

At the same time, repatriates demonstrated the highest level of FCR, even while living in Israel. This can be explained by the fact that culturally they belong more to the Ukrainian society, due to its strong adherence to conventional medicine and inclination towards traditional beliefs. At the same time, they face all the known problems of immigrants. They do not know how and where to get help, greater uncertainty about their future compared to native residents, and partly language problems.

In the present study, it is not possible to determine whether the Israeli participants' FCR levels were elevated before they sought psychological support. Future research should examine participants' FCR levels before and after receiving psychosocial support.

### 8 Conclusions

The results obtained in the presented study, which was preliminary, indicated that there were differences in the self-perception of their illness and their future between cancer survivors in Ukraine and Israel. The providing of adequate social and psychological support and treatment (based on the example of Israeli approach) could reduce the FCR level. For repatriates, a cancer diagnosis is perceived as an additional life challenge, and even after completion of treatment, this increases the feeling of lack of control and uncertainty about the future.

Consideration of the specific cultural context of reactions to cancer and coping strategies is vital for the development of effective psychosocial interventions that should be adapted to the cultural background of patients and should also take into account the inherent conservatism of elderly people concerning coping strategies.

Individuals who have received a cancer diagnosis employ conventional coping strategies and discover additional, more

effective methods to adapt to their illness, overcome it, and return to a full life. We assume that there is a prospect of psychological support for cancer patients in this area. However, for elderly people, changes are usually much slower. Therefore, the objective is to assist them in effectively integrating their extensive life experiences of dealing with challenges. This, in turn, will aid them in rebuilding self-assurance, emotional strength, and ultimately enhance their quality of life.

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## Appendix:

Questionnaire of the research participant:

1. How old are you now? \_\_\_\_\_
2. Gender:
  - female
  - male
3. Place of residence:
  - the capital regional
  - city rural area
4. Education:
  - incomplete secondary - completed 7-8 (now 9) grades of school
  - secondary - completed 10 (now 11) grades of school
  - secondary specialised (technical school, college)
  - incomplete higher education (at least 2 years of university)
  - superior
  - second (third and more) higher
  - academic degree (PhD, Doctor of Science)
5. Marital status:
  - single, never married, never been married
  - not registered, but live together
  - married (married)
  - We live separately but are not divorced
  - divorced (divorced)
  - widower (widow)
6. Do you have children?
  - do not have
  - I have how many children (number) \_\_\_\_\_
7. Are your parents still alive?
  - yes
  - no
  - one of the parents is alive
8. Work:
  - I work full time
  - I work part-time
  - looking for a job
  - not working and not looking for a job retired
  - Other (what exactly?) \_\_\_\_\_
9. Type of oncology:
  - breast cancer
  - leukaemia
  - lymphoma
  - bowel cancer
  - skin cancer
  - bladder cancer
  - thyroid cancer
  - melanoma
  - uterine cancer
  - prostate cancer
  - Other (namely) \_\_\_\_\_
10. The stage that was diagnosed:
  - I
  - II
  - III
  - IV
11. Relapses:
  - was not
  - was
12. Duration of remission (years) \_\_\_\_\_
13. How many years have passed since the diagnosis of cancer? \_\_\_\_\_
14. Are you taking maintenance medication?
  - yes
  - no
15. Have you ever sought help from a psychologist, social worker, or psychotherapist?
  - yes
  - no

**Primary Paper Section:** F

**Secondary Paper Section:** FD, FL

# **K MILITARISM**

KA MILITARISM



## ENSURING THE SAFETY OF CITIZENS IN TIMES OF WAR: ASPECTS OF THE ORGANIZATION OF CIVIL DEFENSE

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**Abstract:** Currently, there is a worldwide inclination toward the restructuring of civil protection systems, transitioning from a focus on responding to potential emergencies to fostering state resilience during diverse crises. It is manifested in the context of Ukraine amid the challenging circumstances of martial law enacted following the extensive invasion of Ukrainian territory by the Russian Federation. The objective of this investigation is to conduct a thorough analysis of the nuances associated with guaranteeing civil protection and ensuring the safety of citizens during wartime. The article substantiates that the amalgamation of political, legal, socio-economic, and psychological factors influencing military operations necessitates a proficient systemic response and the reformation of the civilian security sector. The principal functions of public authorities vested with the responsibility for safeguarding civilians during periods of martial law have been scrutinized. Additionally, the legal framework governing civilian protection in Ukraine during times of war has been evaluated.

**Keywords:** Martial law, Civil protection, Population, Public administration, Security measures, Evacuation, Critical infrastructure, Civilian infrastructure

### 1 Introduction

In the contemporary global context, the framework for safeguarding a nation's population is evolving from a focus on responding to potential emergencies to ensuring the resilience of the state in the face of diverse crises. Furthermore, a mechanism has been established to facilitate collaboration between governing authorities and civil protection forces with the armed forces and law enforcement agencies. In Ukraine, this transformative process is occurring amid the challenging circumstances of martial law, which was instituted in February 2022 in response to escalating threats posed by the presence of Russian Federation troops on Ukrainian territory, a situation that has persisted since 2014. Until 2022, the implementation of supplementary measures to restrict the movement of troops in Donetsk and Luhansk regions, as well as the separation and withdrawal of Ukrainian and Russian forces, presented an illusory semblance of establishing a secure zone. However, starting in 2022, the bombardment of civilian infrastructure, residential areas, shopping centers, streets, and edifices in villages, cities, hospitals, maternity wards, kindergartens, and educational institutions, among other locations throughout Ukraine, has prompted a commensurate response from the state.

The study endeavors to examine the system by which the security of the civilian population is actualized within the country during military operations, drawing upon the framework established by existing national and international legislation and regulations.

### 2 Literature Review

The scientific and methodological foundation for the examined issues is established by researchers whose studies center on the functional tools of the civilian security system and the protection of the population during times of hostilities. In Ukraine, the initiation of scientific research on the formulation of an effective counteraction concept against external and internal threats coincided with the commencement of the full-scale invasion by Russia (Kaplia, 2023; Moisiakha, 2022; Hentosh, 2022).

In specific detail, researchers have meticulously developed the underpinnings of a monitoring system, aimed at identifying threats and formulating effective responses (Izarova et al., 2023). Additionally, scholarly investigations have delved into the legal dimensions of civilian engagement in the defense of Ukraine during periods of martial law (Albul et al., 2022). Several studies

conducted by scholars are dedicated to the establishment of mechanisms for the public administration of civilian protection measures for the population during martial law (Andriienko et al., 2022). The examination of issues on the protection of environmental rights in Ukraine within the context of military aggression constitutes the focus of research undertaken by certain scholars (Antoniuk, 2022).

A cohort of contemporary scholars has directed their attention towards specific facets of safeguarding national values and advancing Ukraine's interests. Notably, an examination of the impact of the corruption component on national security has been undertaken (Akimova et al., 2020). Additionally, investigations into mechanisms of public administration have been explored (Pomaza-Ponomarenko et al., 2020), along with an inquiry into opportunities for international regulatory support aimed at optimizing the civil protection system (Lepskiy et al., 2023). Furthermore, scholarly efforts are concentrated on researching the potential avenues for reforming the civil protection sector as an integral component of the security landscape within the context of Ukraine's European integration (Demchuk, 2023).

It is noteworthy that, notwithstanding the scientific contributions made by these scholars, there exists a necessity for more in-depth research into the mechanisms for ensuring civil protection of the population and the expeditious identification of both internal and external threats. Such research is imperative to facilitate the optimal formulation of a comprehensive security concept, enabling a prompt response to emerging challenges and the development of a preventative protection framework.

### 3 Methods and Materials

The methodological foundation of the study relies on contemporary general scientific and specialized methods of scientific inquiry. Specifically, inductive and deductive methods are employed for the analysis and synthesis of information pertaining to the research subject, and analysis is applied in processing scientific and legal sources relevant to the research topic. The study also utilizes generalization of the examined materials, forecasting, and generalization for the formulation of conclusions and recommendations based on the study's outcomes. The functional method is employed to integrate various components of the study with its primary focus, while the systemic and structural methods are employed in the formation of integral components supporting the proof of the hypothesis. The specialized methods employed in the scientific investigation of this topic include the historical method, utilized for the examination of the chronological progression in the establishment of a comprehensive set of measures for security creation. The method of system analysis is applied for the comparative assessment of threats to both the civilian population and the State, and for evaluating the corresponding responses aimed at their mitigation. Furthermore, the study incorporates the generalization of regulatory and practical materials throughout the research process.

### 4 Results

The concept of security is conceptualized as a condition devoid of any threats. Simultaneously, security is defined as a form of engagement undertaken by individuals, society, the state, and the international community. This engagement involves the identification, prevention, minimization, elimination, and mitigation of threats capable of inflicting irreparable damage, jeopardizing material and spiritual values, and obstructing the progressive development of society. The assurance of security guarantees is deemed essential for the effective functioning of individuals and societies, encompassing both national and global contexts.

With the evolution of statehood as a distinctive aspect of national identity and its conceptualization as the primary actor in international relations, the concept of security has taken on the criterion of nationality. In contemporary times, security guarantees constitute the unequivocal foundation of state activity, establishing optimal and favorable conditions for national social, economic, political, and cultural processes (Dill et al., 2021).

From our perspective, the primary duty of the state is to safeguard the well-being of its citizens and residents in the face of specific threats to their life, health, and general welfare. War, among other significant factors, necessitates the implementation of measures to organize human security. A parallel response from the state, specifically from public authorities, is also triggered in the face of events such as terrorism, nuclear threats, man-made and natural disasters (Lim et al., 2022).

From March 12, 2020, to February 24, 2022, Ukraine underwent a period of quarantine in response to the global spread and threat of the COVID-19 virus pandemic. Subsequently, as of February 24, 2022, martial law has been instituted, activating civil protection units to be on alert for the execution of assigned tasks during this special period (Izarova et al., 2023).

Within the duration of martial law, a cohesive state system of civil protection is operational. This arrangement is governed by the Code of Civil Protection of Ukraine, the Law of Ukraine "On Legal Regime of Martial Law," sector-specific regulations, and norms derived from international humanitarian law (Kaplia, 2023).

Broadly speaking, the foundation of the civilian protection concept lies in the development of a comprehensive array of measures aimed at guaranteeing the national security of the state and its administrative-territorial units (Rawtani et al., 2022).

In the Concept of National Security of Ukraine, sanctioned by the Verkhovna Rada of Ukraine on January 16, 1997, security is conceptualized as the safeguarding of vital interests of individuals, citizens, and society (Hentosh, 2022). State security, as outlined in the concept, ensures institutional support for the sustainable development of society and the prompt identification, prevention, and neutralization of both actual and potential threats to national interests (Motte-Baumvol et al., 2022).

In the current stage of societal development, national security is conceptualized as a system designed to optimize the correlation between perceived threats and the available resources to effectively counteract them (Pereira et al., 2022). Functioning as a dynamic mechanism for achieving and sustaining the equilibrium between actual and potential threats and the entity's capacity to mitigate them, national security is principally realized through the intricate network of relations among individuals, society, and the state (Fysekis, 2020; Guna, 2023; Lobna, 2022). Therefore, national security constitutes a state of internal and interstate relations that gauges the efficacy of the system encompassing state, legal, and social guarantees of rights and freedoms, fundamental values and interests of society, as well as the sovereign state, against both internal and external threats (Mishra, 2020).

As illustrated in Figure 1, within a democratic state characterized by an established set of fundamental values safeguarded and ensured for development and support, a human-centered approach is evident. This approach reflects the orientation of the state and public administration bodies towards preserving the life, health, and secure living conditions of individuals within its territory, asserting the individual and their life as the paramount value.

A person and a citizen Society and its relations Constitutional order of the state Nature and environment State sovereignty Ethnic groups State territory and borders Nation and national communities Values of the society Constitutional human freedoms Constitutional human rights Natural resources of the state

freedoms Constitutional human rights Natural resources of the state.

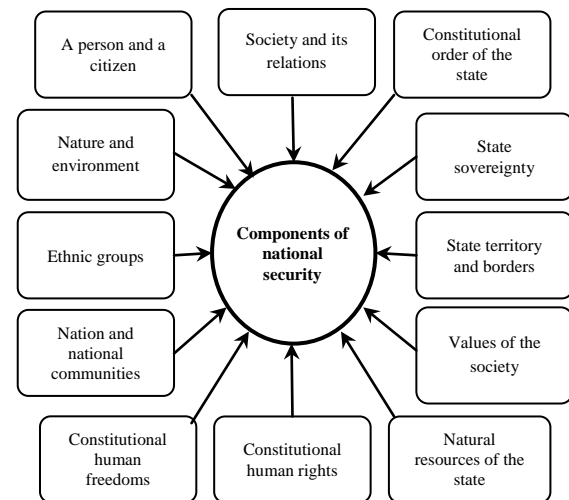


Figure 1. Components of national security  
Source: Compiled by the author

The current war in Ukraine represents the most devastating armed conflict since World War II. Ongoing military operations result in extensive air pollution and the widespread dissemination of hazardous substances in the environment, infringing upon citizens' rights to a clean environment and satisfactory living conditions (Fomenko, 2022). The gravity of potential consequences arising from the war on air quality in Ukraine and beyond is unequivocal, necessitating an immediate investigation into the associated risks and the viability of implementing preventive measures to mitigate them. A comparative analysis of the ecological condition of the air in Kyiv, utilizing pre-war period data (Popov et al., 2020), and information on concentrations of harmful substances during the period of martial law (Voitiuk et al., 2023) reveals a substantial and deleterious transformation in air quality. This transformation undoubtedly exerts a negative impact on the health and well-being of the population.

Martial law is defined as a distinct legal regime implemented in Ukraine or on specific territories in response to documented armed aggression or a potential threat of attack, constituting an imminent hazard to the independence or territorial integrity of the state. The enactment of martial law establishes legitimacy for conferring public authority upon relevant entities. Specifically, military administrations, military command and control, and local self-government bodies are endowed with requisite powers to preempt threats, counter armed aggression, ensure national security, eradicate threats to Ukraine's state independence and territorial integrity, and temporarily curtail human and civil rights.

The legal underpinning for the imposition of martial law consists of the Constitution of Ukraine, the Law of Ukraine "On Legal Regime of Martial Law," and the pertinent Presidential Decree endorsing the introduction of martial law in Ukraine or designated regions of Ukraine, as ratified by the Verkhovna Rada of Ukraine following the established legal procedures (Andriienko et al., 2022). The initiation of martial law serves as the foundational milestone for activating pertinent mechanisms aimed at safeguarding civilians at the "full readiness" level. Initially, local state administrations were conferred with the authority of military administrations, encompassing commensurate functions and the prerogative to curtail the freedoms and rights of citizens during martial law. Subsequently, curfews were implemented in diverse regions of Ukraine, contingent upon the level of threat posed to the life and health of the population. This measure was instituted to impede the movement of subversive groups, their vehicles, hazardous

machinery, and mechanisms during the night and at dusk, thereby averting potential threats to the civilian population. As part of the cohesive set of measures, a regime of blackout during the war was implemented in specific areas. Following this, in the western regions of Ukraine and the capital, Kyiv, the curfew and blackout measures were relaxed and scaled back. This adjustment aimed to facilitate economic activities, enable the formation of budgetary figures and augment revenue generation. The regional military administrations are not solely endowed with authority but are also obligated to oversee the temporary or permanent movement of the population, specifically evacuation, from areas deemed or potentially considered perilous to human life. Their responsibilities encompass the comprehensive management of the evacuation process, ensuring the safe relocation of minor children either with their parents, one of them, guardians, or one of them, or independently if none are available, to secure locations. Priority is given to relocating individuals to their relatives; in the absence of relatives, the next option is children's shelters under their jurisdiction. This category also encompasses vulnerable, solitary individuals, and those with disabilities.

Upon the official declaration of the imposition of martial law in Ukraine, a system for alerting and informing the population about air alerts was initiated. This system operates through various channels, including the Public Broadcasting Company of Ukraine (JSC UA:PBC), state public broadcasting companies, municipal, public, and other broadcasting organizations irrespective of ownership, utilizing their television and broadcasting networks. Additionally, electronic communication operators employ public electronic communication networks, such as telephones and text messages, while internet resources, including websites and social networks, are utilized for dissemination (Kaplia, 2023). Throughout the summer of 2022, various types of signals were devised and disseminated to the general public to caution against nuclear hazards, chemical hazards, and emergencies. For this purpose, diverse signals were formulated and communicated to the public through a range of social messaging platforms. In response to the air threat, all public institutions of varied ownership structures are mandated to halt all operations, guide visitors and students to the nearest (preferably their own) shelter, and cease operations within the institution.

Following the destruction of the Kakhovka hydroelectric power plant by Russian occupation forces, circumstances arose that led to the extensive destruction of homes and properties for the populations in the Mykolaiv, Kherson, and Zaporizhzhia regions. The flood, intensifying over a span of 7 days and persisting in the ground for approximately 30 days, resulted in the erosion of residences. Hundreds of individuals found themselves submerged or stranded on rooftops without access to drinking water, food, or rescue. Tragically, fatalities ensued due to exposure to the blazing sun, hypothermia, ailments arising from prolonged immersion in water, and simultaneous shelling by Russian troops targeting those attempting to aid the affected population. The devastation of the hydroelectric power plant posed a dual risk, jeopardizing both drinking and industrial water provisions for numerous settlements. The potential for infection spread emerged from the demise of animals and humans in the water, their decomposition, the erosion of cemeteries, and the displacement of chemical facilities containing toxic substances. Furthermore, the washing away of gas wells and pipelines generated additional threats. The public leadership of the military administrations in Mykolaiv, Kherson, and Zaporizhzhia regions, alongside Kyiv, led by military authorities, had to address these challenges ad hoc, given the absence of established practices for resolving such issues. The following measures were implemented:

1. Immediate and swift evacuation of the population with timely notification;
2. Provision of medical care to those in need;
3. Resettlement of the evacuated population in secure areas;
4. Delivery of essential supplies including food, hot meals, drinking and technical water, dry clothing, and designated

- spaces for rest and sleep at evacuation collection points;
5. Transporting drinking water in 200-500 cubic meter tanks to the disaster-stricken regions;
6. Provision of boats, and human resources, and surveying the flood zone to locate and evacuate individuals with limited mobility, animals, and the deceased to mitigate environmental contamination from decomposition products;
7. Post-recession efforts to restore utilities to the fullest extent possible, excluding heating which has been unavailable in Kherson since the occupation on November 11, 2022. The destruction of gas pipelines and Combined Heat and Power (CHP) plants by Russian troops hinders the centralized heating of homes.

The State Emergency Service of Ukraine is responsible for facilitating normal or the maximum achievable access to public utilities (electricity, water supply sewage, gas supply) within the combat zone, despite facing frequent attacks. In the year 2022, 119 workers engaged in the repair of power units and transformers following enemy attacks were tragically killed due to sniper fire and additional missile strikes. Despite these challenges, these services persist in the repair of damaged utility and infrastructure lines, thereby enabling the fulfillment of legal mandates for the adequate protection of civilians during martial law.

## 5 Discussion

The implementation of several measures aimed at ensuring the safety of the civilian population does not consistently yield positive outcomes for various reasons, and in some instances, it results in fatalities. One primary contributing factor is the adversary's strategic deception, designating civilian targets for missile and shelling attacks, including residential buildings, commercial establishments, shopping centers, educational institutions, medical facilities such as hospitals, maternity hospitals, nursing homes, rehabilitation centers, psychiatric hospitals, fuel stations, and recreational areas (Mutuma et al., 2022; Massingham et al., 2023). A significant point of contention in this matter is the challenge of ensuring 100% rapid movement to shelters, particularly for individuals permanently or temporarily disabled (Johnson, 2021; Escobar, 2023). There exists a lack of technical or financial capacity to equip entire medical facilities, for instance, with suitable protection. Conversely, the conscientious stance of managers in enterprises, institutions, and individuals themselves towards their safety grants them an unequivocal right to leave their workplace and seek shelter. Prohibition or negative feedback from management or colleagues concerning such actions by an employee should be subject to administrative penalties, and instances resulting in fatal or disabling consequences should be considered in criminal proceedings against the offenders. The absence of employee complaints regarding infringements on their civil protection rights may lead to an unconscious and criminal disregard for the safety of others (Al-Gharawi, 2020; Jacob, 2019; Hudson, 2023).

It is imperative to acknowledge both the nonexistence and substandard quality of shelters and safe locations for workers, students, and visitors. These facilities were intended to be equipped and registered within 1.8 years following the commencement of the full-scale invasion, incorporating provisions for the renewal of drinking water and long-term storage of food. Moreover, the establishment of a regulatory framework to oversee these initiatives and phenomena is essential. Presently, the regulatory framework, even if well-crafted, remains largely unimplemented. Violations by local authorities and individual business leaders related to the establishment of shelters go undocumented or unpublicized, contravening the stipulations of the Civil Protection Code of Ukraine.

The second factor contributing to the occurrence of fatalities and injuries is the occasional complete disregard by the population for air raid warnings, leading to a refusal to seek shelter or relocate to a safe place. The third contributing factor involves the reluctance to evacuate both adults and children. This refusal

infringes upon the rights and freedoms of a child who, as a result, faces threats to life and health, lacks educational opportunities, is denied access to emergency medical care, experiences insufficient nutrition, and lacks the financial means to leave the danger zone without the permission of parents or guardians. Discussions surrounding these issues revolve around the imposition or non-imposition of fines on parents or guardians who may already lack the means of sustenance due to damaged infrastructure or the complete destruction of settlements (Silvestri, 2022; Levy, 2023; Krause et al., 2023).

Corruption, pervasive across various levels of the Ukrainian government, stands as a significant contemporary challenge. The extent to which this issue is addressed varies, with some aspects receiving partial attention or none at all. Scholars have underscored the imperative of directing efforts towards enhancing accountability for corrupt practices carried out by civil servants (Bowden et al., 2020; Syabina et al., 2022). In summary, Table 1 provides an overview of the challenges in civilian protection in Ukraine under martial law and potential strategies for addressing them.

Table 1. Aspects of civil protection organization in Ukraine under martial law

The problem	Solutions
Non-compliance with the stipulations of the regulatory framework for civil protection.	Optimizing legal support, implementing stringent liability measures, combating corruption, and seeking international support.
Inadequate condition of civil defense shelters.	Inspecting existing shelters, establishing new ones, and ensuring suitable conditions for the sustained stay of the population.
Populace's non-compliance with security measures during air raid alerts.	Conducting awareness-raising activities to enhance public understanding and compliance with security measures during air raid alerts.
Absence of adequate quality utilities, including heating and lighting.	Establishment of heating stations, ensuring access to uninterrupted power supplies, and undertaking efforts to restore critical infrastructure.
Absence of access to quality food and drinking water.	Implementing logistics solutions to ensure access to quality food and drinking water.
Environmental consequences resulting from hostilities.	Implementing environmental monitoring and regeneration measures to address the consequences of hostilities.

Source: author's development.

Upon analyzing Table 1, it can be contended that practical measures aimed at optimizing the material base of the civil protection system, enhancing public awareness of wartime security measures, and instituting stringent liability measures for violations of regulatory requirements for the civil protection of the population currently hold primary significance.

## 6 Conclusions

The examination of the state of protection for the civilian population of Ukraine during martial law allows for the delineation of several conclusions and the identification of unresolved issues. Foremost among these is the infringement upon human rights due to the absence or inadequacy of equipped shelters for the civilian population during air raids. This includes the presence of private shelters that are inaccessible to civilians in times of danger or the denial of access to these shelters. Challenges arise in adhering to legislation concerning the protection of the life and health of minors by parents and guardians within combat zones, manifested through a reluctance to evacuate to secure temporary or permanent residences. Additionally, difficulties emerge in ensuring the safeguarding of utility workers engaged in repairing damaged lines and critical

infrastructure following shelling.

These and various other challenges are addressed locally by regional public administrations. Ukraine lacks the experience of living through a war, as it has neither engaged in nor been targeted by any conflict since gaining independence. Legislative frameworks need to be readjusted, encountering practical issues due to the ongoing war and responding to them appropriately. The existing regulations in Ukraine were crafted based on the experiences of World War II, and the conflicts of the twenty-first century demand a distinct approach to safeguarding civilians, incorporating the lessons learned from contemporary practices.

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