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CONTENTS

PUBLIC MANAGEMENT AND ADMINISTRATION

Zoriana Buryk

INSTITUTIONAL CAPACITY OF LOCAL SELF-GOVERNMENT BODIES IN THE CONTEXT OF DESIGN THINKING AND MANAGERIAL CHANGES..... 1

Roman Grytsko

PUBLIC MANAGEMENT OF THE POSTGRADUATE MEDICAL EDUCATION SYSTEM: INTERNATIONAL EXPERIENCE AND STRATEGIC PRIORITIES FOR UKRAINE 10

Oleksandr Radchenko, Alla Dakal

THE ESSENCE, GOALS AND FUNCTIONS OF PUBLIC GOVERNANCE IN THE HEALTHCARE SECTOR.... 16

Oleh Kotsiubynskyi

ENERGY COOPERATIVES AND COMMUNITY ENERGY PROJECTS: EUROPEAN GOVERNANCE FRAMEWORKS 25

Mykola Lakhyzha, Yana Kachan, Inna Kulchii

THEORETICAL ASPECTS AND EUROPEAN EXPERIENCE OF FORMATION AND DEVELOPMENT OF PROFESSIONAL COMPETENCES OF PUBLIC SERVANTS 35

Lidiya Danylenko, Volodymyr Dzeha

STRUCTURAL AND FUNCTIONAL TRANSFORMATION OF ORGANIZATIONAL COMPETENCE OF OFFICIALS OF STATE AUTHORITY AND LOCAL SELF-GOVERNMENT IN WAR CONDITIONS..... 43

Viktoriia Zalizniuk

MANAGING ORGANIZATIONAL CHANGE DURING DIGITAL TRANSFORMATION OF PUBLIC ADMINISTRATION: THE DEVELOPMENT OF E-DEMOCRACY IN UKRAINE 53

Liubomyr Pryimak

EFFECTIVENESS OF THE PUBLIC MANAGEMENT SYSTEM FOR THE QUALITY OF MEDICAL SERVICES IN UKRAINE..... 65

Olena Banchuk-Petrosova, Oksana Kuzmenko, Marina Shulga

PUBLIC DIPLOMACY AS AN INSTRUMENT FOR FORMING THE FOREIGN POLICY IMAGE OF A STATE: THEORETICAL PRINCIPLES AND APPLIED ASPECTS 81

Nataliia Hoi, Mykola Pylypiv

INSTITUTIONAL AND LEGAL MECHANISMS OF PUBLIC MANAGEMENT OF HEALTHCARE SERVICE QUALITY AND WORKFORCE DEVELOPMENT IN UKRAINE IN THE CONTEXT OF EUROPEAN INTEGRATION 90

POLITICAL SCIENCE

Yaroslav Bozhko

FROM "FAILURE OF POLITICS" TO THE IMPERATIVE OF SURVIVAL: THE CONCEPTUAL TRANSFORMATION OF SECURITIZATION THEORY IN THE CONTEMPORARY ERA..... 99

INTERNATIONAL RELATIONS

Ihor Kolomoiets

INSTITUTIONAL MECHANISMS OF POLITICAL INTERACTION BETWEEN THE EUROPEAN UNION AND LATIN AMERICA IN THE CONTEXT OF THE TRANSFORMATION OF THE GLOBAL ORDER..... 108

Nazar Matvievsky

ARCHITECTURE OF INTERNATIONAL FINANCING FOR UKRAINE'S RECOVERY 118

MANAGEMENT

Vitalii Pukas, Oleksandr Govorov, Mykola Volynkin, Andrii Pecheniuk

METHODOLOGICAL FOUNDATIONS OF TRAINING AGRICULTURAL ENGINEERS FOR THE IMPLEMENTATION OF ALTERNATIVE FUELS: FROM COMBUSTION THEORY TO THERMAL EFFICIENCY 127

ЗМІСТ

ПУБЛІЧНЕ УПРАВЛІННЯ І ПОЛІТИКА

Зоряна М. Бурик

ІНСТИТУЦІЙНА СПРОМОЖНІСТЬ ОРГАНІВ МІСЦЕВОГО САМОВРЯДУВАННЯ В КОНТЕКСТІ
ФОРМУВАННЯ ДИЗАЙН-МИСЛЕННЯ ТА УПРАВЛІНСЬКИХ ЗМІН 1

Роман Ю. Грицко

ПУБЛІЧНЕ УПРАВЛІННЯ СИСТЕМОЮ ПІСЛЯДИПЛОМНОЇ МЕДИЧНОЇ ОСВІТИ: МІЖНАРОДНИЙ
ДОСВІД ТА СТРАТЕГІЧНІ ПРІОРИТЕТИ ДЛЯ УКРАЇНИ..... 10

Олександр В. Радченко, Алла В. Дакал

СУТНІСТЬ, ЦІЛІ ТА ФУНКЦІЇ ПУБЛІЧНОГО УПРАВЛІННЯ У СФЕРІ ОХОРОНИ ЗДОРОВ'Я..... 16

Олег В. Коцюбинський

ЕНЕРГЕТИЧНІ КООПЕРАТИВИ ТА ПРОЄКТИ ГРОМАДСЬКОЇ ЕНЕРГЕТИКИ: ЄВРОПЕЙСЬКІ
УПРАВЛІНСЬКІ ПІДХОДИ 25

Микола І. Лахижжа, Яна В. Качан, Інна О. Кульчій

ТЕОРЕТИЧНІ АСПЕКТИ ТА ЄВРОПЕЙСЬКИЙ ДОСВІД ФОРМУВАННЯ І РОЗВИТКУ ПРОФЕСІЙНИХ
КОМПЕТЕНТНОСТЕЙ ПУБЛІЧНИХ СЛУЖБОВЦІВ 35

Лідія І. Даниленко, Володимир Д. Дзєга

СТРУКТУРНО-ФУНКЦІОНАЛЬНА ТРАНСФОРМАЦІЯ ОРГАНІЗАЦІЙНОЇ КОМПЕТЕНТНОСТІ
ПОСАДОВИХ ОСІБ ОРГАНІВ ДЕРЖАВНОЇ ВЛАДИ ТА МІСЦЕВОГО САМОВРЯДУВАННЯ В УМОВАХ
ВІЙНИ 43

Вікторія П. Залізнюк

УПРАВЛІННЯ ОРГАНІЗАЦІЙНИМИ ЗМІНАМИ В ПРОЦЕСІ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ
ПУБЛІЧНОГО УПРАВЛІННЯ: РОЗВИТОК ЕЛЕКТРОННОЇ ДЕМОКРАТІЇ В УКРАЇНІ..... 53

Любомир В. Приймак

ЕФЕКТИВНІСТЬ СИСТЕМИ ПУБЛІЧНОГО УПРАВЛІННЯ ЯКОСТІ МЕДИЧНИХ ПОСЛУГ В УКРАЇНІ 65

Олена В. Банчук-Петросова, Оксана М. Кузьменко, Марина А. Шульга

ПУБЛІЧНА ДИПЛОМАТІЯ ЯК ІНСТРУМЕНТ ФОРМУВАННЯ ЗОВНІШНЬОПОЛІТИЧНОГО ІМІДЖУ
ДЕРЖАВИ: ТЕОРЕТИЧНІ ЗАСАДИ ТА ПРИКЛАДНІ АСПЕКТИ..... 81

Наталія В. Гой, Микола С. Пилипів

ІНСТИТУЦІЙНО-ПРАВОВІ МЕХАНІЗМИ ПУБЛІЧНОГО УПРАВЛІННЯ ЯКІСТЮ НАДАННЯ МЕДИЧНИХ
ПОСЛУГ ТА РОЗВИТКОМ ПЕРСОНАЛУ В СФЕРІ ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ В КОНТЕКСТІ
ЄВРОІНТЕГРАЦІЇ 90

ПОЛІТИЧНІ НАУКИ

Ярослав В. Божко

ВІД «ПРОВАЛУ ПОЛІТИКИ» ДО ІМПЕРАТИВУ ВИЖИВАННЯ: КОНЦЕПТУАЛЬНА ТРАНСФОРМАЦІЯ
ТЕОРІЇ СЕК'ЮРИТИЗАЦІЇ В ЕПОХУ СУЧАСНОСТІ 99

МІЖНАРОДНІ ВІДНОСИНИ

Ігор І. Коломоєць

ІНСТИТУЦІЙНІ МЕХАНІЗМИ ПОЛІТИЧНОЇ ВЗАЄМОДІЇ ЄВРОПЕЙСЬКОГО СОЮЗУ З ЛАТИНСЬКОЮ
АМЕРИКОЮ В УМОВАХ ТРАНСФОРМАЦІЇ ГЛОБАЛЬНОГО ПОРЯДКУ 108

Назар А. Матвієвський

АРХІТЕКТУРА МІЖНАРОДНОГО ФІНАНСУВАННЯ ВІДБУДОВИ УКРАЇНИ 118

МЕНЕДЖМЕНТ

Віталій Л. Пукас, Олександр Ф. Говоров, Микола П. Волинкін, Андрій В. Печенюк

МЕТОДОЛОГІЧНІ ЗАСАДИ ПІДГОТОВКИ АГРОІНЖЕНЕРІВ ДО ВПРОВАДЖЕННЯ АЛЬТЕРНАТИВНИХ
ПАЛИВ: ВІД ТЕОРІЇ ЗГОРАННЯ ДО ТЕПЛОТЕХНІЧНОЇ ЕФЕКТИВНОСТІ..... 127



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Institutional Capacity of Local Self-Government Bodies in the Context of Design Thinking and Managerial Changes

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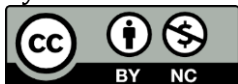
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The study aims to examine and substantiate the specific features of the institutional capacity of local self-government bodies in fostering design thinking and implementing managerial transformations under contemporary conditions. In the process of writing the article, the author identified the features of the institutional capacity of local self-government bodies during the emergence of design thinking in improving managerial decisions. It was characterized that institutional capacity is understood as regulatory, legal, financial, resource and organizational support, and we also include human resources. No less significant, as highlighted, is the ability of local self-government bodies to adapt managerial decisions to modern crisis changes. The article details assessment methods for analyzing the institutional capacity of local self-government bodies in the process of forming design thinking, as well as analyzes socio-economic indicators for the period 2023–2025. The author tried to convey in the study that even with a shortage of time, human and financial resources, preference is still given to hierarchical and reactive management models. While the components of design thinking, we included empathic analysis of citizens' needs, participatory and preliminary testing of management decisions, motivate proactive decisions of residents. During the study, it was found that the introduction of the principles of design thinking in the activities of local self-government bodies implements the function of compensatory, contributes to transformation in the structure of informed management decision-making.



KEYWORDS

public administration, territorial community, decentralization, institutional capacity, design thinking, management decisions, local self-government, society, martial law, decisions, state.



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Дослідження має на меті вивчити та обґрунтувати особливості інституційної спроможності органів місцевого самоврядування у сприянні розвитку дизайнерського мислення та впровадженні управлінських трансформацій у сучасних умовах. Авторка у процесі написання статті визначила особливості інституційної спроможності органів місцевого самоврядування під час зародження дизайн-мислення у підвищення управлінських рішень. Було охарактеризовано, що під інституційною спроможністю розуміють нормативно-правове, фінансово-ресурсне та організаційне забезпечення, сюди ж включаємо й кадровий потенціал. Не менш вагомою, як виділено, є здатність органів місцевого самоврядування адаптувати управлінські рішення до сучасних кризових змін. У статті було деталізовано методи оцінки для аналізу інституційної спроможності органів місцевого самоврядування у процесі формування дизайн-мислення, а також проведено аналіз соціально-економічних показників за період 2023–2025 років. Авторка намагалася донести у дослідженні, що навіть при умові дефіциту часових, кадрових та фінансових ресурсів все-таки перевага надається ієрархічним та реактивним моделям управління. У той час, як складові дизайн-мислення, сюди ми віднесли емпатійний аналіз потреб громадян, партисипативність та попереднє тестування управлінських рішень, мотивують проактивні рішення мешканців. Під час проведеного дослідження було виявлено, що запровадження принципів дизайн-мислення в діяльність органів місцевого самоврядування реалізовує функцію компенсаторності, сприяє трансформації у структурі прийняття обґрунтованих управлінських рішень.



КЛЮЧОВІ СЛОВА

публічне управління, територіальна громада, децентралізація, інституційна спроможність, дизайн-мислення, управлінські рішення, місцеве самоврядування, суспільство, воєнний стан, рішення, держава.

1. Introduction

In the conditions of hostilities, the institutional capacity of local self-government bodies is interpreted not at all as a simple formality and a set of powers, but as a continuous living matter that is capable of renewal, rethinking and self-reflection. Actualizing the problems of large-scale decentralization and restoration of the state of war in our country, we see an urgent need for the latest management approaches, which in turn will focus on the creation of specific solutions and environments for development, as well as for the implementation of certain procedures. At the same time, it is important to emphasize that design thinking completely goes beyond the instrumental method and is definitely integrated into the management space. And this helps local self-government bodies to thoroughly simulate bottom-up decisions and analyze the very logic of relations with citizens, and directly influence the problems of communities in particular.

At the same time, it should be recognized that the complexity of municipal challenges from life support crises to the management of reconstruction processes makes traditional hierarchical-bureaucratic management models ineffective. Contrary to this, local authorities are increasingly unable to keep up with the dynamics of standard regulations, and at the same time, all possible formal management instructions that can be unconditional guidelines for actions are lost.

During the shift in focus from administrative control to the adoption of specific managerial decisions together with the community, the formation of design thinking takes place in the management practice of local self-government bodies. In the course of this process, there is a deep empathic immersion in the problematic environment of residents, solving urgent problems and mistakes, perceiving all possible changes not as a state for threat, but as a natural development. However, it is advisable to note that in today's Ukrainian realities, design thinking still remains at the level of fragmentation, that is, in the format of trainings, projects, pilot initiatives, while not being embedded in the systemic management culture of local authorities.

In our opinion, this problem is acutely felt precisely through the processes of military and post-war management, namely when local self-government bodies are responsible for interaction with international partners, supporting the social cohesion of communities, and we also include the coordination of humanitarian processes.

Design thinking provides perspective vision with a sensitive range to the local context. This is a kind of practical tool for managerial adaptation, and not just a fashionable concept in the modern dimension.

However, despite the exceptional interest and attention from innovative approaches, discussions in scientific circles still do not stop regarding the saponification of the links between the institutional capacity of local self-government bodies and the formation of design thinking as the main factor of changes in management. It is worth emphasizing the opinion that researchers mostly focus their own attention on the analysis of regulatory and legal aspects of decentralization or the organizational characteristics of local authorities, while they do not pay attention to motivational, cultural and value changes in management. However, such "soft" factors are able to form and integrate promising management decisions, and at the same time the ability of institutions to survive in the face of crisis changes.

Therefore, the relevance of the study of this article is determined by the need to analyze both managerial changes and design thinking. Thanks to this approach, it is undoubtedly possible to go beyond the formal vision of the functions of local government and substantiate its systemic content space within the management search, combining creativity, focus on the needs of citizens and undoubted responsibility.

2. Literature Review

In recent years, scientists have been actively discussing the role of the institutional capacity of local self-government bodies in the process of forming design thinking and making reasoned management decisions. The specifics in this regard are revealed by G. Zelenko [14], who noted that institutional capacity is practically a critical form for the effective operation of local self-government bodies, especially in wartime conditions and ensuring the adaptation of residents and the community, in particular, to the crisis situation in the country. The opinion of V. Zinkevych [15] is also prominent,

who emphasized that there is a considerable need to coordinate the powers of local self-government bodies and meaningful justification of the functions of institutions for making effective decisions in management. The scientist also outlined promising ways to improve administrative legislation.

In the study of V. Kysil [2], we see that the scientist considers the transformation of legislation in the field of local self-government (taking into account the hostilities in Ukraine) through the prism of successful implementation of managerial decisions and changes from local self-government bodies to the formation of high adaptability and the ability to implement new management models. On the other hand, according to Ye. Minakova [3], the integration of internally displaced persons into host communities is important for the practical application of institutional capacity in the process of forming design thinking.

It is worth mentioning here the research of H. Nakonechna and V. Zinkevych [5], who unanimously state that during martial law in the country, local self-government quite often faces restrictions (both organizational and resource restrictions should be included here). And this, in turn, necessitates a proactive approach to meaningful management and the application of methods that are mainly focused on the needs of residents. Analyzing the conclusion on the "Concept of Reforming Local Self-Government and Territorial Organization of Power in Ukraine" [1], it should be emphasized that reforms should fully ensure the strengthening of institutional capacity, as well as sufficiently optimize the powers and develop the functional direction of the managerial culture of self-government bodies.

In this case, a significant role is assigned to the integration of managerial innovations and design thinking into the practical activities of local self-government bodies. Researchers such as O. Yarema and N. Lepish [13] point out that local self-government bodies act as a kind of agents of change in communities, because in their activities they use participatory and proactive methods in the process of making important managerial decisions. At the same time, it is advisable to recall the experience of O. Ros [6; 7], who emphasize that the functional aspects of institutional capacity (this includes transparency of procedures, monitoring of the implementation of decisions and a thorough definition of functions and powers) are basic for the implementation of management reforms and new management models, including approaches related to design thinking.

It is also worth mentioning the regulatory framework for ensuring institutional capacity, which is supported by such legislative documents that are directly related to the activities of local self-government bodies, in particular the Law of Ukraine "On Local Self-Government in Ukraine" [10], the Law of Ukraine "On Amendments to the Budget Code" [12], as well as the State Regional Development Strategy for 2021–2027 [11]. In the works of the authors [4; 9], attention is focused on the use of management tools in communities and a clear delineation of the availability of resources, the delimitation of powers and the level of institutional capacity of the authorities themselves are indicated.

Summing up the research of scientists and the analysis of regulatory and legal aspects, we note that the formation of the institutional capacity of local self-government bodies in combination with managerial innovations and design thinking principles, in our opinion, is the foundation for increasing efficiency in making logical and meaningful management decisions, the sustainability of management processes during crisis phenomena and the adaptability of communities.

3. Problem Statement

The purpose of the study is to substantiate the peculiarities of the institutional capacity of local self-government bodies in the field of design thinking formation and managerial changes at the stage of modern conditions.

4. Methods and Materials

During the study, several reasoned and clear methods were used in the article, among which we highlight the following:

1. Analysis of theoretical material and regulatory support, which made it possible to determine the role of institutional capacity of local self-government bodies in the process of formation of design thinking and managerial changes.

2. Comparative analysis to characterize and substantiate macroeconomic and socio-demographic indicators for 2023–2025, which have a direct impact on the activities of local self-government bodies.

3. Criterion analysis of the institutional capacity of local self-government bodies, which included an assessment of resource provision, human resources and functionality.

4. System analysis of management models, which made it possible to determine the assessment of hierarchical, reactive and proactive decisions using the principles of design thinking

Thus, as a result of the analysis, the relationship between financial, personnel and managerial analysis was outlined, which made it possible to form a holistic picture of institutional capacity and assess the potential of territorial communities in the implementation of managerial changes in the crisis environment.

5. Results and Discussion

Taking into account the harsh realities of today in our country, there is a link to the requirements for flexibility and efficiency in making managerial decisions. There is a connection with the processes of both full-scale invasion and decentralization of power. Taking into account the outlined conditions, we observe that local self-government bodies become the leading institutions responsible for the successful implementation of administrative, social, and economic functions at the territorial level, supporting the viability of communities [9].

For the effective operation of local self-government bodies, an important condition is the introduction of design thinking, which is able to adapt management processes to the needs of the community, motivate the proactive behavior of authorities and produce modern management models that will focus on a comprehensive solution of problematic issues. Such integration of the principles of design thinking into management practice allows not only to improve the quality of decision-making, but also stimulates mechanisms for strengthening institutional capacity, which is able to determine the effectiveness of the performance of functions by local self-government bodies in the processes of difficult socio-economic conditions.

Figure 1 clearly shows how design thinking is integrated into the activities of local self-government bodies.

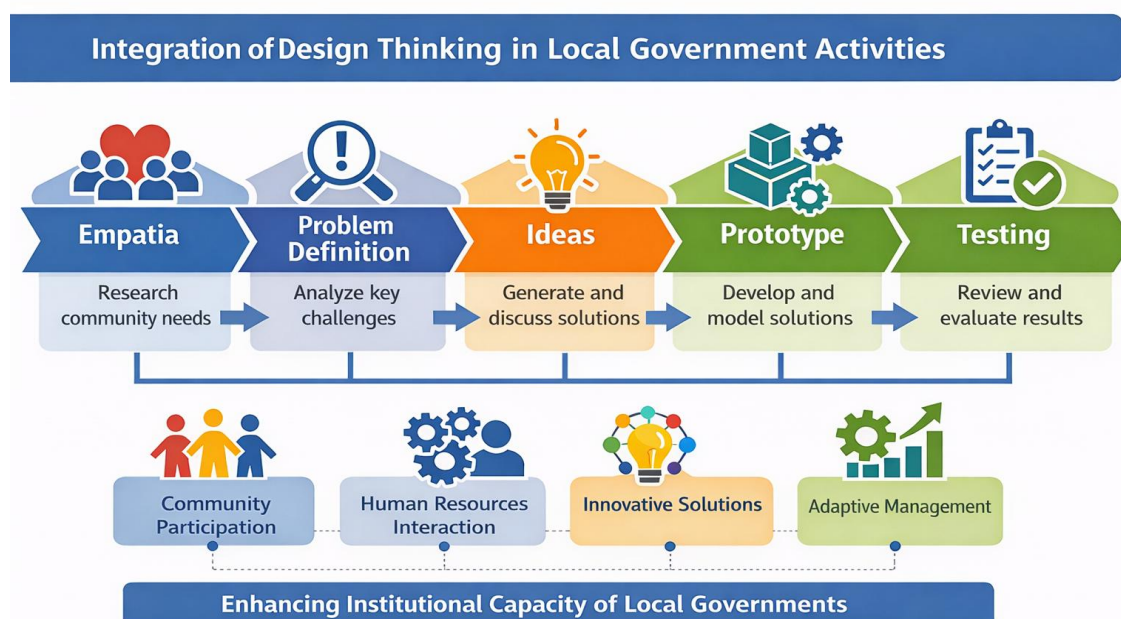


Figure 1. Integration of design thinking into the activities of local self-government bodies

Source: Compiled by the author.

It is advisable to note the statement of H. Shchedrova, who understands institutional capacity as the ability of an institution to perform its functions by ensuring an appropriate level of professional training of personnel, processes, organization and resources of the relevant institution [8, p. 146]. At the same time, it (institutional capacity) is considered as the ability of organizations to perform the functions assigned to them within the regulatory framework determined by the state.

Institutional capacity includes such basic elements as:

1) regulatory and legal support;

- 2) a system of special subjects;
- 3) financial and logistical support [13, pp. 559–560].

Such components can be attributed to the institutional capacity of local self-government bodies.

Thus, the European Charter of Local Self-Government outlined several main postulates that have a direct impact on the way the local self-government body operates: the powers vested in local self-government bodies, as a rule, should be complete and exclusive; general principles for the formation of administrative structures of local self-government bodies; selection of highly qualified personnel, taking into account personal qualities and competence; the number of employees of local self-government bodies [3, p. 247]. The condition for the institutional capacity of a local self-government body is a high-quality and objective personnel policy.

The main component of the institutional capacity of local self-government bodies is their functions. According to G. Zelenko, they proceed from the functions of territorial communities as the main ones, since the social role of local self-government is revealed in the functions of their representative bodies [14, pp. 50–51]. At the same time, functions are the basis, the basis from which the powers, forms and methods of activity of village, township, and city councils are derived. These are law-making, representative, managerial, coordination, information, planning function and budget and financial. According to different spheres, there are political, economic, social, cultural, environmental, etc. [14, p. 51]. The functions of local self-government bodies are disclosed and implemented through the powers enshrined in the legislation.

Assessment of the institutional capacity of local self-government bodies in the context of decentralization should take into account effective criteria that establish the level of viability of a particular territorial community. Such criteria, in addition to the availability of a regulatory framework, are also financial self-sufficiency and resource provision, human resources, support of the population, etc. It is also important to clarify all the existing contradictions between the expanded powers of local self-government bodies and the controlling functions of state departments and services [6, p. 98]. The assessment of institutional capacity should be carried out separately for each host community, taking into account the specified criteria.

Institutional capacity building includes: professional development (who), improvement of procedures (how) and organizational strengthening (which system). Institutional capacity is increased in such a way that the attraction of resources and their disposal contributes to a more efficient and effective functioning of institutions [7, p. 101]. The reform of decentralization of power is aimed, in particular, at increasing the institutional capacity of local self-government bodies, which, in particular, affected the potential opportunities to meet the needs of IDPs.

In the course of the analysis of the institutional capacity of local self-government bodies in 2023–2025 (according to the data given in Annual monitoring of the organization and development of local self-government as of 01.01.2025). A generalization of macroeconomic, budgetary and managerial indicators that determine the real capabilities of territorial communities to implement managerial changes in the conditions of a full-scale war was carried out. Based on the results of the analysis, it was determined that the slowdown in economic growth forms severe structural restrictions for the activities of local self-government bodies, reducing their financial, organizational and managerial capacity.

To systematize the numerical indicators that form the institutional environment of local self-government bodies, the results of the analysis are summarized in Table 1.

Table 1. Main indicators of impact on the institutional capacity of local self-government bodies (2023–2025)

Indicator	2023	2024	2025	Managerial consequences for local self-government bodies
GDP growth rate, %	5.3	3.5	2.7	Reduction of the financial base for community development
Share of own revenues in financing needs, %	–	–	48.0	Increased dependence on transfers
Number of citizens abroad, million people	–	–	6.9	Loss of labor and tax potential
Number of internally displaced persons, million people	–	–	≈4.0	Increasing social burden

Source: Compiled by the author based on [4].

From the data obtained in Table 1 data, we observe the following: the dynamics of the growth rate of the gross domestic product of Ukraine during 2023–2025. has a pronounced downward trajectory: from 5.3% in 2023 to 3.5% in 2024 and 2.7% in 2025. Such dynamics, according to the results of the study, indicates the gradual exhaustion of the compensatory mechanisms of the economy, which turns into a reduction in the budgets for the development of territorial communities, limitation of capital expenditures and a decrease in investment opportunities for the restoration of infrastructure and human capital. In turn, the institutional capacity of local self-government bodies is increasingly determined not by the number of available resources, but by the quality of management decisions and the ability to adapt management models to the crisis environment.

Further analysis of socio-economic and organizational factors made it possible to assess the nature of management models that dominate the practice of local self-government bodies. It is detailed that in the context of a shortage of financial, human and time resources, reactive and hierarchical management decisions still prevail. Due to this, there is a partial increase in the share of proactive approaches focused on the needs of communities, the involvement of stakeholders and the use of design thinking tools.

This structural transformation of managerial approaches is reflected in Figure 1, which shows the ratio of traditional and design-oriented management models.

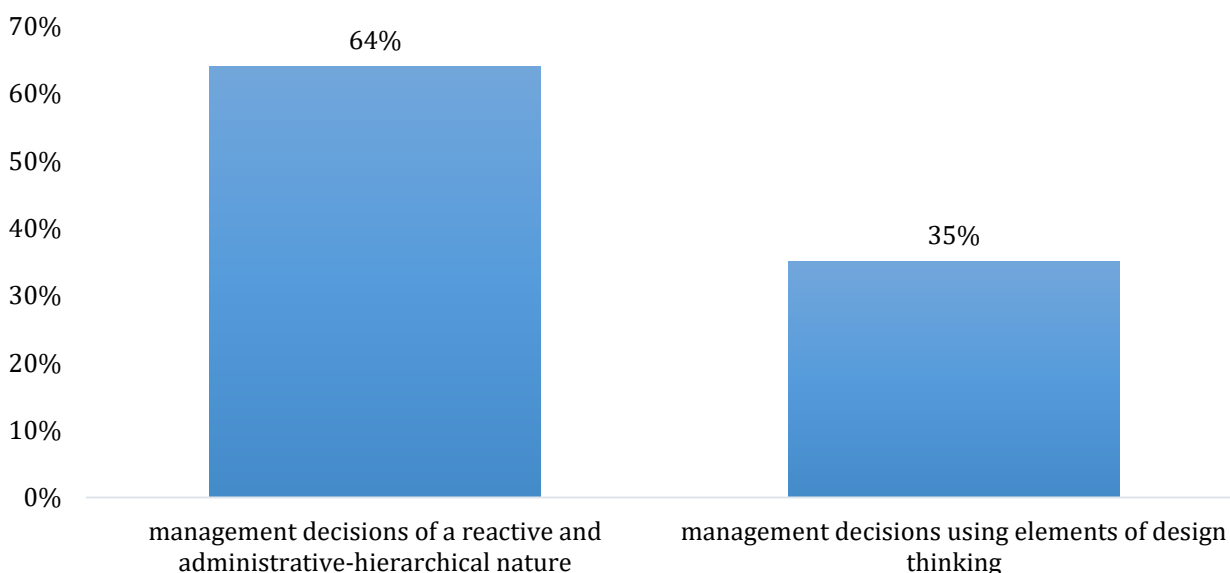


Figure 1. Correlation of traditional and design-oriented management models according to the CEMG/PAD Report for 2024

Source: Compiled by the author based on [1].

Analyzing the data shown in Figure 1, we can see that approximately 65% of managerial decisions retain their own administrative-hierarchical and reactive character. This trend is rather due to the preservation of centralized procedures in decision-making, where the main functions are concentrated in administrative units, and powers and responsibilities are clearly delimited according to the hierarchical principle. According to the results of the study, it became obvious that such an organizational structure makes it possible to control processes and comply with regulatory procedures. However, when responding to the new needs of the community, the adaptability and flexibility of local self-government bodies are limited. Usually, reactive solutions are more aimed at eliminating the consequences of existing problems, rather than preventing crisis phenomena, which in turn leads to the risk of delays in the provision of social and administrative services, reduces the effectiveness of budget planning and, of course, slows down the formation of innovative practices.

At the same time, almost 35% of all managerial decisions are formed due to the use of elements of design thinking, which forms a gradual transformation of management principles in communities. Design thinking involves a participatory approach, where residents and stakeholders are involved in identifying problems and jointly developing solutions; empathic analysis of the needs of the population, which allows a better understanding of social, economic and cultural contexts; as well as preliminary

testing of management decisions through prototyping and modeling of possible consequences. In general, we believe that this practice will contribute to real informed decision-making, which will reduce the risk of errors and increase citizens' confidence in local self-government bodies.

Thus, it is found that in the conditions of war, the institutional capacity of local self-government bodies is in the phase of structural transformation. Analyzing the correlation of traditional and design-oriented management models, it should be noted that the introduction of design thinking does not have a clear declarative character, but performs a compensatory function, allowing local governments to increase the effectiveness of managerial decisions under conditions of limited financial, human and organizational resources. In this case, design thinking appears as one of the key tools for strengthening the institutional capacity of local self-government bodies during the period of war and post-war transformation.

6. Conclusions

Based on the study, it was found that in today's conditions, the institutional capacity of local self-government bodies is a complex phenomenon that combines such elements as: organizational and financial support, regulatory and legal support, as well as the ability to function effectively in the public sector. The level of institutional capacity of local self-government bodies helps to directly determine the effectiveness of the exercise of powers in the process of interaction with territorial communities, as well as some kind of management decision-making. The article highlights the leading functions of local self-government bodies: rule-making, representative, managerial, coordination, informational and budgeting, which serve as the basis for the implementation of powers not only in the political sphere, but also in the social, cultural, environmental and economic.

Carrying out a full-fledged study of the features and effectiveness of the role of the institutional capacity of local self-government bodies, it was traced that the main evaluation criteria are resource provision, human resources, support of the population and financial self-sufficiency. At the same time, it was determined that there is no clear and meaningful direct proportional relationship between the growth of material and financial resources and the expansion of the powers of local self-government bodies. In the course of the analysis in 2023–2025, it was detailed that the reduction of budget resources and the slowdown in economic growth indicate the undoubted predominance of hierarchical and reactive management models. In this case, there is a decrease in the adaptability of local self-government bodies to changes in the socio-economic environment. In addition, there was a partial and slow growth in the share of design-oriented solutions, which already means the formation of a transformation of management models.

Thus, summarizing all the data presented in the article, it can be argued that the use of design thinking criteria in the practical activities of local self-government (this includes empathic analysis of citizens' needs, participation, preliminary testing of managerial decisions) contributes to compensating for limited resources, increasing efficiency in making meaningful decisions, as well as directly contributing to the transformation of institutional activities.

And finally, the growth of the institutional capacity of local self-government bodies still requires a systematic flexible approach, which includes improving personnel policy, optimizing procedures, organizational strengthening and active implementation of innovative management methods, including design thinking, which ensures a stable position of local self-government bodies in today's changing environment.

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Public Management of the Postgraduate Medical Education System: International Experience and Strategic Priorities for Ukraine

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ABSTRACT

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Postgraduate medical education is a key factor in maintaining and improving the quality and safety of medical services, as well as an important tool for developing the human resources of the health care system. In the context of ongoing healthcare reforms, digital transformation and European integration processes, Ukraine faces the need to modernize the mechanisms of public management in this area. The traditional system of postgraduate education, based on centralized forms of training and periodic advanced training, today requires a transition to the concept of continuous professional development, which provides for flexible, individualized and practice-oriented training throughout the professional life of medical workers. The article analyzes the current state of postgraduate medical education in Ukraine, identifies key problems, including fragmentation of management between authorities and educational institutions, low level of digitalization of processes, unequal access to quality education between regions and lack of systemic incentives for the participation of medical workers in professional development. In addition, a comparative analysis of international models of professional development of medical workers in the countries of the European Union, the USA, Canada and according to the recommendations of the World Health Organization, was carried out, demonstrating the effectiveness of mandatory training, integration of digital platforms, accreditation of training programs, independent monitoring and implementation of motivational mechanisms. Based on the results obtained, strategic guidelines aimed at increasing the efficiency, accessibility and transparency of the management of postgraduate medical education in Ukraine are proposed. Among them: the normative consolidation of the obligation of professional development, the creation of a unified digital register of educational trajectories, the development of regional centers and mobile educational platforms, the integration of professional development into the licensing and accreditation system, as well as the establishment of financial and career incentives for medical workers. The implementation of such measures will modernize the public administration system, ensure equal access to quality education, integrate the Ukrainian education system into the European and international context, and increase the professional competence of medical workers, which will contribute to improving the quality and safety of medical services in the country.



KEYWORDS

public administration, postgraduate medical education, continuous professional development, health care reform, strategic management, digital transformation.



Публічне управління системою післядипломної медичної освіти: міжнародний досвід та стратегічні пріоритети для України

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Післядипломна медична освіта є ключовим чинником підтримання та підвищення якості та безпеки надання медичних послуг, а також важливим інструментом розвитку кадрового потенціалу системи охорони здоров'я. У контексті триваючих реформ охорони здоров'я, цифрової трансформації та євроінтеграційних процесів Україна стикається з необхідністю модернізації механізмів публічного управління цією сферою. Традиційна система післядипломної освіти, що базувалася на централізованих формах навчання та періодичному підвищенні кваліфікації, сьогодні потребує переходу до концепції безперервного професійного розвитку, яка передбачає гнучке, індивідуалізоване та практико-орієнтоване навчання протягом усього професійного життя медичних працівників. У статті проведено аналіз сучасного стану післядипломної медичної освіти в Україні, виявлено ключові проблеми, серед яких фрагментованість управління між органами влади та навчальними закладами, низький рівень цифровізації процесів, нерівний доступ до якісного навчання між регіонами та відсутність системних стимулів для участі медичних працівників у професійному розвитку. Додатково здійснено порівняльний аналіз міжнародних моделей професійного розвитку медичних працівників у країнах Європейського Союзу, США, Канаді та за рекомендаціями Всесвітньої організації охорони здоров'я, що демонструють ефективність обов'язковості навчання, інтеграції цифрових платформ, акредитації навчальних програм, незалежного моніторингу та впровадження мотиваційних механізмів. На основі отриманих результатів запропоновано стратегічні орієнтири, спрямовані на підвищення ефективності, доступності та прозорості управління післядипломною медичною освітою в Україні. Серед них: нормативне закріплення обов'язковості професійного розвитку, створення єдиного цифрового реєстру освітніх траєкторій, розвиток регіональних центрів та мобільних освітніх платформ, інтеграція професійного розвитку у систему ліцензування та акредитації, а також встановлення фінансових і кар'єрних стимулів для медичних працівників. Впровадження таких заходів дозволить модернізувати систему публічного управління, забезпечити рівний доступ до якісного навчання, інтегрувати українську систему освіти у європейський та міжнародний контекст і підвищити професійну компетентність медичних працівників, що сприятиме підвищенню якості та безпеки медичних послуг у країні.



КЛЮЧОВІ СЛОВА

публічне управління, післядипломна медична освіта, безперервний професійний розвиток, реформування охорони здоров'я, стратегічне управління, цифрова трансформація.

1. Introduction

In the context of the transformation of the health care system of Ukraine, postgraduate medical education is becoming of key importance as a tool for ensuring the continuous professional development of medical workers [7]. The rapid updating of medical knowledge, the introduction of evidence-based medicine, the digitalization of clinical practice, and the growing requirements for the quality of services necessitate effective public management of this industry.

Public administration in the field of postgraduate education covers the formation of state policy, legal regulation, organization of the educational process, quality assurance, financing and monitoring of results. The peculiarities of medical education – its social significance, interdisciplinarity, and constant need to update competencies – require a strategic approach that combines centralized standards with the autonomy of educational institutions. Despite the presence of separate regulations [3; 8], the system of postgraduate medical education in Ukraine remains fragmented, with insufficiently defined powers and the absence of a unified development strategy. This fragmentation reduces the effectiveness of training specialists, complicates the introduction of innovations and inhibits integration into the European educational space.

Therefore, the study of strategic guidelines of public administration in the system of postgraduate medical education is relevant. It should take into account international experience, modern challenges and needs of the Ukrainian healthcare system.

2. Literature Review

Postgraduate medical education in Ukraine has a long history, originating from the Soviet model of advanced training. Traditionally, the system was centralized, focused on periodic training in academic institutions. The transition to a market economy and European integration processes necessitated a transition to the concept of continuous professional development (CPD) [13].

International experience of continuous professional development demonstrates the effectiveness of the following approaches: (1) EU. National authorities regulate CPD within the framework of the European Commission and the UEMS. A system of loans, accreditation of providers and electronic platforms (e-Portfolio) is used [4; 5]. (2) USA. Accreditation Council for Continuing Medical Education (ACCME) coordinates the CPD; mandatory certification support; a high level of competition between providers stimulates innovation; integration with MOC; funding from various sources [1]. (3) Canada. Royal College of Physicians and Surgeons of Canada (RCPSC) applies Maintenance of Certification; a combination of formal and non-formal learning; MAINPORT online platform; Focus on results [10]. (4) World Health Organization (WHO). The recommendations include the institutionalization of CPD, integration with licensing systems, digitalization of access, and cross-sectoral cooperation [2; 12].

The Ukrainian system remains fragmented and insufficiently digitalized, with an unclear distribution of powers between authorities, educational institutions, and professional associations [3; 8; 9; 13].

3. Problem Statement

The article aims to determine strategic directions for modernizing the mechanisms of managing postgraduate medical education in Ukraine, taking into account modern challenges, international experience, and the needs of the health care system. Thus, the study aims to identify strategic guidelines to modernize the management system of postgraduate education, increase its efficiency, ensure equal access to high-quality CPD, and integrate the Ukrainian education system into the European and international educational space.

4. Methods and Materials

The study used a comprehensive approach, which included an analysis of Ukrainian regulations, in particular the Laws of Ukraine “On Education” and “On Higher Education”, the Resolution of the Cabinet of Ministers of Ukraine No. 302, the Order of the Ministry of Health No. 446 and the accreditation standards of the National Agency for Higher Education [3; 8; 9; 13]. A comparative analysis of international models of continuous professional development (CPD) in the EU, the USA, Canada and according to WHO recommendations was also carried out [1; 2; 4; 5; 10; 12]. In addition, a systematic

analysis of problems and management challenges was carried out, in particular, fragmentation of management, digital gaps, unequal access and low motivation of doctors. On the basis of this, a synthesis of strategic guidelines aimed at modernizing and increasing the efficiency of the Ukrainian system of postgraduate medical education is carried out.

5. Results and Discussion

The state of postgraduate medical education in Ukraine

Postgraduate medical education in Ukraine has a long history, originating from the Soviet model of advanced training. For decades, it functioned as a centralized system focused on periodic training in academic institutions. However, the transition to a market economy, healthcare reform, and European integration have created a need to update approaches to professional development [13].

The modern model is gradually transforming from formal training to the concept of continuous professional development, which provides for flexible, individualized and practice-oriented learning throughout professional life.

Regulation of postgraduate medical education is carried out mainly by acts of the Ministry of Health, the Ministry of Education and Science and the Cabinet of Ministers. Key documents: Laws of Ukraine "On Education" and "On Higher Education". Resolution of the Cabinet of Ministers of Ukraine No. 302 (as amended) on the procedure for advanced training of doctors [3]. Order of the Ministry of Health No. 446 approving the Regulations on Postgraduate Education of Doctors [8]. Accreditation Standards for Educational Programs of the National Agency for Higher Education [9]. Despite this, the regulatory framework remains fragmented, with an unclear distribution of powers between authorities, educational institutions and professional associations.

The system includes: National institutions (Shupyk National Medical Academy of Postgraduate Education). Medical universities with postgraduate faculties. Simulation Training Centers. Professional associations that organize training and certification courses.

The lack of a single coordinating body for the formation of the strategic policy of the CPD leads to duplication of functions, unequal access and lack of systematic quality monitoring.

Key problems hindering development: Fragmentation of management between the Ministry of Health, the Ministry of Education and Science, the National Agency for Higher Education and educational institutions. Insufficient digitalization of training and accounting processes for CPD [6]. Lack of a unified development strategy that takes into account the needs of the regions and international standards. Limited funding and low motivation of doctors to study. Unequal access to quality education between the centers and the periphery.

Strategic Challenges and Management Challenges

The main challenge is the lack of a single focal point for policy-making, quality monitoring, and integration of educational processes. The dispersion of powers between the Ministry of Health, the Ministry of Education and Science, the National Agency for Higher Education, educational institutions and associations leads to duplication, regulatory uncertainty and inconsistency of actions, which complicates reforms, the introduction of uniform standards of CPD and ensuring equal access.

Although digital technologies are actively introduced into clinical practice, the system of postgraduate education remains predominantly "paper". The limited use of electronic platforms for registration, accounting, and certification of training is a major drawback. The lack of a unified digital register of CPD, integrated with the registers of the Ministry of Health and the National Health Service of Ukraine, complicates the management of doctors' educational trajectories, monitoring their qualifications and making informed personnel decisions [11].

There is a significant disparity between the capabilities of doctors in large cities and peripheral regions. Access to simulation centers, modern courses, and international certifications is concentrated mainly in regional centers, while doctors from rural areas have limited access to high-quality CPD, which poses risks to patient safety and deepens inequalities [12].

The system does not provide clear incentives for doctors to participate in CPD. Advanced training is often perceived as a formality, and not a tool for professional growth [13]. The lack of connection between training, career growth, and salary reduces the effectiveness of educational programs.

Most institutions depend on insufficient government funding, which hinders innovation, updating the base, and attracting qualified teachers. Limited managerial autonomy makes it difficult to plan strategically, partner with international organizations, and adapt to market needs.

International experience: Models of CPD in the EU, USA, Canada and WHO

Continuous professional development (CPD) is the main element of health policy in developed countries, aimed at constant updating of knowledge and competencies in accordance with modern standards [2; 12]. Successful models are based on the principles of mandatory program accreditation, independent monitoring, and association with a professional license.

In EU countries, CPD is regulated by national authorities, but within the framework of the common framework of the European Commission and the European Union of Medical Specialists (UEMS) [4]. Main features: mandatory CPD for license renewal in most countries [5]; credit system (CME/CPD points); accreditation of providers through independent agencies; digital accounting platforms (e.g., e-Portfolio in the UK).

In the United States, CPD is coordinated by the Accreditation Council for Continuing Medical Education [1]. Features of the model: de facto mandatory to maintain certification; high competition between providers, which stimulates innovation; Integration with clinical information systems (Maintenance of Certification); funding from employers, insurers, and pharmaceutical companies (with strict control of conflicts of interest) [1].

The Canadian CPD system is coordinated by the Royal College of Physicians and Surgeons of Canada and is based on the Maintenance of Certification concept [9]. Main Features: mandatory CPD for College Members; three types of activities (formal, informal learning and evaluation of practice results); MAINPORT online platform for development planning and accounting; focus on the result, not just the number of hours [10].

The World Health Organization sees CPD as a key component of human resources development for health [12]. Its recommendations include: institutionalization of CPD at the level of national policy; connection of CPD with licensing and accreditation systems; use of digital technologies to expand access in remote regions; intersectoral cooperation between governments, educational institutions and professional communities [2; 12].

Strategic guidelines for Ukraine

Taking into account health care reform and European integration, Ukraine needs a clearly defined national CPD strategy, aligned with WHO recommendations [2; 12]. The strategy should include: normative consolidation of the obligation of CPD; creation of a unified digital register of CPD; clear distribution of roles of the state, educational institutions and professional associations; integration of CPD with licensing and accreditation systems.

Digitalization of CPD should become a priority of public administration, taking into account the experience of the EU and North America [4; 10]. It is proposed: to develop a national CPD platform for registration, accounting, evaluation and certification; ensure its integration with the registers of the Ministry of Health, the National Health Service of Ukraine, and the National Agency for Higher Education and Higher Education; implement electronic portfolios of doctors to fix the educational trajectory; provide access to online courses, simulation trainings, and international programs.

For effective CPD management, it is necessary to provide postgraduate education institutions with greater financial and academic autonomy, allow partnerships with international organizations, and stimulate the development of innovative educational programs adapted to the needs of regions and specialties [13].

Public administration should ensure a direct link between CPD and professional development, as in advanced models [1; 5; 10]. Proposals: include achievements in the CPD as a criterion for certification, license renewal and appointment to managerial positions; introduce financial incentives (allowances, grants, compensation for the cost of education); create defined career trajectories related to educational activity.

The National Strategy should provide, according to the principles of WHO equity [2]: development of regional CPD centers; mobile educational platforms for rural areas; state funding of CPD for primary care doctors; and inclusiveness of programs for different categories of medical professionals.

6. Conclusions

Postgraduate medical education is a critical component of the health care system, which provides professional adaptation and improvement of the quality of medical services [7; 6]. In the context of reforms, digitalization and European integration, public management in this area should be strategically oriented, systemic and transparent.

In the course of the study, it was found that: the system of postgraduate medical education in Ukraine is fragmented, with unclear managerial powers [3; 8; 9]. There is an urgent need for the digital transformation of the CPD, the creation of a single register and electronic educational trajectories [6; 11]. International experience (EU, USA, Canada, WHO) demonstrates effective CPD models that combine mandatory, digitalization, accreditation and motivation [1; 4; 5; 12; 13]. For Ukraine, it is necessary to form a national strategy for CPD, expand the autonomy of institutions, ensure equal access to education, and integrate CPD into the licensing system [2; 13].

The proposed strategic guidelines can become the basis for modernizing management mechanisms, increasing the efficiency of postgraduate medical education and strengthening the human resources of the health care system of Ukraine.

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The Essence, Goals and Functions of Public Governance in the Healthcare Sector

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The article provides a theoretical and applied interpretation of the essence of public governance in the healthcare sector through the substantiation of its goals and functions as interrelated elements of a coherent public policy system. The authors emphasize that the complexity of organizing the work lies in the need to coordinate and simultaneously work with medical care, prevention, social determinants, behavioral and psychological factors, as well as with the data obtained and the institutional capacity of the system. International WHO documents were used to clarify the content of the categories “health”, “primary health care” and “health promotion” as basic semantic guidelines. It is argued that the essence of public governance in healthcare is determined by the dual nature of this domain, where the authoritative role of the state as a guarantor of rights, standards and patient safety is combined with a service-oriented logic focused on human needs and measurable outcomes of public decisions. The goals of public governance in healthcare are interpreted as multidimensional priorities covering the implementation of the right to health, equitable access to services, improvement of quality and patient safety, financial sustainability, institutional capacity, and resilience to crises in the context of war-related and pandemic risks. Based on a synthesis of scholarly approaches, an integrated functional model of healthcare governance is proposed, comprising regulatory and legal, institutional and organizational, strategic, financial and economic, information and analytical, quality and patient safety, preventive and public health, crisis and adaptive, as well as communicative and partnership functions. The article demonstrates that governance effectiveness depends not on declarative goal-setting but on functional decomposition of goals, availability of instruments and enforceable accountability; digital transformation should be treated as a foundation for governability and transparency, while partnerships with communities and non-state actors are a prerequisite for policy legitimacy and system resilience. The conclusion substantiates that an integrated view of the essence, goals and functions of public governance in healthcare provides a conceptual basis for consistent reforms capable of ensuring social equity, high-quality services and crisis readiness.



KEYWORDS

healthcare; governance goals; governance functions; public health, military challenges, crisis, security, efficiency.



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Сутність, цілі та функції публічного управління у сфері охорони здоров'я

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У статті здійснено теоретико-прикладне осмислення сутності публічного управління у сфері охорони здоров'я через обґрунтування його цілей та функцій як взаємопов'язаних елементів керованої публічної політики. Автори акцентують увагу на тому, що складність в організації роботи полягає в тому, що потрібно скоординувати і одночасно працювати з медичною допомогою, профілактикою, соціальними детермінантами, поведінково-психологічними чинниками, а також із отриманими даними та інституційною спроможністю системи. Використано міжнародні документи ВООЗ для уточнення змісту категорій «здоров'я», «первинна медична допомога» та «промоція здоров'я» як базових смислових орієнтирів. Доведено, що сутність публічного управління в охороні здоров'я визначається подвійною природою цієї сфери, в якій владно-розпорядчі повноваження держави як гаранта прав, стандартів і безпеки пацієнта поєднуються із сервісною логікою, зорієнтованою на потреби людини та результативність публічних рішень. З'ясовано, що цілі публічного управління у сфері охорони здоров'я мають багатовимірний характер і охоплюють реалізацію права на охорону здоров'я, забезпечення справедливого доступу до допомоги, підвищення якості та безпеки медичних послуг, фінансову стійкість системи, інституційну спроможність та здатність до антикризового реагування в умовах воєнних і пандемічних ризиків. Запропоновано узагальнену функціональну модель публічного управління охороною здоров'я, яка включає стратегічну, нормативно-правову, інституційно-організаційну, фінансово-економічну, інформаційно-аналітичну, функцію забезпечення якості та безпеки пацієнта, профілактично-громадсько-оздоровчу, антикризово-адаптаційну та комунікативно-партнерську функції. Обґрунтовано, що ефективність управління визначається не лише наявністю формально проголошених цілей, а їхньою функціональною наповненістю з інструментальним забезпеченням та підзвітністю, де партнерська взаємодія з громадами та недержавними акторами виступає головною передумовою легітимності й стійкості політики. Зроблено висновок, що інтегрований підхід до сутності, цілей і функцій публічного управління у сфері охорони здоров'я створює підґрунтя для узгодженого реформування системи, здатного забезпечувати соціальну справедливість, високу якість послуг і готовність до криз.



КЛЮЧОВІ СЛОВА

охорона здоров'я, цілі управління, функції управління, громадське здоров'я, воєнні виклики, криза, безпека, ефективність.

1. Introduction

Public administration in the field of health care falls within segments of state policy where managerial decisions attract public sensitivity due to their direct connection to life, dignity, and basic human rights, which in Ukraine is further strengthened by military challenges, migration processes, demographic aging, and accumulated disproportions in access to services. The constitutional obligation of the state to ensure the human right to health care, medical care and health insurance requires public authorities not only to legislate but also to create a manageable system capable of guaranteeing the real availability of care and patient safety in the face of a shortage of resources and constantly changing needs of the population.

The complexity of health care management stems from the very content of the phenomenon of "health", which in the international doctrine is considered as a complex state of physical, mental and social well-being. It is therefore not reduced to the absence of diseases, which means: public administration must simultaneously work with medical care, prevention, social determinants, behavioral factors, data and the institutional capacity of the system. In this sense, the key problem is that management goals are often proclaimed as universal and "correct", but without proper functional implementation, i.e., without transforming goals into coherent functions, tools and performance indicators, they remain declarations, and the system loses its ability to long-term modernization, crisis response and recovery.

2. Literature Review

In the Ukrainian scientific discourse, the problems of the essence of public health care management and its functional structure are revealed through several complementary directions. Many researchers pay considerable attention to the theoretical foundations and principles of public health care management, in particular O. Babiak, emphasizing the humanistic mission of the sphere and the need to integrate humanitarian and socio-economic approaches, in functional terms highlights the value "core" of the health policy of the state and the limits of permissible commercialization of the system of medical services provision [2]; imperatives of public health care management based on the innovative transformation of the health care system are defined by O. Khanina [8].

In the works devoted to the state regulation of the health care system, the emphasis is shifted to the instrumental side of management. In particular, the scientist S. Zakharov calls the ability of state institutions to ensure a balance between accessibility, quality and financial sustainability of services in crisis conditions, including digitalization and medical data management, to be decisive [16, p. 199]. However, analyzing public administration in the field of healthcare, authors such as Z. Buryk et al. indicate that despite the development of management infrastructure and the introduction of digital technologies, there are problems of uneven access to services, fragmentation of the system and limited resources. Solving these challenges requires strengthening coordination between levels of management, optimizing resources, improving control mechanisms and actively involving the public in the assessment and monitoring of the system's activities [4, p. 10]. At the same time, scientists Yu. Mazur and Ye. Zhabko outlines modern models of responsibility for health and searches for the optimal configuration of the roles of the state, the individual and partner actors, which allows justifying the goals of management not only as "state intentions", but as a social contract for the distribution of responsibility and resources [10].

A. Dakal in his conceptual work comprehends health care as the leading function of the public administration system, which leads the researcher to the logic of "health as a national priority", within which the goals and functions of management should be built as a holistic public policy, and not as a set of administrative decisions [6]. Finally, in the context of digital transformation, G. Byshenko turns to the principles of state policy for the development of e-health, since e-health is seen as a reform tool and at the same time as a new space of risks related to system interoperability, data reliability, human resources competencies and accountability [5].

3. Problem Statement

The purpose of this work is to theoretically and applied disclosure of the essence of public administration in the field of health care through the substantiation of its goals and functions, as well as the formation of a generalized functional model that allows to coordinate legal guarantees, social expectations and management tools for the development of the health care system in the face of modern challenges.

4. Methods and Materials

The methodological foundations of this article are formed on a combination of systemic and structural-functional approaches, which provides consideration of public health care management as a multi-level managed system, where goals set the direction of development, and functions are institutionally and procedurally formalized ways to achieve these goals. The systemic approach was used to establish the relationships between legal guarantees, institutional architecture, resource flows, data and results for the population, while the structural-functional approach made it possible to specify the set of basic management functions, correlate them with the types of tools and outline the risks of functional “failures” (when the function is formally defined, but not supported by a tool, capacity or accountability).

Comparative and analytical approaches are used to interpret models of responsibility for health and to compare the approaches of domestic authors to the functions and principles of management. The conceptual analysis of WHO international documents is used to clarify the content of the categories of “health”, “primary health care” and “health promotion” as basic semantic guidelines, from which the goals and functions of public administration in this area are derived.

5. Results and Discussion

By its ontological essence, public administration in the field of health care is a form of practical implementation of the constitutional human right to health care and medical care, and therefore has a dual character: on the one hand, it preserves the power and administrative nature of the state as a guarantor of rules, standards, security and fair distribution of resources, and on the other hand, acquires a service orientation focused on the needs of the patient as the final recipient of services, which requires effectiveness, openness and partnership with non-state actors. It is this duality that is key to understanding that health management primarily serves the “public good”, where economic mechanisms are permissible only within the limits of social justice and legal guarantees.

The concept of “health” sets the framework within which public administration defines its goals: if health is understood as a state of well-being, then public policy cannot be limited to treatment, but must cover prevention, living conditions, information, behavioral risks and the availability of services. In this context, the WHO approach, according to which health is interpreted as “a state of complete physical, mental and social well-being”, is fundamentally important, which conceptually pushes public administration towards intersectorality and long-term planning [13]. At the same time, the Almaty Declaration fixes primary health care as a universally accessible, socially acceptable and economically feasible basis of the system [15], which means that the real goals of management should be related to primary care, prevention, patient routing and public participation, because without this, the system becomes expensive and unequal in access.

The essence of public administration is also manifested in the way the state distributes responsibility for health among the main actors, because in political discourse it is possible to distinguish the model of institutional (state), individual and partnership (solidarity) responsibility for health, and it is the choice of the dominant model that determines the permissible tools, the limits of privatization and the nature of accountability. In this regard, Yu. Mazur and Ye. Zhabko emphasize that “three main models of health care can be distinguished”, and therefore managerial logic is not neutral, it always reproduces a certain social compromise on the role of the state [10].

In our opinion, the essence of public administration in the field of health care should be understood as a systematic, normatively and institutionally formalized, socially oriented influence of public authorities on the preservation and strengthening of public health, within which goals set socially

acceptable development guidelines, and functions turn these guidelines into coordinated management mechanisms capable of ensuring accessibility, quality, fairness and sustainability of the system.

In the applied dimension, the modern transformation of health care management in Ukraine is moving from an administrative-command model to a contractual-effective one, when the state retains the function of guarantor and regulator, but increasingly uses financial incentives, contracting, standardization and information systems to ensure transparency and quality. In this aspect, S. Zakharov's emphasis is indicative on the fact that the effectiveness of the system is largely "determined by the interrelated work of content, principles and tools as an integral system, where digital technologies, mobile formats, deregulatory and legal approaches, control and communication mechanisms are integrated to ensure the sustainability and development of the industry, which actually reveals the "triangle of goals" of modern public administration in this area [16, p. 198].

Moving on to the goals of public administration in the field of healthcare, it should be emphasized that they are not limited to the generalized formulation of "improving public health", since in the managerial plane the goal becomes meaningful only when it can be linked to functions, tools and results. In our opinion, it is advisable to interpret the goals of public administration in the field of health care as an interrelated set of guidelines aimed at ensuring the implementation of the right to protection health, increasing the availability and quality of services, reducing inequalities and building the system's resilience to crises. The logic of these goals, in fact, reproduces the priorities of modern health and healthy lifestyle promotion, where the key is to create conditions for healthy choices and strengthen the capacity of communities, which is conceptually consonant with the provisions of the Ottawa Charter on the need for health-friendly policies, intersectoral interaction and community empowerment [14]. That is, G. Byshenko refers to the main goals of the state policy in the field of health care "solving the priority tasks of the national policy in the field of health care in the field of infrastructure, regulatory compliance, financial support, organizational support, human resources and technological capabilities" [5, p. 265].

The implementation of the goals is carried out in accordance with the principles outlined in the strategic documents, in particular, the researchers identify the following key principles of public health management: the principle of "health preservation in all policies"; the principle of focus on a healthy person; the principle of accessibility of preventive measures, as well as measures aimed at assessing the state of health or detecting the disease; the principle of objectivity; the principle of shared responsibility; the principle of observance and implementation of health-improving measures throughout life; the principle of the shared value of health; the principle of the scientific approach; the principle of realization of the internal harmony of the physical, spiritual, mental state of a person, as well as harmony with the ecological and social spheres; the principle of focus on the quantitative assessment of the reserve capabilities of the body of a healthy person and their correction for the realization of health potential; the principle of gradualness provides for the sequence of implementation of goals and objectives for the formation of a healthy lifestyle; the principle of sustainable development; the principle of economic feasibility; the principle of coordination; the principle of partnership; the principle of new humanism [2, p. 112]. According to Yu. Mazur and Ye. Zhabko "the relevance of health care at this stage implies an intensive and extensive change in the image of health in political discourse based on the principles: value attitude to health; comprehensiveness in health care assessment; convergence of the most politically productive health models (philosophical, cultural, medical and sociological); joint responsibility of political and non-political institutions for health care; ranking of health care, starting with the problems of the system and institutional levels, and ending with the problems of the structural and individual levels" [10, p. 328], that is, implementation through a multi-level system of coordination is necessary.

If the goals set the direction, and the principles set the content of the activity, then the functions are the mechanism for achieving the desired goal, and therefore, it is the functional model of the state health policy that allows avoiding a situation where reformist decisions are dispersed between departments and levels of government, without being combined into a managed system. In the scientific literature, there is a different grouping of functions, in particular, O. Khanina distinguishes heuristic, coordinating, integrating, logical-epistemological [8, p. 198]; G. Kozachenko and O. Solohub – digital (eHealth), integration (association of state and non-state actors) and quality management function [9]; I. Venger – financial, analytical, quality assurance, strategic planning, interaction between management levels [12]; D. Havrychenko et al. – regulatory, controlling, accountability, transparency and reporting functions [7]; O. Melnychenko and Zh. Ovcharova – service, management, human resources management, monitoring [11]; A. Barzylovych – functions of financial management, contracting,

efficient allocation of resources, forecasting [3]; M. Anishchenko – the functions of outlining the directions for the implementation of the norms of the current medical legislation; protection of patients' rights; improvement and one hundred percent implementation of electronic data exchange in medical activities; ensuring the availability of state and municipal health care resources; formation of a single medical space of Ukraine [1, p. 32–33]. Generalization of the above approaches allows us to assert that the most productive is the understanding of functions as stable directions of managerial influence, which have both normative certainty, organizational consolidation and resource basis. Based on this, it is advisable to consider a complex of interrelated functions of public administration in the field of health care: strategic, regulatory, institutional-organizational, financial and economic, quality assurance and safety functions patient, information-analytical, preventive-public-health, anti-crisis-adaptation, and communicative-partner functions, and each of them works only in conjunction with the others.

The strategic function combines long-term vision with evidence-based data: it includes prioritization, development programming, needs forecasting, human resource and innovation management, and building the system's capacity to modernize without losing availability. It is here that the key feature of modern public administration is manifested: the focus on results in the dimensions of public benefit, and not on “process for the sake of the process”.

The regulatory function shapes the rules of the game: it provides certainty of patient rights, the limits of provider responsibility, standards of care, financing procedures and guarantees of access, as well as creates legal conditions for digital processes, data circulation and accountability. Its practical role is to turn constitutional guarantees into applicable procedures and at the same time minimize legal conflicts that can block management response in times of crisis. G. Kozachenko and O. Solohub “it is not uncommon for the necessary changes to be made to certain regulatory documents, the norms of individual laws are not only not coordinated, but even contradict the norms of other laws” [9, p. 40]. The institutional and organizational function ensures the distribution of powers and coordination between executive authorities, local self-governments, providers and partner structures, and its effectiveness is measured not by the number of “links”, but by the ability of the system to act in a coordinated and predictable manner, especially when the need for resource mobility and rapid decision-making increases.

The financial and economic function, in turn, provides resource “nutrition” of the system and acts as the main channel of the state's influence on the behavior of providers through tariffs, contracts, incentives, control of the intended use of funds and requirements for efficiency, because “ensuring sufficient financing of medical institutions is critically important for maintaining the stable functioning and development of the health care sector” [12, p. 216]. The function of ensuring the quality and safety of the patient is the link that combines professional standards of medicine with administrative mechanisms for supervision and evaluation of performance, and in the social dimension, forms trust in the system, without which any reforms turn into a conflict of values. The preventive-public-health function, on the other hand, transfers management from the plane of “treatment of consequences” to the plane of “risk management”, which involves interventions at the level of behavior, environment, vaccination, surveillance, communication and cross-sectoral interaction, and this is where governance goes beyond the medical field, becoming a component of social and development policies.

The information and analytical function in the context of digitalization turns into a central condition for controllability, because without reliable data, management inevitably becomes reactive and situational. That is why the development of e-health is considered as a tool for implementing the reform, and “the main problems of the development of e-health are the lack of compatibility of information systems in the field of healthcare, the lack of a single unique identifier for patients, imperfection of information infrastructure and interaction between national registers, imperfection of several registers, insufficiency of professional specialists for automation and management of shifts, insufficiency of computer and network equipment in health care institutions” [5, p. 264]. At the same time, digitalization is not an “end in itself”, it must be subordinated to the goals of quality and accessibility, and therefore the e-health policy must be based on the principles of interoperability, safety, patient focus and change management, otherwise information technologies will reproduce fragmentation in a new form.

The crisis adaptation function is especially important in war, pandemic threats and humanitarian crises, when management must guarantee continuity of assistance, resource logistics, mobility of services and rapid coordination of decisions between levels of government. Finally, the communicative-partnership function ensures the legitimacy of politics and coordination of interests, since healthcare,

being a social priority, cannot develop effectively without the participation of communities, professional communities, civil society and the private sector, and therefore the state should act not only as a regulator, but also as an organizer of partnerships and a moderator of public dialogue.

Thus, the most productive for modern conditions is an integrated functional model of public administration, in which digitalization is considered not as an isolated technological project, but as an information and analytical basis for manageability and accountability, and partnership interaction with communities, professional communities and non-state actors is considered as a condition for the legitimacy and sustainability of policy, which together allows the health care system to respond to crises and at the same time modernize without loss social justice.

6. Conclusions

The modern healthcare management system in Ukraine is at the stage of deep transformation, which is due to both internal challenges and the need to adapt to European standards and global management practices. Reforming the health care system in Ukraine is aimed at improving the efficiency of resource use, ensuring the availability and quality of medical services. Healthcare is not only an object of state policy, but also a systemic institutional sphere that requires comprehensive, targeted and intersectoral management based on the partnership of the state, communities and the private sector.

Increasing the efficiency of the medical sector of our country in the context of reforming the health care system requires strategic planning and comprehensive improvement of institutions, mechanisms, and models of public administration in this area, aimed at the proper implementation of the main functions and goals of the state to guarantee the constitutional right of citizens to receive medical services. Taking into account the current state of public administration and the identified problems and challenges, it is advisable to form a system of interrelated proposals aimed at ensuring the financial stability of medical institutions, increasing the effectiveness of management decisions and strengthening the social legitimacy of reforms, in particular:

1. Improving the model of financing the development of medical institutions based on a multi-channel approach. Improving the efficiency of financing the development of medical institutions requires a transition from a single-channel model of resource provision to a multi-channel financing system that combines budgetary, extra-budgetary and investment sources health and limits the possibilities of their strategic development. Based on the understanding of this state, A. Dakal proposes "the introduction of favorable conditions for increasing financial investments by the population, employees and employers in the formation of public health, for which it is necessary to ensure a high priority of health in the hierarchy of social values of society, as well as to create real opportunities and economic incentives for expanding the participation of employers and employees in financing measures aimed at improving the state of health population" [6, p. 152]. For their part, D. Havrychenko et al. propose "to form a set of measures to establish information and communication links between the central executive authorities regarding the financial support of the health care system; to regulate at the state level the procedure for the use of local budget resources to finance health care institutions; to transform the mechanism of strategic procurement of the NHSU through the introduction of innovative software products with sectoral features [7, pp. 130–131].

In our opinion, it is also expedient to expand the use of local budget funds within the framework of programs for the socio-economic development of communities, as well as to more actively involve the mechanisms of public-private partnership, grant programs, charitable foundations and international technical assistance. This approach allows not only to diversify sources of funding, but also contributes to the introduction of innovations, modernization of infrastructure and improvement of the quality of medical services.

2. Institutionalization of strategic planning for the development of medical institutions. Effective development of medical institutions is impossible without a clearly formed system of strategic planning. Therefore, it is expedient to institutionalize strategic planning at all levels of management, from the state to the level of a separate health care institution. Each autonomous medical institution should have its own development strategy that defines its mission, vision, strategic goals, key areas of activity and expected results. Such a strategy should be based on an analysis of the external environment, the needs of the population, financial and human resources, as well as opportunities for digital transformation.

3. Integration of strategic planning with digital and analytical tools. A separate proposal is the integration of strategic planning with digital management and analytics systems, in particular using

eHealth data and management information platforms. Digital data allows you to form reasonable scenarios for the development of medical institutions, predict the need for medical services and evaluate the effectiveness of management decisions.

4. Institutional strengthening of state-public cooperation in the development of medical institutions. Increasing the efficiency of the development of medical institutions is impossible without the active participation of civil society and professional communities. Therefore, an important proposal is the institutional strengthening of state-public interaction by creating stable mechanisms for public participation in the formation and implementation of public policy in the field of health care in order to “ensure state guarantees for citizens to receive medical care, improving the quality of medical services in accordance with the growth of the general material and technical base of health care, the national economy and the level of development of socio-economic relations, promoting investment in medical science and research related to related issues of improving the environment, development of physical culture and sports, recreation, medical and health tourism” [2, p. 113].

5. Development of partnership models of interaction between the state, business and civil society, which provides “maximum medical benefit for the patient, staff, hospitals and community and can be implemented through successful interaction between all stakeholders” [5, p. 264]. The final proposal is the development of partnership models of interaction, which provide for the implementation of joint projects in the field of modernization of medical infrastructure, disease prevention and improvement of the quality of medical services. efficiency of public administration and sustainable development of medical institutions. A comprehensive combination of resources, managerial potential and social activity of different sectors creates prerequisites for the modernization of the health care system, improving the quality of medical services and strengthening public confidence in public policy in this area.

The proposed directions for increasing the efficiency of the implementation of state functions in the field of health care and ensuring the constitutional rights of citizens to receive medical services form an integral system of management decisions aimed at the sustainable development of medical institutions. Their comprehensive implementation creates prerequisites for the formation of a financially sustainable, strategically oriented and socially responsible health care system in Ukraine.

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Energy Cooperatives and Community Energy Projects: European Governance Frameworks

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The article examines the development of energy cooperatives and community-driven energy initiatives within Ukraine's public governance system, focusing on the regulatory and managerial instruments that enable citizen and municipal participation in energy generation and consumption. The study is motivated by the combined impact of wartime risks to energy infrastructure and the ongoing decentralization and EU-integration agenda, which increases the demand for resilient, distributed energy models. The key challenges include fragmented legal and procedural provisions for cooperative projects, complex grid connection and metering requirements, licensing and tariff rules that are disproportionate for small actors, and the lack of stable financial incentives and municipal support programmes. The purpose of the article is to substantiate governance mechanisms capable of scaling energy cooperatives in Ukraine and to identify priority areas for improving national policy and local self-government practices. The research employs comparative analysis, document analysis of legal and policy acts, synthesis of practices, SWOT analysis, and a statistical review of trends in small-scale distributed generation. A comparison of approaches in Germany, Denmark, Italy, and the Netherlands makes it possible to identify effective instruments for community engagement in renewables and benefit-sharing models that are relevant for adaptation in Ukraine. The results indicate that Ukraine has socio-economic preconditions for cooperative development (including growth in prosumer households), yet institutional barriers lead to isolated cases and constrain scaling. The paper proposes a multi-level governance framework that integrates regulatory measures (standardized connection procedures and proportional requirements for small participants), financial tools (targeted programmes, co-financing, and guarantee instruments), and digital solutions (transparent one-stop services and open data for monitoring). The conclusions argue that accelerating cooperative development requires coordinated action by the Cabinet of Ministers, the Ministry of Energy, the national regulator, and local self-government bodies, together with the institutionalization of participation mechanisms for communities in distributed generation projects. Future research should focus on a set of performance indicators for cooperative support policies and on assessing how the digitalization of energy services affects citizen engagement and the resilience of local energy systems.



KEYWORDS

public administration, energy cooperative, energy decentralization, renewable energy sources, energy community, digital energy services, decentralized energy, European integration, Ukraine's energy security.



Енергетичні кооперативи та проекти громадської енергетики: Європейські управлінські підходи

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СТАТТЯ

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У статті досліджено розвиток енергетичних кооперативів і громадських енергетичних ініціатив у системі публічного управління України з акцентом на інструменти державного та місцевого регулювання, які забезпечують участь громадян і громад у виробництві та споживанні енергії. Актуальність зумовлена поєднанням воєнних ризиків для енергетичної інфраструктури та завдань децентралізації й євроінтеграції, що підвищує потребу в розподілених, стійких моделях енергозабезпечення. Ключовими проблемами визначено фрагментарність нормативно-процедурного забезпечення кооперативних проєктів, складність приєднання до мереж і обліку, невідповідність ліцензійних та тарифних вимог масштабам малих учасників, а також відсутність сталої системи фінансових стимулів і програм підтримки на рівні громад. Метою статті є обґрунтування управлінських механізмів, здатних забезпечити масштабування енергетичних кооперативів в Україні, та визначення пріоритетних напрямів удосконалення державної політики і практик органів місцевого самоврядування. У дослідженні застосовано порівняльний аналіз, аналіз нормативно-правових актів і програмних документів, узагальнення практик, SWOT-аналіз, а також елементи статистичного огляду динаміки малої розподіленої генерації. Порівняння підходів Німеччини, Данії, Італії та Нідерландів дало змогу ідентифікувати дієві інструменти залучення громад до ВДЕ та моделі розподілу вигод, релевантні для адаптації в Україні. Результати показали наявність соціально-економічних передумов для кооперативного руху (зокрема зростання кількості домогосподарств-просьюмерів), однак інституційні бар'єри зумовлюють поодинокість кооперативних кейсів і стримують масштабування. У статті запропоновано рамку багаторівневого публічного управління розвитком енергетичних кооперативів, що поєднує регуляторні (стандартизація процедур приєднання, спрощення вимог для малих учасників), фінансові (цільові програми, співфінансування, гарантійні інструменти) та цифрові рішення (прозорі сервіси «єдиного вікна», відкриті дані для моніторингу). У висновках обґрунтовано, що прискорення розвитку кооперативів потребує узгоджених рішень КМУ, Міненерго, НКРЕКП і органів місцевого самоврядування, а також інституціоналізації механізмів участі громад у проєктах розподіленої генерації. Подальші дослідження доцільно спрямувати на розроблення системи індикаторів ефективності підтримки кооперативів і оцінювання впливу цифровізації енергетичних сервісів на залучення громадян та стійкість місцевих енергосистем.

КЛЮЧОВІ СЛОВА

публічне управління, енергетичний кооператив, децентралізація енергетики, відновлювані джерела енергії, енергетична спільнота, цифрові сервіси енергетики, децентралізована енергетика європейська інтеграція, енергетична безпека України.



1. Introduction

The centralized model of Ukraine's energy system, which has been formed for decades, has demonstrated a critical vulnerability in the face of a full-scale war. Systematic strikes on generation facilities led to a reduction in available capacity from 56 GW to 15 GW, with winter peak demand of about 19 GW. This necessitates a rethinking of approaches to the organization of energy supply with an emphasis on decentralization and the development of distributed generation.

European experience shows that energy cooperatives and public initiatives are an effective tool for involving citizens in the energy sector: in Germany, there are more than a thousand such cooperatives with 220 thousand members, and in Denmark, citizens own about half of the wind generation. The EU's fourth energy package, "Clean Energy for All Europeans," recognizes citizens as full participants in the energy market, which is not only a benchmark but also an obligation for Ukraine as a member of the Energy Community. Despite the presence of legislative prerequisites, as of 2025, there is actually only one energy cooperative in the country, which indicates systemic barriers of an institutional, financial and informational nature and necessitates the study of mechanisms of public management of the development of energy cooperatives.

2. Literature Review

The topic of energy cooperatives and public energy initiatives in Ukraine is considered at the intersection of public administration, cooperative law and RES development policy. The normative basis of cooperation is set by the Law of Ukraine "On Cooperation" [17], and the formalization of the concept of "energy cooperative" and the practical conditions of its functioning are associated with changes in the legislation in the field of alternative energy [18], which explains the relatively short history of system research. In the domestic literature, the emphasis is on the prerequisites and barriers to the development of distributed generation and cooperative models: the management effects of decentralization and the potential of RES are analyzed by I. Doronina and N. Kryshchuk [4], energy cooperatives as a tool for sustainable development of communities – by V. Vostriakova [20], legal aspects of creation and operation – by M. Kuzmina [10]; in the works of O. Rush and S. Voitko [12], the international dimension and context of European integration are revealed, and in the study of G. Trypolska et al. [14] institutional and financial limitations of state policy are generalized. Foreign approaches to "community energy" are conceptualized in the works of G. Walker and P. Devine-Wright [21], and the factors of development of cooperatives in Europe are conceptualized in the study of T. Bauwens et al. [1]; the empirical basis for comparisons is supplemented by specialized reports (in particular DGRV) [3]. At the same time, the framework of the status of energy communities and citizens' participation in the electricity market is determined by EU directives [6; 7].

3. Problem Statement

The article is aimed at determining the role of energy cooperatives and public initiatives in the system of public management of the energy sector in the context of decentralization. The experience of Germany, Denmark and Italy in the formation of energy communities is analyzed. The main barriers to the development of energy cooperatives in Ukraine and the role of public authorities in promoting their creation have been clarified. The legislative basis for the functioning of energy cooperatives in accordance with the requirements of EU Directives 2018/2001 [6] and 2019/944 [7] is analyzed. The instruments of state support are systematized and directions for improving public administration to stimulate civil energy in Ukraine are proposed.

4. Methods and Materials

The materials of the study are the regulations of Ukraine and the EU on energy cooperatives, in particular Directives 2018/2001 [6] and 2019/944 [7]; statistics from the European Federation of Energy Cooperatives and the German Cooperative Union; works of domestic and foreign scientists in the field of public energy management. The methods of comparative analysis (comparison of European models with Ukrainian experience), statistical (analysis of the dynamics of RES development),

theoretical generalization (systematization of barriers and support tools), analysis and synthesis and logical generalization of results are used.

5. Results and Discussion

The scientific article systematizes the European experience of the functioning of energy cooperatives as a tool for decentralization of the energy sector. The key models of organization of energy communities in Germany, Denmark and Italy are identified and the factors of their successful development are clarified. The legislative basis of the activities of energy cooperatives in Ukraine is analyzed and the main barriers to their dissemination are identified: legal uncertainty, lack of financial instruments, low awareness of the population and distrust of the cooperative model. The role of local self-government bodies in promoting the creation of public energy associations has been substantiated. The proposed directions for improving public administration mechanisms will contribute to the formation of a favorable institutional environment for the development of energy cooperatives and accelerate Ukraine's integration into the European energy space.

The development of energy cooperatives in Ukraine is closely related to the decentralization reform, which expanded the managerial and financial capabilities of territorial communities and created the basis for the launch of local energy initiatives within the framework of local development policy [4; 14]. The institutional basis of the cooperative model is the general norms of cooperative law defined by the Law of Ukraine "On Cooperation" [17], while the specialization of cooperation in the energy sector has received additional certainty after amendments to the legislation on the production of electricity from alternative sources [18].

Domestic studies emphasize that the potential of public energy is related to the development of distributed generation and the use of local resources, but the practical scaling of cooperative initiatives is constrained by institutional and procedural barriers, primarily in terms of the legal regime of activity, access to funding and organizational capacity at the local level [14; 20]. In this context, cooperatives are considered not only as a form of management, but as a tool for involving citizens and local businesses in the implementation of energy projects with socially significant effects, which corresponds to broader approaches to community energy in the European literature [1; 21].

Before the full-scale invasion, the renewable energy sector in Ukraine was characterized by high rates of capacity build-up with the dominance of solar generation. Relevant structural changes and dynamics in 2019–2024 (Table 1).

Table 1. Dynamics of installed capacity of renewable electricity facilities in Ukraine by type, MW (2019–2024)

Generation type	2019	2020	2021	2024	Change 2019–2021	Change 2021–2024
Industrial solar power plants	4. 837	6 076	6 381	~6 200	+32%	–3%
Domestic solar power plants	533	779	1 205	~1 500	+126%	+24%
Wind power plant	1 170	1 314	1 673	~1 000	+43%	–40%
Small hydroelectric power plant	96	103	121	~95	+26%	–21%
TOTAL	6 636	8 272	9 380	~8 795	+41%	–6%

Source: Compiled by the author based on [9; 15; 22].

The decentralization reform has created new opportunities and management tasks for municipalities to combine energy projects with local development. An energy cooperative can act as a platform for accumulating local investments, but the effectiveness of the model depends on clear procedures and support for local programs. Therefore, the implementation of cooperative initiatives requires institutional support – from consultations to organizing access to financing and interaction with network operators.

The analysis of the data in Table 1 shows two distinct periods of development of the renewable energy sector (RES): rapid growth in 2019–2021 (+41%) and the war recession in 2021–2024 (–6%). The most vulnerable was wind energy, which lost 40% of its capacity due to the occupation of territories. On the other hand, the segment of home solar power plants demonstrates steady growth (+24% during the war), forming a social base for cooperative models of energy supply. This confirms the thesis of

higher sustainability of distributed generation compared to centralized facilities and actualizes the development of energy cooperatives as a tool for improving the energy security of communities.

At the same time, hostilities have significantly affected the RES: if at the beginning of 2022 the total installed capacity was 9.9 GW (of which 6 GW is solar energy, 2 GW is wind), then at the beginning of 2024 it has decreased to 8.7 GW due to occupation, damage and destruction. According to estimates by the Solar Energy Association of Ukraine, 800–850 MW of new solar capacity was commissioned in 2024, mainly for the own consumption of businesses and households [11]. The share of RES in electricity generation increased from 11% in 2024 to 17.3% in mid-2025, which is partly explained by the destruction of traditional generation facilities [9].

Domestic studies emphasize that decentralization of energy supply can increase the resilience of communities, but the spread of cooperative models is constrained by procedural and institutional barriers [4, p.75]. The general principles of cooperation are determined by the Law of Ukraine “On Cooperation” [17], and the specifics of energy cooperation are additionally outlined by amendments to the legislation in the field of RES [18]. At the same time, scientific publications emphasize the need to clarify and simplify legal and organizational support mechanisms [10; 14]. The international literature considers “community energy” as a tool for mobilizing local investments and combining energy and social goals, subject to proper policy design and public acceptability of projects [1; 21], which for Ukraine actualizes the focus of public administration on reducing the transaction costs of launching and ensuring the reproducibility of such solutions in communities [14] (Table 2).

Table 2. Comparative characteristics of types of energy communities according to EU legislation

Criterion	Renewable energy communities (RECs)	Citizen energy communities (CECs)
Legal basis	Directive (EU) 2018/2001 (RED II)	Directive (EU) 2019/944
Sector/sources	Renewable energy	Electric power sector; generation, including from RES
Membership (access)	Open and voluntary (according to non-discriminatory criteria)	Open and voluntary
Effective control /decision-making	Control by participants located in the “proximity” to the project	Control by: individuals, local authorities
Main goal	Environmental/economic/social benefits for members or local territories	Environmental/economic/social benefits for members/shareholders
Permitted activities (generalized)	Activities around RES projects and related energy services	Generation, distribution, supply, consumption, aggregation, storage, energy-efficient services

Source: Compiled by the author based on [6; 7].

For Ukraine, as a contracting party to the Energy Community, the implementation of European approaches to energy communities is an element of commitment; in the national context, the model of renewable energy communities seems to be the most exemplary, which is consistent with the goals of RES development and decentralization at the level of territorial communities.

A good example of the scaling up of cooperative energy is Germany: the first energy cooperatives were formed at the end of the nineteenth century, and the modern wave of growth has intensified after the introduction of support for RES in the early 2000s. According to DGRV, in 2024, there were 1038 energy cooperatives in the country with more than 220 thousand hectares. members and about EUR 3.6 billion of investments; solar energy projects prevailed (more than three-quarters of cooperatives), which is explained by the lower entry threshold [3].

Denmark is an illustrative example of the development of wind energy on a cooperative basis. Cooperative ownership has been formed since the 1970s: by the end of the 1990s, there were more than 2100 wind cooperatives, uniting more than 100 thousand people. households [8]. In 2024, RES provided 88.4% of electricity production, of which about 60% was wind generation with a significant share of civilian ownership. A key tool is the 2008 norm, according to which developers of onshore wind projects are obliged to offer residents at least a 20% share in ownership. This reduces conflict and increases public support.

The managerial value of the Danish model lies in the fact that participatory mechanisms institutionalize the “distribution of benefits” at the local level: residents receive not only an environmental effect, but also a tangible economic interest in the project results. This changes the logic of interaction between the project initiator, the community and local authorities – from confrontation

to partnership, where cooperative/joint ownership acts as a tool for legitimizing infrastructure solutions and reducing the transaction costs of approvals.

An illustrative example is the offshore wind farm Middelgrunden (20 turbines, 40 MW), implemented in a 50/50 format between a municipal company and an investor cooperative [8]. The Danish case highlights that community effectiveness relies on long-term and consistent policies and building trust at the community level.

The experience of Germany and Denmark is the most well-known, but energy communities are also dynamically developing in other EU countries, where national models differ in pace, technological specialization and the role of local authorities. A synthesis of key indicators and practices makes it possible to identify common success factors – stability of rules, access to the network, tools for attracting small investors and mechanisms for increasing public acceptance – and compare their manifestation in different countries (Table 3).

An important factor in the success of the Danish model is a comprehensive system of state support, which includes not only financial incentives but also institutional infrastructure. Denmark was one of the first to introduce guaranteed tariffs for small producers, simplified grid connection procedures and standardized electricity purchase and sale agreements. At the local level, municipalities provide advisory support to initiative groups, promote access to land and act as mediators in negotiations between communities and developers. Such a multi-tiered support system reduces transaction costs for initiators and creates a predictable environment for long-term investments.

Table 3. Development of energy cooperatives and communities in EU countries (2024)

Country	Number of cooperatives	Number of members	Key features
Germany	1 038	220 000	Largest market, dominated by solar energy (77%), investments of 3.6 billion euros
Denmark	~500	>100 thousand families	Wind energy pioneer, 52% of wind capacity in civilian ownership, mandatory 20% share for local
Netherlands	714	130 000	Presence in 89% of municipalities, emphasis on local smart grids
Italy	876	n/a	The fastest growth (19 times per year), 88% is solar energy, 58% is initiated by the public sector
Poland	n/a	n/a	More than €200 million modernization fund for energy cooperatives

Source: Compiled by the author based on [3; 6; 8; 13; 16].

The data show that energy communities can develop under different starting conditions: Germany and Denmark rely on long-standing cooperative traditions, while in some countries, a noticeable acceleration occurred after the introduction of incentive rules. Despite the differences in national models, three critical factors are repeated: a clear legal framework, affordable financial instruments, and a proactive role of public authorities. Significantly, local governments often act not only as regulators but also as co-initiators or participants in projects, providing organizational support and legitimacy at the local level.

From the standpoint of public administration, this means that the performance of energy communities is determined not so much by the formal “availability of rights” as by the ability of institutions to reduce the transaction costs of launching: to provide standard procedures, predictable rules for interaction with grid operators, and accessible financing mechanisms that are understandable to small investors.

In Ukraine, the situation is significantly different. Even though the term “energy cooperative” has been enshrined at the legislative level since 2019 [18], practical implementation remains isolated: the most famous example is the cooperative “Sunny City” in Slavutych.

The energy cooperative “Sunny City” was founded in August 2018 on the joint initiative of the Slavutych City Council and the public organization “Greencubator”. This is the first municipal energy cooperative in Ukraine to implement the “equity crowdfunding” model for the construction of solar power plants.

The municipal status of the cooperative is ensured by the participation of the municipal enterprise “Regional Development Agency” of the Slavutych City Council as one of the founders, which increases the transparency of management and the trust of the community [2].

The technical infrastructure of the cooperative includes three rooftop solar power plants with a total capacity of 200 kW, located on municipal buildings in the center of Slavutych. The total cost of the project was about UAH 4 million, raised exclusively through the share contributions of cooperative members. The cost of one unit is UAH 15,000 (about 500 euros), which provides a low entry threshold for small investors. As of 2021, the cooperative united 97 members, of which about a fifth were residents of Slavutych; the rest are investors from other regions of Ukraine [5].

The financial model of the cooperative provides for the sale of electricity produced at a “green tariff” with a projected yield of about 13.8% per annum for cooperative members. An important element is social responsibility: 5% of net profit is directed to the implementation of urban projects within the framework of the Action Plan for Sustainable Energy Development of Slavutych. According to design calculations, power plants should supply about 148 MWh of electricity per year to the grid.

The management model of the “Sunny City” is based on the principle of “one member – one vote” regardless of the number of shares, which distinguishes the cooperative from corporate forms of management. Profits are distributed in proportion to the size of the investment. The cooperative uses electronic document management and remote voting, which minimizes bureaucratic procedures and ensures the participation of members from different regions. For the implementation of this practice, the Slavutych City Council in 2020 received a diploma of the first degree in the competition “Best Practices of Local Self-Government” [2; 5].

The experience of the “Sunny City” demonstrates the key factors for the success of the cooperative model in Ukrainian conditions: partnership with local governments, the use of municipal infrastructure (roofs of communal buildings on preferential lease terms), a low entry threshold for investors and a transparent management system. Therefore, the implementation of the project revealed typical barriers – difficulties in interacting with government agencies, in particular when obtaining a license from the National Energy and Utilities Regulatory Commission for electricity production and grid connection.

Such a disproportion between normative opportunity and actual practice indicates the presence of systemic barriers – legal and procedural, institutional, financial, as well as social (in particular, related to trust in cooperative forms). Therefore, it is advisable to identify and structure these barriers with the subsequent definition of managerial tools for overcoming them (Table 4).

Table 4. The main barriers to the development of energy cooperatives in Ukraine

Barrier type	Characteristics	Events
Institutional	Overregulation and complex permitting procedures	The need to obtain three licenses and approve three tariffs (production, transportation, supply); Requirements for natural monopolies
Financial	Limited access to capital and lack of targeted programs	Lack of start-up funding; lack of soft loans and grants for energy cooperatives; High initial investment
Social and psychological	Distrust of the cooperative model	Negative experience of Soviet times; low awareness of the population about the benefits and mechanisms of functioning; Lack of successful examples
Informational	Lack of knowledge and competencies	Lack of awareness of world experience; lack of technical and economic knowledge of potential initiators

Source: Systematized by the author based on [18; 21].

According to the 2024 survey, only 7% of respondents have sufficient knowledge about energy cooperatives to inform others; 93% have either never heard of them or have a superficial idea

The analysis of obstacles shows that the development of energy cooperatives in Ukraine is constrained by a set of interrelated barriers (Table 4): unclear procedures for establishing cooperatives, excessive regulatory requirements for small initiatives, lack of available funding, low trust in joint ownership, and lack of necessary competencies of potential initiators. Together, these barriers significantly increase the cost of launching projects and make it difficult to disseminate successful experiences between communities.

The problem has a clearly expressed managerial character. Even with the legal right to create a cooperative, the initiators face numerous approvals that require legal, technical and financial knowledge, as well as significant time investments.

An important step towards simplifying the regulatory environment was the adoption of the Law of Ukraine No. 4213-IX of January 14, 2025, “On Amendments to Certain Laws of Ukraine in the Fields

of Energy and Heat Supply” [19]. The Law introduces several mechanisms that will contribute to the development of distributed generation and, indirectly, energy cooperatives:

Firstly, a “cable pooling” mechanism has been introduced, which allows you to connect several generation sources to one grid connection point. This reduces infrastructure costs and simplifies the implementation of combined projects (for example, a combination of solar and wind generation).

Secondly, the restriction according to which the installed capacity of electrical installations could not exceed the permitted (contractual) capacity has been abolished. Now, only the actual output of power to the grid is limited, which increases the efficiency of using the connected capacity.

Thirdly, an advance payment for connection to the main networks in the amount of 10 euros per 1 kW has been introduced, which should prevent speculative reservation of capacities and create more transparent conditions for real investors.

These changes create a more favorable regulatory environment for small electricity producers; however, for the full development of energy cooperatives, it is necessary to adopt special by-laws that regulate the peculiarities of their creation and operation in accordance with the requirements of EU Directives 2018/2001 [6] and 2019/944 [7].

To generalize the prerequisites and limitations of the development of cooperative models and determine the priorities of public administration, SWOT analysis was used (Table 5).

Table 5. SWOT analysis of the development of energy cooperatives in Ukraine

Strengths (S)	Weaknesses (W)
Decentralization and the availability of local development tools High relevance of energy autonomy of communities Growth of the segment of prosumer households as a social base Compatibility with the European integration vector and RES policy	Legal/procedural uncertainty for models with shared infrastructure Complexity of network connection, accounting, and contractual procedures Low institutional capacity/HR expertise Shortage of targeted financial instruments for cooperative models
Opportunities (O)	Threats (T)
Post-war reconstruction: reorientation to distributed solutions Implementation of EU approaches to energy communities Pilot projects in communities as a mechanism for “demonstrating trust” Development of accumulation/flexibility for critical infrastructure	Security risks, physical destruction and uncertainty of recovery timelines Regulatory volatility and tariff/market risks Network infrastructure limitations and connection failure/delay risks Currency/inflation risks and high cost of capital

Source: Compiled by the author based on [1; 4; 12; 14; 17–22].

The SWOT analysis confirms that the key points of impact are simplification of procedures, reduction of financial risks, and institutional support for pilot projects.

The most acute obstacle remains legal uncertainty at the intersection of generation, supply and local infrastructure. For microgrids, the lack of a standard “roadmap” for creation and operation is critical. Regulatory and technical complexity – excessive requirements for connection, accounting and licensing – further constrains small initiatives. The financial barrier is exacerbated by the limited experience of banks and low trust in joint ownership, which forms a “vicious circle” of a shortage of participants and successful cases.

War risks have actualized decentralized solutions as a tool for community resilience. The adoption of Law 4213-IX in January 2025 [19] is a positive signal, as well as by-laws, targeted financial instruments, consulting support, and the launch of pilot projects in communities.

6. Conclusions

Energy cooperatives are an effective tool for decentralizing the energy sector and involving citizens in the energy transition. European experience convincingly testifies to their effectiveness: in Germany, there are more than a thousand energy cooperatives with 220 thousand members and investments of 3.6 billion euros, in Denmark, citizens own a significant share of wind generation thanks to the mechanism of mandatory 20% participation of residents in new projects. The success of the

European model is based on a combination of clear legal regulation, affordable financial instruments and a proactive role of public authorities at all levels.

In Ukraine, the development of energy cooperatives is constrained by a complex of interrelated barriers. Despite the legislative consolidation of the term “energy cooperative” in 2019, for six years there has actually been only one such cooperative in the country – “Sunny City” in Slavutych. The experience of this municipal energy cooperative, which united 97 members and implemented a 200 kW solar power plant project based on cooperative community cost, demonstrates the viability of the model in partnership with local governments. At the same time, legal uncertainty at the intersection of generation and supply, excessive regulatory requirements, lack of targeted funding, and low public confidence in the cooperative model form systemic obstacles that make it impossible to scale without active state intervention.

To stimulate the development of energy cooperatives in Ukraine, a comprehensive system of public administration measures is needed. The priority is to complete the implementation of EU Directives 2018/2001 [6] and 2019/944 [7] on energy communities by developing clear by-laws and standardized procedures for the establishment of cooperatives. An important step will be the introduction of a simplified licensing regime for small-capacity cooperatives and the creation of targeted financial instruments – grants, soft loans, and co-financing programs at the national and regional levels. A key role should be played by the activation of local self-government bodies as initiators and partners of energy communities, as well as the formation of information and consulting infrastructure through specialized competence centers.

The adoption of Law No. 4213-IX in January 2025 [19], which introduced the cable pooling mechanism and simplified the procedures for connecting to the networks, is a positive signal, but needs to be supplemented by special by-laws on energy communities.

In wartime, when the reduction of generating capacity from 56 to 15 GW and the financial gap between losses and recovery needs (USD 20.5 versus USD 67.8 billion) actualize the search for alternative reconstruction mechanisms, the development of energy cooperatives is of strategic importance. Decentralized generation increases the resilience of the energy system to external shocks, reduces dependence on centralized supply, and creates preconditions for the restoration of energy infrastructure “from below” – through the mobilization of local investments and partnership of communities with authorities. The implementation of the proposed measures will contribute to the formation of a civil energy model in Ukraine that meets European standards, Ukraine’s obligations as a member of the Energy Community and the needs of territorial communities to increase energy autonomy.

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Theoretical Aspects and European Experience of Formation and Development of Professional Competences of Public Servants

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The relevance of the study is determined by Ukraine's need to study and implement the best European experience of reforms in education and science, as well as to modernize approaches to the professional training of public servants in the context of European integration, large-scale digitalization, and global challenges of 2025. The purpose of the article is to generalize theoretical approaches and analyze European practices in order to develop recommendations for improving the system of professional training and development of public servants in Ukraine. The article analyzes European experience in applying the competency-based approach to the training, retraining, and advanced professional development of civil servants on the basis of official sources and scientific research. A theoretical generalization and applied analysis of the transformation of professional competency formation systems is conducted, defining competency as a dynamic combination of knowledge, skills, ways of thinking, and moral and ethical values. The historical evolution of the competency-based approach is traced from its origins in the USA and Great Britain in the 1970s–1980s to its institutionalization in Ukraine through the Bologna Process and the laws "On Higher Education" and "On Civil Service." Particular attention is paid to the German experience, characterized by high practicality and structural clarity. The four-level hierarchy of the German public service, educational requirements, and features of professional training are analyzed, including the role of dual education combining university study with practical training in public institutions. The activities of the Federal Academy of Public Administration and the Digital Academy are examined in the context of lifelong learning and modernization programs. The content of modern bachelor's, master's, and PhD programs in public management, administrative informatics, and digital transformation is described. Based on European practice, recommendations for improving educational programs in Ukrainian higher education institutions are proposed. The scientific novelty lies in the systematization of training methods for public servants with an emphasis on digital literacy and leadership development. The practical significance consists in the possibility of implementing German approaches to individualized and differentiated professional development. It is concluded that the competency-based approach is a strategic tool for ensuring institutional resilience, that modern public servants require both legal knowledge and soft skills, and that universities increasingly focus on developing critical thinking and practical application of knowledge.



KEYWORDS

theory, education and science, public service, formation, professional competencies, European experience.



Теоретичні аспекти та європейський досвід формування і розвитку професійних компетентностей публічних службовців

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Актуальність дослідження зумовлена потребою України у вивченні та впровадженні кращого європейського досвіду реформ у сфері освіти й науки, а також необхідністю модернізації підходів до професійної підготовки публічних службовців у контексті євроінтеграції, цифровізації та глобальних викликів 2025 року. Метою статті є узагальнення теоретичних підходів і аналіз європейських практик з метою розроблення рекомендацій щодо вдосконалення системи професійної підготовки та розвитку публічних службовців в Україні. У дослідженні проаналізовано європейський досвід застосування компетентнісного підходу до підготовки, перепідготовки та підвищення кваліфікації державних службовців на основі офіційних джерел і наукових праць. Здійснено теоретичне узагальнення та прикладний аналіз трансформації системи формування професійних компетентностей, визначено компетентність як динамічну комбінацію знань, умінь, способів мислення та цінностей. Простежено еволюцію компетентнісного підходу від його формування у США та Великій Британії у 1970–1980-х роках до впровадження в українське правове поле через Болонський процес і норми законів «Про вищу освіту» та «Про державну службу». Особливу увагу приділено німецькому досвіду, який характеризується практичною спрямованістю та чіткою структурою публічної служби. Проаналізовано чотирирівневу систему публічної служби Німеччини, освітні вимоги та специфіку професійної підготовки, роль дуальної освіти, а також діяльність Федеральної академії публічного управління та Цифрової академії. Охарактеризовано сучасні освітні програми з публічного менеджменту, адміністративної інформатики та цифрової трансформації, а також підготовку наукових кадрів через структуровані PhD-програми. На основі аналізу європейської практики запропоновано рекомендації щодо вдосконалення освітніх програм в Україні. Наукова новизна полягає у систематизації методів підготовки публічних службовців з акцентом на розвиток цифрової грамотності та лідерських якостей. Практичне значення результатів полягає у можливості імплементації німецьких підходів до індивідуалізації та диференціації професійного розвитку державних службовців в Україні.



КЛЮЧОВІ СЛОВА

теорія, освіта та наука, публічна служба, формування, професійні компетентності, європейський досвід.

1. Introduction

The introduction of the competency-based approach in the process of training and advanced training of civil servants began in the United States and Great Britain (1970–1980) in order to increase the efficiency and effectiveness of the public service. The main advantages of the new approach were considered to be efficiency in achieving tasks, mobility in the transition of employees from the private sector to the public sector and vice versa, and adaptability as an opportunity to adequately respond to new challenges.

The competence approach has been considered in Ukraine since the 1990s, but the transition from scientific discussions to practical implementation took place in the course of Europeanization – the Bologna process and the adaptation of Ukrainian legislation to European standards. The “key competencies” of public servants were discussed already in 2002–2004 within the framework of UNDP projects (“Democratic Governance and Civil Society Development” and others).

The fundamental basis of the competence approach was the National Classification Framework approved by the government [1], which introduced a description of qualification levels to ensure the quality of education. Educational classification is interpreted as “a set of competencies established by the standard of education and acquired by a person and/or learning outcomes”. New Law of Ukraine “On Higher Education” [18]. The result of training determined not the sum of knowledge, but general and professional competencies. Competence is defined as “the ability of a person to successfully socialize, study, conduct professional activities, which arises based on a dynamic combination of knowledge, skills, ways of thinking, views, values, and other personal qualities” [18, para. 13, Art. 1].

This approach was developed in the new Law of Ukraine “On Civil Service” [19], which interprets professional competence as “the ability of a person, within the limits of the powers determined by the position, to apply special knowledge, skills and abilities, to show appropriate moral and business qualities for the proper performance of established tasks and duties, training, professional and personal development” [19].

A significant contribution to the understanding of modern methods of public administration belongs to the Organization for Economic Co-operation and Development (OECD). Since 2007, official OECD reports have been developing the relevant concept of public administration effectiveness in a period of profound transformations and challenges. space are testing the stability and efficiency of state institutions as never before, which requires the introduction of modern approaches to public administration [12]. Finally, the competency-based approach was entrenched in Ukraine in the course of the education reform (2017–2020, the Law of Ukraine “On Education”, standards for specialties, licensing and accreditation taking into account compliance with these standards, etc.) as a task of expanding the ability of public servants to obtain and use the necessary knowledge, skills and abilities in specific situations.

2. Literature Review

A review of literature sources testifies to the proper attention of Ukrainian scientists to the problems of formation and development of professional competencies of public servants. Since the beginning of the 2000s, it has been mainly about the professionalization of the civil service (N. Kolisnichenko, V. Luhovyi, V. Oluiko, L. Pashko, S. Serohin and others), the ethics of the civil service (T. Vasylevska, M. Rudakevych), the competence of managers (N. Honcharuk, T. Motrenko, I. Surai and others), etc.

In the following years, more attention was paid to innovative approaches to the professional development of civil servants and the implementation of successful foreign practices. For example, M. Lakhyzha and G. Tregubenko [10] investigated the organizational and legal aspects of training, retraining and advanced training of specialists in the field of European integration in post-communist countries. Among the publications of the next period, it is worth highlighting monographs and dissertations: M. Debych [2], Ya. Kachan [8], O. Petroie et al. [13], S. Serohin [14] and I. Shpektorenko [15]. The European experience of professional training of civil servants was the subject of discussion by the Committee of the Verkhovna Rada of Ukraine [20]. In the same year, within the framework of the EU-UNDP Parliamentary Reform Project, an Expert Paper on the topic: “Models for raising the level of professional competence of civil servants in foreign countries: comparative analysis” was published – a

brief overview on the example of the United Kingdom, France and the United States of America [21]. However, it can be stated that the foreign experience of the competence approach to the training of civil servants has not yet been sufficiently studied. In particular, the specific experience of organizing training requires additional attention: the preparation of educational programs and curricula, the methodology for determining and ensuring the achievement of the necessary competencies and learning outcomes, etc.

3. Problem Statement

Generalization of theoretical approaches and analysis of European practices for the preparation of recommendations for improving the system of professional training and development of civil servants in Ukraine.

The authors studied the experience of the competency-based approach to the training of specialists for the public service system in Bulgaria, Poland and Germany, which was used in the development and improvement of educational programs for civil servants and lawyers at the National University "Yuri Kondratyuk Poltava Polytechnic" (Poltava) and the Academy of Labour, Social Relations and Tourism (Kyiv). This article aims to characterize the German experience and suggest ways to adapt it in Ukraine. The main sources were the official websites of authorities, social institutions and educational institutions.

4. Methods and Materials

The authors used theoretical (comparative analysis, generalization, systematization) and empirical (measurement, comparison) research methods. The main source was official documents and materials of educational and scientific platforms.

5. Results and Discussion

From a theoretical point of view, it is important to note the unanimity in considering the development of professional competencies of public servants as an important task that should be carried out continuously. The conventionality in practice of the difference between the concepts of "professional development" and "increasing the level of professional competence" and the need for interaction of state bodies with educational institutions is noted [16, p. 2]. The general trends are the development of a distance education network; the use of a modular learning principle, which provides greater flexibility; individualization of learning and advanced training; and a focus on the continuity of learning. Digitalization (e-Government) is of particular importance.

It is important to support as much as possible the ability of a public servant to independently choose and assimilate knowledge, skills and abilities in the information society. For universities, the issue of ensuring flexibility in working with students is of particular importance both from the point of view of the organization of education, and from the point of view of the content of educational programs and their methodological content. There is a real competition between the teacher and the sources of instant information (AI, the Internet, etc.). Therefore, it becomes more important not only to transfer knowledge, but also to form the ability to find and analyze and use it. The role of disciplines that help to form the competencies of a leader capable of high-quality communication, quickly navigate the situation, make responsible decisions, etc., is growing.

It is also worth considering the different content of the concept of "public servant". For example, in Germany, this concept covers officials (Beamte – employees of ministries, judges, police officers, customs officers, firefighters, university professors, officers of the armed forces and contract soldiers, teachers of public schools, etc., who have a special status of lifetime appointment with appropriate benefits and restrictions) and other public sector employees (Tarifbeschäftigte – administrative personnel working on the basis of an employment contract).

German statistical reference books provide information on the composition of those employed in the German public service – in mid-2025, there were 5.5 million employees (out of 43.1 million employed), of which 1.8 million were civil servants, and 3.7 million were employees under employment contracts; 2.18 million were men, 3.3 million were women [3; 6; 7].

These data already indicate the complexity of the comparative analysis of the public service in different countries and the organization of its professional development. However, there is a commonality in approaches to determining educational directions and tasks (Figure 1).

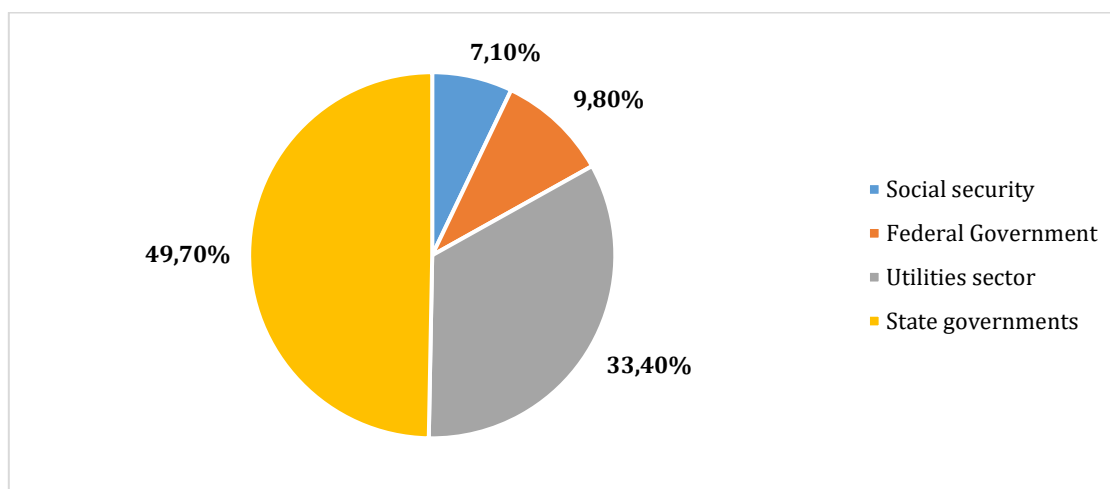


Figure 1. Employed in the German civil service

Source: Compiled by the authors based on [3; 6; 7].

Accordingly, educational requirements are formed, which provide for a certain basic level of education and professional – educational and practical – training after appointment to the position (Table 1).

Table 1. Levels of public service in Germany

Service level	Minimum education level	Educational qualification	Professional training	Typical ranks
Simple service (Einfacher Dienst, auxiliary and technical works)	Primary school	Basic school	On-the-job internship (up to 6 months)	A2–A6
Medium service (Mittlerer Dienst)	Complete secondary education	Vocational education	Vocational training (Vorbereitungsdienst) up to 3 years	A6–A9
Higher secondary service (Gehobener Dienst)	Bachelor's degree	Bachelor at the fah	Dual studies at specialized universities (Fachhochschule)	A9–A13
Senior service (Hoherer Dienst)	Master's Degree or State Exam	Master's Degree, State Exam	Compulsory preparatory service (Referendariat) up to 2 years	A13–A16/ B

Source: Compiled by the authors based on [9].

In our opinion, it is this combination of practicality and accessibility of education that is the essence of the German experience.

Training and advanced training of civil servants are decentralized, taking into account practical needs. After selection to a state body, a public servant is on probation, which provides for specific requirements for the direction and level of their education. Therefore, training is selected for a specific position and career degree of the employee and is paid for by the state. Continuous professional development is not only a right, but also an obligation of a public servant.

The central educational institution for training federal officials is the Federal Academy of Public Administration (BAkÖV), which has a specialized unit for ensuring the digitalization of the public service – the Digital Academy (Digitalakademie). Each of the 16 federal states has its own training institution for public servants (Länderakademien).

The following types of educational process are distinguished: continuing education to actualize knowledge; advanced training (for the purpose of career growth); adaptation training (acquisition of new skills, for example, in the field of digitalization and IT security). In 2025, the Federal Academy of Public Administration has strengthened the implementation of modernization programs, in particular,

through the “Modern State” program, which allows the formation of skills in data analysis, flexible management, the use of artificial intelligence, etc. Combinations of items vary depending on the category of applicants – general administration, police officers, tax officers, customs officers, and others. This is confirmed by the analysis of bachelor’s programs (Table 2).

Table 2. Common Bachelor’s Degree Programs

Direction of education	Diploma	Focus
Public administration	Bachelor of Arts (BA)	Classical approach (administrative law and public administration)
Public management	Bachelor of Arts (BA)	Modernized approach (combining knowledge of public administration and entrepreneurship, efficiency and modernization)
General management	Bachelor of Laws (LLB)	In-depth study of law
Administrative Informatics	Bachelor of Science (D.Sc)	Combination of administration and IT (digitalization, e-government)
Law in social security	Bachelor of Laws (LLB)	Specialization for employees in the field of social protection

Source: Compiled by the authors based on [9].

A variant of preparation for public service is dual training programs (Der “Königsweg”), which involve a combination of practical activities and interdisciplinary training (50-60% law, as well as economics, social sciences and management). Usually, such programs are available in specialized universities, partially in open universities of economics, law, applied sciences, etc.

The choice of educational institutions and programs is facilitated by the presence of several large portals for applicants, students and graduates. For example, the StudyCheck portal [17] contains information about universities and specialized higher schools, distance and dual education, educational programs, and offers an annual ranking of universities based on the reviews of their students, etc. Portal “Educational Programs in Public Administration” [4] informs higher educational institutions, terms of study, educational programs, etc. Among the most popular are Business Administration, International Business Administration, Public Administration, Health Protection, and Occupational Safety.

In Ukraine, this experience has also been applied; in particular, the functioning of the Knowledge Management Portal allows public servants to choose educational programs, for example, a master’s degree, to choose advanced training programs in thematic areas.

However, the portal of German universities emphasizes (section “Public Administration and Public Service Studies”) [11], public administration and public service programs in Germany prepare students to participate in improving the work of state institutions, territorial self-government bodies and public organizations. These programs combine theoretical knowledge of law, political science and management with practical training through internships, case studies and real projects. Students learn how to develop and implement policies, manage administrative processes, and teams to deliver effective public services. Due to Germany’s strong tradition of good governance and its role at the heart of the European Union, these programs provide valuable information about working both nationally and internationally in the public sector.

Information about master’s educational programs (Master Öffentliche Verwaltung) is also useful, among them: Public Management, Public Administration, Digital Transformation, Political Management, Management of Organizations, Management of Regional Innovation Ecosystems and others. Thus, the program “Public Administration” at the German State University of Administrative Sciences Speyer has a standard duration of four semesters and ends with a master’s degree arts. The program is offered as a full-time form of study. It was noted that it was tested twice with high marks. The categories of course content, faculty and organization received particularly high marks. The MBA program in part-time public administration at the Remagen campus (a branch of the Kombleneck University of Applied Sciences) develops the competencies of applicants for managerial positions in the public sector. Focusing on modern administrative management, the online MBA program combines a thorough knowledge of business administration with specialized public administration experience. Competencies for purposeful management of administrative structures and their formation for the future are being developed – from the processes of digital transformation to the concepts of sustainable development of

the organization in the context of social challenges [17]. Hence, the focus of master's programs is to specialize in certain fields.

For the training of scientists in the field of public administration and administration, PROMOTION is provided – the process of obtaining the degree of Doctor of Philosophy (PhD). The most popular is individual doctoral studies, which involves independent work under the scientific supervision of a professor of a certain department. There are also structured PhD programs, similar to Ukrainian or American ones – with a clear study plan, seminars, and groups of students. Analysis of information from several universities that train PhDs in Public Administration (Deutsche Universität für Verwaltungswissenschaften Speyer), University of Potsdam, Private University (Hertie School) (Berlin) and others indicates the use of German and English, careful choice of research topic (relevance, methodology, expected results). For example, a structured 3-year program of a Private University involves participation in seminars and the development of a methodology during the first year and the conduct of the study in the next two years. A similar approach is taken at Speyer University, which implements training programs for doctors of management sciences (Doctor rerum publicarum) and doctors of social and economic sciences.

As a rule, tuition payment is made through well-known funds (DAAD – German Academic Exchange Service, Konrad-Adenauer-Stiftung – Konrad Adenauer Foundation and others), funds of political parties or through filling a vacancy of a researcher at the university.

It should be noted that there is a noticeable increase in attention to digital literacy. As in Ukraine (CDTO Campus project), in Germany, there is a Federal Digital Academy (Digitalakademie Bund), the main educational areas of which are the provision of digital competencies, digital cultural transformation and networking (Networking). The Federal Digital Academy was founded in 2021 as part of the Federal Academy of the Federal Ministry of the Interior (BMI) and is positioned as a platform for digital literacy. qualifications under the Federal Government [5]. The Academy uses a hybrid model of training specialists: Ambassadors of Change (a 6-month program of combining training and preparation of real change projects for their department; involves the development of design thinking, mastering the psychology of change, studying the necessary flexible methods); specialized seminars on Project Management in the Public Sector (legal literacy, the use of AI and cloud technologies); short video modules on individual issues (digital leadership, teamwork) etc.). The philosophy of such training is focused on the development of digital thinking and the introduction of digital competencies into job descriptions. It is important to phase out the learning process – the student's self-diagnosis through passing a digital skills test, developing a plan and implementing it together with teachers and colleagues.

6. Conclusions

A comparative analysis of the experience of using the competency-based approach to the professionalization of public servants allows us to formulate a number of conceptual conclusions. Firstly, it is proven that the competence approach is not just an educational methodology, but a strategic tool for ensuring the stability of state institutions in the context of limited fiscal space and demographic changes. It has been established that a modern public servant must have not only legal knowledge, but also soft skills, the ability to quickly adapt and analyze large amounts of data.

Secondly, the analysis of the German model of public service and the system of its educational provision demonstrated the effectiveness of a decentralized system of professional development, where training is selected for a specific position and career degree. The key advantage of the German experience is the mandatory continuing education and the active use of dual education, which minimizes the gap between theoretical training at the university and the practical requirements of the workplace. For Ukraine, it is promising to borrow the model of the "preparatory service" (Referendariat) and create specialized digital platforms for self-diagnosis of competencies.

Thirdly, it is determined that in the conditions of the information society, the role of universities is transformed from the simple transfer of knowledge to the formation of the ability to critically analyze and use it. The priority areas for the development of educational programs should be administrative informatics, cybersecurity and crisis management. The implementation of the experience of the German Federal Digital Academy in training "ambassadors of change" can become an effective mechanism for accelerating reforms in the Ukrainian public sector.

Further scientific research in this direction should be focused on the development of specific criteria for assessing the effectiveness of investments in the professional development of public servants

and the study of the impact of artificial intelligence on changing the professional profiles of positions in the state apparatus. The creation of a flexible, innovative and practice-oriented training system is the key to Ukraine's successful European integration.

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Structural and Functional Transformation of Organizational Competence of Officials of State Authority and Local Self-Government in War Conditions

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The development of officials' organizational competence under difficult war conditions is a strategic task for the state, aimed at preserving institutional capacity and democratic principles of public administration. Modern civil servants must demonstrate leadership, independence, empathy, and initiative. The transformation of organizational competence of officials in wartime is a transition from bureaucratic to crisis management, focusing on speed of decision-making, digitalization of services, ensuring security and interaction with military administrations. The key competencies are stress resistance, adaptability, volunteer coordination skills and resource management in conditions of scarcity. In the context of leadership, the concept of management takes on a completely new meaning, because in this case, to achieve the outlined goal, not traditional management tools such as organization, planning, and control are used, but innovative approaches – analysis, motivation, and personal example. Decentralization processes in Ukraine have become a stimulus that involves focusing on using the potential of officials. The modern interpretation of organizational competence assumes formed skills of information processing using information and communication technologies and artificial intelligence. In this case, versions of the theory of organization, which studies the regularities of self-organization processes and self-forming factors, as well as the theory of systems (the content of integrity and systematicity), cybernetics (formation and transfer of guiding influences), synergetic (mechanisms of interaction of system elements in the process of self-organization and self-development) should be relevant.



KEYWORDS

organizational competence, state authorities, local self-government, structural transformation, crisis management, adaptability, leadership, digitalization, institutional resilience, war.



Структурно-функціональна трансформація організаційної компетентності посадових осіб органів державної влади та місцевого самоврядування в умовах війни

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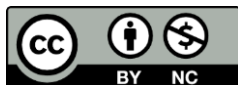
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Розвиток організаційної компетентності в умовах війни є не лише професійним викликом для посадових осіб, а й стратегічним завданням для держави, спрямованим на збереження інституційної спроможності та демократичних засад публічного управління. Дослідження зосереджене на розкритті сутності феномену організаційної компетентності посадових осіб органів державної влади та місцевого самоврядування, що розглядається з позиції детермінуючого чинника загального удосконалення системи публічного управління в сучасній Україні. В статті виділено основні структурні компоненти феномену: управлінські навички, професійні теоретичні знання і уміння, комунікативну компетентність, спроможність до ухвалення ефективних рішень, стратегічне мислення та сформовані відповідні ціннісні орієнтації. Також розглянуто основні функції організаційної компетентності посадовців в кризових умовах, спричинених тривалою війною, що потребують мобілізаційної здатності та підвищеної адаптивності. Особлива увага в дослідженні приділена процесу трансформації самого поняття організаційної компетентності посадовців під впливом війни, зокрема встановлено зростання пріоритету кризового управління та забезпечення спроможності до ефективної міжінституційної координації. Результати дослідження репрезентують важливість ефективної трансформації підходів до розвитку організаційних компетентностей посадовців як важливого інструменту модернізації публічного управління в умовах суспільно-політичної динаміки, неадаптованості законодавства до реалій війни та зростаючих суспільних очікувань. Стаття закладає теоретико-методологічні основи для подальших емпіричних досліджень і практичних програм розвитку кадрового потенціалу органів державної влади та місцевого самоврядування.



КЛЮЧОВІ СЛОВА

організаційна компетентність, державна влада, місцеве самоврядування, структурна трансформація, кризове управління, адаптивність, лідерство, цифровізація, інституційна спроможність, війна.

1. Introduction

Процеси децентралізації в українському публічному просторі відкрили актуальність проблеми низького рівня організаційної компетентності посадовців, що пояснюється, значною мірою, відсутністю концептуального системного підходу до формування та розвитку управлінських навичок. Характерними явищами у середовищі функціонування органів державної влади та місцевого самоврядування є також слабкий інноваційний розвиток, низька інтегрованість сучасних управлінських підходів та деяка ресурсна обмеженість, що в синергії призводить до явища дисбалансу між розширеними повноваженнями посадовців та їх реальними компетенціями щодо ефективної професійної реалізації.

У часі війни розуміння феномену організаційної компетентності посадовця публічної служби зазнає суттєвої трансформації, адже основної ваги набувають навички з кризового управління, здатність до міжінституційної координації, адаптивність та мобілізаційна готовність. Водночас традиційні управлінські практики потребують сучасного переосмислення в плані інтенсифікації ролі лідерства, інтеграції цифрових інструментів та інноваційних підходів. У зв'язку з викладеним, дослідження сучасного контексту структурних компонентів та функціоналу організаційної компетентності посадових осіб органів державної влади та місцевого самоврядування (ПОДВМС) потребують додаткових наукових розробок.

2. Literature Review

Теоретико-методологічне підґрунтя у досліджуваній сфері сформоване науковими дослідженнями С. Гайдученко [8], С. Калашнікової [10], С. Красноп'ярової [13], С. Серьогіна [19] та інших. У публікаціях С. Хаджирадевої [11], М. Ярмистого [24] підіймаються актуальні питання трансформації підходів та оновлення методик підготовки посадовців органів державної влади та місцевого самоврядування, оптимізації параметрів системи ухвалення управлінських рішень у контексті сучасних викликів.

Особливої уваги потребують дослідження з питань теоретичних основ формування організаційної компетентності [14], попередження деструктивного впливу кризових суспільно-політичних умов [6], використання можливостей сучасних інформаційно-комунікаційних систем [16], оцінки параметрів якості прийнятих управлінських рішень [23].

Нині проведено багато досліджень аспектів впливу сучасних умов розвитку системи публічного управління на трансформацію підходів до формування структурно-функціональних параметрів діяльності посадовця системи публічної влади, та на їх підставі складено рекомендації щодо вдосконалення освітньо-компетентнісних стратегій – проєктувальної, управлінської, організаційної тощо. Водночас низка аспектів досліджуваної проблематики залишаються маловивченими, зважаючи на нові виклики часу війни.

3. Problem Statement

Війна суттєво трансформує роль та специфіку формування організаційної компетентності посадовця публічної служби. Управлінець має не лише бути професійно компетентним, обізнаним у сфері законодавства та координаційних механізмів, але й демонструвати адаптивність та гнучкість, володіти стійкими навичками з антикризового управління, умінням міжінституційної координації та прагненням до ефективного лідерства в контексті сучасного переосмислення традиційних підходів. Очевидно, що концепція удосконалення системи підтримки компетентності посадовців потребує додаткового наукового розгляду.

Мета дослідження – провести комплексний аналіз специфіки трансформації структури та функцій феномену організаційної компетентності ПОДВМС в умовах війни.

4. Methods and Materials

У статті було використано систему взаємопов'язаних наукових методів:

- діалектичний метод – для формування комплексного уявлення про сутнісні характеристики та закономірності досліджуваного явища, систематизації понятійного апарату;

– методи теоретичного аналізу, синтезу й узагальнення – з метою дослідження чинної нормативно-правової бази та вимог щодо організаційної компетентності посадових осіб ПОДВМС, їх трансформації в умовах децентралізації владних повноважень та впливу війни.

5. Results and Discussion

Особливу увагу у контексті проблематики дослідження необхідно відвести організаційній складовій управлінської компетентності керівника, без якої не можливе виконання управлінського циклу в цілому, тобто не можливе ефективне планування, координування, регулювання, облік, контроль будь-якого процесу. Організаційна компетентність посадових осіб являє собою компоненту професійної компетентності та є основою будь-якої професійної діяльності.

Структура цього феномену включає:

- уміння приймати управлінські рішення;
- знання про організацію діяльності органу влади та його суб'єктів;
- навички і досвід збору й аналізу інформації, використання інформаційно-комп'ютерних технологій;
- мотивацію до лідерства;
- вміння забезпечувати системну комунікацію й вирішувати конфлікти [22].

У основу організаційної компетентності можуть бути покладені такі знання, вміння, навички, досвід, мотивація, як:

- знання – про організаційну структуру ОДВ, ОМС та зв'язки між їхніми структурними елементами;
- вміння – організувати процес ухвалення управлінського рішення шляхом обговорення;
- навички – здобувати інформацію для досягнення консенсусу при прийнятті управлінського рішення;
- досвід – роботи в команді та демонструвати лідерство;
- мотивація – отримувати якісні результати роботи.

Щодо організаційної структури ОДВ та ОМС, то всі вони практично перейшли на горизонтальну, а не вертикальну, модель управління, яка практично не потребує керівників середньої ланки, а співробітники мають більше самостійності й ініціативи. Така модель сприяє:

- прискоренню прийняття рішень;
- зменшенню бюрократії;
- формуванню команд виконавців, які самостійно вирішують виробничі питання;
- пріоритетності стратегічного планування в організації;
- децентралізації управління підрозділами;
- підвищенню ініціативи співробітників.

Необхідною передумовою успішного досягнення консенсусу при прийнятті управлінського рішення у нинішній час є опановування посадовими особами цифрової компетентності. Необхідний прогрес в опановуванні інформаційно-комп'ютерними технологіями (ІКТ) і штучним інтелектом (AI) вбачається необхідною умовою ефективного розвитку електронного урядування, що передбачає ширшу і активну взаємодію органів влади, громадян і бізнесу.

В результаті підвищується ефективність, прозорість та доступність публічно-управлінських, державних, адміністративних й інших управлінських послуг. Це наближає громадян до більшої участі у справах держави і суспільства. Загалом, для набуття умінь користування ІКТ необхідно забезпечити розвиток таких навичок організаційної компетентності посадовців, як вміння швидко здобувати інформацію, її аналізувати і перетворювати у пропозицію для колективного обговорення.

Із цією метою, приміром, за ініціативи НАДС України було створено цільовий Портал управління знаннями й людськими ресурсами HRMIS, де на сьогодні зареєстровано понад 127 тисяч користувачів. Ресурс вміщує проекти та програми підвищення кваліфікації посадовців, що можна активно використовувати для підвищення рівня організаційної компетентності посадовців [11].

Щодо досвіду ефективного лідерства, це потребує особливого вміння бути толерантним до співробітників, які володіють різними типами характеру і поведінки. Вміння привернути на себе увагу, зацікавити і повести за собою є особливою здатністю керівників бути лідерами в колективі. «Політичне лідерство притаманне особам керівників органів публічної влади, які перемагають у політичній конкуренції. Воно визнається пріоритетною якістю особистості керівника будь-якого політичного інституту, яким є політична установа з відповідною організаційною структурою, цілеспрямованими виконавчими структурними елементами й апаратом» [9, с. 138].

Щодо розвитку мотивації керівників отримувати якісні результати роботи, то варто зазначити, що лише за умов конкурсного відбору на посади в ОДВ і ОМС цього можливо досягти. Мотивація керівників включає зовнішні і внутрішні чинники, які спонукають їх до ефективної діяльності. До зовнішніх чинників (стимулів), як правило, відносять матеріальні, кар'єрні, публічні (визнання досягнень, винагороди тощо). До внутрішніх – потреба в досягненнях, самореалізація, психологічна готовність, контроль над ситуацією.

Корисною вбачається модель розвитку організаційної компетентності посадовців, запропонована вітчизняними вченими [2], яка ґрунтується на функціональному підході:

- організаційна функція – реалізується через формування горизонтальних і вертикальних зв'язків;
- функція управління групою динамікою – через групову взаємодію та емоційний стан колективу;
- мотиваційна – через спрямованість на стимулювання для досягнення поставлених цілей;
- розвиваюча функція – через розвиток аналітичного мислення та навички наставника, коуча, ментора;
- контрольна – через оцінювання діяльності та заохочення до конструктивної критики;
- виконавська функція – через особистісний приклад, високий рівень умінь, знань, навичок для виконання посадових обов'язків;
- функція планування – через урахування здібностей працівників;
- функція впливу – шляхом інтеграції засобів раціонального аргументованого переконання, відстоювання власної позиції, навіювання та особистісного прикладу;
- представницька функція – через фокусування групових цінностей, ідеалів і переконань.

ПОДВМС мають отримати відповідні рівні вищої освіти спеціальності D4 «Публічне управління та адміністрування», що доволі часто не відповідає реаліям [21]. При цьому ключовим принципом безперервного професійного вдосконалення посадовців є інтеграція засад андрагогіки у систему післядипломної освіти [13].

Формування корпусу ефективних службовців має відбуватись на основі визначеної критеріальності професіоналізму ПОДВМС, серед яких:

- наявність відповідної вищої освіти, що слугує основою професійної компетентності управлінця;
- спроможність до кар'єрного зростання;
- наявність практичного досвіду роботи в органах публічної влади;
- сформовані організаторські здібності, креативність, ініціативність, дисциплінованість, політична нейтральність, відповідальність та моральні якості [4].

З-поміж ключових навичок у комунікативно-управлінському полі ключовими для посадовця необхідно виділити наявність сформованого теоретичного базису, умінь застосування отриманих умінь та навичок у практичній діяльності, цифрова компетентність та умінь ефективно взаємодіяти в команді, володіння ключовими техніками проведення переговорів, бажання до безперервного саморозвитку, адаптивність, логічне і критичне мислення, пріоритетність законодавчих вимог та демократичних цінностей [20]. Вимогами актуальних умов формування організаційно компетентного ПОДВМС є також умінь ефективно застосовувати власну цифрову компетентність для оптимізації поточної діяльності, забезпечення якісного й оперативного зворотного зв'язку з громадськістю.

Організація діяльності посадовців у системі публічного управління тісно пов'язана з навичками лідерства, умінням ефективно організовувати виробничий процес, мотивувати колектив та підвищувати якість комунікації з громадськістю (табл. 1).

Таблиця 1. Характеристика організаційних умінь посадовців ОДВ та ОМС

Вміння, притаманні організаційно компетентному посадовцю:		
ефективна комунікація	вирішення конфліктів	прийняття ефективних управлінських рішень
– соціально доцільні дії; – норми етики та етикету; – методи прогнозування ситуації; – технології управління емоціями; – каузальні (причинні) процеси, що відбуваються на глибинних структурних рівнях системи	– симптоматика, діагностика, прогнозування, контроль; – перспективні цілі організації; – аналіз міжособистісних стосунків; – механізми впливу влади на конфліктну ситуацію і навпаки	– прийоми управлінського мистецтва; – включення персоналу до визначення політики в організації; – основні стадії прийняття рішення – підготовка, інкубація, осяяння, верифікація; – ухвалення рішення на етапах з'ясування проблеми, складання плану її вирішення, виконання прийнятого рішення; – альтернативні рішення; – сутність прийнятого управлінського рішення; – перманентність (нескінченність) процесу пізнання

Джерело: авторська розробка на основі [11; 25].

Аналізуючи інформацію табл. 1, необхідно розглянути кожну виділену складову організаційної компетентності.

Комунікативні вміння і навички спрямовані на реалізацію ефективної соціальної взаємодії та гарантію результативності процесу розв'язання різноманітних професійних завдань через налагодження виробничих і міжособистісних взаємин [14, с. 13–15]. Очевидно, що такі навички детермінуються структурою комунікативного стилю особистості [5, с. 233–241].

Вміння управляти конфліктами передбачає превентивне запобігання конфліктної ситуації, своєчасне її прогнозування й моделювання, з метою ефективного практичного впливу на перебіг конфлікту, трансфер його наративів у межі раціонального вирішення, уміння критично аналізувати ситуацію та врегульовувати непорозуміння в колективі для уникнення деструктивного результату конфлікту [5, с. 233–241].

Ключовими функціональними наслідками конфліктів у діяльності посадовця можна виділити:

- віднайдення такого способу вирішення проблеми, що максимально влаштовує усіх стейкхолдерів;
- прийняття добровільного і спільного рішення, що дає змогу оперативно та якісно втілити його у життя;
- набуття сторонами досвіду взаємодії у процесі розв'язання конфліктних ситуацій, що може бути успішно використано в майбутньому;
- руйнування «синдрому страху» шляхом ефективного вирішення конфліктних ситуацій, внаслідок чого сторони отримують досвід відкритого висловлення власної, відмінної від інших, позиції;
- оптимізація сфери міжособистісних взаємин [25, с. 63–69].

Уміння ухвалювати управлінські рішення – ще одна важлива компонента організаційної компетентності ПОДВМС, що являє собою ефективний вибір однієї з кількох альтернатив. Необхідно зауважити, що для більшості посадовців процес відбувається на інтуїтивному рівні, виходячи з нестачі повного комплексу теоретичної підготовки та практичного досвіду управлінської діяльності.

Процес ухвалення управлінських рішень вбачається однією з ключових функцій управління, поряд із функціями стратегічного планування, координування, обліку, коригування, контролю [17]. Процес ухвалення управлінських рішень передбачає використання засобів і методів збору й обробки інформації, що потребує майстерності керівника щодо здійснення спільної з колективом оцінки альтернативних рішень та вибору оптимальнішого варіанту, з наступним аналізом результативності та ефекту регуляторного впливу прийнятого рішення, оцінкою потенціалу його впровадження. Лише після перелічених етапів має слідувати ухвалення остаточного управлінського рішення.

Можна виділити кілька основних підходів до формування навичок прийняття ефективного управлінського рішення:

- аналітичні моделі ухвалення рішень на основі об'єктивного аналізу проблемної ситуації, що містять в основі систему знань, умінь і навичок;
- триступенева система ухвалення політико-управлінських рішень, що передбачає етапи ідентифікації проблеми, формування плану рішення та його реалізації [25].

Сучасне трактування організаційної компетентності передбачає сформовані навички опрацювання інформації з використанням інформаційно-комунікаційних технологій та штучного інтелекту. При цьому мають бути актуальні версії теорії організації, що вивчає закономірності процесів самоорганізації та самоутворювальних чинників, а також теорії систем (зміст цілісності й системності), кібернетики (формування й трансфер керівних впливів), синергетики (механізми взаємодії елементів системи в процесі самоорганізації та саморозвитку).

Синергія зазначених вище сучасних концепцій потребує формування й розвитку принципово нових навичок у посадовців, в основу чого покладено визнання усіх систем (у тому числі системи місцевого самоврядування):

- несистемними і ситуативними;
- малокерованими, із переважанням чинників самостійності, автономності;
- вільними [24].

У часі війни підхід до організаційної компетентності ПОДВМС зазнав значної структурно-функціональної трансформації, зважаючи на вплив чинників нестабільності та соціокультурної турбулентності та стійку пріоритетність концептів сталого розвитку. Організаційна культура публічного управління на сьогодні розглядається як практико-орієнтований соціокультурний інститут, що сприяє врегулюванню життєдіяльності й взаємодії окремих державних, муніципальних та суспільних інститутів, бізнесу та громадянськості. Окрім того, актуальні вектори розвитку організаційної культури публічного управління врівноважують спрямування наративів культурного розвитку і соціокультурних тенденцій сучасності, маючи на меті досягнення стабільності та ефективних інноваційних змін у сфері державного управління [8].

С. Серьогін у своїй монографії «Організаційна культура та компетентність у державному управлінні» [19] досліджує теоретичний та прикладний аналіз взаємозв'язку між культурними чинниками функціонування державних інституцій та рівнем професійної компетентності службовців, й доходить до висновку, що організаційна культура – це не лише набір цінностей і норм, а й потужний інструмент формування управлінських практик, які визначають якість публічного управління.

Тому організаційна культура розглядається як багатовимірне явище, що охоплює ціннісні орієнтації, традиції, комунікаційні моделі та стиль лідерства в органах влади. Вона виступає середовищем, у якому формується професійна поведінка службовців, а компетентність державних службовців визначається не лише через знання та навички, а й через здатність діяти відповідно до етичних стандартів, норм професійної культури та стратегічних цілей державної політики [15].

Результати дослідження суперечать уявленням дослідників, які вважають, що стратегії управління є негативним фактором у плануванні системи державного управління. Зокрема, організаційна культура пропонує лібералізувати питання контролю та управління. Такий формат не передбачає необхідності формувати компетентності посадової особи, оскільки потенціал держави та суспільства орієнтований на запобігання кризам [3].

Зорієнтованість на європейські стандарти управління ризиками в публічному управлінні в Україні вбачається можливою та доцільною лише після стабілізації кризової ситуації. Екзистенційні відмінності у загрозах, що стоять перед суспільством в Україні та Європі, унеможливають проведення аналізу ефективності системи управління сталим розвитком в умовах нестабільності.

Разом із тим, деякі елементи ризик-менеджменту продемонстрували неабияку ефективність в реаліях сучасного публічного управління в Україні, зокрема – концепція державно-приватного партнерства. Ще одним інструментом, який позитивно вплинув на оцінку загроз, є метод аналізу покриття даних, який визначає необхідність проведення заходів з управління ризиками на основі даних в режимі реального часу про наявну ресурсну базу.

Окремо варто акцентувати увагу на ще одній компоненті організаційної компетентності ПОДВМС – мотивації до лідерства, що сприяє розвитку вміння ефективно працювати у складних політичних та соціально-економічних умовах. Загалом, мотивація лідерства позиціюється як

система управлінських знань, практичних навичок і умінь, професійних компетенцій, способів мислення, громадянської позиції та світогляду, морально-етичних цінностей, що детермінують спроможність посадовця успішно реалізовувати управлінську діяльність [23].

Окремі учені, аналізуючи феномен «лідерства» у контексті публічної служби, детермінують його «не тільки вищим еволюційним рівнем управління, а також, що не менш важливо, проявом нового вищого рівня якості управління» [10, с. 43]. У контексті лідерства дефініція управління набуває інноваційного наповнення, адже у цьому випадку для досягнення окресленої мети використовуються не традиційні інструменти менеджменту, такі як організація, планування і контроль, а інноваційні підходи – аналіз, мотивація і власний приклад.

Окремі науковці детермінують поняття лідерства як:

– «управління на більш високому рівні, процес досягнення значущих результатів при дії з повагою, турботою та чесністю заради добробуту всіх учасників» [10, с. 42];

– «опора на контроль і жорсткість (притаманні старій парадигмі управління) виявляється менш ефективною, ніж мотивація і мораль (притаманні лідерству)» [7, с. 23].

Незважаючи на позиціонування концепту лідерства як базової вимоги при формуванні органів публічної влади, серед посадових осіб доволі велика частка тих, що не спроможні ефективно ухвалювати самостійні рішення. Водночас сучасний контекст лідерства у сфері публічної влади позиціонує посадовця не тільки керівником, але й фасилітатором змін, модератором суспільного діалогу, комунікатором між владою та громадськістю.

Основний потенціал нового лідера вбачається у поєднанні емоційної зрілості, стратегічного мислення, спроможності ефективно діяти в умовах невизначеності. Лідерство в такій проєкції не лише формує необхідну політику, а й укріплює довіру, набуваючи функцій центрального фактора ефективного впровадження стратегічних рішень [12].

Науковець І. Грищенко [6] розглядає лідерство як феномен управління групою, наголошуючи, що ефективний лідер – це не лише носій формальної влади, а передусім організатор спільної діяльності, який здатний мобілізувати ресурси колективу, формувати спільні цінності та мотивувати до досягнення цілей. У свою чергу, Л. Даниленко [1], підкреслює, що у сучасних умовах формування політичної еліти відбувається під впливом суспільних трансформацій, що зумовлює зміну вимог до лідерів – від традиційного управління до інноваційного мислення, стратегічного бачення та високого рівня соціальної відповідальності. Вона підкреслює, що політичне лідерство дедалі більше ґрунтується на моральному авторитеті, професіоналізмі та здатності до діалогу в умовах плюралізму.

Взаємозалежність між трансформацією стратегічного планування та еволюцією публічного лідерства у сфері державного управління узагальнено в таблиці 2.

Таблиця 2. Взаємозв'язок між трансформацією стратегічного планування та розвитком публічного лідерства в державному управлінні

Етап стратегічного планування	Ключові підходи до публічного лідерства
Створення базових соціально-економічних інфраструктур і системи державного управління	Лідерство набуває інституційного характеру. Основна функція – консолідація суспільства й утвердження державної служби як професійної основи управління.
Удосконалення координації між центральними та місцевими органами влади, узгодження стратегій розвитку	Лідери діють як координатори і посередники між різними рівнями управління. Їхнє завдання – забезпечити синергію політики, розвиток горизонтальних зв'язків і підвищення ефективності управлінських рішень через співпрацю та діалог.
Концентрація стратегічних рішень на рівні центру; забезпечення ієрархічної узгодженості	Лідерство має адміністративно-контрольний характер. Лідери виконують функції керівників-наглядачів, забезпечують дисципліну, контроль і стабільність у системі, орієнтуючись на виконання планів і централізованих завдань.
Переосмислення лідерства й підзвітності; розширення автономії регіонів	Лідери виступають агентами змін, ініціюють участь громадян, розвивають прозорість і підзвітність, формують довіру та відповідальність у публічній сфері на рівні територіальних громад
Зростання гнучкості та співвідповідальності між рівнями управління	Лідерство стає фасилітативним і колаборативним. Основна роль – створення умов для спільного прийняття рішень, стимулювання автономії команд, підтримка кроссекторальної взаємодії

Етап стратегічного планування	Ключові підходи до публічного лідерства
Забезпечення безперервності державних функцій і публічних послуг (період криз)	Лідери виконують роль стабілізаторів системи, ухвалюють рішення в умовах невизначеності, підтримують моральний дух колективів і довіру громадськості. Їхня функція – управління ризиками і швидка мобілізація ресурсів.
Перехід до цифрової аналітики й гнучкого ухвалення рішень у реальному часі	Лідерство стає інноваційним і data-driven. Основна функція лідера – прогнозування, аналітична адаптивність і цифрова компетентність.
Інтеграція безпекових і оборонних вимірів у стратегічне планування; національна стійкість	Діяльність лідера спрямована на консолідацію ресурсів, координацію безпекових, економічних і гуманітарних політик, формування національної єдності та витривалості.
Реконструкція інфраструктури, модернізація економіки, євроінтеграційна інтеграція	Лідери формують бачення післявоєнного розвитку, мобілізують міжнародні партнерства, просувають ціннісно орієнтоване та гуманістичне лідерство, спрямоване на сталий розвиток і європейську інтеграцію.

Джерело: систематизовано автором на основі джерел [16; 18].

Враховуючи зазначене, реформування стилів публічного лідерства має відбуватися відповідно до трансформацій стратегічного планування – від контролю до партнерства, від централізації до гнучкості, від формального керівництва до ціннісного лідерства. Такий підхід забезпечує узгодженість управлінських рішень із суспільними потребами, сприяє підвищенню довіри до влади й формуванню нової генерації лідерів державного управління, здатних ефективно діяти в умовах глобальних викликів.

6. Conclusions

Організаційні компетентності є важливим інструментом модернізації державної влади та місцевого самоврядування, оскільки вони визначають здатність посадових осіб ефективно діяти в умовах війни, змін законодавства та зростаючих суспільних очікувань. У часі війни поняття організаційної компетентності зазнає значного апгрейду, адже на перший план виходять антикризові управлінські практики, адаптивність, резильєнтність, здатність до міжінституційної координації, водночас традиційні управлінські практики зазнають переосмислення в контексті інтенсифікації ролі лідерства, інтеграції цифрових інструментів та інноваційних підходів.

Сучасні ПОДВМС мають проявляти лідерські позиції, самостійність, емпатію та ініціативу. Така модель сприяє значному прискоренню прийняття рішень, мінімізації бюрократії, більшій децентралізації управління, формуванню команд самостійних ефективних управлінців, усталенню пріоритетності стратегічного планування в організації, підвищенню ініціативності та вмотивованості співробітників. Можна стверджувати, що для ефективного трансформації системи публічного управління необхідно забезпечити розвиток таких умінь організаційної компетентності посадових осіб, як вміння взаємодіяти, бути ініціативними, демонструвати лідерство. Це дозволить адаптувати функції ПОДВМС до вимог кризових умов сучасного розвитку в стані війни, цифрового вдосконалення публічного управління та інноваційних вимог до компетенцій управлінців.

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Managing Organizational Change During Digital Transformation of Public Administration: The Development of E-Democracy in Ukraine

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ABSTRACT

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This article explores how organizational change is managed during the digital transformation of public administration in Ukraine. The topic is especially relevant today, as public institutions are actively introducing online services, developing digital platforms, and expanding e-democracy tools. These processes require new approaches to management. Digital transformation affects not only technologies, but also organizational structures, working processes, leadership styles, and communication with citizens. The article aims to examine key directions and features of organizational change management in the digital transformation process and to identify current challenges and future opportunities to improve public-sector management in Ukraine. The study uses methods of analysis, comparison, dynamic analysis, systematization, and generalization. The research is based on data from international e-government and e-participation indices, digital and financial integration indicators, open data sources, and official statistics. The results show that Ukraine has already created basic conditions for developing digital governance and e-democracy. However, significant differences between regions remain, especially in digital infrastructure and citizens' digital skills. The findings also demonstrate that the active use of online services and digital platforms increases transparency and encourages internal organizational change. At the same time, problems related to access to digital technologies, staff training, and information security still exist. The article suggests practical ways to improve digital change management, including developing digital leadership, strengthening digital culture within public institutions, supporting communities with low levels of digital readiness, and improving coordination between government bodies and stakeholders. Special attention is given to the need for ongoing staff training and to creating supportive institutional environments for digital innovation. The results of this study can be useful for public authorities and local governments when planning and implementing digital projects, developing digital strategies, improving public service delivery, and increasing citizen engagement through electronic participation tools.

**KEYWORDS**

public administration, digital services, e-participation, management innovation, digital culture, regional development, open data, digital platforms.



Управління організаційними змінами в процесі цифрової трансформації публічного управління: розвиток електронної демократії в Україні

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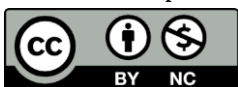
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У статті розглянуто питання управління організаційними змінами в умовах цифрової трансформації публічного управління в Україні. Актуальність дослідження зумовлена активним упровадженням електронних сервісів, розвитком цифрових платформ і зростанням ролі електронної демократії, що потребує перегляду традиційних підходів до управлінської діяльності. В умовах цифровізації змінюються не лише технології, але й організаційна структура, управлінські процеси, стиль керівництва та взаємодія з громадянами. Метою цієї статті є аналіз основних напрямів та особливостей управління організаційними змінами в процесі цифрової трансформації, а також визначення проблем і перспектив удосконалення управлінських практик у публічному секторі України. У процесі дослідження використано методи аналізу, порівняння, динамічного аналізу, систематизації та узагальнення. Інформаційну базу становили дані міжнародних індексів електронного урядування, електронної участі, фінансової і цифрової інтеграції, відкритих даних, а також офіційна статистика органів державної влади. У результаті дослідження встановлено, що в Україні сформовано базові передумови для розвитку цифрового управління й електронної демократії. Водночас зберігаються регіональні відмінності в рівні цифрової готовності, розвитку інфраструктури та цифрових навичок населення. У статті було доведено, що активне використання електронних сервісів і цифрових платформ сприяє підвищенню відкритості органів влади та стимулює внутрішні організаційні зміни. Виявлено основні проблеми, пов'язані з доступністю цифрових технологій, кадровим забезпеченням і питаннями інформаційної безпеки. Запропоновано напрями вдосконалення управління цифровими змінами, зокрема розвиток цифрового лідерства, посилення цифрової культури, підтримку громад із низьким рівнем цифрової готовності й удосконалення інституційної координації. Отримані результати можуть бути використані в діяльності органів державної влади та місцевого самоврядування під час планування і реалізації цифрових проєктів.



КЛЮЧОВІ СЛОВА

публічне управління, цифрові сервіси, електронна участь, управлінські інновації, цифрова культура, регіональний розвиток, відкриті дані, цифрові платформи.

1. Introduction

In recent years, digital technologies have increasingly influenced the activities of public authorities in Ukraine. The introduction of electronic services, the development of the “Diya” platform, the use of online communication tools, and citizen participation are gradually changing management approaches. Along with technological changes, organizational transformations are also underway, affecting institutional structures, management processes, staff work, and public interactions [1, p. 84].

In the context of digital transformation, authorities are forced to adapt to new requirements quickly, review traditional methods of work, and implement modern management practices. At the same time, these processes are accompanied by several problems related to uneven infrastructure development, the level of the population’s digital skills, and staff readiness for change [12, p. 59]. Therefore, the effective management of organizational change in the context of digitalization remains relevant and warrants further scientific analysis.

2. Literature Review

Modern scientific research focuses on analyzing the digital transformation of public administration, the role of e-participation, managerial leadership, digital competencies, and the institutional capacity of authorities. In the article, J. Tan and C. Lum prove that e-participation increases citizens’ access to government data. Still, its effectiveness is limited by the digital divide and by authorities’ insufficient response [16, p. 78]. In turn, F. Iannacci et al. established that the development of e-government depends on investments in human capital and managerial flexibility [6]. The public value of e-participation is shaped by stable organizational support and effective interaction with citizens, as confirmed by N. Karkin and A. Cezar [7]. The influence of managerial leadership on the effectiveness of digital changes was substantiated by H. van Roekel et al. [19], who link the success of the transformation with a strategic vision and high-quality organization of internal processes. The sustainability of digital services in the public sector depends on cybersecurity, as shown by O. Diachenko and B. Tyrus [3, p. 453]. According to the conclusions of O. Evsyukova and T. Mykhailova, geopolitical factors and international support influence strategic management decisions, in particular in the field of digital development [5, p. 237]. Professional training, strategic communications and the ability to adapt management processes determine the effectiveness of public servants in crisis conditions, as confirmed by S. Prylipko and N. Vasylieva [11]. The study by L. Dorohan-Pisarenko et al. [4] found that personnel’s digital competencies form the basis of successful transformation. In contrast, O. Akhmedova and A. Pomaza-Ponomarenko emphasize that the digitalization of the public sector reduces corruption risks and increases management transparency, as noted in [1, p. 86]. Social attitudes and internal organizational narratives can hinder the practical implementation of digital changes, as emphasized by M. Tinjan [17, p. 74].

The generalizations from the analyzed works confirm that effective management of digital change requires a combination of technological development, personnel training, organizational support, information security, and active citizen engagement. Despite the significant number of scientific works on the digitalization of public administration, the practical management of organizational changes, personnel adaptation, and the coordination of digital solutions with internal management processes remains insufficiently covered. The number of studies that consider digital transformation in relation to regional characteristics and the conditions of war and post-war recovery remains limited.

3. Problem Statement

The purpose of this article is to examine the impact of digital transformation on the management of organizational change in Ukraine’s public administration system in the context of the development of e-democracy.

4. Methods and Materials

The study was based on the analysis of scientific publications, analytical reports, and official statistical materials on the digital transformation of public administration and the development of e-

government and e-democracy in Ukraine. The main focus was on assessing changes in the organization of government work, the level of the population's digital readiness, and the use of electronic services.

The collection of empirical data was based on open sources, including materials from the Global Index, EGDI, and E-Participation indices; data from the Ministry of Digital Transformation of Ukraine; statistics from the Cabinet of Ministers of Ukraine; and e-democracy platforms. Indicators of regional development in digital infrastructure and the population's digital skills were also used.

Information processing involved systematizing statistical data by year and region. Special attention was paid to the analysis of the dynamics of the use of electronic appeals, petitions, online surveys and public participation tools. This made it possible to trace changes in citizens' interactions with government bodies amid digitalization.

The study used comparative analysis to compare Ukraine's digital development indicators with international trends. Differences across regions in the digital economy, infrastructure, and public service accessibility were also analyzed.

The combination of quantitative and qualitative methods made it possible to assess both statistical trends and the features of organizational changes in the activities of government agencies. Content analysis of regulatory legal acts and strategic documents was used to study managerial approaches to digital transformation.

To summarize the results, grouping methods, logical analysis, and interpretation were used. This made it possible to identify the main problems, trends, and areas for improving organizational change management in the context of digital development.

5. Results and Discussion

Digital transformation in the public administration system is a complex, multifaceted process that involves not only the introduction of information and communication technologies (hereinafter referred to as ICT) but also a deep renewal of approaches to organizing administrative activities. In modern scientific discourse, digitalization is interpreted as a transition from traditional administrative models to electronically oriented forms of interaction between the state and society [1, p. 85]. The use of ICT creates opportunities to automate administrative procedures, improve the efficiency of decision-making, simplify citizens' access to public services, and reduce administrative burden. ICT is gradually becoming the basic infrastructure for the functioning of government bodies, without which effective management in the digital economy is impossible [14, p. 217]. An important component of digital transformation is the development of e-government, which involves providing administrative services remotely, using electronic document management, creating unified state registers, and developing digital platforms for citizen interaction. E-government contributes to greater transparency in government activities, stronger accountability, and greater trust among society [8].

A separate area in the digitalization process is e-democracy, which involves citizens in management processes through digital tools. Such tools include electronic petitions, online consultations, public participation platforms, electronic surveys and feedback mechanisms. Their use contributes to a more open and inclusive model of public administration. The introduction of digital technologies into the activities of public authorities inevitably transforms the internal organizational structure. More flexible forms of work organization are gradually replacing traditional hierarchical management models, which are focused on interagency interaction, a project approach, and the use of digital platforms [13, p. 7]. Digitalization also affects management processes, particularly the procedures for planning, controlling, monitoring, and evaluating activity results. The use of electronic accounting systems, analytical tools and databases increases the possibility of making decisions based on objective information and current indicators.

Significant changes are also taking place in the personnel sector. The need for specialists with digital competencies who can work with information systems, analyze data, and implement innovative management solutions is increasing [4]. At the same time, the importance of advanced training and continuous professional development for government employees is growing.

Updating organizational culture is another important direction of change. In the digital environment, the roles of openness, results orientation, readiness for innovation, and perception of change are increasing. The formation of a modern management culture involves the development of teamwork, support for initiative and responsibility [15, p. 79]. Communication plays an important role in the process of organizational change. Digital channels of interaction provide rapid exchange of

information between structural units, management, and the public, thereby increasing the coherence of actions and reducing information loss.

The successful implementation of digital transformation largely depends on the quality of strategic leadership in the public administration system. It is the leaders who determine the priorities of digital development, shape a vision for future changes, and provide resource support for relevant initiatives. Digital leaders play a key role in implementing innovations, stimulating organizational development and creating a favorable environment for the use of modern technologies. They combine managerial, analytical and communication competencies, which allows for effective coordination of digitalization processes. In Ukraine, an important coordination function in the field of digital transformation is performed by the Ministry of Digital Transformation, which ensures the development of state digital strategies, the implementation of electronic services and the development of the “Diya” platform. Its activities contribute to the formation of a unified approach to digital changes at the national level [10]. Local governments also play a significant role in implementing digital reforms, adapting national initiatives to the needs of territorial communities. At the local level, digital services are implemented in practice, and new models of interaction with the population are formed [9]. The level of managerial competencies of government leaders and employees directly affects the effectiveness of digital transformations. Thus, the professional training of managerial personnel determines the government bodies’ ability to adapt to technological change. The development of strategic thinking, openness to innovation, and readiness to work in a constantly changing environment are also important. It is the managers’ ability to manage change, form modern teams, and engage with the public that underpins sustainable digital development in public administration. In this context, digital leadership serves not only as a managerial function but also as a factor in long-term institutional stability. Another important prerequisite for the successful implementation of state policy in digitalization is the population’s digital readiness. It reflects the level of citizens’ access to financial and digital services, the spread of non-cash payments, and the use of electronic accounts and mobile applications. The level of financial and digital integration among the population directly affects citizens’ use of electronic government services and their participation in digital interactions with the government. To assess these processes, data from the international database Global Findex [20] were used, which allows us to track the dynamics of financial and digital accessibility in Ukraine.

Figure 1 shows the main indicators of financial and digital integration among Ukraine’s population for the corresponding period.

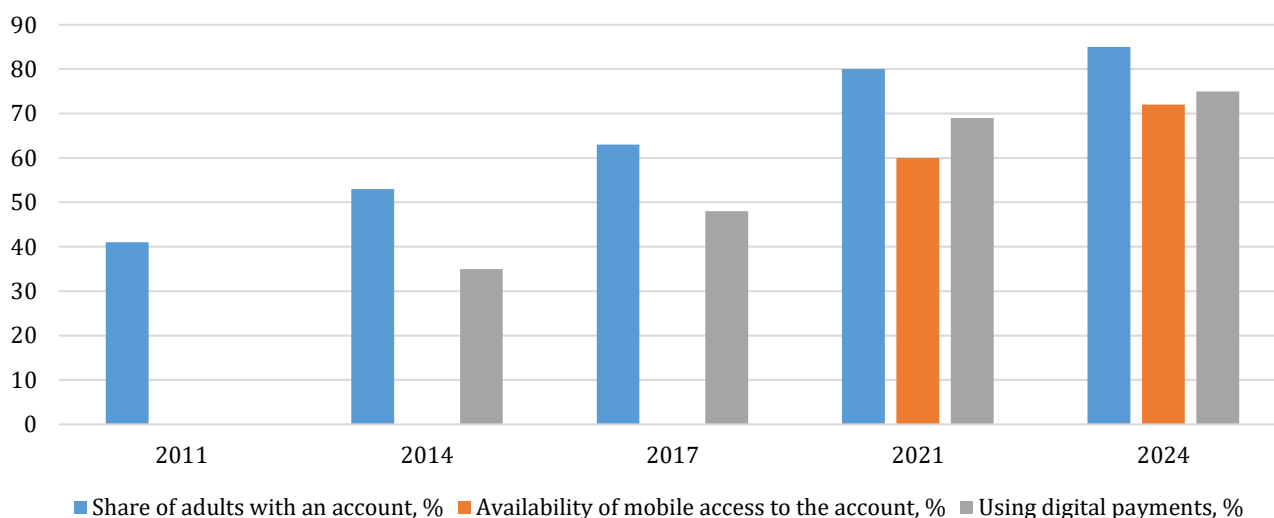


Figure 1. Dynamics of financial and digital integration of the population of Ukraine (Global Findex)

Source: Constructed according to [20].

The visualization shows a steady upward trend in the financial and digital integration of Ukraine’s population during the study period. The share of the adult population with a bank account increased from about 41% in 2011 to about 85% in 2024. Overall growth over this period exceeded 40 percentage points, indicating a significant expansion in citizens’ access to financial services. A particularly noticeable acceleration of this process is observed after 2017, when the indicator increased by almost

20% over four years. Such dynamics are associated with the active development of digital banking services, the spread of mobile applications, and the simplification of account-opening procedures. The indicator of mobile access to an account began to take shape in earnest after 2021. In 2021, about 60% of the population used it; by 2024, this had increased to about 72%. An increase of more than 10% in a short period indicates growth in citizens' trust in mobile financial technologies and in their digital literacy. Thus, the development of mobile banking has become a key driver of increased digital participation in the financial sector.

The dynamics of digital payments also show a pronounced upward trend. If in 2014 only about 35% of citizens used non-cash payment instruments, then in 2024 this figure had risen to approximately 75%. Overall growth was about 40%, indicating a gradual transition from cash payments to electronic payments. The most rapid growth in the use of digital payments was observed during 2017–2021, when the figure increased by almost 20%. This is due to the development of payment infrastructure, the spread of smartphones, and the widespread adoption of state and commercial digital services.

The analysis results confirm that Ukrainians' financial and digital readiness has increased significantly, creating favorable conditions for the further development of e-government and e-democracy tools.

In turn, the growth of the population's digital readiness creates favorable conditions for implementing organizational changes in the public administration system. The active use of digital financial and service tools simplifies the transition of government bodies to electronic work processes and increases the efficiency of management processes.

At the same time, maintaining positive dynamics requires further state support for digital infrastructure, the development of the population's digital skills, and ensuring the availability of electronic services for various social groups. These factors determine society's readiness to accept management innovations and to participate in digital interactions with the authorities.

In the process of digital transformation, not only does the level of citizen involvement become important, but also the institutional capacity of government bodies to implement and support changes. The effectiveness of digital transformation management depends on the development of electronic services, the quality of infrastructure, the level of personnel training and the activity of citizens in decision-making processes.

To assess these aspects, the study analyzed the dynamics of key international digital governance indicators, which comprehensively characterize the state of public administration amid digitalization. The results of the development of the institutional and technological components of the digital transformation of public administration in Ukraine during 2003–2024 are presented in Table 1.

Table 1. Dynamics of institutional and technological components of digital transformation of public administration in Ukraine (2003–2024)

Year	Electronic Government Development Index (EGDI), score	Place in the EGDI ranking	Online Services Index (OSI)	Telecommunications Infrastructure Index (TII)	Human Capital Index (HCI)	Electronic Participation Index (EPI)
2003	0.4617	54	0.3493	0.1157	0.9200	0.3966
2004	0.5326	45	0.5559	0.1166	0.9300	0.3442
2005	0.5456	48	0.5808	0.1161	0.9400	0.3651
2008	0.5728	41	0.5351	0.2336	0.9508	0.5682
2010	0.5181	54	0.3460	0.2487	0.9647	0.2571
2012	0.5653	68	0.4248	0.3535	0.9176	0.1579
2014	0.5032	87	0.2677	0.3802	0.8616	0.4314
2016	0.6076	62	0.5870	0.3968	0.8390	0.7458
2018	0.6165	82	0.5694	0.4364	0.8436	0.6854
2020	0.7119	69	0.6824	0.5942	0.8591	0.8095
2022	0.8029	46	0.8148	0.7270	0.8669	0.6023
2024	0.8841	30	0.9854	0.8428	0.8240	1.0000

Source: Constructed by the author based on data from [18].

The analysis of the data in Table 1 indicates a gradual, systematic growth in Ukraine's institutional capacity for digital governance from 2003 to 2024. The results obtained reflect the evolution of management approaches towards digitalization and the implementation of organizational changes. The

e-Government Development Index increased from 0.4617 in 2003 to 0.8841 in 2024. Overall growth exceeded 0.42 points, indicating an almost twofold increase in the level of digital maturity in public administration. Particularly intensive growth is observed after 2016, when the indicator increased from 0.6076 to 0.8841, an increase of more than 0.27 points. First, this is due to the intensification of state policy on digitalization and the implementation of systemic management reforms. Ukraine's position in the EGDI ranking improved from 54th in 2003 to 30th in 2024, a 24-place gain. This indicates an increase in the national e-government system's competitiveness internationally.

The online services index increased from 0.3493 in 2003 to 0.9854 in 2024. Overall growth exceeded 0.63 points. During 2014–2024, this indicator increased by almost 0.72 points, from 0.2677 to 0.9854. This indicates a significant expansion of electronic services and the transition of government bodies to digital service formats. Thus, the development of online services contributed to the optimization of internal processes of government bodies and the reduction of the administrative burden on personnel.

The telecommunications infrastructure index increased from 0.1157 in 2003 to 0.8428 in 2024, an increase of more than 0.72 points. The most dynamic growth occurred after 2012, when the indicator increased from 0.3535 to 0.8428. This indicates the active development of Internet networks, mobile communications and digital communication channels. The development of infrastructure created a technical basis for implementing organizational changes in the public sector. The human capital index remained relatively stable during the period under study. In 2003, it was 0.9200, and in 2024, it was 0.8240. The overall decrease was about 0.10 points. This may indicate insufficient adaptation of the personnel training system to new digital requirements. It should be noted that human resource potential remains one of the main factors slowing the pace of organizational change in the public administration system.

The e-participation index increased from 0.3966 in 2003 to 1.0000 in 2024. The total increase was more than 0.60 points. At the same time, the highest rates were recorded during 2014–2020, when the indicator increased from 0.4314 to 0.8095. In 2024, Ukraine reached the index's maximum value. This indicates the active development of electronic forms of interaction between citizens and authorities, particularly through petitions, surveys, and digital platforms.

Summarizing the results of the analysis, we conclude that Ukraine has established an institutional and technological framework for managing organizational change in the context of digital transformation. The greatest progress has been achieved in the development of online services, infrastructure and e-participation. At the same time, the issue of human capital development remains problematic, which requires increased attention from government authorities.

Further improving the efficiency of digital change management should be based on a combination of technological innovations and the systematic development of personnel management competencies. Without proper employee training, even modern digital tools do not deliver the expected management benefits.

An important indicator of the institutional maturity of digital management is the level of open data development. According to the European Open Data Maturity assessment results, Ukraine ranked third among European countries in 2024. The overall level of open data maturity was about 97%, while in 2020, the country ranked only 17th in the rating. Thus, in four years, the positions increased by 14 places.

Such dynamics indicate a purposeful state policy to ensure transparency of administrative processes, openness of information and development of analytical tools. Open data is gradually becoming an important resource for making administrative decisions, public control and building trust in government bodies.

The level of e-democracy development is largely determined by citizens' use of digital channels to interact with government bodies. In this context, data on electronic appeals, use of the "Diya" platform and e-participation services are indicative [10].

According to the Government Contact Center of the Cabinet of Ministers of Ukraine, in 2024, the total number of electronic appeals from citizens exceeded 1.78 million. Of these, about 661.7 thousand appeals were directly transferred to executive bodies for consideration, and over 1.11 million citizens received explanations and consultations [10]. These indicators suggest that electronic appeals have become a common means of communication between the population and state structures, and that digital channels are gradually replacing traditional forms of paper correspondence and in-person citizen receptions.

The active use of the “Diya” application and the E-DEM platform also confirms the growing role of digital tools in public administration. Surveys, petitions, consultations and feedback services allow citizens to participate in the formation of management decisions in a convenient online format. The development of such tools contributes to transforming the organizational culture of government bodies toward openness, a focus on citizens’ needs, and greater responsibility among officials.

As a result, digital communication channels are gradually becoming the primary mechanism for interaction between the state and society, an important prerequisite for successfully managing organizational changes in the context of digital transformation. In turn, the development of e-democracy tools contributes not only to increasing citizen participation but also to improving internal management processes within government bodies.

To summarize the main directions of e-democracy development in Ukraine, it is advisable to consider key digital tools and the scope of their practical use. The results of the summary are presented in Table 2.

Table 2. Development of e-democracy tools in Ukraine

Electronic Democracy Tool	Year of introduction	Key usage indicators
Electronic Petitions	2015	1,196 supported petitions in 2023
Action.Polls	2022	Up to 2.1 million participants
E-DEM Platform	2016	31,668 electronic appeals
Public Budget	2016	250 million UAH of funding in 2024

Source: Constructed by the author based on data from [10].

The data presented in Table 2 indicate a gradual expansion of the range of e-democracy tools and an increase in their practical use in Ukraine. Electronic petitions, introduced in 2015, remain one of the most common mechanisms of public participation. In 2023, 1,196 petitions were supported, indicating a high level of public involvement in the process of forming administrative decisions. The “Action.Poll” platform, which has been operating since 2022, demonstrates particularly high activity rates. Up to 2.1 million citizens participated in digital surveys, which confirms the growth of trust in electronic forms of interaction with the state. Stable dynamics also characterize the activities of the E-DEM platform. During the study period, more than 31.6 thousand appeals were submitted through the system, confirming the effectiveness of digital channels at the local level. The public budget plays an important role in the development of e-democracy. In 2024, funding for public participation projects in the city of Kyiv amounted to UAH 250 million, almost five times the initial stage funding for this tool. This indicates a gradual institutional consolidation of mechanisms for citizen participation in the budget process.

Thus, the increased use of e-democracy tools is gradually changing governance approaches in the public sector. Government bodies are becoming more open to communication, responding faster to citizens’ appeals, and using digital channels more actively in their work. This affects both the internal organization of activities and the style of management decisions.

At the same time, digital changes in Ukraine are occurring unevenly. In some regions, electronic services are actively developing and widely used, while in others these processes are progressing more slowly. The level of Internet access, the population’s digital skills, the technical support available to communities, and the training of government employees vary. Such differences directly affect the possibilities of implementing organizational changes at the local level. Where the digital infrastructure is better developed, management reforms are implemented faster and produce more tangible results. At the same time, in less prepared communities, digital transformation is often limited to individual projects, with no systemic impact. In this regard, it is advisable to analyze the regional features of digital development in Ukraine using the generalized indicators of the digital transformation index for communities (Table 3). This allows us to assess the actual state of territorial digitalization and identify areas for improving the management of organizational change at the local level.

The results of the data analysis in Table 3 demonstrate significant differences in the level of digital development across regions of Ukraine. The indicators for individual components vary significantly by region, affecting the feasibility of implementing organizational changes at the local level. The highest indicators of the digital economy were recorded in Kharkiv (114), Lviv (63), Poltava (61), Cherkasy (61) and Sumy (58) regions. This indicates a relatively high level of development in digital business, e-commerce, and innovation. At the same time, the lowest values are observed in Donetsk (2), Luhansk (2), Khmelnytskyi (6) and Volyn (9) regions. This situation limits the prospects for building a modern digital economy and complicates the implementation of management reforms. The highest level of

digital skills was recorded in Rivne (99), Kharkiv (97), Lviv (86) and Ternopil (86) regions. This indicates a high level of readiness of the population to use electronic services. The lowest indicators are in Zhytomyr (32), Khmelnytskyi (33) and Donetsk (41) regions. An insufficient level of digital competencies is one of the key obstacles to effective change management in these regions.

Table 3. Regional indicators of digital transformation in Ukraine by development components (community digital transformation index)

Region	Digital economy	Digital skills	Digital infrastructure	Digitalization of public services	Digitalization of communities	Integral index
Vynnytska	12	66	56	53	33	33
Volynska	9	68	62	61	33	33
Dnipropetrovska	41	68	73	47	24	24
Donetska	2	41	28	45	17	17
Zhytomyrska	26	32	77	54	41	41
Zakarpatska	50	50	65	63	39	39
Zaporizka	48	54	29	51	14	14
Ivano-Frankivska	27	58	46	57	31	31
Kyivska	48	77	68	71	39	39
Kirovohradska	29	77	68	52	15	15
Luhanska	2	41	37	38	14	14
Lvivska	63	86	64	72	53	53
Mykolaivska	45	49	52	42	31	31
Odeska	53	75	52	56	34	34
Poltavska	61	51	62	61	39	39
Rivnenska	25	99	65	59	31	31
Sumska	58	65	55	50	34	34
Ternopil'ska	14	86	64	64	32	32
Kharkivska	114	97	60	65	41	41
Khersonska	38	49	40	56	31	31
Khmelnytska	6	33	50	46	32	32
Cherkaska	61	77	56	52	15	15
Chernivetska	16	58	46	57	30	30
Chernihivska	21	65	55	59	30	30

Source: Constructed by the author based on data from [2; 9].

The most developed digital infrastructure is in Zhytomyr (77), Dnipropetrovsk (73), Kyiv and Kirovohrad (68 each), and Zakarpattia (65) regions. The lowest indicators are recorded in the Donetsk (28), Zaporizhzhia (29), and Luhansk (37) regions, which limit residents' access to digital services and complicate the implementation of electronic governance.

The highest level of digitalization of public services is observed in Lviv (72), Kyiv (71), Kharkiv (65) and Ternopil (64) regions. Instead, the lowest values were recorded in the Luhansk (38), Mykolaiv (42), and Donetsk (45) regions, indicating limited availability of electronic services for the population.

The leaders in terms of the level of digitalization of communities were Lviv (53), Zhytomyr and Kharkiv (41 each), and Kyiv, Zakarpattia, and Poltava (39 each). The lowest indicators remain in the Zaporizhzhia (14), Luhansk (14), Kirovohrad (15), and Cherkasy (15) regions, indicating weak institutional readiness in these communities for digital change.

According to the integral index, the leaders are Lviv (53), Zhytomyr and Kharkiv (41 each), Kyiv, Zakarpattia and Poltava (39 each) regions. The lowest values were recorded in the Zaporizhzhia (14), Luhansk (14), Kirovohrad (15), Cherkasy (15), and Donetsk (17) regions. The difference between the maximum (53) and minimum (14) values is almost 40 points, indicating significant regional asymmetry in digital development. Summarizing the results of the analysis, we conclude that the most favorable conditions for managing organizational changes are present in the Lviv, Kharkiv, Kyiv, and Poltava regions. These regions combine developed infrastructure, sufficient digital skills, and active use of electronic services.

At the same time, in the eastern and some central regions, digital transformation remains fragmented. Limited resources, weak infrastructure, and personnel problems reduce the effectiveness of administrative changes.

Further, state policy in the field of digitalization should aim to reduce regional disparities, develop human capital, and support communities with low levels of digital readiness. At the same time, the study identifies several problems and limitations that complicate the management of digital change in the public administration system.

First, attention should be paid to technological factors that affect the pace of digital transformation. Many regions still face difficulties accessing high-speed Internet, especially in rural areas and remote communities. The level of development of digital infrastructure remains uneven, limiting the use of electronic services. This leads to digital inequality across population groups and territories. Social and personal factors play an important role. A significant part of the population, especially older people, has limited digital skills and experiences difficulties in using electronic services. Even with access to technical capabilities, such citizens often do not use digital tools in everyday life. In addition, among government employees, resistance to change is often observed, associated with the habit of traditional working methods and fear of additional workload.

A separate group of obstacles to digitalization is institutional and security problems. The active use of digital platforms increases the risk of cyberattacks, unauthorized access to information, and the leakage of personal data. In modern conditions, the likelihood of manipulating public opinion through digital communication channels is also increasing. At the same time, the legal framework for regulating digital processes does not always keep pace with technological development, complicating the implementation of individual innovative solutions.

Thus, the combination of technological, social, and institutional constraints hinders the formation of a holistic system for digital change management. Overcoming these problems requires a comprehensive approach that combines infrastructure development, increased digital literacy, improved management practices, and strengthened information security. Given the analysis results, it is advisable to identify the main areas for improving organizational change management in the context of digital transformation. The areas proposed in Table 4 are based on assessments of indicators of digital readiness of the population, institutional capacity of government bodies, regional development, and the level of e-participation.

Table 4. Summary of areas for improving digital change management in public administration

Direction	Main problems (according to the analysis results)	Analytical indicators	Expected management effect
Developing digital leadership	Insufficient level of managerial competencies, uneven development of regions	EGDI, regional index, HCI	Improving the quality of strategic decisions, accelerating the implementation of reforms
Strengthening digital culture	Low level of digital skills of certain population groups, resistance to change	Global Findex, HCI, and regional data	Increasing staff involvement, reducing resistance to innovation
Inclusive digitalization	Digital inequality between regions and social groups	TII, Findex, regional indicators	Expanding access to electronic services, increasing social justice
Institutional coordination	Fragmentation of digital projects, weak interaction of authorities	EGDI, OSI, Open Data Maturity	Coherence of management decisions, efficient use of resources

Source: Author's own development.

Improving the effectiveness of digital change management requires a systemic approach that focuses not only on technological solutions but also on developing managerial potential and organizational culture. The development of digital leadership is key to ensuring the coherence of reforms at the national and regional levels. High EGDI indicators and uneven regional development highlight the need to strengthen government leaders' management training. Strengthening digital culture aims to overcome personal and social constraints. Global Findex and HCI data confirm that insufficient digital skills remain a limiting factor for effective use of electronic services. Inclusive digitalization aims to reduce digital inequality between territories and social groups. Analysis of TII indicators and regional indices demonstrates the need for targeted support for communities with a low level of digital readiness. Institutional coordination ensures the coherence of digital initiatives and prevents duplication of functions. Ukraine's high results in Open Data Maturity and OSI create the prerequisites for the further development of integrated management platforms. In summary, we conclude that implementing these areas will contribute to the development of a sustainable

organizational change management system focused on the public sector's long-term digital development.

6. Conclusions

Based on the research, the digital transformation of public administration in Ukraine is accompanied by active organizational changes across management processes, the service delivery system, and citizen interactions.

1. It was found that the growth of e-government, e-participation, and the development of online services create favorable conditions for the implementation of management innovations. Still, the level of digital readiness remains uneven across regions.

2. It is proven that increasing the level of digital skills of the population and the development of digital infrastructure contribute to a more active use of electronic services and increase the efficiency of management decisions.

3. It was found that the development of e-democracy tools has a positive effect on the openness of government bodies and stimulates internal organizational changes.

Recommended measures include developing managerial competencies, strengthening digital culture within government bodies, improving coordination between state and local structures, expanding access to digital infrastructure, and reducing regional disparities in digital development.

Further research should focus on assessing the effectiveness of digital change management in the context of post-war recovery, examining the impact of digital solutions on the quality of public services, and developing practical models for adapting government bodies to new technological challenges.

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Effectiveness of the Public Management System for the Quality of Medical Services in Ukraine

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ABSTRACT

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The quality of the healthcare service management system has become critically important under martial law conditions. During this period, the healthcare system faces unprecedented challenges such as infrastructure destruction, shortages of medical personnel, and increased demand for medical services. The reform of the national healthcare system through the introduction of the medical guarantees program, the development of primary healthcare, and preventive medicine requires an analysis of the effectiveness of management decisions and quality assurance mechanisms. This study assesses the effectiveness of the healthcare service quality management system in Ukraine from 2022 to 2024 by conducting a detailed analysis of staffing, infrastructure capacity, financial mechanisms, and healthcare system performance outcomes. The research is based on a comparative analysis of official statistical data, including state statistical reporting forms N-17, N-47, N-51, as well as annual reports of the Ministry of Health of Ukraine and the National Health Service of Ukraine for 2022–2024. The results indicate that the highest crisis resilience of the public management system in 2022–2024 ensured a 7.5% increase in the number of family doctors-therapists (from 18,750 to 20,150) and coverage of 78.2% of the population through patient declarations. Analysis of indicators showed a 5.2% improvement in bed utilization efficiency (from 286 to 301 days per year) along with a reduction in the average hospital stay (from 9.8 to 9.1 days). The development of preventive medicine was considered successful due to a 12.9% increase in the number of medical centers in the network (from 428 to 483 centers) and a 28.1% increase in the number of medical examinations. The financial mechanisms of the National Health Service of Ukraine ensured a 22.2% increase in the budget of the medical guarantees program (from UAH 164.8 to 201.3 billion) in 2023–2024 and access to medications through the reimbursement program. Quality indicators improved throughout the study period – the in-hospital mortality rate decreased to 1.68%, and early disease detection increased from 42.7% to 47.8%. The practical significance of these results lies in their potential use for improving public healthcare management mechanisms and economically efficient resource allocation in the healthcare system.



KEYWORDS

public administration, quality of medical care, healthcare system, healthcare reform, medical guarantees program, primary healthcare, preventive medicine, healthcare financing.



Ефективність системи публічного управління якості медичних послуг в Україні

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Якість системи управління якістю послуг у сфері охорони здоров'я набуде вирішального значення в умовах воєнного стану. У цей період коли система охорони здоров'я стикається з безпрецедентними викликами, такими як руйнування інфраструктури, нестача медичного персоналу та збільшення попиту на медичні послуги. Реформа національної системи охорони здоров'я шляхом запровадження програми медичних гарантій, розвитку первинної медичної допомоги та профілактичної медицини вимагає аналізу ефективності управлінських рішень та механізмів забезпечення якості. У межах дослідження здійснюється оцінка ефективності системи управління якістю послуг охорони здоров'я в Україні у 2022-2024 роках з використанням детального аналізу кадрового забезпечення, потужностей інфраструктури та фінансового механізму, а також результатів діяльності системи охорони здоров'я. Дослідження базується на порівняльному аналізі офіційних статистичних даних, таких як державні статистичні форми звітності N-17, N-47, N-51, щорічні звіти Міністерства охорони здоров'я України та Національної служби охорони здоров'я України за 2022-2024 роки. Отримані результати свідчать про те, що найвища кризостійкість системи державного управління в 2022-2024 роках гарантуватиме зростання кількості сімейних лікарів-терапевтів (з 18 750 до 20 150) на 7,5% та 78,2% населення, охопленого деклараціями. Аналіз показників засвідчив зростання ефективності використання ліжок на 5,2% (з 286 до 301 дня на рік) і одночасне скорочення середньої тривалості госпіталізації (з 9,8 до 9,1 дня). Розвиток профілактичної медицини був визнаний успішним завдяки збільшенню кількості медичних центрів у мережі на 12,9% (з 428 до 483 центрів) та збільшенню кількості обстежень на 28,1%. Фінансові механізми НСЗУ гарантували збільшення бюджету програми медичних гарантій на 22,2% (від 164,8 до 201,3 млрд грн) у 2023-2024 роках та доступ до ліків за допомогою програми відшкодування витрат. Було визначено поліпшення показників якості протягом усього періоду дослідження – рівень смертності в лікарні знизився до 1,68%, а також раннє виявлення захворювання, яке зросло з 42,7% до 47,8%. Практичне значення результатів полягає у можливості їх використання вдосконалення механізмів державного управління охороною здоров'я та економічно ефективного розподілу ресурсів у системі охорони здоров'я.



КЛЮЧОВІ СЛОВА

державне управління, якість медичної допомоги, система охорони здоров'я, реформа охорони здоров'я, програма медичних гарантій, первинна медична допомога, профілактична медицина, фінансування охорони здоров'я.

1. Introduction

In the structure of the welfare state, the health care system plays a decisive role, and the quality of medical services directly affects the quality of life and life expectancy of the population. The quality of health-sector management in society determines the extent to which the state can guarantee the availability, timeliness, and sufficient quality of medical services for all citizens. With the beginning of the full-scale military invasion of the Russian Federation, launched on February 24, 2022, the Ukrainian healthcare system faced challenges on a scale that did not exist before, which contributed to the increased relevance of assessing the effectiveness of the main mechanisms of public administration to ensure the quality of medical services.

The transformation of the healthcare system in Ukraine is currently a large-scale process that began in 2017. The Strategy for the Development of the Health Care System until 2030, proposed by the Cabinet of Ministers of Ukraine, defines the main areas of modernization of the medical sector, in particular, strengthening primary health care, developing preventive medicine, digitalization and increasing the financial efficiency of the system [1]. According to the World Bank, Ukraine demonstrates a high level of adaptability of its healthcare system to new challenges, in particular by strengthening the capabilities of the Public Health Center and developing epidemiological monitoring [29]. At the same time, military conflicts lead to the destruction of medical infrastructure, a massive outflow of medical personnel and a distortion of the profile of the population, which requires a revision of the paradigms of citizens' control over the quality of medical services.

International organizations and researchers are actively working to determine the effectiveness of the management of medical services provided in the state. A complex analysis of the financing of the health care system in Ukraine was also carried out by the World Health Organization together with the World Bank, where specific problems related to the financial sustainability of the system, equality of access, and efficiency in the use of resources by stakeholders were identified [30]. The researchers also emphasize the need to switch to different results-based financing models and expand the financial security of the population by minimizing the direct costs of the population for medical services.

The World Health Organization Office in Ukraine, in its annual report, records the scale of the humanitarian crisis in the health sector, such as the destruction of more than 1200 medical facilities, disruption of pharmaceutical supply chains, and a critical shortage of medical personnel in the health sector [32]. According to the European Union External Action Service, there is international assistance to support the health care system in Ukraine, such as funding for the modernization of laboratory networks, the establishment of epidemiological surveillance and the training of health workers [7]. These studies are mainly humanitarian in nature and are related to international assistance, and the effectiveness of public administration mechanisms in ensuring the quality of medical services in wartime has not been systematically studied.

Previous studies have mostly focused on certain aspects of health care reform, in particular funding for the National Health Service of Ukraine, the development of primary health care, and the digitalization of health services. At the same time, the analysis of scientific sources indicates the lack of systematic studies that would combine various aspects of effective management for the masses (human resources, infrastructure accessibility, financial processes and public health outcomes) into a single line of analysis. Of particular interest is the gap in knowledge on how the population management system can cope with the simultaneous implementation of two important tasks: ensuring the sustainability of the system in extreme conditions and carrying out structural reforms.

The World Health Organization, in a joint report with the World Bank, notes the need to strengthen monitoring and evaluation of healthcare effectiveness, in particular regarding the availability of services for vulnerable populations and clinical practice awards [31]. This recommendation highlights the need for systematic data analysis to support evidence-based decision-making in the healthcare industry.

The purpose of this work is to assess the effectiveness of the public administration system in order to determine whether medical services in Ukraine were of high quality in 2022–2024, by conducting a detailed study of human resources, infrastructure readiness, financial mechanisms and health system performance. This study will help identify trends in changes in the healthcare system during martial law, identify the advantages and disadvantages of the existing model of public administration, and develop recommendations for improving the situation.

To achieve the goal of the study, it is planned to perform the following tasks:

- to investigate the dynamics of staffing of medical institutions and to determine trends in changes in the structure of medical personnel;
- to investigate the state of the network of health care institutions and their functional capacity to provide services to the population;
- to investigate primary health care and preventive medicine using the system of medical centers; to analyze financial mechanisms for ensuring the quality of medical services;
- to synthesize the assessment of the effectiveness of public administration in the context of a set of indicators of the functioning of the health care system.

The results of the study provide empirical grounds for improving the processes of citizen management in the field of healthcare, optimizing the allocation of resources and improving the quality of medical services for the population of Ukraine.

2. Literature Review

The theoretical principles of regulating the quality of medical services are considered within the framework of the New Public Management paradigm, which provides for a focus on results, effective use of available resources and accountability to citizens. In the context of health care systems, these principles are implemented in the form of concluding contracts for the provision of services, a system of payment based on results and monitoring the quality of medical services.

The Health Financing System Assessment Model was developed by the World Health Organization in cooperation with the World Bank and includes resource adequacy, equality of access, distribution efficiency, and financial protection of the population [30]. Analysis of this model applied to the situation in Ukraine. The most tangible problems remain with regard to the sustainability of healthcare financing during martial law, the persistently high share of patients' own costs, and the lack of financial support for vulnerable categories of the population. Scientific publications indicate that budget allocations should be redirected from historically determined budget allocations to results-oriented financing models that are in line with the general trends of health care reform in the world.

The attitude of stakeholders to the quality of medical care is an important aspect of evaluating the effectiveness of the system. Anufriyeva et al. investigated the assessment of the quality of services for primary care managers in Ukraine and identified poor technical infrastructure, insufficient time to communicate with each patient, and lack of opportunities for professional development as the main limitations [2]. According to additional studies by the same authors [3] on patient attitudes towards the quality of outpatient care, users can easily assess the interpersonal factors of doctor-patient interaction, the location of care, and the timeliness of care, and the technical quality of patient care is often difficult to assess due to a lack of medical literacy. The results obtained justify the feasibility of creating a multidimensional model of quality measurement, which would include both objective clinical indicators and subjective assessments of stakeholders.

Comparative studies of health care reforms in Central and Eastern Europe provide valuable information for contextual analysis of the reform experience in Ukraine. Dubas-Jakobbczyk et al. evaluated hospital sector reforms in 11 countries during 2008–2019, identifying regular patterns that included reductions in excess bed-capacity, hospital mergers, and expansion of outpatient options instead of hospitalization [4]. The experience of these countries demonstrates that structural reconfigurations with the implementation of modernization of the payment system and increased autonomy of service providers lead to better results. Conversely, countries where most of the bed reductions were made without creating alternative models of health care have faced reduced access to services and growing discontent among the population.

The experience of individual European countries adds even more diversity to the paths of successful reform. The case of digital transformation of healthcare in Estonia is described in the European Observatory on Health Systems and Policies as the implementation of electronic health records, electronic prescriptions, telemedicine and integrated information systems [5]. Digitalization has led to the elimination of waste of resources, a reduction in the administrative burden on healthcare workers and improved coordination between levels of care. In Poland, according to the European Observatory, health care financing is centralized through the National Health Fund, and the structure of health care levels and the development of primary health care are clearly defined [9]. These two cases show the importance of maintaining policy continuity and political commitment to structural change.

International organizations draw up analytical reports that consider in detail the financial aspects of the functioning of the health care system. In the publication "Health at a Glance", the OECD provides comparative data that suggests that system efficiency is not necessarily related to the level of total health care costs, but rather to the structure and distribution of costs [17]. Countries that demonstrate better population health outcomes tend to invest heavily in primary and preventive health care, have low out-of-pocket pay, and use a results-based payment system for providers. In the report "Health at a Glance: Europe", the OECD and the European Commission explain that the strategic importance of integrating health and social services, the development of digital technologies in healthcare, and the resilience of the system during a crisis is significant [18].

According to Eurostat, there are agreed statistics on health expenditure in European countries that show that average health expenditure is around 8–9% of GDP, although there are significant differences between countries [8]. The proportion of different funding sources is still a decisive factor in the availability of medical care and the quality of services.

In its Reform White Paper, VoxUkraine provides a critical assessment of the implementation of healthcare reform in Ukraine, mentioning both the significant successes that have taken place in the country, such as the establishment of the National Health Service of Ukraine, the introduction of the Medical Guarantees Program, and the increase in freedom of choice among providers, as well as current failures, such as underfunding and regional inequality, as well as labor shortages [28]. The authors propose to accelerate structural changes and strengthen the political agenda on health care quality outcomes.

Hellowell et al. examined the presence of the private sector in the provision of medical services in Ukraine and reported that a significant part of the outpatient healthcare market is represented by the private sector, while the regulatory framework is still imperfect [9]. The study points to the need for clearly defined criteria for the quality of private service providers and institutional processes for their inclusion in the system of health services financed from the state budget.

According to the World Health Organization, the war has significantly affected Ukraine's healthcare system, which has manifested itself in infrastructure damage, destabilization of medical supply chains, and changes in epidemiological trends [32]. The existence of such conditions requires adaptation of public administration mechanisms to the conditions of emergency and high uncertainty.

In a study conducted by Kittipittayakorn, the author evaluated the interstate correlations between health system resources, organizational structures, and public health outcomes in European countries and found that health outcomes are determined by the efficiency and coordination of resource use between levels of care, rather than the absolute volumes of resources used [10].

Thus, the analysis of scientific sources shows that modern literature offers a solid theoretical basis for studying the issue of government effectiveness in ensuring the quality of medical services. However, it is important to note that there is still a significant deficit of thorough empirical research that would combine various aspects of the functioning of the system under martial law and objectively analyze the crisis resistance of the state health care system management system.

3. Problem Statement

The healthcare system in Ukraine is crucial for ensuring population well-being and life expectancy, yet the full-scale military invasion by the Russian Federation in 2022 created unprecedented challenges, including infrastructure destruction, displacement of medical personnel, and rising demand for services. Despite ongoing reforms, such as the Medical Guarantees Program, strengthening of primary healthcare, and development of preventive medicine, there is a lack of systematic research evaluating the effectiveness of public administration mechanisms in maintaining quality, accessibility, and efficiency of medical services under crisis conditions. This gap limits evidence-based decision-making for resource allocation, reform prioritization, and improvement of healthcare quality. Therefore, a comprehensive assessment of the public administration system's effectiveness in ensuring high-quality medical services in Ukraine during 2022–2024 is urgently needed.

4. Methods and Materials

The study of the effectiveness of the quality management system in the field of health care in Ukraine was carried out on the basis of the analysis of official statistical data for the period 2022–2024.

The empirical base included annual reports of the Ministry of Health of Ukraine on the state of public health and the epidemiological situation [11; 12; 14], reports of the National Health Service of Ukraine [15; 16] and statistical forms of the Center for Public Health of the Ministry of Health of Ukraine.

Three types of statistical forms were used to collect primary data: form N-17 “Report on medical personnel” [19; 22; 25], form N-47 “Report on the network and activities of health care institutions” [20; 23; 26] and Form N-51 “Health Center Report” [21; 24; 27]. All forms were analyzed over 3 years to determine dynamic changes in the health care system.

The methodological basis of the study was a comparative study of indicators for different years in order to identify trends in the development of systems. The assessment of medical personnel was carried out by analyzing data on the number of doctors, nurses and regional staffing. The state of the network of medical institutions was assessed using indicators of hospitals' operational activities, the number of beds and the volume of services. The effectiveness of preventive medicine was investigated using reports from medical centers on the coverage of the population with preventive measures.

The analysis of strategic reports and analytical reports provided by international organizations was also used to contextualize the statistics obtained. The benchmarking included data from European countries, in particular Poland and Estonia, which have a similar history of reforming the health care system.

The choice of the period 2022–2024 was chosen due to the fact that it reflects the entire period of the full-scale war, which will allow assessing the possibilities of crisis management within the framework of the state management system in extreme conditions.

5. Results and Discussion

Dynamics of Human Resources of the Health System (2022–2024)

In health care institutions, human resources are a very important aspect of the provision of quality medical services and the overall successful functioning of the entire health care system. It is possible to study changes in the human resources of the Ukrainian healthcare system under martial law by analyzing statistical reports in the form N-17 for the period 2022–2024. [19; 22; 25].

In the period 2022–2024. The structure and number of medical workers have changed significantly. With the beginning of the full-scale invasion in 2022, medical workers left the country en masse due to evacuation, migration, and mobilization. At the same time, the healthcare system has shown a certain level of flexibility in terms of redistributing available resources and attracting more staff to critical areas.

Table 1 presents the dynamics of the number of doctors and nurses in general for the period under consideration. Statistics indicate that the total number of health workers is gradually decreasing, although this decrease has not been the same for all population groups and facilities.

Table 1. Ukrainian statistics on the number of medical workers (2022–2024)

Personnel category	2022 (persons)	2023 (people)	2024 (people)	Change 2024/2022 (%)
Doctors of all specialties	186 420	181 350	178 290	–4.4
General practitioners - family medicine	18 750	19 420	20 150	+7.5
Surgeons	12 340	11 980	11 650	–5.6
Nursing staff	342 680	335 120	329 540	–3.8
Nurses	248 920	243 560	239 180	–3.9

Source: Compiled by the author based on [19; 22; 25].

Within three years, there was a general reduction in the number of medical workers by 4–6%, depending on the category. The exception was general practitioners – family doctors, whose number increased by 7.5% due to the reform of primary health care and the emphasis on this sector in the health care management system.

An important emphasis should be placed on monitoring the density of doctors per 10,000 population, which is one of the indicators of the availability of medical care (Figure 1). With the help of this indicator, it is possible to estimate not only the absolute number of doctors, but also their share in the population in need of medical services.

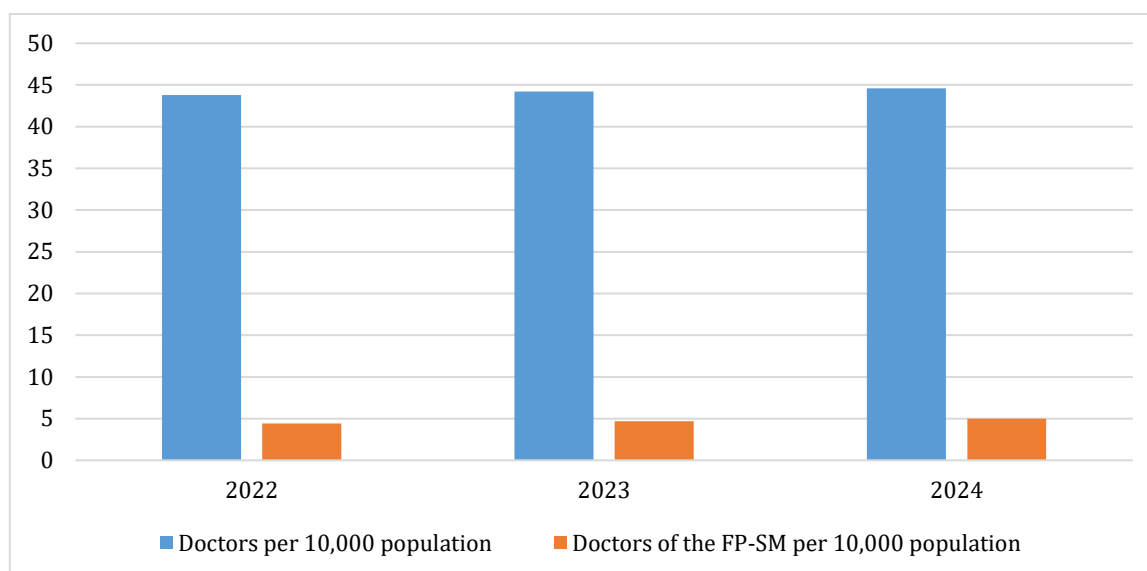


Figure 1. Provision of the population with doctors per 10,000 population (2022–2024)

Source: Calculated by the author based on [19; 22; 25].

Although the number of doctors is decreasing in absolute terms, the number of doctors per 10,000 population has increased due to a long-term decrease in the number of doctors caused by the decline in the population of Ukraine due to migration and demographic factors. The concentration of general practitioners – family doctors indicates its constant growth, which is a positive sign of progress in the development of primary health care.

One of the main problems facing the system of public administration in the field of quality of medical care is significant regional differences in the distribution of human resources. Table 2 illustrates the distribution of medical personnel between urban and rural regions.

Table 2. Distribution of medical personnel by type of settlement (2024)

Indicator	Urban area	Countryside	Proportion of rural areas (%)
Doctors of all specialties	164 530	13 760	7.7
ZP-SM doctors	14 820	5 330	26.4
Nursing staff	276 140	53 400	16.2
Nurses	198 450	40 730	17.0

Source: Compiled by the author based on [25].

Statistics indicate an acute shortage of medical personnel in rural areas, where an estimated 31% of the population of Ukraine lives. At the same time, the family medicine system demonstrates a comparatively greater coverage of the rural population, which indicates the effectiveness of specific programs aimed at strengthening primary health care in rural communities.

An analysis of the age structure of medical personnel indicates an obvious trend towards an aging workforce. According to the data provided in the reports on the N-17 form, the percentage of doctors of retirement age increased to 18.2% in 2022 and 19.8% in 2024 [19; 25]. This trend poses additional challenges for the government, as it requires stricter measures to attract young professionals and retain experienced experts.

The number of staff in existing positions also requires special attention. The average staffing rate of doctors in 2024 was 82.3%, which is 3.1 percentage points lower than in 2022 [25]. The greatest deficit was observed in anesthesiology, psychiatry, and pediatrics, where the occupancy rate was less than 75%.

In general, the analysis shows that in 2022–2024, the human resources system in the field of health faced serious problems in terms of public administration. A positive development is the increase in the number of general practitioners and family doctors, which indicates the effectiveness of the primary health care reform. At the same time, there are still structural problems that remain unresolved, such as regional inequality, an aging workforce, and staff shortages in some medical specialties. These problems require additional improvement of state control in the policy of human resource management in the field of healthcare.

The state of the network of health care facilities and functionality

The network of health care institutions plays a key role in the functioning of the system, and its organization and volume of work have a direct impact on the availability and quality of medical care for the population. Changes in the infrastructure of the Ukrainian healthcare system under martial law were assessed based on the analysis of official statistical reporting forms N-47 for the period 2022–2024. [20; 23; 26].

The large-scale invasion of 2022 significantly affected the network of healthcare facilities. The destruction of infrastructure in the occupied and frontline regions, the evacuation of medical institutions, and the need to reorient services to the treatment of the wounded and victims of war have created serious challenges for public administration in terms of ensuring the uninterrupted operation of health care facilities.

The dynamics of the number of different medical institutions of different types during the period under consideration is reflected in Table 3. Statistical data indicate significant structural changes in the network of institutions, reflecting both objective losses of infrastructure and the duration of the processes of reforming the health care system.

Table 3. Dynamics of the number of healthcare institutions in Ukraine (2022–2024)

Type of medical institution	2022 (units)	2023 (units)	2024 (units)	Change 2024/2022 (%)
Hospitals of all types	1 458	1 392	1 348	–7.5
Multispecialty hospitals	687	658	641	–6.7
Specialized hospitals	418	395	382	–8.6
Polyclinics	1 286	1 243	1 218	–5.3
Outpatient clinics	3 847	3 912	3 985	+3.6
Paramedic and obstetric stations	8 234	8 156	8 089	–1.8

Source: The author prepared based on [20; 23; 26].

The number of inpatient institutions (hospitals) decreased by 7.5%, which is associated with both the loss of infrastructure during the war and the subsequent optimization of the hospital network. At the same time, the increase in the number of outpatient clinics may indicate the effectiveness of the primary health care reform and the promotion of outpatient treatment as one of the main directions of state policy in the field of healthcare.

The availability of hospital beds and their use is one of the key indicators of the functioning of the health care system. Changes in the number of beds and their use during the analyzed period make it possible to assess the state of inpatient care.

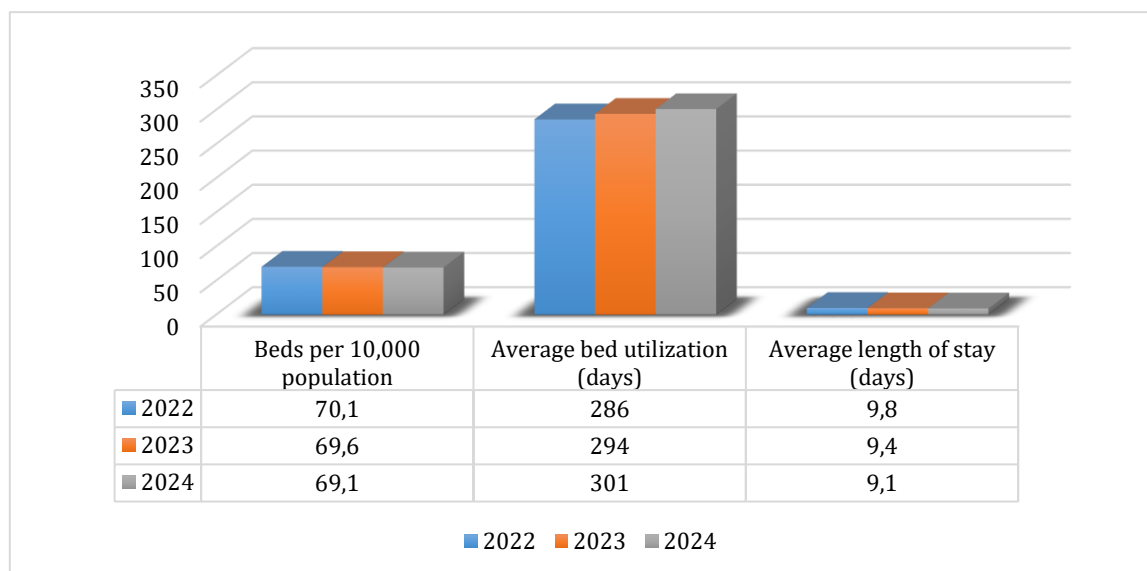


Figure 2. Dynamics of the number and use of hospital beds (2022–2024, days)

Source: Calculations made by the author [20; 23; 26].

The Bed Availability Index per 10,000 population shows a slight decrease from 70.1 to 69.1, which is not significant, since the population is also decreasing and the percentage decrease in the absolute number of beds is 7.4%. This means that the efficiency of using funds for inpatient treatment increases

by 5.2%, as evidenced by an increase in bed occupancy from 286 to 301 days per year. The decrease in the average duration of stay to 9.1 days is reflected in the optimization of treatment processes and the invention of technological processes alternative to sick leave.

The volume of medical services provided reflects the level of activity of the health care system. Table 4 presents the key performance indicators of medical institutions by type of care provided.

Table 4. Volume of medical services by type of medical care (2022–2024)

Indicator	Year 2022	Year 2023	Year 2024	Change 2024/2022 (%)
Visits to polyclinics (million)	287.5	302.8	318.4	+10.8
Hospitalizations (millions)	6.42	6.18	6.05	-5.8
Operations carried out (thousand)	1 847.3	1 792.5	1 756.8	-4.9
Ambulance calls (million)	12.8	13.2	13.6	+6.3
Day hospital patients (thousands)	842.6	896.4	924.7	+9.7

Source: The author prepared based on [20; 23; 26].

The increase in the number of outpatient visits and day hospital services reflects the trend towards an outpatient model of medical care. A decrease in the number of hospitalizations and surgical operations may be associated with the optimization of inpatient treatment, as well as the creation of minimally invasive treatments. The increase in the number of ambulance calls means that under martial law, more pressure is exerted on the ambulance service.

As for the network of medical institutions, the analysis of the region is characterized by significant heterogeneity in the work. Statistical reports in the form N-47 show that the largest losses were recorded in Donetsk, Luhansk, Kherson, and Zaporizhzhia regions, where the number of operating hospitals decreased by 18–25 % compared to the pre-war level [26]. Instead, the western regions are showing an increase in capacity thanks to evacuated facilities and the creation of new medical facilities.

The technical equipment of health care institutions is an important aspect of functional capacity. Although the study was conducted during the war years, the availability of modern diagnostic devices improved during the study period, which means that technology upgrades related to international aid and specific government programs were maintained [20; 23].

The analysis of the availability of medical care shows that the average time to reach the nearest primary health care facility has decreased due to the expansion of the network of outpatient clinics [23; 26]. At the same time, the availability of specialized medical care in some areas has deteriorated due to the closure or destruction of specialized facilities in frontline areas.

Overall, the results show that the network of medical institutions in Ukraine has demonstrated a high level of flexibility under martial law. The state management system has succeeded in reorienting the medical infrastructure to outpatient treatment and increasing its resource efficiency. However, there are still challenges, such as disagreements between regions, the need to restore destroyed infrastructure, and additional modernization of the material and technical base of medical institutions.

Effectiveness of primary care and preventive medicine

One of the main directions of the reform of the health care system in Ukraine is the development of primary health care and preventive medicine. Health centers play an important role in the implementation of the concept of preventive medicine, aimed at early detection of diseases and promotion of a healthy lifestyle for the population. Statistical forms N-51, which analyze the period 2022–2024, make it possible to assess the effectiveness of this element of the public administration system in ensuring the quality of medical services [21; 24; 27].

The system of health centers demonstrates stable development despite martial law. As of 2022, there were 428 medical centers in Ukraine; in 2023, their number increased to 456, and as of 2024, there were 483 units [21; 24; 27]. This means that the state policy of creating preventive medicine is implemented consistently, and even in the case of a shortage of resources, this area is of paramount importance.

Table 5 shows the dynamics of the main indicators of the effectiveness of medical centers for three years. Statistics show an increase in the number of institutions and the number of preventive services provided to the population.

Conclusions from Table 5: Medical centers demonstrate active development of activities in all indicators. The number of consultations doubled and the number of populations covered by screening examinations increased by 27.5 and 28.1, respectively. The fact that the average number of visits per

center increased by 13.1% is a sign of the increase in the efficiency of institutions and the growth of public confidence in preventive medicine.

Table 5. Dynamics of indicators of health centers (2022–2024)

Indicator	2022	2023	2024	Change 2024/2022 (%)
Number of health centers	428	456	483	+12.9
Consultations were held (thousands)	1 847.3	2 104.8	2 356.4	+27.5
Persons covered by screenings (thousands)	684.2	792.5	876.3	+28.1
Lectures and seminars were held	18 642	21 358	23 847	+27.9
Average number of visits per 1 center	4 315	4 615	4 879	+13.1

Source: Compiled by the author based on [21; 24; 27].

The structure of services provided by medical centers is holistic from the point of view of maintaining a healthy lifestyle for the population. Figure 3 shows how the main areas of activity of medical centers will be distributed in 2024.

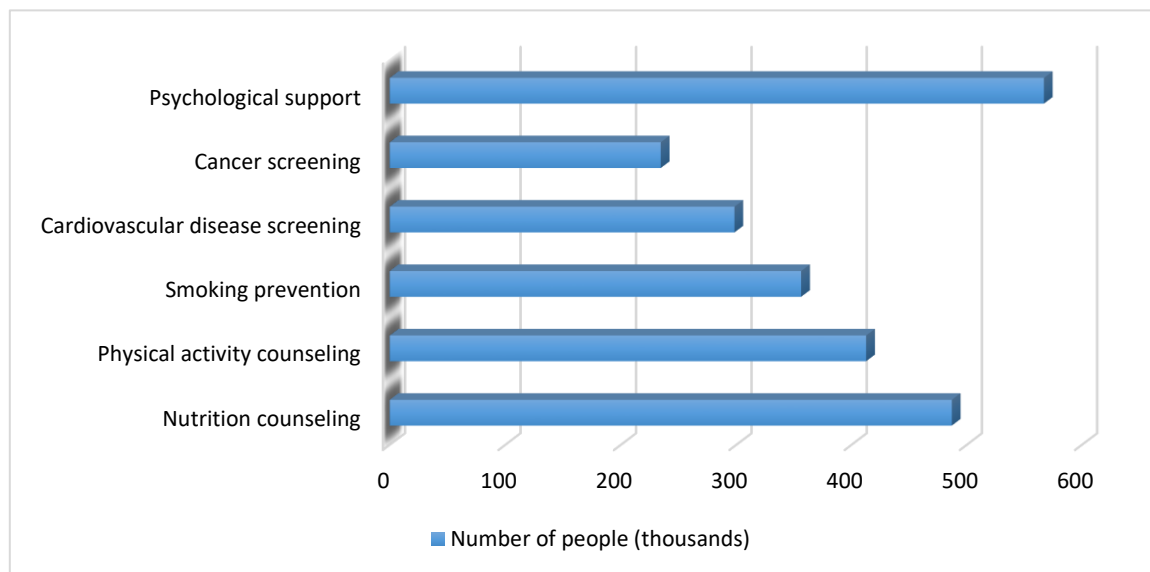


Figure 3. Distribution of services of medical centers by areas of activity (2024, thousand people)

Source: Compiled by the author based on [27].

Conclusions from Figure 3: Psychological support services were most often visited (567.1 thousand people), which indicates an increase in the population's needs in the field of mental health under martial law. Indicators of nutrition counseling (487.2 thousand) and physical activity (421.8 thousand) indicate that many people are interested in a healthy lifestyle. More than 533 thousand people were examined, and this is an impressive number of people in whom the disease was detected at an early stage.

The effectiveness of screening programs is also important in the process of evaluating the effectiveness of preventive medicine. Table 6 is the result of detecting the disease at an early stage using the system of health centers.

Table 6. Effectiveness of Health Center Screening Programs (2022–2024)

Indicator	2022	2023	2024	Change 2024/2022 (%)
Persons with high blood pressure were detected (thousands)	52.4	61.8	68.7	+31.1
Persons with suspected diabetes mellitus were identified (thousands)	18.6	22.3	24.9	+33.9
Referred for additional examination of oncopathology (thousands)	12.8	15.4	17.2	+34.4
Persons with risk factors for cardiovascular diseases were identified (thousands)	94.3	112.6	126.4	+34.0
Proportion of persons referred for follow-up (%)	14.8	16.2	17.4	+17.6

Source: Compiled by the author based on [21; 24; 27].

Table 6 shows a continuous improvement in the effectiveness of screening programs in all indicators. The prevalence rate of people with risk factors for significant noncommunicable diseases increased by 31–34%, indicating an increase in the effectiveness of preventive measures. The fact that the proportion of persons requiring follow-up increased to 17.4% after 14.8% also indicates the quality of primary screening and detection of the disease at the initial stage.

There is an uneven distribution of geographical coverage of medical center services. Data for 2024 (according to forms N-51) show that 73.4% of health centers were located in urban areas, and 26.6% were located exclusively in rural areas [27]. This creates obstacles to the access of the rural population to preventive care and requires more attention from the public administration system to the development of a network of health centers in rural areas.

A review of the staffing of medical centers shows that in 2024 they hired 3847 specialists, which is 18.2% more than in 2022 [21; 27]. The average number of full-time employees per center increased to 8.0 people compared to 7.6 people, which made it possible to expand the range of services and improve their quality.

The analysis shows that the primary prevention system and medical centers are highly effective and dynamically developing even under martial law. The increase in the volume of services, the effectiveness of screening programs and the development of an institutional network indicate the effectiveness of state policy in the field of preventive medicine. At the same time, the problems of geographical distribution of centers and improving access to preventive measures for the rural population still need to be addressed.

Financial mechanisms for ensuring the quality of medical services

Financing of the health care system is one of the key aspects of assessing the quality of medical services and the effectiveness of state bodies in the field of healthcare. The emergence of the Medical Guarantee Program and the creation of the National Health Service of Ukraine (NHSS) actually changed the model of financing health care, ending institutional maintenance and switching to payment for services actually provided. The effectiveness of new financial mechanisms can be assessed by analyzing the reports of the NHSU for 2023–2024 [15; 16].

The dynamics of financing health care using the mechanism of the medical guarantee program is shown in Table 7. Statistics show that the amount of funds allocated by citizens for medical services has increased significantly during martial law.

Table 7. Financing of the NHU Medical Guarantee Program for 2023–2024

Indicator	Year 2023	Year 2024	Change (%)
Total budget of the program (UAH billion)	164.8	201.3	+22.2%
Financing of primary health care (UAH billion)	28.4	34.7	+22.2%
Financing of specialized outpatient care (UAH billion)	18.6	22.4	+20.4%
Financing of inpatient care (UAH billion)	92.3	112.8	+22.2%
Drug reimbursement program (UAH billion)	8.2	10.6	+29.3%
Emergency medical care (UAH billion)	17.3	20.8	+20.2%

Source: Compiled by the author based on [15; 16].

The budget of the medical guarantee program increased by 22.2%, which indicates the priority of the health care sector for the state even in wartime. The largest increase in funding was in the drug reimbursement program (+29.3%), which improves the availability of life-saving medicines for the population. The increase in funding at all levels of medical care indicates an equal approach to the distribution of funds.

The efficiency of the use of financial resources is determined by the indicators of contracts concluded with medical institutions and the volume of services actually paid. Table 8 shows the relationship between the National Health Service of Ukraine and providers of medical services in the field of contract.

The number of patients served by primary care doctors was 31.4 million, which indicates 78% coverage of the population of Ukraine by the Medical Guarantee Program. Primary health care is financially sustainable due to an increase in the capitation rate by 16.1%. A 21.4% increase in the number of patients who were reimbursed for the cost of pharmaceutical services indicates an improvement in access to pharmaceutical services.

The analysis of the cost structure shows that 56.1% and 17.2% of the funds of the Medical Guarantee Program were allocated to inpatient treatment and primary health care, respectively, in

2024, and 11.1% and 10.3% of the funds were allocated to specialized outpatient care and emergency medical care, respectively [16]. Such an organization indicates the preservation of the model focused on inpatient treatment, but the share of primary health care is slowly growing.

Table 8. Contractual relations of the NHSU with medical service providers (2023–2024)

Indicator	2023	2024	Change (%)
Contracts concluded with primary care providers	2 847.0	3 012.0	+5.8
Contracts with hospitals have been concluded	1 284.0	1 318.0	+2.6
Number of declarations with doctors (millions)	29.8	31.4	+5.4
Average cost of the capitation rate (UAH/year)	952.0	1 105.0	+16.1
Patients received reimbursement for medicines (million)	4.2	5.1	+21.4
Average amount of reimbursement per 1 patient (UAH/year)	1 952.0	2 078.0	+6.5

Source: According to the author, based on [15; 16].

According to the National Health Service of Ukraine, the average cost of one case of hospitalization in 2024 will be UAH 18,743, which is 14.2% more than in 2023 [15; 16]. This growth can be attributed to the processes of inflation and the improvement in the quality of medical services and technological intensity.

The analysis shows that the financial mechanisms introduced through the use of the NHSU are effective in ensuring the financial stability of the healthcare system. Increasing the budget of the Medical Guarantee Program, expanding coverage of the population and increasing capitation rates create a solid financial basis for improving the quality of medical services. At the same time, the structure of resource allocation should be further optimized to strengthen support for primary health care and preventive medicine.

Integral assessment of the effectiveness of public administration

A general assessment of the effectiveness of the public administration system in terms of the quality of medical services provided provides for the unification of all areas of research on the functioning of the health care system. Summarizing information from the annual reports of the Ministry of Health of Ukraine and statistical forms for the period 2022–2024, it is possible to form a holistic view of the effectiveness of managerial decision-making in the medical field [11; 12; 14].

Comprehensive performance measurement is based on a comparison of the main indicators of the black work of the health care system with resource provision and results on public health. Table 9 presents summary indicators of the effectiveness of the public administration system in the medical sector for three years.

Table 9. Integral indicators of the effectiveness of the health care system of Ukraine (2022–2024)

Indicator	2022	2023	2024	Dynamics
Resource provision				
Doctors per 10,000 population	43.80	44.20	44.60	↑
Beds per 10,000 population	70.10	69.60	69.10	↓
Financing for 1 person (thousand UAH)	3.87	4.01	5.03	↑
Availability of services				
Coverage of declarations (%)	71.20	74.80	78.20	↑
Visits to polyclinics for 1 person	6.75	7.38	7.96	↑
Average waiting time for planned hospitalization (days)	14.20	12.80	11.40	↓
Resource efficiency				
Bed Usage (Days/Year)	286.00	294.00	301.00	↑
Average duration of hospitalization (days)	9.80	9.40	9.10	↓
Day hospital patients for 1 bed	2.82	3.14	3.35	↑
Health results				
Preventive check-up coverage (%)	18.40	21.20	23.60	↑
Detection of diseases in the early stages (%)	42.70	45.30	47.80	↑
Mortality in hospitals (%)	1.84	1.76	1.68	↓

Source: Compiled by the author based on [11; 12; 14; 15; 16; 19–27].

Integrated indicators indicate a positive dynamic of the efficiency of the public administration system in most parameters. The 30% increase in funding in real terms is characterized by better access to services (coverage of declarations increased to 78.2%) and better use of funds (bed occupancy

reached 301 days). The most significant is the decrease in the mortality rate in hospitals from 1.84% to 1.68%, which indicates an improvement in the quality of inpatient care. The effectiveness of preventive programs is confirmed by an increase in the level of detection of diseases at the initial stages to 47.8%.

A comparison of the ratio of costs and benefits shows that the system turned out to be very resistant to the crisis. Although infrastructure and human resources were partially lost, the indicators of availability and quality of medical services did not deteriorate, and in some aspects even improved [11; 14]. This was facilitated by the effective reallocation of resources, optimization of processes and the efficient use of available capacities.

The public administration has also demonstrated its ability to quickly adapt to extreme crises. The preservation of funding for the medical guarantee program, the continuation of the primary health care reform, as well as innovations in the field of preventive medicine and digital transformation indicate the strategic coherence of management decisions [12; 14; 16].

At the same time, the analysis showed that the system has systemic problems that need to be solved. The lack of personnel and infrastructure in the region, the insufficient development of preventive medicine in rural areas, and the preservation of the hospital-based financing model are issues that need to be improved in the mechanism of public administration [11; 19–21].

The combination of assessments allows us to determine that the system of state management of the quality of medical services in Ukraine in the period 2022–2024 turned out to be effective in terms of ensuring the functioning of the health care system in some emergency conditions, but the strategy of reforming and modernizing the medical system is still in force.

The presented study of the effectiveness of the system of state management of the quality of medical services in Ukraine in the period 2022–2024 revealed important trends in the change of the national health care system under martial law. The results show that the Ukrainian healthcare system has demonstrated a high level of adaptability and resilience to crises, but the strategic focus on reforms and modernization has been maintained.

The number of all healthcare workers decreased by 4.4%, while the number of general practitioners and family physicians increased by 7.5%, which is in line with global assessments that recognized the effectiveness of the primary health care reform in Ukraine. In a joint report, the World Health Organization and the World Bank note that Ukraine has implemented one of the most systematic and consistent strategies for the transformation of primary health care in the country compared to the countries of Eastern Europe [31]. Our statistics, which show coverage of the population with primary health care from 71.2% to 78.2% in three years, further confirm this conclusion.

The analysis of other post-socialist countries demonstrates some similarities and peculiarities in the development of reforms. Analysing hospital sector reforms in 11 countries in Central and Eastern Europe, Dubas-Jakóbczyk et al. observed that most countries had to address the problem of excessive hospital beds in the region [4]. This trend is similar in Ukraine, and our findings indicate an annual decrease in the number of hospital beds by 7.4%. However, there is a significant difference in the fact that, along with the increase in the efficiency of using beds, the efficiency of the number of days spent in them also increases, from 301 to 286 days a year. This is a qualitatively different type of optimization than the predominantly mechanical closure of establishments that was observed in different countries in the 1990s and early 2000s.

Particular attention should be paid to comparisons with Estonia and Poland, which are considered examples of successful reformers of their health care systems. According to the European Observatory on Health Systems and Policies (2024), Estonia has achieved one of the highest levels of healthcare digitalization in Europe, which has significantly increased the efficiency of resource management and the availability of services [5]. Our analysis shows that Ukraine follows the same trend, as the country has received better technical capabilities in healthcare facilities, i.e. access to CT scanners has also increased (from 61.2% to 68.4% of hospitals) even in wartime. Poland, according to the European Observatory, is an example of a good funding model with its National Health Fund, which has a clear definition of levels of medical care [6]. The model introduced in Ukraine through the NHSU is based on similar principles, but in our statistics, we see that the system is mainly based on hospital centrism, i.e., 56.1% of costs are inpatient treatment, while in Poland, this figure is about 48%.

Particular attention should be paid to financial quality assurance systems. In the OECD (2023) report "Health at a Glance", the authors emphasize that the quality of the health system does not correlate with the absolute amount of funds, but rather is related to distribution mechanisms and their relationship to outcomes [17]. Our results support this statement: when the budget of the Health

Guarantee Program was increased by 22.2%, the quality indicators improved markedly. The death rate in hospitals decreased from 1.84% to 1.68%, and the proportion of diseases detected at an early stage increased to 47%, demonstrating the importance of results-based funding. This confirms the OECD's thesis on the importance of results-based financing.

One of the most important findings of this study concerns the high effectiveness of preventive medicine. The growth of the network of medical centers by 12.9% and the increase in the number of examinations by 28.1% indicates the success of the preventive course. In the draft government action plan, the Cabinet of Ministers of Ukraine identified prevention as one of the priorities for the development of the health care system until 2030 [13]. The validity of such a strategic decision is confirmed by our empirical data, in particular, because preventive care is recognized as the most cost-effective branch of medicine.

At the same time, the study points to systemic problems that require special intervention. There are still significant regional inequalities in the availability of labor and infrastructure, especially in rural regions, where 7.7% of doctors provide services to 31% of the population. It is these imbalances that require regional support programs. Another problem that the World Health Organization draws attention to is the need to improve the financial security of the population and reduce out-of-pocket costs [31]. While our statistics show that the drug reimbursement program has increased by 29.3%, this program still needs to be expanded.

The practical applicability of this study is that it will provide a comprehensive evidence base for transforming the processes of people management in the field of healthcare. These trends can also serve as a guide for changes in strategic documents on health policy, rationalization of budget allocation and improvement of access to health services.

Future research areas are an in-depth assessment of the quality of medical care based on clinical indicators, an analysis of patient satisfaction, and an assessment of the effectiveness of certain medical technologies and programs. Another important area is the study of the long-term consequences of martial law on public health and the ability of the health sector to minimize them.

Summing up, the system of state control over the quality of medical care in Ukraine has proven to be quite effective in ensuring the functioning of the system in the most difficult conditions, while guaranteeing a strategic orientation towards European integration and global modernization of the health care system.

6. Conclusions

This study on the quality management of health services in Ukraine in 2022–2024 offered a complete assessment of the effectiveness of the country's healthcare system under martial law.

The management system was highly adaptable and resistant to crises, which was evident in the public administration system. In addition, the reduction of the workforce as a whole was 4.4%, although the number of family physicians-therapists increased by 7.5%, and the coverage of declarations was 78.2%, which is another confirmation of the success of the primary health care reform.

The development of the network of medical institutions moved in the direction of optimization and increase efficiency. Although the number of inpatient facilities decreased by 7.5, the efficiency of bed utilization reached 286-301 days per year, and the average length of hospital stay decreased to 9.8 and 9.1 days, which was a sign of the transition to an outpatient type of care.

The effectiveness of preventive medicine has been confirmed. The network of health centers, the number of consultations, and screening coverage increased by 12.9%, 27.5%, and 28.1%, respectively. Screening programs showed a 31-34% increase in the detection of individuals with risk factors.

The financial mechanisms of the NHSU have proven to be effective. The budget of the medical guarantee program increased by 22.2% to UAH 201.3 billion, funding per capita – from UAH 3.87 to UAH 5.03 thousand. UAH, and reimbursement of costs for medicines – by 29.3. Individual quality indicators became higher: mortality in hospitals decreased from 1.84% to 1.68%, early detection of diseases was 47.8%.

Systemic problems were identified: regional staffing (7.7% of doctors in rural areas), age of staff (19.8% of retirement age) and hospital-based financing system (56.1% of inpatient treatment).

It is proposed: to develop more specific initiatives for the development of staffing of rural health care; focus on attracting young professionals; increase funding for primary health care (25–30%); improve quality monitoring through clinical indicators; develop rural health networks, etc.

The limitations of the study are the emphasis on quantitative indicators without analyzing clinical practice and the lack of data on the occupied territories. Additional areas of research in the future include clinical outcome analysis, quality perception research, and exploring the impact of digital transformation.

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Public Diplomacy as an Instrument for Forming the Foreign Policy Image of a State: Theoretical Principles and Applied Aspects

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ABSTRACT

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The relevance of the study is due to the growing role of public diplomacy in the context of global competition for trust, reputation and symbolic influence, when the foreign policy image of the state is formed under the influence of digital communications, cultural practices and network interactions. The purpose of the article is to theoretically generalize modern approaches to public diplomacy and justify its functioning as a holistic tool for forming the foreign policy image of the state, taking into account new technological and socio-cultural conditions. The methodological basis of the study is a complex of general scientific and special methods of cognition, in particular analysis and synthesis for systematization of theoretical approaches, a comparative method for comparing different models of public diplomacy, as well as conceptual generalization for identifying the logic of interaction of digital, cultural and information tools in the process of image construction. As a result of the study, the content of the concept of public diplomacy as a multidimensional communication mechanism that combines classical diplomatic practices with digital forms of public interaction is clarified. It is established that the effectiveness of foreign policy image formation largely depends on the consistency between the declared values of the state and real political behavior, which directly affects the level of international trust. The ambivalent nature of digital diplomacy is revealed, which, on the one hand, expands the possibilities of direct influence on foreign audiences, and on the other hand, increases the vulnerability of the image to information crises and reputational risks. The role of cultural diplomacy as a relatively stable channel for the formation of positive associations, capable of mitigating political fluctuations in the perception of the state, is substantiated. It is also shown that the use of new technologies, in particular elements of artificial intelligence, transforms the logic of foreign policy communication, requiring a revision of traditional approaches to image management. The practical significance of the results lies in the possibility of their use in developing state strategies for public and digital diplomacy, improving information policy, as well as in the activities of foreign relations bodies and think tanks involved in the formation and correction of the state's foreign policy image.



KEYWORDS

communication mechanism, information policy, cultural attitudes, building a positive image.



Публічна дипломатія як інструмент формування зовнішньополітичного іміджу держави: теоретичні засади та прикладні аспекти

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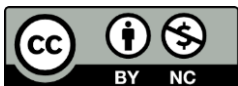
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Актуальність дослідження зумовлена зростанням ролі публічної дипломатії в умовах глобальної конкуренції за довіру, репутацію та символічний вплив. Метою статті є теоретичне узагальнення сучасних підходів до публічної дипломатії та обґрунтування її функціонування як цілісного інструменту формування зовнішньополітичного іміджу держави. Методологічну основу дослідження становить комплекс загальнонаукових і спеціальних методів пізнання, зокрема аналіз і синтез для систематизації теоретичних підходів, порівняльний метод для зіставлення різних моделей публічної дипломатії. У результаті дослідження уточнено зміст поняття публічної дипломатії як багатовимірного комунікаційного механізму, що поєднує класичні дипломатичні практики з цифровими формами публічної взаємодії. Встановлено, що ефективність формування зовнішньополітичного іміджу значною мірою залежить від узгодженості між задекларованими цінностями держави та реальною політичною поведінкою. Виявлено амбівалентний характер цифрової дипломатії. З одного боку, вона розширює можливості прямого впливу на іноземні аудиторії, а з іншого – підвищує вразливість іміджу до інформаційних криз і репутаційних ризиків. Обґрунтовано роль культурної дипломатії як відносно стабільного каналу формування позитивних асоціацій. Також показано, що використання новітніх технологій, зокрема елементів штучного інтелекту, трансформує логіку зовнішньополітичної комунікації. Практична значимість результатів полягає в можливості їх використання під час розроблення державних стратегій публічної та цифрової дипломатії, удосконалення інформаційної політики, а також у діяльності органів зовнішніх відносин і аналітичних центрів, задіяних у формуванні та корекції зовнішньополітичного іміджу держави.

КЛЮЧОВІ СЛОВА

комунікаційний механізм, інформаційна політика, культурні установки, побудова позитивного образу.

1. Introduction

Under current conditions, international relations are formed not only under the influence of military force or economic pressure. At the same time, communication and the ability of the state to be heard and understood beyond its own borders are of great importance. It is in this context that public diplomacy emerges as one of the tools for the formation of the foreign policy image of the state. The last combines the political, cultural, economic and informational dimensions of international interaction.

The problem of public diplomacy is of particular relevance for Ukraine in the context of the armed aggression of the Russian Federation. As a result, the country is forced to defend its own sovereignty and maintain its image in the international information space. That is why the analysis of the theoretical foundations of public diplomacy and its applied aspects, in particular on the Ukrainian example, is unique and scientifically significant.

2. Literature Review

The analysis of the current scientific body on the problems of public diplomacy testifies to the essential evolution in understanding its role in the formation of the foreign policy image of the state, which reflects the shift from classical communication models to multidimensional, digitally mediated forms of interaction. In the works devoted to digital diplomacy, it is emphasized that the use of online platforms is not reduced to a simple transfer of traditional tools to the virtual space. Thus, Mazumdar [1] shows that digital diplomacy forms qualitatively new modes of public engagement, within which foreign audiences cease to be passive recipients of messages and acquire the characteristics of a co-creator of the state's image narratives. The author comes to the conclusion that Internet-oriented practices change the very logic of public diplomacy, strengthening horizontal ties and increasing the sensitivity of the image to the dynamics of network discussions, which at the same time creates both new opportunities and risks for state foreign policy.

The problem of ambivalence of public diplomacy is developed in the study of Salman and Burton [2], who propose to distinguish between positive and negative strategies of public diplomacy on the example of the states of the Arabian Gulf. Their conclusions show that public diplomacy can not only strengthen the foreign policy image but also provoke reputational losses if manipulative or overly propagandistic approaches are used.

A new dimension in public diplomacy research is related to technological acceleration and the introduction of artificial intelligence. Bjola and Manor [3] outline several scenarios of the impact of generative AI on digital diplomacy, demonstrating that these technologies can radically change the processes of production and dissemination of foreign policy messages.

In the national scientific discourse, the emphasis is placed on the institutional and political foundations of the formation of the international image of Ukraine. Tkachuk [4] substantiates that the state information policy performs an integrative function between external and internal communication, influencing not only the reputation of the state abroad, but also the perception of its political subjectivity. The author establishes that the fragmentation of information initiatives and the lack of strategic coordination reduce the potential of public diplomacy as an instrument for long-term image positioning of Ukraine.

The cultural dimension of public diplomacy is revealed in the works of Rudnieva et al. [5], which prove that cultural diplomacy is one of the most stable channels for the formation of a positive image of the state. Researchers show that cultural projects and symbolic practices contribute to the consolidation of associations with national identity and values that are less susceptible to political conjuncture.

3. Problem Statement

In modern conditions of globalization and digitalization, public diplomacy has become an important tool for shaping the foreign policy image of the state, as it enables governments to communicate directly with foreign audiences, promote national interests, and strengthen international trust. This issue is especially relevant for Ukraine in the context of armed aggression by the Russian Federation, which has intensified the struggle not only on the battlefield but also in the international information space. Under these circumstances, there is a need to study the theoretical foundations,

instruments, and practical mechanisms of public diplomacy, as well as to assess its effectiveness in forming a positive international image of the state, ensuring international support, and counteracting disinformation in the context of contemporary geopolitical challenges.

4. Methods and Materials

The empirical and source basis of the study was regulatory legal acts and program-strategic documents in the field of foreign policy and communications of the state, official materials of public diplomacy institutions, as well as open digital data from official web resources and verified pages in social networks reflecting the practices of forming a foreign policy image. In addition, scientific works on the theory of international relations, strategic communications and “soft power” made it possible to clarify the conceptual and categorical apparatus and operationalize key variables.

Methodologically, a set of complementary approaches has been applied. Theoretical analysis and synthesis are used to generalize scientific interpretations of public diplomacy and build the logic of research; comparative and structural-functional methods – for comparing the tools of public diplomacy and their roles in image formation. Content analysis of official communications and media materials ensured the identification of dominant narratives, target audiences and communication frames; The case method made it possible to analyze applied practices in terms of their effectiveness. To interpret the impact of the tools, elements of qualitative assessment of effectiveness based on indicators of coverage, engagement, tone of messages and consistency of messages with foreign policy goals are applied.

5. Results and Discussion

The term “public diplomacy” has several general interpretations reflecting the development of this concept over time [6]. First of all, it is a form of direct communication between the state and a foreign audience, aimed at shaping its views and influencing the decisions of the governments of other countries. In a broader sense, public diplomacy can be considered as an instrument through which the government spreads abroad the idea of its own national ideas, values, culture, political institutions and strategic goals. In addition, public diplomacy covers activities in the spheres of information, education and culture, through which the state tries to influence the foreign policy positions of other countries, interacting with their community. Historically, public diplomacy has been focused mainly on intergovernmental communication. Its key task was to inform, persuade, or mobilize external audiences in support of national interests and foreign policy. However, today, public diplomacy has significantly expanded its format and increasingly involves direct contact between people. Such a transformation is due to the growing role of community opinion in international processes and the intensification of interpersonal relations, which significantly affect the image of the state in the world [7, p. 143].

The term “public diplomacy” first appeared in 1856 on the pages of the London newspaper *The Times*, where it denoted manifestations of culture and politeness. This concept was introduced into scientific discourse only in 1965 by Edmund Gullion, dean of the Fletcher School of Law and Diplomacy at Taft University (Medford, MA). The need for a new term arose due to the negative connotations of the word “propaganda”, which no longer corresponded to modern approaches to international communication. In his definition, Gullion emphasized that public diplomacy involves influencing the public opinion of another country in order to shape its perception of the policy of a particular state [7, p. 143].

The concept of “soft power” occupies a key position in the system of understanding modern public diplomacy. Its establishment began after the First World War. In 1917, on the initiative of President Woodrow Wilson, the Committee on Public Information was created under the leadership of George Creel. Also known as the “Creel Committee”. Its main goal was to form a positive image of the United States in the world. The term “soft power” itself appeared much later, in 1990. This was after Joseph Nye published his book *A Call to Leadership: Changing the Nature of American Power*. According to Nye, the basis of this influence is the culture of the country, its political values, ideology and the nature of foreign policy. The concept of “soft power” is closely related to several liberal theories of international relations, in particular with the theory of democratic peace, commercial liberalism and international organizations. Nye noted that globalization gradually reduces the absolute power of states in international politics and instead strengthens the role of non-state actors. At the same time, he

emphasized that the military potential of a country can also influence the formation of its “soft power” [7, p. 146]. In the background, Nye promotes the idea of “smart power” – a balanced combination of “hard” and “soft” power. He also emphasizes that culture is an important source of soft influence, and public diplomacy is one of the main tools for its implementation.

Analyzing the development of public diplomacy, it is advisable to refer to the concept proposed by Eitan Gilboa, a professor at Harvard University and director of the Center for International Communication at Bar-Ilan University (Israel). In his research, the scientist singled out and described in detail three key models of public diplomacy: the classical model of the Cold War period, the non-state transnational model, as well as the model of internal PR [8, p. 25]. To clearly distinguish these approaches, E. Gilboa proposed five basic variables (Table 1), among which the key actors and initiators of public diplomacy, its goals, the types of media involved, as well as the tools and methods of influence used within each model are decisive.

Table 1. Models of public diplomacy according to the concept of Eitan Guilbeault

Criterion (variable)	Basic model (Cold War)	Non-state transnational model	Internal PR model
Main actors	Nation states (superpowers: USA, SRC)	Non-state actors: NGOs, community movements, influence groups, individuals	Governments acting indirectly through PR companies and lobbyists
Initiators	State governments and official institutions	Non-state structures, transnational networks	Government agencies involving commercial intermediaries
Main objectives	Formation of a positive image of the state; ideological confrontation; long-term impact on the public opinion of foreign societies	Mobilization of international support; creating external pressure on the governments of the target countries for political change	Providing political and community support in the target country; increasing the legitimacy of government actions
Types of media	International broadcasting (radio, official information channels)	Global information networks, media events, international platforms	National media of the target country, controlled or mediated through PR structures
Means and methods of public diplomacy	Dissemination of “objective” information, counteraction to internal propaganda of other states, ideological communication	Community pressure campaigns, information campaigns, use of transnational solidarity networks	Lobbying, PR campaigns, formation of local support groups, public opinion research (“strategic public diplomacy”)
Nature of the impact	Direct, state-centric, ideologically colored	Decentralized, networked, transnational	Indirect, hidden, adapted to the local context
Historical/practical example	The confrontation between the United States and the Soviet Union during the Cold War	Campaigns for democratic reform in China	Hiring of the PR firm <i>Hill and Knowlton</i> by Kuwaiti monarchs during the Gulf War (1990–1991)

Source: Compiled on the basis [7; 8].

After the terrorist attacks of September 11, 2001, traditional approaches to public diplomacy were reconsidered. In response to new global challenges in scientific and political discourse, the term “new public diplomacy” appeared, proposed in 2008 by the Deputy Secretary of State of the United States James Glasman. This approach involved the active use of digital tools – social networks, blogs and mobile sites – primarily for the implementation of US foreign policy tasks, in particular in countering terrorism. The emergence of the concept of “new public diplomacy” reflected deeper transformations of the early 2000s [8, p. 24]. First of all, we are talking about a change in the global communication environment, in which information has become available to a wide range of users, and the border between professional journalists and bloggers has been significantly reduced. Others are increasingly turning into influential actors in public diplomacy, sometimes surpassing traditional media in terms of influence.

At the same time, the general political context has changed. Public diplomacy has acquired a multi-substituting and multilateral character. In these conditions, not only is the translation of one’s own values of key importance, but also constant feedback from the external audience. The latter influences both the communication of governments and their political decisions. As a result, the classical model of

“fighting for the heart” gradually loses its effectiveness. Modern public diplomacy also has a distinctly applied character. Its tools are selected depending on specific tasks. Foreign policy guidelines can change in the short-term perspective, cultural attitudes – in the medium-term perspective, while the transformation of values requires a much longer time, usually not less than one generation. The renewed understanding of public diplomacy has received broad support in the academic community. In particular, Nicholas Kull identifies three key features of modern public diplomacy: the active use of information and communication technologies, dependence on content created by users (comments, blogs, etc.), as well as functioning within horizontal networks [8, p.25].

Digital diplomacy tools enable states to respond quickly to international challenges, effectively convey reliable information, and counter disinformation that can damage their international image. Thanks to the development of digital technologies, the possibilities of public diplomacy have significantly expanded (Table 2). An important role in this process is played by the so-called “Twitter diplomacy”, which has become one of the key channels of communication with a global audience. State leaders and official institutions actively use social networks to present their own positions, promptly respond to crisis situations and form a positive image of the state. According to the Pew Research Center (2024), the active presence of states in social networks is associated with an improvement in their international perception, especially among the younger generation [9, p. 379].

Table 2. Digital Public Diplomacy Tools and Their Impact on the Formation of the State's Foreign Policy Image

Digital Diplomacy Tool	Basic functions	Target audience	Image effect
Official accounts of state institutions in social networks	Prompt information, clarification of foreign policy positions, crisis communication	International community, media, expert communities	Formation of an image of an open, transparent and responsible state
“Twitter diplomacy” of political leaders	Personalization of foreign policy, quick response to events, signaling of positions	Global audience, youth, political elites	Increasing the recognition of the state, strengthening emotional trust
Digital platforms for strategic communications	Promoting national narratives, countering disinformation	International partners, think tanks	Strengthening the state's reputation as a reliable and predictable actor
Online Cultural and Educational Diplomacy	Dissemination of cultural values, academic mobility, digital exchanges	Students, scientists, cultural communities	Formation of a long-term positive image and “soft power”
Digital communications and big data analytics	Monitoring of international perception, adaptation of messages	State institutions, diplomatic services	Improving the effectiveness of image strategies and reputational value

Source: Authors' own development.

Interesting in the context of this topic is the experience of Ukraine. It consistently asserts itself in the international arena as a European state. That is, it strives to be a country that shares the values of the democratic world. The key priority of its foreign policy is the course towards European and Euro-Atlantic integration. At the same time, the Russian annexation of Crimea and the occupation of part of the territories in the east of Ukraine had a significant impact on the international information perception of the state. In the global media space, these events were often summarized under the concept of “Ukrainian crisis”. Sociological studies of that period showed a low level of awareness. Thus, every fifth inhabitant of the European Union did not distinguish between Ukraine and Russia, and for every tenth, Ukraine was associated primarily with poverty. The full-scale invasion of Ukraine by the Russian Federation in 2022 radically changed this picture. Open aggression against a sovereign state, massive war crimes and heroic resistance of Ukrainian society have attracted unprecedented attention of the world community. Ukraine began to be perceived not as an object of “crisis”, but as a sovereign actor of international relations, defending not only its own independence, but also fundamental European values – freedom, democracy and the rule of law [10, p. 292].

According to the Public Diplomacy Strategy of the Ministry of Foreign Affairs of Ukraine for 2021–2025, public diplomacy is interpreted as a complex mechanism of communication between the state and the community of other countries, aimed at forming a positive public opinion abroad, promoting Ukraine's national interests and achieving its foreign policy goals. The conceptual basis of this strategy

was the national brand Ukraine Now, developed in 2018 with the aim of a systematic and recognizable representation of Ukraine in the world. In the context of a full-scale war, public diplomacy acquires special importance, since its main task is to present Ukraine as a strong and indomitable state, to convey to the international audience the strength of Ukrainian society, its democratic values and desire for freedom, as well as to actively search for and consolidate international support in the confrontation with the aggressor [11]. The developers of the Public Diplomacy Strategy of the Ministry of Foreign Affairs of Ukraine for 2021–2025 have identified seven main areas of its implementation (Table 3), among which are: economic, cultural, expert, culinary, scientific, educational and digital diplomacy. Their combination should provide a comprehensive and coherent approach to Ukraine's advancement in the international arena.

Table 3. Main Directions of Public Diplomacy of Ukraine (2021–2025): Goals, Tools and Institutional Implementation

Public diplomacy	Key objectives	Basic tools and mechanisms	Key Institutions/ Implementation Examples
Economic diplomacy	Integration of Ukraine into the world economy; formation of a positive investment and business image; Export and tourism support	International negotiations; participation in international economic organizations; investment forums and exhibitions; business consultancy; Promotional campaigns	Ministry of Foreign Affairs of Ukraine; UkraineInvest; Entrepreneurship and Export Development Officer; NAZOVNI platform; Diia.Business
Investment Component of Economic Diplomacy	Attraction of foreign direct investments; protection of investors' rights; improving the business climate	Investment climate analytics; regulatory and legal support; meetings with investors; Organization of investment visits	UkraineInvest (established in 2016)
Export diplomacy	Promotion of Ukrainian goods and services; diversification of sales markets	National stands at international exhibitions; marketing campaigns; grants; Search for partners	Entrepreneurship and Export Development Officer; Diia.Biznes
Tourism diplomacy	Increasing Ukraine's international attractiveness; Formation of a tourist brand	Participation in international tourism exhibitions; memorandums with international partners; cooperation with the WTO	State Agency for Tourism Development
Humanitarian and security (economic component)	Consolidating Ukraine's image as a guarantor of global food security	International Humanitarian Programs; Interstate partnerships	Grain from Ukraine initiative in partnership with the World Food Programme
Regional Communication Strategies (Africa)	Formation of a holistic image of Ukraine; countering disinformation of the Russian Federation; Development of partnerships	Diplomatic tours; opening missions; information campaigns; Strategic communications	Ministry of Foreign Affairs of Ukraine; Communication Strategy "Ukraine – African States" (2024–2026)
Regional Communication Strategies (Latin America and the Caribbean)	Strengthening the information presence; support for the Peace Formula; development of multilateral cooperation	Work with media, journalists, and influencers; Communication support for diplomatic missions	Ministry of Foreign Affairs of Ukraine; Communication Strategy "Ukraine – Latin American and Caribbean Basin States" (2024–2026)
Cultural diplomacy	Popularization of Ukrainian culture; formation of a positive attitude towards Ukraine	Festivals; exhibitions; film screenings; musical and literary projects; Art campaigns	Ukrainian Institute; Ministry of Culture and Culture; UCF; State Film Agency; PEC and others.
Science and Education Diplomacy	Development of international academic relations; intercultural dialogue; dissemination of knowledge about Ukraine	Academic mobility; joint scientific projects; Educational Programs	Erasmus+; Universities and scientific institutions
Sports diplomacy	Strengthening the international press; development of intercultural dialogue	Participation in international sports competitions; Sports exchanges	Sports federations; State and community institutions
Digital diplomacy	Protection of national interests; international information presence; countering disinformation	social networks; digital platforms; Online campaigns	Portal war.ukraine.ua; pages of Ukraine's diplomatic institutions abroad

Source: Compiled on the basis [10; 11].

Thus, the above table clearly demonstrates that the public diplomacy of Ukraine in 2021–2025 is being formed as a complex system. Its development testifies to the desire of the state not only to protect national interests in wartime, but also to build long-term partnerships based on trust and mutual benefit. At the same time, the effectiveness of these areas directly depends on further institutional support and professional coordination of actions between the state and civil society.

The results of the analysis of the key areas of public diplomacy make it possible to identify three interrelated components in its structure, each of which is responsible for the formation of unique image characteristics of the state. The geopolitical direction creates the idea of the country as a certain geographical space, within which its domestic and foreign policy is implemented. The marketing direction focuses on the promotion of economic processes and opportunities of the state in the world arena. The branding direction, relying on the recognition of official and informal symbols, contributes to the formation of a consistent and understandable image of the state in the international space. At the same time, diplomatic technologies will become a set of well-thought-out and purposeful measures aimed at attracting new external actors, cooperation with which can increase the international authority of the country [12, p. 127]. In the context of globalization, states consciously invest in the formation of a positive international image, using the tools of “soft power” and public diplomacy. They themselves become important mechanisms for protecting national interests, attracting foreign investments, and generally strengthening the influence of the state in the world.

6. Conclusions

The analysis shows that public diplomacy has turned into a complex tool for the formation of the foreign policy image of the state. It goes beyond the traditional diplomatic communication, covering a wide range of actors, channels and practices. The concepts of “soft” and “smart” power, as well as the models of public diplomacy proposed by leading researchers, allow for a deeper understanding of the mechanisms of the state’s influence on international community opinion.

Ukraine’s experience convincingly demonstrates that public diplomacy is a strategically important element of foreign policy. Russia’s full-scale invasion in 2022 became a catalyst for rethinking Ukraine’s information presence in the world. The implementation of the Public Diplomacy Strategy of the Ministry of Foreign Affairs of Ukraine for 2021–2025 indicates the desire of the state to build an integral system of image-making.

At the same time, the effectiveness of public diplomacy directly depends on the institutional capacity of the state, the availability of professional personnel and stable financing. With the further development of these components, public diplomacy can become for Ukraine not only a means of protecting national interests. But also, a powerful resource for long-term international partnership, building trust and establishing a positive image of the state in the global dimension.

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Institutional and Legal Mechanisms of Public Management of Healthcare Service Quality and Workforce Development in Ukraine in the Context of European Integration

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ABSTRACT

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To ensure the quality of medical services and staff development, it is important to create effective and effective institutional and legal mechanisms of public management in this area. European integration has become a factor in accelerating the transformation of state institutions and changing the regulatory framework in the field of health care in Ukraine. The purpose of the article was to study the institutional and legal mechanisms of public management of the quality of medical services and the development of personnel in the field of health care in Ukraine, taking into account European integration processes. The research methodology is based on the legal analysis of the current legislation in the field of health care in Ukraine, and statistical analysis of the available human resources. The results demonstrate progress in the development of institutional mechanisms of public management in the field of health care in the areas of management strategy and policy, financing of medical services, quality assurance of medical services and development of human resources. Transformational changes in the activities of state institutions in the medical field have had a positive impact on the accessibility, quality of medical services, compliance with standards in the provision of services, increasing the level of responsibility of medical institutions for the results of service provision. The reform of public management institutions has affected the development of professional medical personnel in the context of competition for patients. The adoption of new legislation in the field of health care has changed the approaches, principles and methods of providing medical services and serving citizens, as well as financing medical services. Regulatory changes made it possible to strengthen the autonomy of health care institutions and introduce an electronic healthcare system eHealth, for transparency of funding, e-document management, and the creation of e-services in the medical industry. At the same time, the problematic issues of public management in the field of health care remain ineffective state distribution of funding for medical services, insufficient resource provision of educational institutions for the training of medical personnel, low level of intersectoral interaction (communication and cooperation) between state institutions in this area.



KEYWORDS

public management, institutional and legal mechanisms of public management, personnel development, healthcare, digitalization, eHealth, medical services, regulatory support, quality, health care institutions, European integration, globalization, human resources.



Інституційно-правові механізми публічного управління якістю надання медичних послуг та розвитком персоналу в сфері охорони здоров'я України в контексті євроінтеграції

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СТАТТЯ

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Для забезпечення якості медичних послуг та розвитку персоналу важливо створити ефективні та результативні інституційно-правові механізми публічного управління у цій сфері. Євроінтеграція стала чинником пришвидшення трансформації державних інституцій та зміни нормативно-правового забезпечення в галузі охорони здоров'я в Україні. Мета статті полягала у дослідженні інституційно-правових механізмів публічного управління якістю надання медичних послуг та розвитку персоналу в сфері охорони здоров'я України з урахуванням євроінтеграційних процесів. Методологія дослідження ґрунтується на правовому аналізі діючого законодавства у сфері охорони здоров'я в Україні, статистичному аналізі наявного кадрового потенціалу. Результати демонструють прогрес у розвитку інституційних механізмів публічного управління в сфері охорони здоров'я за напрямками стратегія та політика управління, фінансування медичних послуг, гарантування якості медичних послуг та розвиток кадрових ресурсів. Трансформаційні зміни в діяльності державних інституцій в медичній сфері позитивно вплинули на доступність, якість медичних послуг, дотримання стандартів при наданні послуг, підвищення рівня відповідальності медичних закладів за результати надання послуг. Реформування інституцій публічного управління позначилося на розвитку професійного медичного персоналу в умовах конкуренції за пацієнтів. Прийняття нового законодавства в сфері охорони здоров'я змінило підходи, принципи та способи надання медичних послуг й обслуговування громадян, фінансування медичних послуг. Нормативно-правові зміни дозволили посилити автономність закладів охорони здоров'я та запровадити електронну систему охорони здоров'я eHealth для прозорості фінансування, е-документообігу, створення е-сервісів в медичній галузі. При цьому, проблемними питаннями публічного управління в сфері охорони здоров'я залишаються неефективний державний розподіл фінансування медичних послуг, не достатня ресурсна забезпеченість освітніх закладів із підготовки медичних кадрів, низький рівень міжсекторальної взаємодії (комунікації та співпраці) між державними інституціями в цій сфері.

КЛЮЧОВІ СЛОВА

публічне управління, інституційно-правові механізми публічного управління, розвиток персоналу, охорона здоров'я, сфера охорони здоров'я, цифровізація, eHealth, медичні послуги, нормативно-правове забезпечення, якість, заклади охорони здоров'я, євроінтеграція, глобалізація, кадровий потенціал.



1. Introduction

The European integration direction of the development of the Ukrainian health care system determined the institutional and legal fundamental changes in the provision of medical services that took place during 2015–2025. Institutional transformations provided for the creation of the National Center for Public Health of Ukraine in 2016 for the professional development of personnel [21], of the National Health Service of Ukraine (hereinafter referred to as the NHSU) to provide financial guarantees to the population in high-quality medical care under the program of medical guarantees [17]. A separate area of change envisaged the development of the electronic health care system eHealth (hereinafter referred to as the EHR) and digital services to promote transparency and openness in the field of healthcare. Regulatory changes were necessary to adapt Ukrainian legislation to the EU rules and regulations in the areas of registration and circulation of medicines, financing of medical services based on the patient-centered principle, and the functioning of the EHR.

The main goal of institutional and legal transformations was to improve the quality, safety, accessibility, and financial support of medical services and the processes of their provision in health care institutions based on the patient-centered principle. Increasing the level of productivity and labor efficiency of human resources has become one of the tasks within the framework of the transformations carried out.

In 2025, Ukraine adopted a new “Strategy for the Development of the Health Care System for the Period up to 2030” dated 17.01.2025 No. 34-r [4], which defines an action plan to solve problems with the availability of medical services in wartime, the critical burden on medical institutions and personnel, the effective allocation of resources to the needs of the health care system, the migration of medical personnel, and others. This requires a more detailed coverage of institutional and legal mechanisms public management of the quality of medical services and the development of personnel in the field of health care in Ukraine in the context of European integration and Ukraine’s accession to the EU.

2. Literature Review

The analysis of scientific publications shows the importance of reforming the institutions that regulate the health care sector for the provision of high-quality, safe, affordable medical services. As stated in the article by F. A. Fernandes et al. [11], in national strategies for the development of health care, the priority goals are the quality, safety, accessibility, efficiency of the system of medical services, as well as the improvement of the system of medical information. Crisis periods of society development (coronavirus, war in Ukraine) also point to the importance of timely improvements in public management in the medical sector. The development and strengthening of institutions and the updating of legislation are crucial for the introduction of new approaches to public management in this area.

The article by N. Hoi et al. [13] analyzes approaches to public management in the field of health care in Ukraine in the context of European integration and digitalization. In Ukraine, the medical system is built on the basis of a multi-level institutional structure, which includes central executive authorities, territorial administrations and independent state institutions. electronic services. At the same time, in the context of European integration, territorial communities and local self-government play an important role in public management of the healthcare sector [26]. According to the conclusions of N. Veresniuk [22], in the context of military challenges, the development of legislation and new approaches to financing health care in Ukraine, European integration only accelerates positive changes in this area. However, accession to the EU does not solve the existing problems in the medical sector, and the EU does not have significant powers in the Ukrainian healthcare sector. Before joining the EU, it is necessary to introduce European principles and standards in medicine and the provision of services. In particular, the article by D. Lavrentii [14] summarizes the EU’s key approaches in the field of healthcare, which are based on equal access, humanism and an integrated approach to the provision of medical services. According to the position A. de Ruijter et al. [6], a governance system and legal norms are being formed in the EU, which aim to build public trust and ensure solidarity in the field of health. The latter principle provides for strengthening the institutions and solidarity mechanisms of European and national health systems to increase resilience and stability after the coronavirus pandemic in 2020.

As noted by Y. Dzhygyr et al. [9], the war has led to an increase in the criticality of reforming health care management in the context of growing demand for medical services and a shortage of budgetary

resources. The publication of E. Dale et al. [5] highlights new challenges, such as improving access to the Medical Guarantee Program among internally displaced persons, dependence of medical institutions on the financial resources of local authorities, and changing the profile of patients. A separate area of research highlights the problems of the development of human resources in the health care industry. In the publications of I. Boryshkevych et al. [1] systematized the components of the managerial potential of the heads of medical institutions and systematized the factors influencing its development.

3. Problem Statement

The purpose of the article was to study the institutional and legal mechanisms of public management of the quality of medical services and the development of personnel in the field of health care in Ukraine, taking into account European integration processes. To characterize the institutional and legal mechanisms of public management of the quality of medical services in Ukraine and the development of personnel in the field of health care in Ukraine in the context of Ukraine's accession to the EU, the following objects of research have been identified:

- to determine the current state of Ukraine's European integration processes in the field of healthcare;
- to analyze the institutional and legal mechanisms of public management of the quality of medical services and the development of human resources;
- to assess the impact of the existing institutional and legal mechanisms on the quality of medical services in Ukraine and the level of development of medical personnel.

4. Methods and Materials

The methodology of the study is based on the legal analysis of the current legislation in the field of health care in Ukraine, and statistical analysis of the available human resources. The legal analysis is carried out according to the principles of objectivity, hierarchy, time correspondence, and relevance. Statistical analysis of human resources in the field of health care was carried out on the basis of data from the Center for Public Health of Ukraine in 2021–2024 [19].

5. Results and Discussion

In 2015, fundamental changes in the health care system began in Ukraine, which consisted of the introduction of new approaches to financing the range of medical services. The introduced package of reforms in the direction of health care financing is based on the principles of universal health insurance (UHC) [12]. The adoption of the new Law of Ukraine "On State Financial Guarantees of Medical Services" dated October 19, 2017, No. 2168 [23] and related by-laws made it possible to introduce a single package of medical payments from the NHSU to medical institutions – the Medical Guarantee Program (MMG) to ensure equal access to medical services. The SGP came into force on April 1, 2020, within the framework of the emergency, primary, specialized (secondary), and palliative medical care provided by the relevant health care institutions, and other types of medical care. The NHSU, on the basis of agreements with medical institutions, pays for the provided medical services and medicines at uniform rates for citizens of Ukraine, foreigners, stateless persons and refugees. Medical payments are not related to citizens' contributions, and the PMG guarantees a single set of payments for all persons who are financed centrally at the expense of the state budget. In 2020–2022, the volume of SGP financing in Ukraine increased, amounting to UAH 89.53 billion in 2020, UAH 123.90 billion in 2021, and UAH 146.30 billion in 2022. In 2023, the volume of payments to medical institutions amounted to UAH 139.43 billion, increasing to UAH 157.35 billion in 2024 and decreasing to UAH 139.04 billion in 2025. At the same time, the share of expenditures of the Ministry of Health of Ukraine within the framework of SGP financing only increased in 2020–2025 (Fig. 1).

The institutional mechanism of public management of the quality of medical services in Ukraine covers a set of management entities that are created and operate at the national and local management levels to regulate the activities of medical institutions in order to ensure accessibility, quality, and inclusiveness of medical services for different categories of the population.

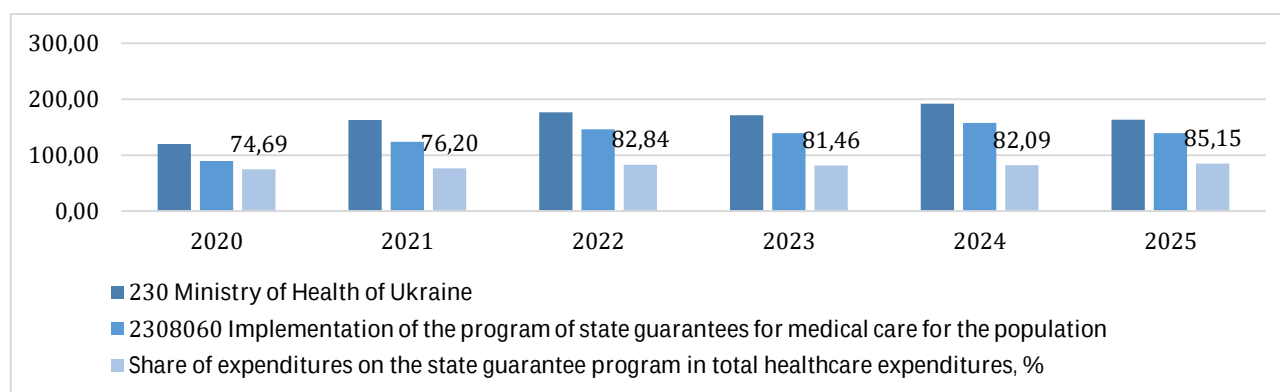


Figure 1. Trends in Budget Funding for State-Guaranteed Healthcare Programs for the Population of Ukraine

Source: Calculated by authors based on [18].

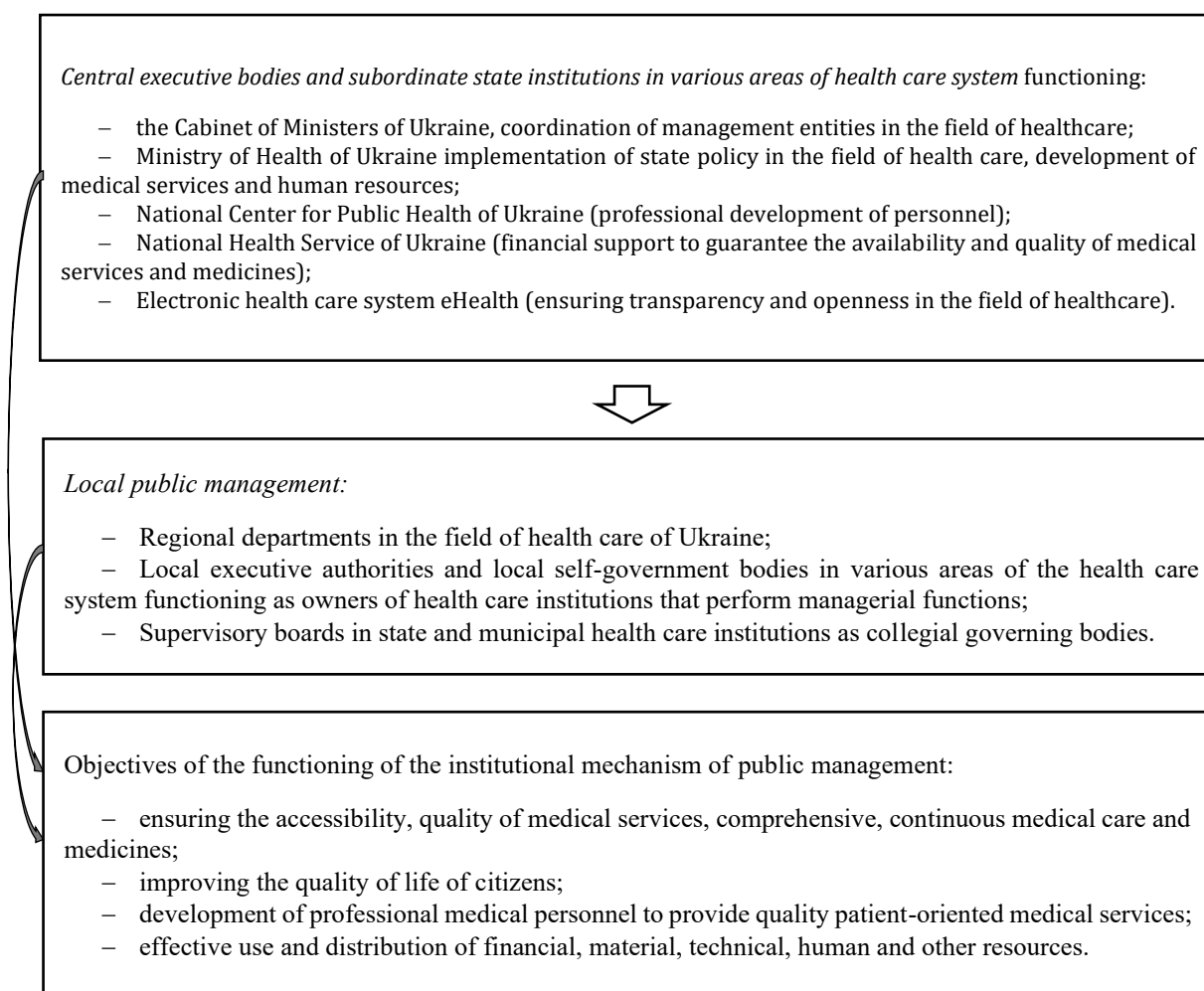


Figure 2. Institutional mechanisms of public management of the quality of medical services in Ukraine

Source: Developed by the authors.

As a result of the reform of the health care system, the problems of insufficiently effective state management of medical institutions, including at the local level, have been solved. Local self-government bodies and subjects of the subnational level of management are entrusted with the authority to perform managerial functions by communal health care institutions, organize their material, technical, and financial support, medical care, ensure its free of charge, accessibility, etc. Local authorities are responsible for the development of a capable network of health care institutions (hospital districts), the creation of which took place within each region to ensure the provision of comprehensive, affordable medical services within the entire system of medical care. Local authorities

have gained leverage for the effective reorganization of the hospital network, the material and technical development of medical institutions, staff training, and the introduction of local development programs.

The establishment of the state institution “Public Health Center of the Ministry of Health of Ukraine” (PHC) was an EU requirement for Ukraine and provided for the reform of the system of sanitary and preventive surveillance to meet the needs of citizens in protection from infectious and non-communicable diseases, in biological safety and high-quality laboratory diagnostics of infectious diseases, immunoprophylaxis [21].

With the support of the World Health Organization, the Platform of the Center for Public Health was modernized and expanded as a way to improve skills and professional competencies in the field of public health. Online courses from leading international and Ukrainian experts on the most relevant topics are available on the platform (HIV/AIDS, COVID-19, tuberculosis, substitution maintenance therapy, prevention of noncommunicable and communicable diseases), training and reference materials, practical instructions, catalog of activities for continuous professional development [21].

In 2019–2025, a EUR 5.8 million EU funding project “Support to Ukraine in the Development of a Modern Health Care System” was implemented to modernize Ukraine’s health system and align it with EU standards and requirements. centralization of a coordinated blood transfusion system for sustainable management in this field of medicine, improving patient safety by creating a national registry of blood donors, creating an appointment scheduling system and a comprehensive blood management information system “eKrov” [7; 10]. The information and communication system of blood donation was created for centralized management of information about donors, operational accounting of stocks, effective planning of supplies between medical institutions, and operational accounting of stocks to ensure high-quality and equal access of the population to relevant services [10].

With the support of the EU project, the capabilities of the State Institution “Center of the Public Ministry of Health of Ukraine” were consolidated and expanded by equipping and developing infrastructure for scientific, technological and epidemiological developments. Expert consultations of leading EU experts contributed to improving management and strategic planning in critical areas of public health in order to increase the level of resilience of Ukrainian medicine [10].

As part of the project, legal and regulatory reforms were carried out in Ukraine in the field of healthcare. In particular, regulations were developed to harmonize Ukrainian legislation with EU norms and requirements. New laws and by-laws were aimed at improving epidemiological surveillance of diseases, epidemiological response and coordination of public health. provisions in the field of health care [7].

To ensure the sustainable development of the medical sector in Ukraine and the sustainability of reforms, the EU project made significant investments in human capital development. More than 1500 medical workers underwent specialized training programs and seminars for the development of knowledge and skills. The training model of trainers introduced within the framework of the project helped to institutionalize the mechanism of knowledge transfer, which had a positive impact on the further educational process and the development of medical capacity after graduation from the project [7].

The project had a positive impact on the digitalization of the healthcare sector and its preparedness for emergency crises, as innovative tools were introduced to ensure the continuity of medical care in crisis conditions. In the process of implementing the project, the system of medical information on emergencies at the level of primary health care was modernized, which became a determining factor in building a more resilient healthcare infrastructure in Ukraine [7].

Raising public awareness and involving communities have become one of the most important elements of the project’s success. For this purpose, a nationwide communication campaign was carried out to promote voluntary blood donation, which reached more than two million potential donors. Within the framework of the online platform, which contains information about displaced persons, more than 22 thousand visitors were served in the period from June 2022 to November 2023 to promote critical support during the period of instability in Ukraine [7].

The signing of the Agreement between Ukraine and the EU on its participation in the EU4Health program in Lviv in July 2022 was another stage on the way to European integration in the medical field. The Agreement was ratified in January 2023 and allowed Ukraine to receive financial resources for the development of healthcare in accordance with EU standards. which contributed to the integration of medical personnel into the European medical space [20].

The legal mechanism of public management of the quality of medical services in Ukraine will be defined as a set of normative legal acts that determine the legal, organizational principles for the provision of medical care and the provision of medical care to the population in health care institutions in accordance with the existing standards for the provision of medical services.

According to the "Procedure for Quality Control of Medical Care" dated September 28, 2012, No. 752, "quality of medical care" is defined as "the provision of medical care and other measures to organize the provision of medical care by health care institutions in accordance with standards in the field of health care" [15]. That is, in Ukraine, high-quality medical services must be provided in accordance with approved standards. To assess the quality of medical care in Ukraine, external and internal quality control, expert assessment, self-assessment by medical workers, clinical audit, certification and certification in accordance with European and Ukrainian requirements, monitoring of the system of indicators of the quality of medical services are carried out.

The management of state and municipal health care institutions or medical councils is responsible for internal control of the quality of medical services by monitoring the qualifications of doctors, professionals and junior specialists with medical education. State executive authorities are responsible for external control of the quality of medical services using methods of monitoring compliance with licensing requirements, certification, and clinical and expert assessment [15].

Quality control of the provision of medical services is carried out according to the components, namely: process, structure, results of medical care; control over the implementation of managerial decisions; organization of assistance; compliance with the qualification requirements of medical personnel, including managers; study of patients' opinions on the provision of medical services; ensuring the safety and rights of patients.

In 2019, the Cabinet of Ministers of Ukraine approved the "Strategy for the Development of Medical Education in Ukraine" dated 27.02.2019 No. 95-r [2], which aims to solve the problems of training and professional development of employees in this area: the lack of a methodology for assessing the needs in the training of medical personnel, which would take into account the needs of the state; the distribution of state funding for the training of medical personnel; low level of state funding of medical institutions of higher education; the decrease in the prestige of the medical profession and motives for employment; the need to update the requirements for the competencies of doctors; separation of medical education and science, practical activity; unregulated interaction between higher education institutions and medical institutions, and others [2]. Under martial law in Ukraine, there is a problem of reducing the number of doctors and nurses; the share of doctors of retirement age has increased, which will negatively affect the human resources in the future (Table 1).

Table 1. Dynamics of the number of medical personnel in Ukraine in 2021-2024, persons

Indicator	2021	2022	2023	2024	Absolute deviation (2024–2021), persons/%
The number of doctors (without dentists), including physicians. persons (total number of persons as of 31.12), persons	143887.0	137549.0	133237.0	127675.0	-16212.0
mid-level medical staff	261255.0	241147.0	229368.0	215470.0	-45785.0
Percentage of mid-level medical staff, %	64.5	63.7	63.3	62.8	-1.7
Of the total number of doctors of retirement age	34061.0	32610.0	32917.0	32316.0	-1745.0
Share of doctors – persons of retirement age, %	23.7	23.7	24.7	25.3	+1.6

Source: Calculated by the authors based on data [19].

To ensure the quality of medical services, the Resolution "On Approval of the Regulation on the System of Continuous Professional Development of Medical and Pharmaceutical Workers" dated July 14, 2021, No. 725, which entered into force on January 1, 2022, was adopted. The document defines the concept of measures for the continuous professional development of medical personnel, the requirements for such events and providers of events, the forms of participation of medical personnel in events, electronic system of event accounting [3].

In 2025, new legislative requirements for the certification of employees in the field of health care were introduced [16]. The Order of the Ministry of Health of Ukraine "On Approval of the Procedure for Certification of Health Care Workers and Amendments to Certain Orders of the Ministry of Health of

Ukraine” provides for certification after the termination or cancellation of martial law, introduces a new model of attestation according to a single nomenclature of specialties and a common procedure for attestation of all employees, introduces a new document Certificate of Assignment/Confirmation of Professional Qualification with a validity period throughout professional activity. Certification should take place within the medical institution that issues the certificate, and takes into account complaints against the employee by the decision of the certification commission of the medical institution.

The report of the World Health Organization notes that in 2017, Ukraine implemented reforms in the management of financial support of the health care system to improve access to medical services for the population and reduce the financial burden on patients when paying for services [25]. At the same time, the 2023 report of the World Health Organization highlights the challenges that have arisen in the context of a full-scale invasion, emphasizing the importance of developing strong institutions, transparency and accountability in governance [24]. The report reveals the limited and insufficient funding of secondary and specialized medical care in Ukraine through the established mechanism for concluding contracts between medical institutions and the National Health Service of Ukraine within the framework of the Medical Guarantee Program (PMG) [24].

6. Conclusions

The development of state institutions in the field of health care and institutional mechanisms of public management has had a positive impact on the implementation of the strategy and state policy in this area, as the volume of financing of medical services at the expense of the state budget has increased significantly. Reforms in the field of health care over the past 2015-2025 were aimed at improving access and quality of medical services, developing human resources by overcoming existing problems in the training of medical personnel, their certification and professional development. Transformational changes in the activities of state institutions in the medical field have had a positive impact on the accessibility, quality of medical services, compliance with standards in the provision of services, increasing the level of responsibility of medical institutions for the results of service provision. The adoption of new legislation in the field of health care has changed the approaches, principles and methods of providing medical services and serving citizens, financing medical services. Regulatory changes made it possible to strengthen the autonomy of health care institutions and introduce an electronic health care system eHealth, for transparency of funding, e-document management, and the creation of e-services in the medical industry. At the same time, the problematic issues of public management in the field of health care remain ineffective state distribution of funding for medical services, insufficient resource provision of educational institutions for the training of medical personnel, low level of intersectoral interaction (communication and cooperation) between state institutions in this area.

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From “Failure of Politics” to the Imperative of Survival: The Conceptual Transformation of Securitization Theory in the Contemporary Era

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ABSTRACT

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Under the conditions of modern international anarchy, a state's capacity for rapid mobilization takes precedence over adherence to the procedures of “normal politics.” This research proposes a departure from the normative stigmatization of security measures and substantiates the “security state” model, wherein the priority of efficiency and sovereignty protection dissolves the traditional dichotomy between security and liberty. The relevance of this study is driven by the need to reconceptualize the phenomenon of securitization, which, under the pressure of an anarchic environment, is evolving from a temporary instrument into a permanent principle of political space organization. The article aims to analyze the transformation of securitization theory in contemporary discourse and to justify the shift in the status of security practices from “normative aberrations” (“a failure of politics”) to decisions essential for state survival (the “security state”) amidst technological change. The study is based on the methodology of qualitative conceptual analysis and critical synthesis. An interpretivist approach is applied to compare the liberal-institutional view, structural and neoclassical realism, the theory of “Just Securitization”, and the sociological approach of the Paris School. The article proves the theoretical inadequacy of the liberal approach, which viewed securitization as a “pathology,” in the context of the “relative gains” dilemma. Based on neoclassical realism, it is shown that for democracies prone to “underbalancing” and strategic inertia, securitization serves as a necessary tool for resource mobilization. The role of ontological security is analyzed, explaining states' need for stable identity narratives to preserve their agency. Special attention is paid to the “technological turn”: it is substantiated that the development of mass surveillance and the automation of warfare transform securitization into a “pragmatic act” that precedes political decisions. It is revealed that in the modern world, democracy is forced to adapt to the logic of efficiency to withstand authoritarian threats. It is concluded that the “security vs. Democracy” dichotomy is losing its relevance. The formation of a “security state” model, where the state of emergency becomes permanent, is an inevitable reaction to structural anarchy and technological challenges. Securitization today is not an elite choice but an unavoidable mechanism for preserving sovereignty and ensuring the physical survival of the political nation.

**KEYWORDS**

securitization, Copenhagen School, security, security policy, security state, international anarchy.



Від «провалу політики» до імперативу виживання: концептуальна трансформація теорії сек'юритизації в епоху сучасності

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В умовах сучасної міжнародної анархії здатність держави до швидкої мобілізації стає важливішою за дотримання процедур «нормальної політики». Дослідження пропонує відхід від нормативної стигматизації безпекових заходів та обґрунтовує модель «безпекової держави», де пріоритет ефективності та захисту суверенітету нівелює традиційну дихотомію між безпекою і свободою. Актуальність дослідження зумовлена необхідністю концептуального переосмислення феномену сек'юритизації, який під тиском анархічного середовища еволюціонує з тимчасового інструменту в постійний принцип організації політичного простору. Метою статті є аналіз трансформації теорії сек'юритизації в сучасному дискурсі та обґрунтування зміни статусу безпекових практик із категорії «нормативних відхилень» («провалу політики») у статус рішень, необхідних для виживання держави («безпекової держави») в умовах технологічних змін. Дослідження ґрунтується на методології якісного концептуального аналізу та критичного синтезу. Застосовано інтерпретативістський підхід для порівняння ліберально-інституційного погляду, структурного та неокласичного реалізму, теорії «справедливої сек'юритизації» та соціологічного підходу Паризької школи. У статті доведено теоретичну неспроможність ліберального підходу, який розглядав сек'юритизацію як «патологію», в умовах дилеми «відносних вигод». На основі неокласичного реалізму показано, що для демократій, схильних до «недобалансування» та стратегічної інертності, сек'юритизація виступає необхідним інструментом мобілізації ресурсів. Проаналізовано роль онтологічної безпеки, яка пояснює потребу держав у стабільних наративах ідентичності для збереження суб'єктності. Особливу увагу приділено «технологічному повороту»: обґрунтовано, що розвиток засобів масового нагляду та автоматизація війни перетворюють сек'юритизацію на «прагматичний акт», який випереджає політичні рішення. Виявлено, що в сучасному світі демократія змушена адаптуватися до логіки ефективності, щоб протистояти авторитарним загрозам. Зроблено висновок, що дихотомія «безпека проти демократії» втрачає релевантність. Формування моделі «безпекової держави», де режим надзвичайної ситуації стає перманентним, є неминучою реакцією на структурну анархію та технологічні виклики. Сек'юритизація нині вже не розглядається як опція вибору еліт, а є безальтернативним механізмом збереження суверенітету та фізичного виживання політичної нації.



КЛЮЧОВІ СЛОВА

сек'юритизація, Копенгагенська школа, безпека, політика безпеки, безпекова держава, міжнародна анархія.

1. Introduction

Modern international relations are undergoing a stage of radical transformation, characterized by the return of fierce power competition and the erosion of liberal mechanisms of global regulation. In the face of growing structural uncertainty and the emergence of new existential threats, traditional theoretical approaches that interpreted enhanced security measures as a deviation from the democratic norm require critical revision. The events of the Russian-Ukrainian war demonstrate that the ability to promptly mobilize resources and consolidate society around security narratives is becoming not so much a political choice as a key condition for preserving state sovereignty. Therefore, the need for a conceptual rethinking of the phenomenon of securitization, which, under the pressure of the anarchic environment and technological progress, is evolving from a temporary tool into a permanent principle of organizing the political space.

2. Literature Review

The academic debate on the phenomenon of securitization and the nature of security in modern international relations has gone through a complex path of transformation, which can be roughly divided into three conceptual stages: the dominance of the liberal-critical consensus, the renaissance of neorealism and the modern techno-sociological turn. The foundation of the modern debate was laid in the polemic between neoliberal institutionalism and classical security studies. Representatives of the liberal direction, primarily R. Keohane [14], articulated the thesis about the ability of international organizations and treaties to neutralize the uncertainty of the anarchic environment, turning security competition into cooperation. At the same time, representatives of the Copenhagen school – B. Buzan et al. [5] formulated the classical theory of securitization. In their interpretation, the transfer of the issue to the plane of security was seen as a “failure of normal politics”, an emergency measure that democratic societies should avoid. However, this normative optimism was subjected to devastating criticism from realists, who returned the unchanging nature of anarchy to the focus of the study. K. N. Waltz [24] postulated the priority of survival over well-being, pointing out the impossibility of deep integration in the self-help system. This line of argumentation was deepened by J. M. Grieco [12], who, through the concept of “relative benefits”, proved that states refuse to cooperate not because of lack of information, but because of the fear of strengthening the partner. The modern development of this paradigm is presented in the works of J. J. Mearsheimer [16; 17], who emphasizes the inevitability of power competition and characterizes the liberal world order as a temporary illusion doomed to collapse under the pressure of nationalism and realpolitik. A similar logic in the regional dimension is used by E. Götz [11], interpreting the aggression of the Russian Federation against Ukraine through the prism of structural factors of the security environment.

The second vector of the discussion shifted from external factors to internal processes of mobilization, which became the subject of analysis of neoclassical realism. R. L. Schweller [21] introduced the concept of “underbalance” into scientific circulation, explaining why fragmented democracies are often unable to respond to threats in time. His colleagues, in particular T. Christensen [6] and F. Zakaria [26], focused on the gap between the nation’s available resources and the government’s ability to mobilize them. The methodological bridge between material and ideological factors in this context is formulated by J. S. Barkin [3] through the approach of “realistic constructivism”. A separate layer of literature is devoted to the existential and ethical aspects of security. B. J. Steele [22] and J. Mitzen [18] develop a theory of ontological security, arguing that states need stable conflict narratives to preserve identity. At the same time, there is a “normative turn” in the interpretation of emergency measures: R. Floyd [8] and M. Walzer [25] substantiate the moral legitimacy of securitization in cases where it is aimed at protecting just goals in the face of a real threat. The most modern stage of the discussion is characterized by a departure from political science analysis to sociological and technophilosophical. T. Balzacq [2] proposes to consider securitization as a pragmatic tool, and not a linguistic act. D. Bigo [4] and M. Neocleous [20] focus on the role of bureaucratic networks that automate exclusion processes. This direction is also rooted in the works of J. Ellul [7] and P. Virillo [23], who consider safety as a derivative of the technological imperative of speed and efficiency.

3. Problem Statement

The article aims to conceptually reevaluate the phenomenon of securitization in modern political science discourse and substantiate the transformation of security practices from a category of “normative deviations” to an institutional imperative for state survival in the conditions of international anarchy and technological acceleration. To achieve this goal, the following tasks have been defined: (1) to analyze the theoretical failure of the liberal-institutionalist approach to the interpretation of securitization in the context of intensified structural competition and the dilemma of “relative benefits” in the international system; (2) to investigate the mechanisms of intrastate mobilization through the prism of neoclassical realism, determining the role of securitization as a tool for overcoming the strategic inertia (“underbalance”) of democratic regimes; (3) to reveal the importance of ontological security and the construction of conflict narratives for the preservation of the identity of the state and ensuring its political subjectivity; (4) to reveal the impact of the technological factor and bureaucratic practices on the changing nature of security, where securitization becomes an automated “pragmatic act” that precedes political decisions; (5) to outline the contours of the “security state” model, in which the permanent emergency regime and the priority of efficiency neutralize the traditional dichotomy between security and democratic freedoms.

4. Methods

The interpretivist approach is chosen as the methodological basis of the study, since the focus of the work is not on the measurement of quantitative indicators, but on the analysis of the construction of values, the evolution of concepts and the interaction of ideas in the scientific field of security research. This approach allows us to reveal profound changes in the understanding of security, which cannot be recorded by purely statistical methods. The key tool is qualitative conceptual analysis aimed at deconstructing and comparing the main theoretical narratives: from the liberal-institutional approach to neoclassical realism and critical security theories (Copenhagen and Paris schools). The method of critical synthesis of the available academic literature is also applied. This made it possible to combine disparate theoretical frameworks – the philosophy of technology (J. Ellul, P. Virillo), the sociology of security (D. Bigo, M. Neocleous) and the theory of international relations (J. J. Mearsheimer, R. L. Schweller) – to form a holistic model of the “security state” in the face of modern challenges. The empirical background for the verification of theoretical provisions is structural shifts in the system of international security caused by the growth of conventional threats.

5. Results and Discussion

The end of the XX century was marked by the undeniable triumph of liberal institutionalism in academic thought. This paradigm, which was once canonized by R. Keohane, was based on an optimistic hypothesis: international anarchy is a phenomenon that can be overcome through certain means of interaction and the formation of interdependence between states. It was believed that an extensive network of regimes and institutions was able to mitigate the harsh realities of the absence of a world government, reduce transaction costs and, most importantly, encourage states to cooperate for the sake of absolute benefit [14, pp. 89–90]. In such an intellectual atmosphere, any attempt at securitization – that is, transferring the problem from the plane of public debate to the “emergency” mode, the transition from the logic of economic cooperation to the logic of confrontation – was perceived as a deviation from the norm. Representatives of the Copenhagen School (in particular, B. Buzan and O. Wæver) directly called this a “failure of policy”, insisting on the need for “de-securitization” and a return to liberal procedures [5, p. 29]. In the optics of the classics of the Copenhagen School, it was liberal governance that remained the norm against which securitization formed a certain threat, legitimizing violations of the rules for the sake of security.

At the same time, the loss of stability in international relations, the deployment of a new stage of the arms race and the leveling of the effectiveness of international organizations and treaties have significantly hit optimistic theories, where interaction outweighs anarchy. J. J. Mearsheimer in his programmatic text about the collapse of the liberal order, noted: an attempt to impose a grid of universal rules on the world, while ignoring nationalism and the balance of power, was doomed from the very beginning [17, p. 9]. We are seeing a renaissance of fierce competition in interstate relations,

characterized by an increase in risks and threats to all global players, without exaggeration. As E. Goetz demonstrates on the example of the Russian-Ukrainian war, the actions of states are often dictated not by the ideology of the leader, but by the structural fear of the security environment, which no diplomacy is able to dispel [11, p. 303]. At the same time, the key weakness of liberal optics remains skepticism about anarchy in international relations, and, as a result, underestimation of crisis phenomena. If for the supporters of R. Keohane this is only a technical problem of uncertainty of intentions, which is solved by the exchange of information [14, p. 93], then for structural realists' anarchy is a constant, background threat bordering on the physical destruction or strategic defeat of the state. A kind of theoretical response to the positions of liberal institutionalists on the part of neorealists was the dilemma of "relative benefits", which was described by J. M. Grieco. According to J. M. Grieco, states behave not as rational actors, but as paranoid "defensive positionists". Thus, states, as a rule, will refuse even profitable agreements if the partner, which may be of the nature of a threat, wins more than them. The reason for this is, first of all, the idea that today's profit of the partner will turn into his rockets tomorrow [12, p. 498]. E. Goetz's study on Moscow's policy, carried out in the same vein, proves that aggression against Ukraine is dictated not by the simple political will of the leadership of the Russian Federation, but by the fear of changing the balance of power on the borders [11, p. 303]. Thus, ignoring security risks and underestimating the autonomy of the security factor can lead to serious negative consequences bordering on threats of loss of sovereignty. Replacing the security component with an economic one, *de facto*, cannot work as an effective means, especially given the strengthening of the conflict component of international relations. In the context of this situation, K. N. Waltz put forward an important neorealist thesis: in an anarchist world, "the gain in security weighs more than the welfare" [24, p. 126]. Choosing an economic priority with a significant security risk is thus a serious threat to sovereignty. Thus, the economy is not able to replace or remove from the agenda the security competition between states. J. J. Mearsheimer took his realistic concept even further, arguing that great powers always, at every opportunity, seek hegemony. At the same time, according to J. J. Mearsheimer, international institutions are a kind of "shadow" cast by the strength of the strongest [16, p. 52]. In unison with the works of J. J. Mearsheimer, S. Krasner [15] and R. Gilpin [10] note that the economy always stands on the shoulders of strength. Thus, securitization for these authors is not just an option; to some extent, it is the only available option related to survival as such.

Structural realism explains the sources of security threats, while neoclassical realism explains the reasons for the inert response to them on the part of modern democratic states. R. L. Schweller introduced the term "underbalancing". This is a dangerous state when the elites are split and society is passive. Instead of being "lions", states turn into "lambs" that hope that the predator will not touch them [21, pp. 6, 11]. It is in this context that securitization becomes an extremely important tool for managing political processes. T. Christensen shows that political leaders often have to use the strategy of "useful enemies". This is the only way to prove to an inert voter the need to spend money on defense [6, p. 17]. At the same time, the idea of defense is not necessarily an artificial challenge or a derivative of imaginary threats, which is important in the context of securitization policy. F. Zakaria makes an important distinction between the mere wealth of the nation and the real state power – that is, the ability of the government to mobilize these resources [26, p. 35]. Without securitization mechanisms, the state remains "weak", even if it relies on large resources. It is necessary to take into account the thesis of A. Gat, according to which war is a historical constant, while pacifism creates a strategic vulnerability, reducing the mobilization potential of society in the face of the threat of evolutionarily more aggressive regimes [9]. The "normative turn" in security studies firmly denies the idea of the "immorality" of security measures *per se*. M. Walzer formulated the concept of the "supreme emergency", according to which in the event of a serious threat to the very existence of the community, the state not only has the right, but it is obliged to act contrary to the rules of peacetime [25, p. 253]. Developing this idea, R. Floyd proposes the theory of "just securitization". Unlike the Copenhagen School, which interprets securitization as an *a priori* negative phenomenon, the researcher argues that the introduction of emergency measures can be morally justified and even necessary if it meets the criteria of a "just war". According to her approach, the legitimacy of securitization is determined not by the approval of the audience, but by the presence of an objective existential threat, the purity of the actor's intentions and compliance with the principle of proportionality, when the expected benefit from the protection of the reference object outweighs the harm from the restriction of rights and freedoms [8, p. 14]. Being in a similar position, the bioethicist J. Herington points out that a government that does not securitize mortal danger (such as an epidemic or military invasion) is committing an ethical failure. J. Herington considers

security not just as one of many political values, but as a “primary good”, which is a fundamental prerequisite for the implementation of any life plans and autonomy of the individual [13]. Since, without physical survival and basic stability, the enjoyment of other rights becomes impossible, the state has an unconditional moral obligation to protect citizens from existential threats. Therefore, the government’s refusal to apply emergency measures (securitization) in the event of a mortal danger, such as an epidemic or invasion, qualifies not as democratic restraint, but as a profound “ethical failure” and violation of the social contract.

Traditional realism, focusing on military capabilities, de facto loses sight of the fact that the state is not only a physical object (territory plus population), but also a social construct that has its own “I”. The need to protect state identity along with territorial boundaries legitimizes an appeal to the concept of ontological security, thanks to which securitization appears not only as a defense mechanism, but also as a way to meet the needs of the state organism for self-preservation. One of the classics of the ontological approach to security, B. J. Steele proposes considering the state as a subject that seeks to maintain the integrity of its “biographical narrative”. The implementation of a holistic foreign policy requires a clear self-identification of the state actor, since the state of uncertainty provokes ontological anxiety, which, due to its objectless nature, leads to strategic paralysis. Under such conditions, securitization performs a compensatory function, transforming diffuse anxiety into a rationalized fear of a specific adversary, which allows the restoration of institutional capacity. As B. J. Steele notes, states often choose a dangerous but understandable conflict routine to avoid the horror of uncertainty [22, p. 51]. J. Mitzen develops this idea by introducing a paradoxical thesis: states can be attached to conflict, because the conflict gives stability to identity, it allows you to structure the political space. A textbook example is the Cold War, which, despite the nuclear threat, was characterized by a high level of ontological security due to the establishment of clear identities: the United States as the “defenders of the free world” and the USSR as the “vanguard of socialism”. The disappearance of the enemy often leads to an identity crisis and the erosion of the structure of the political process. J. Mitzen argues that knowing who your enemy is and building your life around confrontation with him is a way to achieve cognitive stability [18, p. 342]. At the same time, the classic of agonistic democracy C. Mouffe, following the Schmittian academic tradition, makes a fundamental distinction between “politics” as a set of institutional practices and “political” as an ontological dimension of antagonism, which is an integral part of human societies. She argues that attempts by liberal thought to ignore this dimension are erroneous, since any collective identity (“We”) can exist only through the definition of the opposite (“They”), which makes conflict potentially present in any social relations [19, p. 9]. Thus, the securitization of another state or ideology often arises precisely to fill the identity vacuum. The ontological security approach to the phenomenon of securitization also has a certain potential for development in relation to the events of the Russian-Ukrainian war, which is worthy of a separate study. For the newly formed states and countries of the Global South, this process becomes especially acute, because securitization becomes a tool for the formation of a nation. M. Ayoob in his theory of subaltern realism points out that Western democracies went through their bloody path of state-building centuries ago. For modern developing states, internal divisions and weakness of institutions are the norm. In such conditions, liberal approaches with attempts to avoid conflicts can become a death sentence for fragile statehood. M. Ayoob states: *“Internal conflict is not an anomaly (deviation), but an integral part of the process of state formation... Violence is part of the process of accumulation of power and consolidation of the state”* [1, p. 32]. The state must first form a political nation, often forcibly stitching together disparate regions with a single security narrative, and only as a result of this does it become possible to build effective governance and democracy. At the same time, the classics of the Copenhagen School (O. Wæver and B. Buzan) made an important distinction between state security (as countering threats to sovereignty) and social security (as countering threats to identity). They recognize that if a society loses identical markers under the pressure of globalization or migration, it actually ceases to exist, even if formal borders and institutions of statehood are preserved [5, p. 119]. This legitimizes the securitization of the humanitarian sphere. The protection of language or cultural space by methods of national security becomes a condition for the survival of the “Collective We”. Without this defense mechanism, society can disintegrate, turning into an amorphous conglomerate without a common political will, and the nation/society/state, as it copes with new challenges, loses the features of a political subject.

If the approaches of the XX century quite often described securitization as the result of a conscious choice of political elites (either under the pressure of the anarchy of international relations, or for the sake of mobilizing the nation), then a more focused view on the realities of the twenty-first century

makes it necessary to emphasize the fact that securitization ceases to be a “choice”. It turns into an autonomous, self-sustaining logic dictated by the development of technology. Thus, the structure of development and the social consequences of the introduction of modern technical means make the construction of a “security state” practically uncontested. One of the representatives of the Paris School of Securitization, T. Balzacq, made a significant clarification for the theory, proposing to move away from the linguistic focus of the classical Copenhagen School. Although the classics of the theory of securitization believed that security is created through the act of speech, T. Balzacq argues that security is created instrumentally. He considers securitization as a “pragmatic act” [2, p. 3]. In the modern world, the presence of a tool often precedes a threat, which determines the use of the tool outside the position of threat. The availability of biometric identification and big data processing tools at the disposal of the authorities creates prerequisites for their use, which is due to institutional inertia, and not only the response to new security challenges. The establishment of comprehensive monitoring systems actually translates interaction with the population into the plane of preventive securitization.

The process of preventive securitization with the help of technical means receives a philosophical justification in the works of the philosopher J. Ellul. In his monumental study *The Technological Society*, he introduces the concept of “Technology” not as a set of machines, but as a totalitarian logic of absolute efficiency. The equipment is autonomous; She does not obey morality or politics; she subordinates them to herself. According to J. Ellul, only the one who chooses the most effective means survives in a competitive system: “technology does not tolerate judgments about morality; it recognizes only judgments about efficiency” [7, p. 97]. In the security dimension, liberal democracies that limit the activities of intelligence services to ethical dogmas and the protection of privacy demonstrate less technological efficiency in organizing security compared to authoritarian regimes that use digital tools unlimitedly. In order to maintain strategic parity, democratic systems are forced to switch to a “technical” mode of functioning, actually implementing elements of authoritarian security models. At the practical level, as D. Bigo demonstrates, this leads to a change in the very nature of management. The state is moving from a panopticon (supervision of criminals) to a “ban-opticon” – the preventive exclusion of risk groups based on algorithms. D. Bigo shows that securitization is no longer the result of purely verbal influence on the development of political decisions. This is the result of the routine daily work of “threat management professionals” – bureaucrats, police officers, data analysts. In these conditions, they constantly produce new threat scenarios to justify the existence of their institutions, the expansion of budgets and the use of new technological tools. Securitization occurs “from below”, through the microphysics of power. D. Bigo notes: “*Securitization is not an exception, but the result of the constant activity of a network of professionals... who compete for a monopoly on determining what is threatening*” [4, p. 74]. The state turns into a machine that cannot help but look for enemies, but the bureaucracy always has a certain tendency to self-justify its need. In this context, the academic positions of P. Virillo with his concept of “dromology” (the science of speed) are also important. Modern war and security, according to P. Virillo, are primarily questions of speed. Hypersonic missiles, cyberattacks, automated drones reduce decision-making time from days to milliseconds. Democracy, by its nature, requires time: for debates, for voting, for agreeing on positions. P. Virillo emphasizes the fact that technological speed kills political time, because in the face of instant threats, decisions are transferred from a slow parliament to a fast executive branch, and from it to automated AI systems. In his work *Speed and Politics*, he states: “*speed destroys the democratic space, turning the citizen into a passive observer*” [23, pp. 30–31]. At the same time, P. Virillo directly emphasizes that speed is the essence of war, making it one of the key leitmotifs of his work. In the conditions of “increasing speed”, the capacity to wage war, self-defense and collective defense increases, but individualistic values are significantly leveled and the democratic space is destroyed. Thus, the ability to maintain a “normal state of affairs” with the dominance of democratic control over security is reduced due to objective technological factors that have a direct impact on the political system. Even those political actors who aim to “de-securitize” politics for ethical reasons remain not very capable of realizing this task, because technological reality and increasing competition make it impossible. The choice in favor of permanent, automated securitization began to look quite rational for political actors, because the alternative in the moment of threat is not freedom, but instant destruction by a faster and more effective enemy.

6. Conclusions

The analysis of the academic discussion on security threats to democracy carried out in the article allows us to assert that the critical approach dominant in Western academic thought, which considers securitization as a “pathology” of democracy, is theoretically untenable in the conditions of the modern security environment. Securitization is the process of mobilizing resources and establishing emergency management regimes in the face of growing risk, ceases to be a choice and becomes an imperative of survival. This undermines the dichotomy of “security vs democracy” inherent in the liberal political space, because the choice is automatically made in favor of the former, albeit with a delay.

There was a clash of several key factors in time (international anarchy, technological development and the specifics of political mobilization), leading to the inevitable construction of a “security state” as a reference model for the political elites of our time. As J. M. Grieco [12], K. N. Waltz [24], and J. J. Mearsheimer [16; 17] have argued, the anarchic nature of the international system and the dilemma of “relative benefits” make institutional cooperation fragile. In conditions where economic interdependence becomes vulnerable, securitization remains the only rational mechanism for preserving sovereignty. The analysis of neoclassical realists (R. L. Schweller [21], F. Zakaria [26], T. J. Christensen [6]) at the same time revealed the tendency of democracies to “underbalance” and strategic lethargy, the lack of a proper response to security threats at the time of their deployment, and the problems associated with the choice of course in the foreign policy confrontation. Securitization acts as a necessary tool for overcoming social entropy, allowing governments to transform potential risk into real state power and expand their response capacities. The philosophy of technology (J. Ellul [7], P. Virillo [23]) and the sociology of security (D. Bigo [4], T. Balzacq [2], M. Neocleous [20]) also indicate that the evolution of means of control and the speed of warfare makes liberal decision-making procedures obsolete. The state automatically evolves into a “safety machine” under the pressure of the efficiency imperative.

Thus, we observe a significant change that determines the further development of political systems in the world: securitization is transformed from a temporary measure (“an extraordinary means”) to a permanent principle of organizing political space. In the XXI century, the state’s ability to rapid, total, and legitimate securitization becomes the main criterion for its viability, ability to defend, and even a necessary component of attempts to avoid armed conflicts in the future.

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Institutional Mechanisms of Political Interaction between the European Union and Latin America in the Context of the Transformation of the Global Order

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ABSTRACT

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Ongoing changes in the global order and the growing competition among major international actors have significantly affected the ways in which supranational entities shape and implement their external policies. In this environment, the European Union has increasingly relied on institutional and political instruments to strengthen its engagement with strategically important regions, including Latin America. Global Gateway initiative reflects this shift by bringing together political priorities, investment instruments, and infrastructure cooperation within a single framework of external partnership. The purpose of this article is to examine the institutional mechanisms that underpin political interaction between the European Union and Latin America, with particular attention to the role of Global Gateway in contemporary international relations. The study focuses on how EU external policy towards the region is formulated and coordinated through the interaction of key supranational institutions. The analysis highlights the role of the European Council and the Council of the European Union in defining strategic orientations, the coordinating function of the European External Action Service, and the practical involvement of the European Commission in implementing partnership initiatives, notably through the NDICI – Global Europe instrument. Attention is also given to the role of the European Parliament in providing political oversight and democratic legitimacy to the EU's external engagement. The article argues that Global Gateway should be viewed not merely as an investment or connectivity initiative, but as part of a broader transformation of the European Union's external policy model. Its implementation contributes to deeper political interaction with Latin American countries by combining the EU's normative foundations with pragmatic instruments of international influence and by creating institutional conditions for long-term strategic partnership.

**KEYWORDS**

European Union; Global Gateway; Latin America; EU foreign policy; institutional mechanisms; interregional interaction; international relations.



Інституційні механізми політичної взаємодії Європейського Союзу з Латинською Америкою в умовах трансформації глобального порядку

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Трансформація глобального порядку та посилення конкуренції між провідними міжнародними акторами зумовлюють перегляд підходів до формування та реалізації зовнішньої політики наднаціональних утворень. У цих умовах Європейський Союз послідовно розширює інституційні та політичні механізми взаємодії з регіонами, що мають стратегічне значення для його глобальної присутності, зокрема з країнами Латинської Америки. Запровадження ініціативи Global Gateway стало відображенням цього процесу, оскільки вона поєднала інвестиційні, інфраструктурні та політичні інструменти в єдину рамку зовнішнього партнерства ЄС. Метою статті є аналіз інституційних механізмів політичної взаємодії Європейського Союзу з Латинською Америкою з акцентом на місце та функціональну роль ініціативи Global Gateway у сучасній системі міжнародних відносин. У роботі розглянуто особливості формування політики ЄС щодо регіону, а також механізми координації між ключовими наднаціональними інституціями, задіяними у її реалізації. У результаті дослідження проаналізовано роль Європейської Ради та Ради Європейського Союзу у визначенні стратегічних орієнтирів політики, координаційну функцію Європейської служби зовнішніх дій, а також практичну участь Європейської Комісії у впровадженні програм і проєктів у межах Global Gateway, зокрема через механізм NDICI – Global Europe. Окрему увагу приділено значенню парламентського контролю та політичної легітимації зовнішньої діяльності ЄС з боку Європейського парламенту. Зроблено висновок, що Global Gateway слід розглядати не лише як інструмент інфраструктурного або інвестиційного характеру, а як складову трансформації зовнішньополітичної моделі Європейського Союзу. Її реалізація сприяє поглибленню політичної взаємодії з країнами Латинської Америки, поєднуючи нормативні засади ЄС із прагматичними механізмами міжнародного впливу та формуючи інституційні передумови для розвитку довгострокового стратегічного партнерства.



КЛЮЧОВІ СЛОВА

Європейський Союз; Global Gateway; Латинська Америка; зовнішня політика ЄС; інституційні механізми; міжрегіональна взаємодія; міжнародні відносини.

1. Introduction

Global political processes of the early twenty-first century increasingly clearly testify to the change in established models of international interaction. The strengthening of multipolar trends, the growth of competition between states and supranational entities, as well as the fragmentation of global governance mechanisms, are creating a new environment in which international actors are forced to adapt their own foreign policy strategies. Under these conditions, the European Union is gradually rethinking its approaches to its external presence, giving greater importance to institutional forms of political interaction with regions outside Europe, among which Latin America occupies a special place.

Political interaction between the European Union and Latin American countries is multi-level and institutionally complex. It is formed within the framework of the EU's Common Foreign and Security Policy, complemented by the activities of specialized supranational institutions and implemented through an extensive system of interregional and bilateral mechanisms. In this context, the ability of the European Union to combine a value-based approach with pragmatic interests, adapting public policy instruments to the conditions of growing competition from other global actors, is of particular importance.

The emergence of the Global Gateway initiative was a tangible shift in the European Union's approaches to the implementation of foreign policy and international partnerships. Unlike previous cooperation programs, this initiative combines political priorities with investment and institutional instruments focused on infrastructure development, supporting the green and digital transitions, and strengthening the EU's strategic autonomy. In relations with Latin American countries, Global Gateway is seen as an opportunity not only to intensify investment interaction but also to rethink the format of interregional cooperation in a broader political context.

The relevance of the study of institutional mechanisms of political interaction between the European Union and Latin America is aggravated by the complexity of internal political processes in the region and the uneven socio-economic development of individual countries. Such circumstances complicate the practical implementation of value-based approaches to EU foreign policy and, at the same time, require a more flexible use of institutional and political instruments. In this regard, the analysis of not only the formal framework of cooperation, but also the specific mechanisms through which the European Union implements its strategic initiatives in the regional dimension is of particular importance.

2. Literature Review

The study of the political interaction of the European Union with Latin American countries has traditionally been developed within the framework of a broader scientific discourse devoted to EU foreign policy, interregional relations and mechanisms of multi-level governance. In modern scientific works, the European Union is considered not only as an economic integration project, but as a complex foreign policy actor capable of combining normative influence with practical management tools on a global scale [1; 12].

An important place in literature is occupied by the concept of external governance of the EU, within the framework of which institutional mechanisms for the dissemination of political norms and management practices outside the Union are analyzed. Studies by S. Lavenex and F. Schimmelfennig [14], as well as by T. Börzel and T. Risse [1] focus on the multi-layered nature of EU foreign policy, where supranational institutions, Member States and partners from third countries interact. This approach is methodologically important for the analysis of EU policy towards Latin America, as it allows taking into account the institutional complexity of decision-making and implementation processes.

A separate area of research is devoted to the institutional coordination of the external action of the European Union. T. Karjalainen [13] emphasizes that the effectiveness of EU foreign policy depends to a large extent on the coherence between different levels of government and the ability of institutions to ensure political coherence. In this context, the European External Action Service plays a special role as a coordinator between strategic decisions and their practical implementation, which is repeatedly emphasized in modern analytical studies [7; 9].

The issues of transformation of the EU's foreign economic and infrastructure policy are reflected in the works dedicated to Global Gateway initiative. M. Furness and N. Keijzer [10] see this initiative as an attempt to reconcile development policy with the EU's geostrategic interests, while S. Tagliapietra [17] focuses on its importance for the renewal of the Union's external economic governance. In the study

by J. Bossuyt and A. Sabourin [2], Global Gateway is analyzed through the prism of institutional coordination and interaction with partners, which is particularly relevant for the interregional dimension of cooperation with Latin America.

A significant contribution to the formation of the analytical base of the study is made by official documents and reports of the institutions of the European Union. The European Commission's communications on Global Gateway [3; 5], the materials of the European External Action Service [7], the conclusions of the European Council [6] and the resolutions of the European Parliament [8] make it possible to trace the evolution of the EU's political priorities in relations with Latin America and to understand the institutional framework for the implementation of this initiative.

Analytical studies by leading European and international centers, in particular EPRS [9] and Bruegel [11], complement the academic literature with assessments of the geopolitical and managerial dimension of the Global Gateway. They draw attention to the growing role of this initiative in shaping the EU's long-term partnerships with regions of the Global South, including Latin America. Additional regional context is provided by OECD [15] and UN ECLAC [18], which allows considering the socio-economic specifics of the countries of the region.

Thus, the analysis of scientific publications, official documents and analytical reports indicates the presence of a solid theoretical basis for studying the foreign policy of the European Union, at the same time, reveals the need for an in-depth study of the institutional mechanisms for the implementation of the Global Gateway initiative in the context of the EU's political interaction with Latin America. This makes it expedient to further analyze the role of key EU institutions in the formation and implementation of this initiative in the context of the transformation of the global order.

3. Problem Statement

Modern changes in the configuration of international relations associated with the intensification of global competition and the transformation of the world order necessitate a rethinking of the instruments of the European Union's foreign policy. Under these conditions, the EU's political interaction with Latin American countries acquires new importance, as it goes beyond the traditional diplomatic dialogue and increasingly relies on complex institutional and governance mechanisms. This issue is of relevance in connection with the introduction of Global Gateway initiative, which is positioned as a key instrument of the EU's foreign public policy in strategically important regions of the world.

Despite the availability of scientific works on the foreign policy of the European Union and the development of interregional cooperation formats, the institutional dimension of the EU's political interaction with Latin America remains fragmentarily highlighted. Most studies focus either on the regulatory framework of the European Union's activities or on the economic and trade aspects of cooperation, while the issues of coordination of supranational institutions in the process of implementing new strategic initiatives are considered indirectly.

In this context, Global Gateway initiative needs a separate scientific understanding not only as an investment or infrastructure program, but as a tool reflecting the change in the European Union's approaches to foreign policy interaction. The analysis of its institutional content allows us to trace how the EU's strategic priorities are transformed into specific political and programmatic decisions in relations with Latin American countries.

An additional factor of relevance of the study is the heterogeneity of political and socio-economic processes in Latin America, which complicates the application of universal approaches in the foreign policy of the European Union. Internal crises and asymmetries in the development of individual states in the region require the EU to have more flexible institutional mechanisms capable of combining value guidelines with pragmatic interests in interregional interaction.

In this regard, the article is aimed at a comprehensive analysis of the institutional mechanisms of political interaction between the European Union and Latin America in the context of the transformation of the global order, with a special emphasis on Global Gateway initiative as an instrument of foreign policy and interregional interaction of the European Union. Achieving this goal involves determining the place of Global Gateway in the EU foreign policy system, analyzing its institutional support, as well as assessing the role of this initiative in the formation of a modern model of interregional political interaction.

4. Methods and Materials

The methodological basis of the study is an integrated approach to the analysis of institutional mechanisms of political interaction between the European Union and Latin American countries, which combines elements of institutional, structural-functional and comparative analysis. This approach allows us to reveal the peculiarities of the formation and implementation of the EU's foreign policy within the framework of a multi-level system of public administration, as well as to assess the role of new strategic initiatives in the transformation of interregional cooperation.

Within the framework of the institutional analysis, the structure and functional role of the key supranational bodies of the European Union involved in the formation of policy towards Latin American countries, in particular the European Council, the Council of the European Union, the European Commission and the European External Action Service, are considered. The analysis focuses on the practical aspects of the interaction of these institutions in the process of developing and implementing policy decisions related to the implementation of Global Gateway initiative. This approach made it possible to trace how the EU's strategic priorities and institutional mechanisms for their implementation are coordinated within the framework of interregional political interaction [13; 17].

The structural-functional approach in the study is used to analyze the relationship between the strategic guidelines of the European Union and the tools for their practical implementation in foreign policy. In this context, the subject of the analysis was the program and strategic documents of the European Commission and the European External Action Service, which determine the framework and directions for the implementation of Global Gateway initiative in relations with Latin American countries [3; 7; 14]. This made it possible to outline the logic of transition from all-Union political goals to specific managerial decisions within the framework of interregional cooperation.

The comparative analysis was used to compare the established approaches of the European Union to political interaction with partner regions and the new mechanisms formed within the framework of Global Gateway initiative. This approach made it possible to identify changes in the EU's foreign policy practice, particularly a gradual transition from a predominantly normative influence to a more comprehensive model combining political, economic and geostrategic components of cooperation [10; 13].

The empirical basis of the study was formed by the official strategic and program documents of the European Union, particularly the communications of the European Commission, the materials of the European External Action Service, as well as scientific publications and analytical reports of European research centers devoted to the problems of interregional interaction and foreign policy of the EU. Special attention is paid to works that analyze the institutional and managerial aspects of the implementation of Global Gateway in global and regional dimensions [2; 9; 11].

The combination of institutional, structural-functional and comparative approaches creates methodological prerequisites for a holistic analysis of the institutional architecture of the political interaction of the European Union with Latin America. The applied methodology allows us to reveal the specifics of the functioning of the EU's foreign policy mechanisms in the context of the transformation of the global order and to assess the place of Global Gateway initiative in the modern system of interregional relations.

5. Results and Discussion

The European Union's policy towards Latin America is formed within the framework of an institutionally branched system, which combines elements of strategic prioritization, intergovernmental interaction and supranational governance. This system is characterized by a clear differentiation of decision-making levels, when common political guidelines are set at the highest level, and their implementation is carried out through specialized institutions and instruments of EU foreign policy. The launch of Global Gateway initiative had a significant impact on the functioning of this model, as it contributed to the inclusion of investment and infrastructure solutions in the broader context of external public administration of the European Union [10; 16; 17].

The definition of the strategic foundations of the EU's policy towards Latin America takes place primarily at the level of the European Council, which forms political guidelines in accordance with the long-term interests of the Union in the field of global presence and interregional partnership. It is within this institutional level that Global Gateway is consolidated as a component of the EU's overall foreign

policy strategy, which gives the initiative political weight and determines the directions of its further implementation [6; 10].

Further specification of strategic decisions is carried out through the mechanisms of the Council of the European Union, with the participation of specialized formats and working groups responsible for the Latin American direction. In this process, the positions of the Member States are coordinated, joint approaches are developed, and practical steps of cooperation are coordinated. Within the framework of the implementation of the Global Gateway, such mechanisms play an important role in combining supranational goals with the national interests of the Member States, which makes it possible to form a coordinated political line of the EU in relations with Latin American countries [13; 17].

Ensuring coherence between political decisions and their practical implementation at the regional level is entrusted to the European External Action Service, which performs a coordination function in the system of foreign policy of the European Union. In relations with Latin American countries, the EDIS combines diplomatic instruments, political dialogue and management of interregional cooperation formats, contributing to the implementation of EU strategic initiatives, in particular the Global Gateway, in specific policy and program decisions [7; 14].

The introduction of Global Gateway has significantly expanded the coordination functions of the European External Action Service, as this initiative requires synchronization of actions between the European Commission, Member States, financial institutions and regional partners. It is the EDIS that ensures the political coordination of investment and program decisions with the general foreign policy priorities of the EU, adapting them to the specifics of the Latin American region and the peculiarities of the interregional dialogue [7; 13].

Through the network of European Union delegations in Latin America, the European External Action Service constantly monitors political processes, coordinates the implementation of joint initiatives and maintains dialogue with regional organizations. Within the framework of the Global Gateway, this activity is aimed not only at technical support of projects, but also at ensuring their compliance with the EU's strategic goals in the field of sustainable development, energy transition and digital transformation. Thus, the EDIS plays the role of an institutional "translator" between political decisions at the EU level and practical tools for their implementation in partner countries [9; 14; 16].

An important feature of the participation of the European External Action Service in the implementation of Global Gateway initiative is the involvement of this institution in multi-level coordination mechanisms, within the framework of the Team Europe approach. Within this format, the EDIS ensures the coordination of actions of supranational institutions and Member States, which makes it possible to combine the political priorities of the European Union with national initiatives in the field of foreign policy. For the Latin American direction, this is of fundamental importance, as it helps to reduce the fragmentation of approaches and increase the coherence of the implementation of Global Gateway projects in the region [2; 9].

In the context of the European Union's relations with Latin American countries, the European External Action Service acts as an institutional intermediary between strategic decisions taken at the political level and practical mechanisms for their implementation. Its activities include coordination of political dialogue, interaction with regional partners and ensuring that investment and policy decisions are in line with the EU's overall foreign policy objectives. Thus, the EDIS forms an institutional coherence between the strategic objectives of the European Union and the external public administration tools used within the framework of Global Gateway initiative.

In view of this, the place of the European External Action Service in Global Gateway implementation system should be considered as a central coordination element of the institutional architecture of the EU's policy towards Latin America. Generalized characteristics of the role and functions of the key institutions of the European Union within the framework of this initiative are presented in Table 1, which allows systematizing their contribution to the formation and implementation of interregional political interaction.

The European Commission plays a key role in transitioning strategic political decisions of the European Union into their practical implementation in relations with Latin American countries, concentrating financial and program instruments of foreign policy in its activities. Within the framework of Global Gateway initiative, it is the Commission that is responsible for transforming common foreign policy guidelines into specific cooperation programs, investment projects and tools to support sustainable development in the region [3; 4; 17].

Table 1. Institutional mechanisms for the formation and implementation of EU policy towards Latin America within the framework of Global Gateway initiative

EU institution	Key function in policymaking	Management tools	Contact Global Gateway Initiative
European Council	Determination of strategic guidelines of the EU's foreign policy and priorities of interregional cooperation	Conclusions of the European Council, strategic declarations	Consolidating Global Gateway as an element of the EU's global strategy and an instrument of strategic autonomy
Council of the European Union	Coordination of Member States' Positions and Political Decision-Making	EU Council decisions, working groups (including COLAT), political consultations	Ensuring a coherent approach of Member States to the implementation of Global Gateway projects
European External Action Service (EEAS)	Coordination of foreign policy activities and political dialogue with partner regions	Diplomatic missions, political dialogue, and interregional platforms	Institutional coordination of the implementation of Global Gateway in relations with Latin America
European Commission	Implementation of cooperation programs and financial support of foreign policy	NDICI – Global Europe, Investment and Software Tools	Financing and practical implementation of infrastructural, digital and green projects of Global Gateway
European Parliament	Political legitimization and democratic control of EU foreign policy	Resolutions, parliamentary hearings, inter-parliamentary assemblies (EuroLat)	Regulatory support and political support for Global Gateway's strategic priorities

Source: Compiled by the author based on [2; 9; 13; 14; 16; 17].

The key instrument of the European Commission in this process is the NDICI – Global Europe program mechanism, which provides funding for the EU's external activities in the period 2021-2027. The use of this tool within Global Gateway allows integrating infrastructure, digital and environmental projects into a broader system of external public administration aimed at strengthening the EU's strategic presence in Latin America [4; 13].

A feature of the European Commission's participation in the implementation of Global Gateway is the combination of financial instruments with policy and regulatory approaches. This approach enables not only supporting individual projects but also creating stable preconditions for deepening the economic and institutional interaction between the European Union and Latin American countries. In this sense, Global Gateway initiative is integrated into the broader management system of the EU's external partnerships, within which financial instruments, political dialogue and regulatory standards function in an interconnected format [8; 9].

The European Commission's participation in the implementation of Global Gateway also has an impact on strengthening coordination between the supranational and national levels of EU foreign policy, within the framework of the Team Europe approach. This creates conditions for harmonizing the investment initiatives of the Member States with the all-Union strategic priorities and contributes to a more rational use of financial resources in cooperation with Latin American countries [2; 8].

As a result, the activities of the European Commission provide practical content for Global Gateway initiative and consolidate it as an instrument of external public administration of the European Union. The combination of the Commission's program and financial mechanisms with the coordinating role of the European External Action Service forms the institutional basis of the modern model of interregional political interaction between the EU and Latin American countries.

In this context, the European Parliament acts as an important element in ensuring the democratic legitimacy of the European Union's foreign policy, exercising political oversight over the activities of supranational institutions and compliance with the values declared in the EU strategic documents.

In the context of the implementation of Global Gateway initiative, the role of the European Parliament is not to directly manage projects, but to provide political oversight, regulatory support and the formation of public discourse on the strategic directions of the EU's external action [8; 9].

Through the adoption of resolutions, parliamentary hearings and debates, the European Parliament determines the framework of political acceptability of EU external initiatives, including those implemented within the Global Gateway. These tools allow the parliament to influence the content and priorities of foreign policy, paying attention to the issues of respect for human rights, sustainable development, transparency of financing and compliance of investment projects with the strategic goals of the Union [2; 8].

The parliamentary dimension of the European Union's foreign policy acquires special importance in interaction with Latin American countries, taking into account the political heterogeneity of the region and the presence of internal crisis processes that complicate the implementation of a common value approach. Under such conditions, the European Parliament performs the function of institutional deterrence and coordination, combining the normative principles of EU activities with the practical needs of foreign policy interaction. It is within the framework of parliamentary control that a public assessment of the feasibility and effectiveness of the European Union's participation in regional initiatives, including infrastructure and financial projects implemented within the framework of the Global Gateway, is formed [8; 14].

One of the key channels of influence of the European Parliament on the development of interregional political dialogue is its involvement in inter-parliamentary formats of cooperation, in particular within the framework of the Euro-Latin Parliamentary Assembly (EuroLat). The functioning of this platform contributes to the consolidation of regular political communication between the European Union and Latin American countries, as well as creates conditions for discussing issues of democratic development, social cohesion, climate policy and digital transformations in the interregional dimension. In combination with the implementation of Global Gateway, such mechanisms strengthen the political component of interregional cooperation, complementing investment and program instruments with elements of democratic control [2; 9].

Political legitimation on the part of the European Parliament is also manifested in the process of budgetary control, since it is the Parliament that participates in the approval of the financial framework for the EU's external action, in particular, the programs implemented through NDICI – Global Europe. This provides the Parliament with the opportunity to indirectly influence the scope and direction of funding for Global Gateway projects, ensuring that they are in line with the strategic and regulatory priorities of the European Union [4; 8].

In this context, the European Parliament's activities are crucial to ensure democratic legitimacy and political oversight of the implementation of Global Gateway initiative. Parliamentary oversight complements the executive and coordination functions of other institutions of the European Union, in particular the European Commission and the European External Action Service, creating a balance between the effectiveness of external governance and compliance with the normative and value principles of EU policy in relations with Latin American countries.

The overall results of the analysis indicate that the institutional model of the formation and implementation of the European Union's policy towards Latin America within the framework of Global Gateway initiative is characterized by multi-level and clear functional delimitation of powers. Strategic guidelines are determined at the level of the European Council and the Council of the EU, institutional and diplomatic coherence of interregional cooperation is ensured by the European External Action Service, while the European Commission is responsible for the financial and programmatic content of the initiative through the NDICI – Global Europe instruments. In turn, the European Parliament exercises political legitimation and democratic control over the Union's external activities. This configuration allows integrating Global Gateway into the EU's external public administration system, combining normative guidelines with practical mechanisms of influence and creating institutional conditions for deepening political interaction with Latin American countries in the context of the transformation of the global order.

6. Conclusions

The results obtained indicate that the political interaction of the European Union with Latin American countries is developing in the context of changes in the global order and increased competition between key international actors. Under such circumstances, the EU is gradually moving from fragmented formats of cooperation to the use of more complex institutional and governance

mechanisms aimed at consolidating its strategic presence in the region and expanding interregional political ties.

In this context, Global Gateway initiative has become an important element of the transformation of the European Union's foreign policy, as it has brought together investment, infrastructure and software tools within a single management logic. Compared to previous approaches to interaction with partner regions, Global Gateway is focused not only on declaring value principles, but also on their practical combination with mechanisms for implementing political decisions, which increases the adaptability of EU foreign policy to the conditions of a multipolar environment.

The analysis of the institutional architecture of the formation of the European Union's policy towards Latin America allows us to conclude that its functioning is based on a multi-level system of distribution of powers. Strategic guidelines are determined at the level of the European Council and the Council of the European Union, coordination of foreign policy actions and diplomatic support are provided by the European External Action Service, while the European Commission is responsible for the financial and programmatic content of the initiative through the NDICI – Global Europe instruments. At the same time, the European Parliament performs the function of political legitimation and democratic control of the Union's external activities. This configuration creates conditions for combining supranational priorities with the national interests of the Member States and contributes to the coordinated implementation of the Global Gateway.

Special attention should be paid to the coordinating role of the European External Action Service, which, within the framework of this model, provides a link between strategic decisions taken at the EU level and practical mechanisms for their implementation in Latin America. Combined with the Team Europe approach, this helps to reduce the fragmentation of EU foreign policy and increase the effectiveness of interregional cooperation.

At the same time, the results of the study show that the heterogeneity of political processes in Latin American countries, the presence of internal crises and different development models create additional challenges for the implementation of universal approaches of the European Union. This necessitates further adaptation of the institutional mechanisms of Global Gateway to regional specifics and strengthening the interaction between political, financial and regulatory instruments of the EU's foreign policy.

Thus, Global Gateway initiative can be considered as a key tool for the transformation of the external public administration of the European Union, which creates institutional prerequisites for deepening political interaction with Latin American countries and strengthening the role of the EU as an influential actor in the modern system of international relations.

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Architecture of International Financing for Ukraine's Recovery

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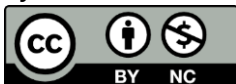
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Ukraine's post-war recovery creates an unprecedented demand for investment and budget support, but available financing channels differ in cost, conditionality, mobilisation speed and fiscal implications. An additional constraint is the need to align the investment cycle with budget rules, transparency and accountability of fund use. The study aims to build an applied financing-gap model based on RDNA4 needs estimates and to develop a matrix of international financial instruments suitable for selecting a financing mix under scenarios of resource availability and debt sustainability constraints. A scenario framework is proposed where the average annual need is derived from the total need divided by the assessment horizon, and the financing gap is computed as the difference between the need and the sum of external and domestic resources. Using demonstrative parameters, three scenarios are constructed, illustrating the shift from near-balanced financing to a systemic deficit that requires sector prioritisation and phased reconstruction. An instrument matrix (grants, concessional IFI loans, state guarantees, blended finance, war-risk insurance/risk-sharing, and public-private partnerships) is developed with application conditions, key risks and control indicators to align the "gap – instrument – control" logic within a single investment cycle. The minimum preconditions for implementing the mechanism are outlined (priority project portfolio, debt framework, selection rules, monitoring and audit). The effectiveness of international financing is determined not by the list of sources but by the architecture of their combination: budget support should be complemented by private capital mobilisation and risk-premium reduction tools, while fiscal rules, transparency and stage-gated project selection are necessary conditions for a viable recovery portfolio. The proposed approach can serve as an analytical template for configuring financing programmes and monitoring recovery performance.



KEYWORDS

international financing, Ukraine's recovery, financing gap, debt sustainability, state guarantees, blended finance, war-risk insurance, public-private partnership.



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Післявоєнне відновлення України формує безпрецедентний попит на інвестиції та бюджетну підтримку, але наявні канали фінансування різняться за вартістю, умовами, швидкістю залучення та фіскальними наслідками. Додатковим обмеженням виступає необхідність узгодження інвестиційного циклу з бюджетними правилами, прозорістю та підзвітністю використання коштів. Мета дослідження полягає в побудові прикладної моделі фінансового розриву відбудови на базі оцінки потреб RDNA4 та формуванні матриці міжнародних фінансових інструментів, придатної для вибору портфеля рішень за сценаріями доступності ресурсів і обмежень боргової стійкості. Запропоновано сценарний підхід, у якому середньорічна потреба відновлення визначається як відношення сукупної потреби до горизонту оцінювання, а фінансовий розрив – як різниця між потребою та сумою зовнішніх і внутрішніх ресурсів. На демонстраційних параметрах сформовано три сценарії, що показують перехід від майже збалансованого фінансування до системного дефіциту, який потребує пріоритизації секторів і поетапності відбудови. Розроблено матрицю інструментів (гранти, пільгові позики МФО, державні гарантії, змішане фінансування, страхування/розподіл воєнних ризиків, публічно-приватне партнерство) з умовами застосування, ключовими ризиками та контрольними індикаторами, а також окреслено мінімальні передумови реалізації механізму (портфель пріоритетних проєктів, боргова рамка, правила відбору, моніторинг і аудит). Ефективність міжнародного фінансування визначається не переліком джерел, а архітектурою їх поєднання: бюджетна підтримка має доповнюватися інструментами мобілізації приватного капіталу та механізмами зниження премії ризику, тоді як фіскальні правила, прозорість і стадійність відбору проєктів виступають умовами життєздатності портфеля відбудови. Запропонований підхід придатний як аналітичний шаблон для налаштування програм фінансування та контролю результативності відбудови.



КЛЮЧОВІ СЛОВА

міжнародне фінансування, відбудова України, фінансовий розрив, боргова стійкість, державні гарантії, змішане фінансування, страхування воєнних ризиків, публічно-приватне партнерство.

1. Introduction

Ukraine's reconstruction needs are long-term in nature and include the restoration of housing and critical infrastructure, maintaining the continuity of public services and macro-fiscal resilience, as well as modernization investments. The World Bank's assessment captures the scale of aggregate needs over a ten-year horizon and forms the basis for quantifying the financial recovery gap. In practice, the key problem is not only the number of resources, but their structure: grant and concessional instruments have a quick effect on budget financing, while scaling up reconstruction is impossible without mobilizing private capital, insuring war risks, and public-private forms of infrastructure projects.

Despite the availability of numerous sources and support programs, the key bottleneck in the practice of reconstruction is the lack of a unified logic that combines needs assessment with the rules for the selection of financing instruments, as well as with benchmark performance indicators. As a result, the discussion of financing often remains at the level of lists of sources, while the manageability of the portfolio is determined by the architecture of the combination of instruments, their impact on debt sustainability, and the ability to mobilize private capital in the face of war risk.

Next, we summarize the approaches of the literature on debt sustainability, public investment management, and private capital mobilization tools to justify an integrated model of financing architecture.

2. Literature Review

The problems of the architecture of international reconstruction financing in modern literature are interpreted as a combination of macrofiscal sustainability, the investment cycle, and private capital mobilization mechanisms, which should work in conditions of high uncertainty and war risks. In the work of Bogdan [1], it is emphasized that even with the presence of significant packages of international support, the risks of external financing gaps and the need to align deficit financing with the long-term recovery trajectory remain in the budget circuit. De Haas and Pivovarsky [2] show that the financial sector in the post-war period plays not only the role of a "channel" for the redistribution of resources, but also an institutional shock absorber; Therefore, reconstruction requires the restoration of trust, the quality of supervision and the balancing of public and private presence in the banking system.

In the political and institutional plane, the literature emphasizes the need to synchronize investment decisions with technical assistance and EU standards. Karaki et al. [3] argue that an effective combination of investment and technical assistance is critical for scaling the reconstruction portfolio, as well as for integrating projects into EU procedures and requirements. The "strategic guidelines" of the Ukraine Investment Framework record the logic of transition from fragmentary "project lists" to a single pipeline and strengthening the stage of preparation, selection and monitoring of investments [4]. The World Bank's Public Investment Management Diagnostics Report for Ukraine describes PIM problems as systemic (fragmentation, poor project preparation, gaps in evaluation and control), which directly increases transaction costs and limits investment returns [5]. The PIM reform roadmap prepared by the Ministry of Finance of Ukraine specifies institutional steps (procedures for selection, prioritization, preparation and transparent support of projects) as a prerequisite for attracting blended financing and guarantee instruments [6].

Scientific research and analytics of international organizations have formed a separate array of works on mixed finance as a mechanism for "recapitalization" of reconstruction through risk-sharing and catalyzing private investments. The OECD summarizes the key problems of scaling blended finance: high transaction costs, fragmentation of instruments, information asymmetry, and the risk of crowding out private resources in the absence of transparent additionality criteria [7]. A bibliometric review by Sharma et al. [8] and co-authors systematizes the evolution of research on blended finance and partial risk guarantees (PRGs), emphasizing their role as tools for derricking and multiplication of private capital. An empirical study by Kim and Jun [9] shows that the effectiveness of blended finance depends on the institutional quality and characteristics of recipient countries, as well as on the ability of official resources to act as a catalyst for private flows. Flammer et al. [10] propose a formalized framework for decision-making by development institutions regarding the combination of public and private resources, emphasizing that effectiveness depends on the design of incentives and risk-sharing mechanisms.

A separate area of work is devoted to measuring the mobilization of private financing and the instrumental conditions for its growth. The Joint Report of the Group of Multilateral Development Banks on the mobilization of private finance contains methodological approaches to accounting for mobilized volumes and demonstrates that guarantees, credit amplifiers and structured instruments are key channels for leverage effect growth [11]. The OECD emphasizes that the standardization of instruments (in particular guarantees and insurance) and their linkage to sectoral and country risk profiles is a prerequisite for scaling private finance mobilized without losing transparency and manageability [12].

The focus of academic discussions is also on the influence of development institutions on credit supply and the behavior of financial intermediaries. Léon, based on banking data and the database of intermediate lending programs, shows that DFI support can have ambiguous effects on lending, in particular due to the limited absorption capacity of recipients and the shift in banks' priorities [13]. In Léon's literature review, DFIs are considered as a separate segment of the development landscape that combines financing, ESG standards, and institutional "conditionality", but requires clear criteria for effectiveness and complementarity [14].

For Ukraine, specialized literature focuses on war risks as a key constraint on private capital and on the need for insurance and guarantee infrastructure. Nagurney et al. propose a model of integrated war risk insurance (cargo and crops), demonstrating the potential of combining insurance premium, state support, and networked trade models to maintain flows and revenues in war scenarios [15]. The practical outline of political and military risk insurance for Ukraine is disclosed in the DFC materials, where insurance/guarantees are positioned as a tool for restoring investment activity in conditions of high losses and uncertainty [16]. In Ukrainian peer-reviewed publications, Pryimak and Tymkiv [17] substantiate the need to insure investments against war risks as a prerequisite for intensifying domestic investments and investment security, and Baranov and Zimenkov [18] systematize international approaches to ensuring military-political risks and assess the possibilities of their implementation in Ukraine.

In the applied plane of instrumental design of reconstruction, an important place is occupied by public-private partnership as a form of infrastructure project implementation and a mechanism for distributing risks. Dombrovskaya et al. [19] propose a methodical approach to assessing the financial result of PPP projects using the example of concession using simulation modeling, which emphasizes the need for formalized evaluation and forecasting procedures for investment decisions.

Despite significant improvements, the literature is dominated by either macrofiscal assessments of needs and budget risks, or instrumental descriptions of individual mechanisms (guarantees, insurance, blended finance, PPP) without a single relationship between the financial gap model, the rules for the selection of instruments and the control indicators of their effectiveness, which necessitates an integrated organizational and economic model that "closes" the chain "need – gap – instruments – portfolio – implementation – control – correction" in conditions for the reconstruction of Ukraine.

3. Problem Statement

The article is aimed at substantiating the architecture of international financing for the reconstruction of Ukraine by combining the scenario model of the financial gap with a matrix of instruments for its reduction and a set of control indicators. To achieve the goal, the following tasks are solved: to operationalize the need for reconstruction and the funding gap in average annual parameters; set scenario assumptions about the share of internal mobilization and the availability of external support; systematize international financing instruments by role in the model, conditions of application, risks and control indicators; determine the minimum prerequisites for launching the mechanism related to the project portfolio, debt restrictions and transparency. The scientific contribution consists of the formalization of the relationship "need – gap – tools – control" and the identification of minimum institutional prerequisites under which control indicators become a valid basis for instrument correction.

4. Methods and Materials

The study is based on a scenario approach to assessing the financial gap of reconstruction. As a baseline value of the need, the cumulative assessment of recovery and reconstruction needs on a ten-year horizon according to RDNA4 was used [20]. The average annual requirement $\bar{N}$ is defined as N/T ,

where N is the aggregate need, and T is the estimation horizon (years). Coverage of needs is formalized as the sum of the average annual external financing $\bar{E}$ and the average annual mobilization of internal resources $\bar{I}$. The funding gap $\bar{G}$ is defined as the difference between $\bar{N}$ and $(\bar{E} + \bar{I})$. For scenario analysis, the parameter s is used – the share of internal funding, which specifies $\bar{I} = s \cdot \bar{N}$, as well as the scenario values of $\bar{E}$, which are interpreted as an aggregate of external channels: EU support, financing of international financial organizations, bilateral resources, guarantee and insurance instruments and private investment. To avoid mixing of flows, the indicator $\bar{E}$ is interpreted as the sum of public external resources and mobilized private capital induced by guarantee/insurance and structured instruments: Accordingly, derisk-taking instruments do not affect the gap “directly”, but through an increase in $\bar{E}_{mob}$ and/or a decrease in the risk premium $\bar{E} = \bar{E}_{pub} + \bar{E}_{mob}$.

5. Results and Discussion

Scenario staging is needed not for an accurate forecast, but for a controlled classification of the reconstruction situation according to the scale of the deficit. Table. 1 captures a minimum set of parameters that translates the RDNA4 needs estimate into an operational metric of the average annual gap, suitable for selecting a set of instruments.

Table 1. Scenario parameters for determining funding needs and funding gap (based on RDNA4)

Script	N (USD billion)	T (years)	$\bar{N}$ (billion/year)	S (part of the inside)	$\bar{I} = s \cdot \bar{N}$ (billion/year)	$\bar{E}$ (billion/year)	$\bar{G}$ (billion/year)
Optimistic	524	10	52.4	0.35	18.3	31.4	2.7
Realistic	524	10	52.4	0.30	15.7	23.6	13.1
Pessimistic	524	10	52.4	0.25	13.1	18.3	21.0

Source: Developed by the author based on data [20]. Note: the aggregate requirement N is taken as RDNA4 [20]. The parameters s and $\bar{E}$ are given as scenario assumptions. The calculations are modeling in nature and show the sensitivity of the funding gap to the availability of external resources and internal mobilization.

The parameter s is interpreted as the share of internal mobilization (tax revenues, internal borrowings, quasi-fiscal sources), which can grow only under the condition of macro-fiscal stabilization. The $\bar{E}$ parameter reflects not only budget support, but also the ability of the financing architecture to mobilize private capital through risk-cutting, guarantees, and structured mechanisms.

Scenario estimates show that even with the same aggregate need, the average annual gap $\bar{G}$ ranges from USD 2.7 billion. to USD 21.0 billion. depending on the availability of external support and the share of domestic funding. The realistic scenario forms a deficit of USD 13.1 billion. per year, which shifts the issue of international financing from a purely budgetary plane to the plane of instrumental portfolio design: a combination of budget support and instruments capable of attracting private funds without destroying debt sustainability is required.

For the applied interpretation of the $\bar{E}$ parameter, the balance sheet specification is used, in which external financing consists of EU resources, international financial organizations, bilateral sources, guarantee and insurance instruments, as well as private direct investment and project financing. Such a decomposition is consistent with the practice of actual financing of the state budget of Ukraine, where internal borrowings (including war bonds), loans from IFIs and bilateral loans and grants are used simultaneously [21], and the medium-term framework of EU support is set by the Ukraine Facility Ukraine Program [22] and the regulations for its operation [23].

The resulting gap $\bar{G}$ sets not only the shortage of funds, but also the requirement for the financing structure: as the deficit grows, the share of instruments that create a debt burden should be replaced by instruments for mobilizing private capital and derisking. Table. 2 systematizes instruments as a response to different regimes of gap and limitation of debt sustainability, with reference to control indicators.

The matrix of instruments provides a link between the scenario funding gap and the rules for portfolio selection: under the dominance of budget support (optimistic scenario), grants and concessional loans retain priority, while in realistic and pessimistic scenarios, scaling up guarantee and insurance mechanisms and blended financing, which reduce the cost of capital and expand the attraction of private resources, becomes critical. In terms of decomposition, grants and concessional loans are mainly increase $\bar{E} = \bar{E}_{pub} + \bar{E}_{mob}$, $\bar{E}_{pub}$ while guarantees, war risk insurance, blended financing and PPP are aimed at increasing $\bar{E}_{mob}$ while controlling fiscal risks.

Table 2. Recovery financing instruments and their role in reducing the financial gap

Tool	Role in the model	Conditions of application	Key risk	Control Indicator
Grants	Increase $\bar{E}$, quickly decrease $\bar{G}$	Priority social and critical infrastructure projects	Dependence on donors	Sample share of liabilities; deviation of actual tranches from the calendar; Share of projects with confirmed result (output verification)
Preferential loans to MFIs	$\bar{E}$ with a debt limit	Projects with a projected socio-economic effect	Breach of debt sustainability	Debt Sustainability Analysis (DSA) indicators; grant element/benefit; service cost; Share of loans tied to the implementation of project stages
State guarantees	Mobilize private capital, reduce $\bar{G}$	Credit projects of business and territorial communities	Moral hazard	Share of defaults; expected losses on the guarantee portfolio; the share of guarantees that turn into budget payments; limit of contingent obligations
Blended funding	Pulls private funds to $\bar{E}$	Investment projects with a high multiplier	The complexity of structuring deals	Private/public capital ratio (mobilization coefficient); share of projects with proven additionality; Average term of structuring transactions
Insurance and distribution of war risks	Reduces risk premium $\rightarrow$ increases investment	FDI and large infrastructure projects	Uncovered war risks	Volume of insured/guaranteed investments; average premium/margin; number of transactions; share of coverage of key war risks; Case Settlement Time
Public-Private Partnership	Partially replaces budget expenditures	Infrastructure projects with projected cash flow	Contract and political risks	Fulfillment of Service Quality Indicators (SLA); Value for Money; Estimation and limit of contingent obligations under contracts

Source: Developed by the author based on a generalization of approaches and recommendations [7; 10; 11; 12; 16; 19].

The architectonics of the proposed financial mechanism provides for functioning at three interrelated levels – macro-, meso- and micro-levels – with digital integration of flows, procedures and control (Figure 1).

As shown in Figure 1, at the macro level, strategic coordination of resources and rules is formed, at the meso level – institutional platforms for the implementation of priorities, and at the micro level – project financing and partnership instruments. A detailed description of the tools and their role in covering the needs of recovery and reducing the financial gap is given in the Table 2, while the prerequisites for the launch, risks and control indicators of the implementation of the financial mechanism are in Table 3.

Table 3. Minimum prerequisites for the implementation of the financial mechanism for reconstruction

Prerequisite	Owner institution	Minimum term	Risk	Control indicator
Agreed strategy and portfolio of priority projects	Coordinator/ relevant ministries	3–6 months.	Dispersion of resources	Share of funding for projects with an approved passport/stage of readiness; portfolio share synchronized with funding calendars
Debt framework and fiscal rules	Ministry of Finance	0–6 months.	Debt instability	Debt/GDP; service cost; DSA cut-offs; share of contingent liabilities (guarantees/PPP) within the fiscal space
Uniform rules for evaluating and selecting projects	Coordinator/ Customers	3–9 months.	Selection of weak projects	Share of projects with CBA/feasibility study
Monitoring, audit and publicity system	Control and audit bodies	0–6 months.	Corruption risks	Share of projects with open data and reporting

Source: Developed by the author based on institutional frameworks and recommendations [1; 4; 5; 6; 23].

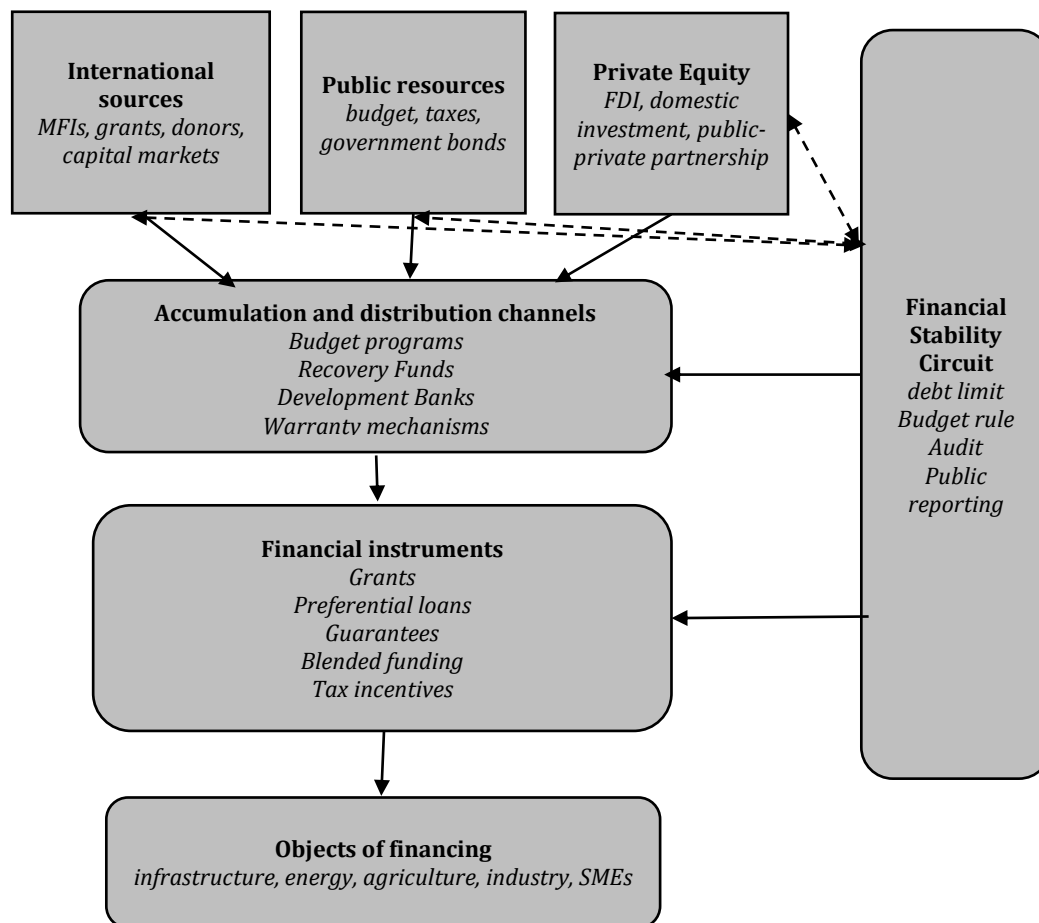


Figure 1. Architecture of International Financing for the Reconstruction of Ukraine: Levels of Management and Control Circuits

Source: Compiled by the author.

Built-in benchmarks take the discussion about funding sources beyond declarations. In the absence of staged project selection, transparent reporting, and fiscal constraints, instruments with a higher share of the private component increase transaction costs, while budget support instruments lose the trust of donors and society.

The obtained scenarios show that with the growth of the $\bar{G}$ gap, the financial mix should change not linearly (by adding new sources), but structurally: the share of instruments that increase the debt burden should be replaced by instruments for derisking and mobilization of private capital ($\bar{E}_{mob}$) under the condition of control of contingent liabilities, which is consistent with the conclusions of the literature on combined financing in terms of justifying the need for criteria of additionality and transparency and minimizing the displacement of private resources.

At the same time, private capital mobilization tools have a hidden price in the form of transaction costs and structuring complexity, so their scaling without PIM reforms (staging of selection, high-quality feasibility studies/CBAs, a single project base) increases the risk of inefficient selection and contract failures. As a result, Table 2 should be interpreted as a matrix for the selection of tools only if the prerequisites of Table 2 are present. 3, which ensures the validity of KPIs and the ability to correct instruments.

From a practical point of view, the proposed architecture sets the contour of controllability: the gap $\bar{G}$ classifies the scarcity mode; the instruments are selected according to the debt constraints and the objective of increasing the $\bar{E}_{mob}$; KPIs bring tools into accountability mode; Monitoring and audit ensure the correction of the mix based on actual results.

6. Conclusions

The scenario model of the financial gap allows you to move from a general assessment of needs to a controlled formulation of the problem: what amount of the deficit should be covered by budget

support and what – by tools for mobilizing private capital. The Instrument Matrix formalizes the rules for portfolio selection through application conditions, risks, and control indicators, which ensures procedural consistency between strategic priorities, debt constraints, and project implementation. The practical implementation of the mechanism depends on minimal institutional prerequisites: a prioritized project portfolio, fiscal rules, uniform evaluation standards, and public monitoring.

The limitation of the article lies in the illustrative nature of the scenario parameters s and $\bar{E}$ and the lack of a complete decomposition of $\bar{E}$ into public support and mobilized private capital according to actual data; further verification requires calibration on historical series of budget financing and portfolio data of MFIs/guarantees/insurance.

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Methodological Foundations of Training Agricultural Engineers for the Implementation of Alternative Fuels: From Combustion Theory to Thermal Efficiency

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ABSTRACT

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The article reveals the conceptual foundations of forming the professional profile of a modern agricultural engineer in the context of the global transformation of the agricultural energy sector. The authors substantiate the necessity of transitioning from a traditional educational model to an innovative methodology, where fundamental knowledge of combustion theory serves as the basis for achieving maximum thermal efficiency of technical systems. The publication provides a detailed analysis of the cause-and-effect chain between the physicochemical specifics of alternative energy sources and the dynamics of in-cylinder processes. It considers a methodological approach that enables future specialists to master the tools for adapting engines to operate on oxygenated fuel compositions through mathematical modeling and experimental research. Particular attention is paid to the algorithmization of practical training in laboratories. The authors describe the logic of a student's actions during bench tests as a process of consistently seeking a compromise between power, fuel economy, and environmental safety. The article proves that an engineer's "green" competence is formed not as an abstract ideology, but as the ability to manage the emission of toxic components through the precise adjustment of fuel supply parameters. The methodological novelty of the work lies in the proposed structure of educational modules, where theoretical content is integrated into practice-oriented case studies. The conditions for creating an interactive educational environment are described, which require specific material and technical equipment to visualize complex thermodynamic phenomena. In conclusion, the authors emphasize that the proposed methodology allows for the training of personnel capable not only of operating multi-fuel systems but also of initiating the implementation of renewable energy at the level of agricultural enterprises.

KEYWORDS

agricultural engineering education, alternative fuels, teaching methodology, combustion theory, thermal efficiency, bench tests, environmental competence, case-study technologies.



Методологічні засади підготовки агроінженерів до впровадження альтернативних палив: від теорії згорання до теплотехнічної ефективності

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СТАТТЯ	АНОТАЦІЯ
Дослідницька DOI: 10.70651/3041-2498/2026.1.07 Отримана: 01.12.2025 р. Прийнята: 03.01.2026 р. Опублікована: 12.01.2026 р. Авторське право © 2026 автора Цей твір ліцензовано на умовах Ліцензії Creative Commons «Із Зазначенням Авторства – Некомерційна 4.0 Міжнародна» (CC BY-NC 4.0).	У статті розкриваються концептуальні засади формування професійного профілю сучасного агроінженера в умовах глобальної трансформації енергетичного сектору сільського господарства. Авторами обґрунтовано необхідність переходу від традиційної моделі навчання до інноваційної методики, де фундаментальні знання з теорії згорання стають базисом для досягнення максимальної теплотехнічної ефективності технічних систем. В публікації детально проаналізовано причинно-наслідковий ланцюг між фізико-хімічною специфікою альтернативних енергоносіїв та динамікою внутрішньоциліндрових процесів. Розглядається методологічний підхід, який дозволяє майбутньому фахівцю через математичне моделювання та експериментальні дослідження опанувати інструментарій адаптації двигунів до роботи на окисленних паливних композиціях. Особлива увага приділяється алгоритмізації практичної підготовки у лабораторіях. Автори описують логіку дій здобувача освіти під час стендових випробувань як процес послідовного пошуку компромісу між потужністю, паливною економічністю та екологічною безпекою. У статті доведено, що «зелена» компетенція інженера формується не як абстрактна ідеологія, а як здатність керувати емісією токсичних компонентів через точне налаштування параметрів паливopoдaчі. Методична новизна роботи полягає у запропонованій структурі навчальних модулів, де теоретичний контент інтегрований у практико-орієнтовані кейси. Описано умови створення інтерактивного освітнього середовища, що потребує специфічного матеріально-технічного забезпечення для візуалізації складних термодинамічних явищ. У підсумку автори наголошують на тому, що запропонована методологія дозволяє готувати кадри, здатні не лише експлуатувати мультипаливні системи, а й виступати ініціаторами впровадження відновлюваної енергетики на рівні аграрних підприємств.



КЛЮЧОВІ СЛОВА

агроінженерна освіта, альтернативні палива, методика викладання, теорія згорання, теплотехнічна ефективність, стендові випробування, екологічна компетентність, кейс-технології.

1. Introduction

The current state of global energy and the aggravation of environmental challenges dictate new rules of the game for the agricultural sector, which is traditionally one of the largest consumers of fossil fuels. In the context of rapidly rising prices for petroleum products and a shortage of traditional energy carriers, the transition to renewable energy sources, in particular to various types of biofuels and oxygenate mixtures, is of strategic importance. However, the introduction of alternative energy carriers into the machine and tractor fleet is not just a matter of logistics or replacing the fluid in the tank. This is a complex engineering challenge that requires a rethinking of the fundamental principles of internal combustion engines. Under such circumstances, the role of the agricultural engineer is transformed: he is no longer just a maintenance specialist and must become an expert in the field of energy efficiency, able to adapt complex technical systems to the changing characteristics of fuels.

The relevance of this problem is enhanced by the fact that most of the existing educational programs are focused on the study of the operating cycles of engines designed for reference diesel fuel. This creates a significant cognitive gap in training: future specialists have a good understanding of the mechanics of the nodes, but often feel helpless in the face of thermodynamic anomalies that arise when using biodiesel, alcohol mixtures, or esters. The physical and chemical differences of these fuels – different viscosities, excellent calorific values, and specific heat-release kinetics – require the engineer to predict changes in the spontaneous ignition delay period and adjust injection phases. Without such skills, the introduction of “green” technologies leads to premature wear and tear of equipment, a drop in power and leveling of the environmental effect, which discredits the very idea of alternative energy in the eyes of farmers.

The scientific and practical value of the proposed methodology lies in the creation of an interactive educational environment that simulates real production scenarios. The use of case methods, such as independent adaptation of farm equipment to biofuels of its own production, allows students to feel responsible for the decisions made. As a result, this provides training of specialists who are able to act as architects of energy independence of agricultural enterprises, combining technical literacy with the principles of sustainable development.

2. Literature Review

In particular, V. Piljavsky et al. [18] thoroughly describe the characteristics of oxygenate-based fuels, which are key to understanding combustion processes. The issues of raw material potential of Ukraine are considered in detail by M. Kyzym et al. [11], emphasizing the relevance of the transition to domestic resources.

The studies of V. Melnyk and M. Hnyp [14] on mixtures of diesel fuel and soybean oil, as well as the work of A. Yakovlieva et al. [23] on camelina oil esters, create the necessary basis for the study of viscosity and density of biocomponents. Practical aspects of the use of additives to improve fuel characteristics are highlighted in the work of N. Domantsevykh [3]. The problems of fuel quality in the Ukrainian market and its impact on the operation of engines, which is critical for agricultural engineering, are covered in the articles by O. Sibilyeva [21] and B. Mitkov et al. [16].

The mathematical basis and methods for determining the efficiency of engines on alternative mixtures are presented in the work of I. Gritsuk et al. [6], which offer improved methods for determining fuel consumption. Modeling of these processes for road transport is also the object of research by R. Kolodnytska [9].

The environmental component that forms the “green” competence of an engineer is revealed in the work of A. Marchenko et al. [13], where the relationship of internal combustion engines with the environment is analyzed. The ecological and economic advantages of such production are emphasized by A. Doronin [4], and fuel processing technologies are analyzed by I. Sinkevich and O. Mardupenko [22]. In turn, L. Mertensson [15] and D. Shevchenko [19] provide an overview of best practices for using alternatives for large-scale and mobile equipment.

The transformation of the educational process in the context of informatization is the subject of research by N. Dotsenko [5] and V. Havrysh et al. [7]. The authors emphasize the importance of digital technologies for acquiring professional competencies. T. Lychova [12] and A. Shostachuk [20] focus on

the need to restructure engineering education and search for new forms of formation of professional skills of bachelors in agricultural engineering.

A special place in the methodological arsenal is occupied by the case method, the advantages and disadvantages of which are considered by P. Petrychenko [17], and the practical effectiveness as a teaching tool is confirmed by K. Chabanova [2]. The issue of diagnosing equipment in the conditions of enterprises, which is an integral part of practical training, is covered in the work of V. Kashkanov and R. Zhomiruk [8].

Thus, the available scientific and methodological developments create a proper foundation for the synthesis of technical knowledge about alternative fuels with innovative teaching methods, which is the main task of this article.

3. Problem Statement

However, the methodological component of engineering personnel training, which would integrate this knowledge into a holistic system of professional action, remains fragmentary. There is an urgent need to create such a teaching methodology, where the theory of combustion is not an abstract discipline, but acts as a living tool for achieving thermal efficiency. The student must learn to see complex molecular transformations from the fuel consumption figures, understand the role of intramolecular oxygen in oxidation processes and be able to mathematically justify the need to change the fuel supply parameters for each specific type of mixture.

The purpose of this article is to develop and substantiate the methodological foundations for the training of agricultural engineers, which would be based on a deep synthesis of theoretical knowledge and experimental skills. We propose the concept of “end-to-end research”, where the training begins with the analysis of the fuel microstructure, goes through the stage of mathematical modeling of work processes and ends with the practical optimization of the engine on the test bench. This approach allows students to form not only professional, but also “green” competence – a conscious ability to minimize environmental risks through engineering excellence.

4. Methods and Materials

The study is based on an axiological approach, which considers the transition to alternative fuels not just as a technical necessity, but as a value in the context of sustainable development and energy independence of the agricultural sector. The methodology is based on the principle of unity of theory and practice, where deep knowledge of thermodynamic processes becomes a tool for solving real operational problems.

The training of an agricultural engineer is revealed through the prism of system analysis. The object of research here is not a separate discipline, but a holistic model of a specialist who is able to work in the system “man – machine – alternative fuel – environment”. This means that the methodology is not limited only to the description of the engine, but covers the entire cycle of energy transformation: from the chemical composition of fuel (bioethanol, biodiesel) to the thermal efficiency of its combustion.

The methodological core of the article was interdisciplinary integration. On the one hand, the methodology of physicochemical analysis is used to understand how changes in the molecular structure of fuel affect the speed of flame propagation.

The methodology also includes a comparative and deductive analysis. The study is carried out from general to specific: first, the general laws of combustion of hydrocarbons are analyzed, and then, through deduction, specific conditions of operation of the engine on mixed fuels are deduced. An important element was the criterion approach, when the effectiveness of the preparation is evaluated by the ability of the future engineer to minimize heat loss and harmful emissions during the operation of a real object.

5. Results and Discussion

The fundamental basis of the methodology for training engineers in the agricultural sector is the understanding that any change in the component composition of the fuel leads to the transformation of the thermodynamic cycle of the engine. A comparative analysis of traditional diesel fuel of petroleum

origin, methyl esters of fatty acids (biodiesel) and alcohol compounds reveals a number of critical differences that determine the thermal efficiency of power plants.

A key determinant of alternative fuels lies in their molecular structure. Unlike petroleum diesel, which consists mainly of a mixture of hydrocarbons, biodiesel and alcohols belong to the class of oxygenates – fuels containing bound oxygen. In biodiesel, the oxygen content reaches 11%, and in ethanol – more than 34% [19].

From a methodological point of view, it is important to focus the attention of students of a modern university on the “energy paradox”: the presence of oxygen contributes to the completeness and quality of combustion (which reduces CO and soot emissions), but it also causes a decrease in the heat of combustion. Since oxygen is already in a chemical bond, it does not participate in the exothermic reaction as an external oxidizer, which leads to a drop in the calorific value of biodiesel by about 10–12% compared to its oil counterpart, and ethanol – almost twice. For an agricultural engineer, this means the need to adjust the volume of injected fuel to achieve an identical power [23].

The next aspect that requires descriptive analysis is viscosity and temperature characteristics. Biodiesel is characterized by significantly higher kinematic viscosity and density. In real operating conditions of agricultural machinery, this leads to an increase in the diameter of the droplets when spraying fuel with an injector. Larger droplets have higher kinetic energy and are able to penetrate deeper into the combustion chamber, but they evaporate more quickly [14].

Alcohol compounds have the opposite tendency – their low viscosity and high volatility contribute to the rapid formation of the fuel-air mixture, but low lubricating properties create a risk of premature wear of precision parts of fuel equipment [1]. The training of specialists should include the analysis of these risks through the prism of the reliability of technical systems.

A special place in the comparative analysis should belong to the cetane number (a criterion that characterizes the flammability of diesel fuels). Biodiesel usually demonstrates a higher ability to spontaneously ignite compared to mineral fuels. This causes a shorter ignition delay period, which ensures a smooth increase in pressure in the cylinder and reduces dynamic loads on the parts of the crank mechanism [21].

On the other hand, alcohol mixtures have an extremely low cetane number, which makes their spontaneous combustion in the diesel cycle problematic. In the educational process, this should serve as a basis for studying methods of initiating combustion: the use of promoter additives, dual fuel systems, or increasing the compression ratio.

A separate methodological block in the educational process in the training of agricultural engineers should be the study of the physical and chemical stability of mixtures. Mixtures are subject to phase stratification at low temperatures or when moisture enters. A modern specialist in agricultural engineering should be aware that alternative fuels are a “living” system that requires special storage and preparation conditions, including the use of depressor additives and emulsifiers to ensure the homogeneity of the mixture [15].

Thus, a detailed description of physical and chemical properties allows you to move from an abstract study of fuel to a practical prediction of the thermal efficiency of a power plant, which is the ultimate goal of the methodology for training a modern engineer.

The process of professional training in the context of working with alternative fuels is based on the transformation of the student from a user of equipment to a researcher of energy processes. At the center of such an educational model is the ability of a specialist to interpret physical and chemical transformations in the engine cylinder as a controlled technological process.

At the stage of theoretical training, the emphasis shifts from a simple statement of the fact of ignition to the analysis of cause-and-effect relationships. The future engineer learns to understand that the use of oxygenates radically changes the “biological clock” of the engine. When working with biodiesel, the student analyzes the effect of reducing the preparatory period: due to the high cetane number, the fuel begins to burn almost instantly after appearing in the chamber [18].

In the educational context, this becomes the basis for the study of mechanical reliability: a lower delay means a smooth increase in pressure, which should be interpreted as a way to extend the life of the crank mechanism parts. In contrast, the consideration of alcohol impurities teaches the specialist to predict the opposite effect – the “delay” of ignition due to intense evaporation, which requires the engineer to be able to compensate for this failure with parametric settings of the system.

The educational model should require the specialist to clearly differentiate how the fuel behaves in different stages of combustion. The study of the rapid (kinetic) combustion of oxygenates allows us

to understand the phenomenon of “internal oxidation”. When the future agricultural engineer analyzes the diffusion stage, where air oxygen usually does not have time to get into the center of the fuel flare, he discovers the main advantage of alternative fuel: oxygenate “helps” itself to burn completely [3].

This forms ecological thinking in the student not as an abstract concept, but as a result of a controlled chemical reaction. He realizes that the clean exhaust of the equipment is a consequence of the fact that oxygen was present in the molecular structure of the fuel he chose even before the injection.

The final element of preparation is the formation of the ability to see the entire cycle holistically. The training is aimed at ensuring that the specialist can recognize the risks associated with the transition to alternative energy carriers. Since oxygenates have a lower energy density, a modern agricultural engineer must understand that in order to maintain power, the volume of fuel in the cylinder increases, and this can lead to an expansion of the afterburning phase.

From the point of view of professional competence, this means the ability to calculate the heat balance. The student learns to simulate the situation: if the combustion phase shifts too far from the top dead center, the energy will not turn into useful work, but will be used to overheat the exhaust tract. This approach teaches the future specialist not only to observe the operation of the engine, but to act as a “conductor” of heat flows, adapting the technical system to the complex energy parameters of alternative fuels.

The mathematical justification for the training of agricultural engineers is based on the ability to transform the chemical composition of fuel into specific energy indicators. In the educational process, this transition is considered through two key vectors: energy density and oxygen balance.

The calculations are based on the principle of additivity, when the total calorific value of the mixture is determined as the weighted average value of its components. Because alternative impurities (oxygenates) have lower carbon and hydrogen content compared to petroleum diesel, their lower calorific value reduces the overall energy yield per unit mass of fuel.

For a future specialist, this means a transition from quantitative fuel measurement to energy measurement. The student must master the method of calculating the “energy deficit” of biofuels, which usually ranges from 10% to 35%. Understanding this indicator allows us to justify the need to increase the injection volume to preserve engine torque, which is critical for performing heavy field work [9].

The second aspect of the mathematical basis is the calculation of the theoretically required amount of air. Here, agricultural engineers discover mathematical confirmation of the superiority of oxygenates: since the fuel already contains part of the oxygen in its structure, it requires less outside air to completely oxidize.

From a methodological point of view, this radically changes the approach to engine regulation. If traditional fuel requires about 14.3 kg of air per 1 kg of fuel, then for alcohol mixtures, this value can be half as much. Mathematical analysis shows that when using alternative fuels, the coefficient of excess air increases automatically [6].

The final stage of the analysis is the assessment of the calorific value of the working mixture in the cylinder itself. It is important to teach the future agricultural engineer to see that although alternative fuels are less energy-intensive, they allow you to “fit” more fuel molecules into the same cylinder volume due to less air demand. As a result, the overall heat output of the cycle remains stable. Such a mathematical conclusion forms a specialist's confidence in the technical feasibility of switching to “green” fuels, supported by accurate calculations of the thermodynamic balance.

At the final stage, the methodology of practical training of agricultural engineers on the introduction of alternative fuels should be based on the algorithm of a direct comparative experiment. This allows students to implement theoretical calculations through visualized data of thermal efficiency. The test process usually begins with the basic calibration of the power plant on standard diesel fuel. The applicant records the “reference response” of the engine: power, torque and specific energy consumption. This forms the future specialist's skills in working with control and measuring equipment and understanding of the standard parameters of a serviceable unit [8].

The next step is to dynamically monitor the change in the state of the system during the transition to oxygenates. The student has the opportunity to independently change the fuel composition and bring the engine to a stable thermal regime. The main analysis tool here is an electronic pressure indicator, which allows you to see in real time how the chemical nature of the fuel changes the “architecture” of combustion: from the moment of ignition to the end of the afterburning phase.

The key point of training is experimental optimization. The student does not just record the power drop due to the low calorific value of the alternative fuel, but actively intervenes in the settings, for

example, changes the injection advance angle. The goal is to find such a moment of heat release at which the mechanical work of the expansion of gases will be maximum [10]. It teaches the engineer how to manage energy efficiency, not just observe it.

The algorithm ends with an analytical synthesis. The applicant compares the obtained characteristics and builds an energy balance. The result is the understanding that energy losses in fuel can be partially or fully compensated by the accuracy of engineering settings. This approach forms professional readiness for the introduction of “green” technologies, based on objective data from bench tests. As a fundamental part of the “green” thinking of a modern specialist, the environmental component of the educational process should be provided in the training of a modern agricultural engineer. In the context of the introduction of alternative fuels, exhaust gas toxicity analysis becomes a tool for assessing the quality of the work process in the cylinder. The student must learn to interpret the composition of exhaust gases as a “diagnosis” of the efficiency of engine settings [4].

The main aspect that future agricultural engineers are investigating is a significant reduction in smoke (soot) and carbon monoxide emissions when working on biofuels. The presence of intramolecular oxygen in oxygenates allows the fuel to burn out even in those zones of the combustion chamber where the access of atmospheric air is limited. In the educational process, this demonstrates the advantage of “green” technologies: the student has the opportunity to make sure that the use of renewable energy sources allows the equipment to be operated in enriched modes without harming the environment.

Particular attention should be paid to the critical analysis of nitrogen oxide emissions. Since oxygenates contribute to the intense release of heat, the temperature in the combustion chamber may increase, which leads to the undesirable formation of nitrogen oxides. For the agricultural engineer, this becomes a professional challenge: he must learn to balance between high thermal efficiency and environmental safety, applying gas recirculation methods or correction of injection angles [13].

The training methodology should include the use of gas analyzers during bench tests, which allows students to build a holistic picture:

- the student compares the “carbon footprint” of petroleum, diesel and biofuels, taking into account the closed cycle of carbon circulation in nature;
- the future agricultural engineer learns to justify that although alternative fuels may be more expensive in cost, their implementation reduces environmental risks and the cost of gas treatment systems.

This approach transforms environmental knowledge from theoretical postulates into practical tools for an engineer. A university graduate begins to perceive toxicity not as an external factor, but as a controllable parameter that directly depends on their professional skills in setting up thermal engineering systems.

The design of the educational process in the training of future agricultural engineers should be based on the logic of a gradual transition from microscopic chemical processes to macroscopic indicators of machine units. At the same time, the theoretical foundation should become a tool for ensuring practical energy efficiency management.

At the initial stage, attention should be focused on the thermochemical foundations of energy conversion. The descriptive and theoretical components dominate here, covering about two-thirds of the study time. The specialist should study in detail the mechanisms of oxidation of hydrocarbons and the specifics of oxygenates. It is important that at this stage the student does not just memorize formulas, but learns to see the energy potential of the fuel through its elementary composition [11]. The practical part of this block is reduced to analytical calculations of calorific value, which prepares the basis for understanding the future “energy deficit” of alternative mixtures.

The next stage of preparation should be devoted to thermodynamics and intra-cylinder processes. Here the distribution of hours becomes parity: theory and practice are combined in the format of research modeling. Applicants study the physics of combustion phases, analyzing how the viscosity and density of biofuels change the geometry of the fuel flare. The main methodological technique is to work with virtual indicator diagrams, where a specialist can experiment with pressure and temperature parameters, without risking the integrity of real equipment. This forms the ability to predict – a key quality of a modern engineer.

At the final stage of training, the main emphasis should be on working in laboratories with bench equipment. The student personally optimizes the real engine: he varies the injection angles, monitors the toxicity of gases and builds curves of thermal efficiency.

Such a distribution of the educational load – from in-depth theory at the start to almost complete practical autonomy – can ensure the transformation of knowledge into stable professional competence. The general balance of time (approximately 40% of theory and 60% of practice) allows you to train an agricultural engineer who not only knows about the existence of alternative fuels, but also owns methods of their effective adaptation to complex technical systems of agricultural production.

An important stage in the transition from academic accumulation of knowledge to imitation of real professional activities of agricultural engineers is the introduction of case methods into the educational process. This allows the student to find himself in a situation where he has to make a responsible decision in the conditions of multifactorial analysis, which is typical for modern agricultural production [12].

In the educational process, the case method is implemented through the consideration of specific production tasks, where the technical parameters of the engine are inextricably linked with the economy and ecology. For example, students are offered a scenario: “Transfer of the tractor fleet of the farm to mixed biodiesel fuel of its own production”.

Within this case, the student must go through three stages of analysis:

- 1) diagnostic – assessment of the technical condition of the available equipment and its compatibility with methyl esters (analysis of sealing materials, the condition of fuel equipment);
- 2) technological – calculation of the necessary adjustments (change in the injection advance angle, installation of additional separators and heating systems);
- 3) energy – forecasting changes in thermal efficiency and fuel consumption, taking into account the lower calorific value of the mixture.

The descriptive model of the case method allows you to move away from formal problem solving to problem discussion [2]. Students are divided into groups (for example, “engineers”, “environmentalists”, “economists”), where each party must justify the feasibility of introducing alternative fuels.

For “engineers”, the challenge is to compensate for the loss of power and ensure the stability of the combustion phases. For “environmentalists”, the priority is to minimize emissions of nitrogen oxides, which often occur with intensive combustion of oxygenates. It is important for “economists” to assess the payback of equipment modernization.

The case method forms the so-called “project reflection” in the future agricultural engineer [17]. He begins to perceive the theory of combustion and thermal efficiency not as abstract sections of a textbook, but as tools for solving a real crisis or optimizing a business.

This technique educates a specialist capable of critical thinking: he realizes that the introduction of alternative fuels is not just an energy substitute, but a complex engineering strategy that requires the integration of fundamental knowledge and practical experience.

An important foundation on which the theory of combustion is transformed into the practical competence of an agricultural engineer during training is the material and technical base of a modern university. The organization of a modern educational and research space requires a move away from static visual aids to the creation of an interactive test site that allows simulating real operating conditions of equipment on alternative fuels [20].

The main element of material support for the process of studying the characteristics of alternative fuels should be a training bench equipped with a system for quick replacement of fuel compositions. This equipment will allow students not only to observe the operation of the engine, but to conduct comparative tests of petroleum diesel and different types of oxygenates (biodiesel, alcohol mixtures) in identical load modes [5]. The stand should be aggregated with common models of autotractor engines, which provides a connection between the training and the real machine and tractor fleet of the agricultural sector.

To reveal the internal processes of energy conversion, the laboratory of a modern university should be equipped with electronic induction means, which includes:

- high-precision pressure sensors in the cylinder and fuel line, allowing you to visualize combustion phases on the monitor screen;
- fuel flow meters of increased accuracy, capable of recording small changes in the flow rate of energy carriers with different densities;
- multi-component gas analyzers and smoke meters that transform the environmental aspect from a theoretical concept into digital data on the composition of exhaust gases.

Since alternative fuels have specific physical and chemical properties, the necessary minimum are devices for operational analysis of fuel quality:

- viscometers and hydrometers to control the viscosity and density of mixtures, which is critical in the study of mixture formation processes;
- equipment for diagnostics of fuel equipment, which allows students to study the effect of alternative fuels on the condition of precision parts.

An important component of an effective educational process is software for mathematical modeling of thermodynamic processes. This will allow conducting virtual experiments before the start of real tests, comparing theoretical calculations of thermal efficiency with the actual data obtained at the stand [7].

Such comprehensive support turns the laboratory from a place of passive study of the structure into a center of engineering analysis. Students will have the opportunity to go all the way: from the preparation of the fuel mixture and the analysis of its properties to the optimization of the engine duty cycle based on the experimental data obtained.

It should also be emphasized that the transition to multi-fuel systems in agricultural engineering is associated with several technical and operational barriers, which become central objects of research in the process of training specialists. Training should be aimed at ensuring that the future engineer perceives these difficulties not as obstacles, but as tasks that require a comprehensive thermal engineering solution.

The main difficulty is the instability of the physical and chemical properties of different types of fuel. When switching from oil diesel to biofuels or alcohol mixtures, there is a problem of a mismatch of injection characteristics. Due to the higher viscosity of biodiesel, the load on the fuel pump increases, and a change in the ignition delay period leads to a violation of the combustion phases [16].

During the training, students should acquire skills in developing adaptation algorithms that allow the engine to “recognize” the type of fuel by indirect indicators and instantly change the supply parameters to maintain thermal efficiency.

In addition, multi-fuel systems face the chemical aggressiveness of alternative components. Ethanol and methyl esters of fatty acids are able to dissolve rubber seals and cause corrosion of non-ferrous metals in the fuel line. The tendency of biofuels to oxidation during long-term storage can lead to the formation of deposits in the injectors [14]. Therefore, the methodology for training agricultural engineers should provide for the study of modern composite materials and fluororubbers resistant to aggressive environments. An important component of the educational process should also be the mastery of technologies for the use of antioxidants and stabilizing additives that ensure the homogeneity of fuel and the purity of fuel equipment.

It should be noted that the transition to multi-fuel modes is quite often accompanied by a drop in energy efficiency and an increase in emissions of nitrogen oxides due to the higher intensity of combustion of oxygenates [22]. Therefore, students should master the method of thermal balancing of the engine. The use of exhaust gas recirculation systems and two-stage injection allows you to level the temperature peaks in the cylinder. Thus, the future engineer learns to create “flexible” energy systems, where environmental safety is not sacrificed to power. End-to-end process: from materials science to digital combustion control. This approach prepares an agricultural engineer to work in conditions of real energy uncertainty, where the ability to quickly adapt equipment becomes his main professional advantage.

6. Conclusions

In modern conditions of the development of the fuel and energy complex, understanding the physical and chemical features of oxygenates (the presence of bound oxygen, changes in viscosity and cetane number) is critical for the correct prediction of engine operation. Comparative analysis shows that the lower calorific value of alternative fuels requires the skills of mathematical modeling of the energy balance from an agricultural engineer to compensate for the “energy deficit” of the mixture.

The teaching methodology turns the student into a researcher who, through the analysis of indicator diagrams and heat release characteristics, learns to optimize the phases of combustion. The transition to multi-fuel systems requires from the engineer not only knowledge of mechanics, but also the ability to adapt the injection parameters to the specifics of the kinetics of combustion of alternative compounds.

The assessment of the toxicity of exhaust gases in the educational process ceases to be a formal measurement, turning into a tool for diagnosing the completeness of combustion. The use of oxygenates allows the future engineer to practically implement the concept of “green” energy, minimizing soot and carbon monoxide emissions, provided that the temperature regime of the cycle is properly managed.

Effective structuring of training modules with an emphasis on practical activities and the implementation of case methods allows you to simulate real production challenges. Solving cases regarding the transfer of the fleet of equipment to biofuels of its own production forms a systematic vision for students, where technical solutions are consistent with the economic feasibility and available material and technical support of laboratories.

A debatable analysis of the difficulties of the transition to multifuel (corrosive aggressiveness, instability of mixtures, changes in the spontaneous ignition delay) indicates the need to train personnel capable of working with intelligent engine adaptation algorithms.

Thus, the proposed methodology provides training of a new generation of agricultural engineer who has the tools for the effective operation of equipment on alternative energy carriers, contributing to energy independence and environmental sustainability of the agricultural sector.

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