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Modernisation of state land monitoring system as a basis for management decisions in post-war reconstruction process

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Abstract. The research relevance is determined by the need to modernise the state land monitoring system in Ukraine in the context of post-war reconstruction, when sustainable development of territories, food security and social cohesion directly depend on the quality, efficiency and adaptability of management decisions. The study aimed to justify the possibilities of applying the agile paradigm as a conceptual basis for updating state land monitoring and monitoring of land relations in the post-war period. The study used a narrative review of scientific sources, analysis of the regulatory framework, elements of the case method and conceptual modelling. As a result, the study determined that the modern system of state land monitoring in Ukraine is fragmentary, has limited data integration, is insufficiently adapted to the conditions of the war and post-war period, and has weak institutional coordination, which reduces the effectiveness of management decisions. The study argued that the combination of the principles of Strong Land Governance, digitalisation, stakeholder and polycentric approaches creates the preconditions for the transition from static monitoring models to adaptive iterative systems. The concept of Sustainable Agile Land Management was proposed, which integrates resilience, adaptive management and institutional change, prioritising the use of geospatial data in near real time. A conceptual framework for sustainable

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land management in post-war Ukraine and a model of an agile ecosystem for monitoring and managing land resources with a stakeholder core have been developed, demonstrating the logic of interaction between monitoring, auditing and management decision-making. The study demonstrated that the agile approach can ensure a rapid response to the risks of land degradation, incorporating the local context and ensuring the coordination of environmental, economic and social development goals. The practical value of the study results is determined by the possibility of using the proposed approach and models as a methodological basis for modernising state land monitoring and supporting management decisions in the process of post-war reconstruction of Ukraine

Keywords: public administration; land resource management; social welfare; sustainable development; land use

Introduction

Land relations are a key foundation for the functioning of the state, as they determine the specifics of the use, distribution and protection of one of the most substantial strategic resources: land. The economic development of the country, ecological balance and social justice depend on how effectively the state manages these relations. This issue is particularly relevant in Ukraine: the country faces two critical challenges simultaneously: significant problems and contradictions in the field of state regulation of land relations, on the one hand, and critical problems caused by the Russian military aggression, on the other.

The issue of land relations management in Ukraine attracts considerable attention from both scientists and experts. Aspects of information support for this process are of particular interest. O. Dyshlyk *et al.* (2018) emphasised the relevance of complete and reliable information on land resources for effective management decisions. In this context, priority is given to the implementation of geographic information systems (GIS) and remote sensing technologies. According to O. Braslavska (2025), the use of GIS methods can significantly improve the accuracy, speed and clarity of land use change analysis. At the same time, R. Mishchenko *et al.* (2020) highlighted the significance of integrating data from different sources into a single system.

L. Vasilieva (2024) emphasised that the integration of administrative and environmental mechanisms is a key condition for ensuring sustainable land use. The study noted that improving the system of public administration in the field of land relations is a multifaceted task that requires close cooperation between the state, local government, business and the public. This approach encompasses the modernisation of the regulatory framework, the rationalisation of the distribution of powers, the introduction of modern technological solutions and a shift in the management paradigm towards public values and the principles of sustainable development.

S.V. Sharapova & V.A. Kashkina (2025) emphasised that information on the qualitative state of land is one of the key elements in the land resource management system. The study highlighted the significance of ensuring the interoperability and integration of state electronic information systems. This makes it possible to combine data from various sources, including the state land cadastre and other information resources, which contributes to updating information on land use and improving the efficiency of land resource management. Interoperability in this area is defined as the ability of different information systems to interact effectively, exchange geospatial data, analytical information and cadastral and monitoring results without loss of content or the need for manual intervention.

The issue of land monitoring remains relevant for the global scientific community. H. Azadi (2020) noted that despite growing interest among land use policymakers in defining indicators that measure changes in land tenure systems, there is little consensus on what structure can functionally analyse land tenure systems and how it should be developed. Existing indicators primarily address the measurement of the “consequences” of (in)security of land tenure and often neglect the “causes”. The study analysed both the causes and implications of Strong Land Governance (SLG) and Weak Land Governance (WLG), which depend on the government’s decision-making process. Land governance involves various stakeholders in government decisions and ensures the security of means of subsistence. According to the researcher’s conclusion, SLG is a prerequisite for economic growth and poverty reduction in rural areas of developing countries.

R.P. Ndugwa & C.K. Omusula (2025) analysed the institutional structures and policies governing land governance and land tenure security in Kenya, Rwanda, Uganda and Zambia. The study examined how monitoring land rights and access to data can influence the achievement of the UN Sustainable Development Goals, particularly in the context of ensuring equal access to land resources and improving land governance. The study determined that the main problems in these countries are insufficient coordination between authorities, limited access to up-to-date data, and insufficiently transparent land tenure policies. At the same time, the article emphasised the importance of integrating modern technologies to improve data collection and use for sustainable development in these countries.

T.E. Boza Espinoza *et al.* (2024) investigated how Peru’s land monitoring system contributes to the implementation of international environmental commitments, particularly under the Rio Conventions (UN on biodiversity, combating desertification, and climate change). The study demonstrated that reliable monitoring of land use change is key to developing and evaluating land management policies, but there are problems with policy coherence, data access and coordination between institutions. The authors found that although Peru has achieved some of the goals for sustainable land management, financial, institutional, and technical constraints hinder the full implementation of international commitments. The study emphasised that improving land monitoring systems can strengthen management decisions and support national efforts to achieve environmental goals.

Most of the analysed studies emphasised the significance of integrating different data sources, such as geographic information systems and remote sensing technologies, but in practice this remains limited due to insufficient coordination between institutions, restricted access to up-to-date data and a lack of effective integration mechanisms. In addition, there is a lack of coordination between policies and institutions at the national and international levels, which complicates effective land resource management. Therefore, the study aimed to develop a conceptual framework for sustainable land management and build an effective monitoring system that includes the integration of modern technologies such as geographic information systems, remote sensing, and data automation. This will not only improve the effectiveness of management decisions on land use but also ensure social well-being and sustainable development of the country in the post-war period, in particular through the participation of all stakeholders. To achieve the research objective, it was necessary to analyse the current state of the land monitoring system in Ukraine, develop a conceptual framework for sustainable land resource management in the context of post-war reconstruction, and model a land monitoring ecosystem based on Agile principles with the involvement of stakeholders.

Materials and Methods

The study was conducted as conceptual and analytical work aimed at substantiating the possibilities of applying the agile paradigm in modernising state land monitoring and land relations monitoring in post-war Ukraine. The main methodological tool of the study was a narrative review of the literature, due to the complexity and multidimensionality of land resource management issues in the context of war and post-war reconstruction. Standard models of land use change do not always cover contextual, institutional and social factors that are difficult to formalise quantitatively, whereas a narrative review provides a flexible and comprehensive synthesis of existing knowledge, management practices and challenges (Jorgensen *et al.*, 2025).

The material basis of the study consisted of Ukrainian regulatory and legal acts governing land monitoring and the functioning of geospatial data (in particular, the Land Code of Ukraine, 2001; Resolution of the Cabinet of Ministers of Ukraine No. 474, 2023); scientific publications on land management issues. The Consensus platform was used to form a sample of elements for the study, which simultaneously searches several scientometric databases through a single interface. Search queries were based on the research topic by combining key concepts: land monitoring, land governance, agile/adaptive management, post-conflict/post-war reconstruction, digitalisation and decision-making, which covered the interdisciplinary nature of the issue. The search covered the ScienceDirect, MDPI, Springer, JSTOR and ResearchGate databases. The analysis included publications in English and Ukrainian of at least three pages in length that corresponded to the research topic and were of an appropriate scientific level. The selection, duplication, removal and final inclusion of sources were conducted following the PRISMA protocol.

Methodologically, the study combined a systematic approach, qualitative analysis methods, and elements of the case method. At the first stage, content analysis and comparative legal analysis of the regulatory framework were conducted to identify gaps in the creation of geospatial data and metadata, as well as institutional and technological limitations of the current monitoring system. At the second stage, a narrative synthesis of the literature was applied to identify the key principles of Strong Land Governance, requirements for land management monitoring, and prerequisites for the digital modernisation of state land monitoring (SLM). The third stage involved benchmarking international post-conflict practices (Iraq, Syria), incorporating the principle of the impossibility of directly transferring models to the national context.

Conceptual modelling (Embley & Thalheim, 2011) was the key method used to obtain results, used to create a simplified, abstract representation of the land resource monitoring and management ecosystem. Based on the integration of theories of resilience, adaptive management and institutional change, the concept of Sustainable Agile Land Management was formed, and two visual models were developed: a conceptual framework for sustainable land management in post-war Ukraine and an agile ecosystem for land resource monitoring and management with a stakeholder core and polycentric logic. The key components and mechanisms of the proposed approach have been summarised in the author's tables. The methodological approach used ensured logical consistency between the theoretical foundations, empirical observations and conceptual generalisations, which substantiated the potential of the Agile paradigm as an adaptive tool for modernising state land monitoring and supporting management decision-making in the post-war reconstruction process.

Results and Discussion

Land monitoring: Role in ensuring sustainable development, paradigms, practices and case studies

Effective land management is a key prerequisite for sustainable development, social justice and improved public governance, especially in the context of growing environmental and socio-economic challenges. In this context, the concept of Strong Land Governance, which combines the principles of transparency, accountability, fairness and public participation, is of particular importance. According to R. Hall *et al.* (2016), a land management system based on SLG principles is much more effective than the traditional one and can improve other aspects of social life, such as sustainable development, gender equality and community viability. A substantial element for implementing these principles is state land monitoring, which provides an evidence base for management decisions, helps fight corruption, and integrates sustainable development goals into land policy practice.

Land monitoring for governance purposes involves the use of data and systems to track land access, its use and ownership to ensure transparency, accountability and fairness, combat corruption, and support sustainable development by providing evidence for policymaking, improving land governance (often in digital format) and securing the rights of individuals and communities. It assesses how land governance is implemented, from legal norms to actual implementation, prioritising principles such as equality, participation and effectiveness to build better systems. Key aspects of land governance monitoring are summarised in Table 1.

Table 1. *Key aspects of land resource management monitoring*

Aspect	Content
Data and technologies	Use of digital systems (such as the Agrarian Register in Ukraine or Copernicus in Europe) to collect and analyse land data, creating comprehensive overviews for planning and decision-making
Transparency and audit	Monitoring demonstrates the actual state of land, reduces corruption and political speculation, and ensures accountability of authorities
Security of land ownership (legal guarantees)	Assessment of tenure rights (who owns, uses or manages land) to prevent conflicts, especially for vulnerable groups such as women, and to ensure equal access
Policies and reforms	Provision of a diagnostic tool (such as the World Bank's LGAF) to identify weaknesses in land governance and prioritise reforms for better governance
Sustainable development	Connecting land monitoring to broader Sustainable Development Goals (SDGs) on food security, poverty reduction and environmental protection

Source*: compiled by the authors based on A. Lyusak & K. Nikolaichuk (2020), O. Ercan (2022)*

The modernisation of the state land monitoring system aims to improve the efficiency of land resource management through the introduction of digital technologies, the integration of data from various sources, the use of space monitoring and the creation of unified information platforms, in particular national spatial data systems, for the rapid detection of soil degradation, illegal use and changes in soil quality characteristics. Key areas include automating data collection, integrating data with other monitoring systems (environmental, agricultural) and creating interactive geoinformation portals for management decision-making (Reydon *et al.*, 2020).

Monitoring land relations covers a wide range of tasks, the implementation of which requires the involvement of various institutions and sectors. These tasks included monitoring the fulfilment of state obligations, supporting political advocacy, providing information on the use of financial resources, evaluating the results of the implementation of strategic and programmatic documents, stimulating public dialogue and democratic discussions, and actively involving stakeholders in effective land management practices. At the same time, no single institution is capable of institutionally ensuring the implementation of the entire range of these functions, just as there is no universal system capable of fully satisfying the needs of all participants in the process. In such conditions, cross-sectoral interaction and the development of inclusive approaches to monitoring become particularly relevant, while parallel and complementary initiatives should be seen not as duplication but as a substantial resource for improving the quality of land resource management. Therefore, in the process of modernising the state land monitoring system, it is advisable to introduce a stakeholder approach. The development of a comprehensive digital model for monitoring land relations can increase the effectiveness of state monitoring of land resources and contribute to social welfare, and support the implementation of sustainable development goals, particularly at the local level.

Land monitoring is an activity that involves the use of geospatial data, as defined by the Land Code of Ukraine (2001). The results of observations and measurements of the state of the environment and other ecosystem parameters are included in the list of geospatial data sets and types of the national geospatial data infrastructure. However, the content and procedure for land monitoring (Resolution of the Cabinet of Ministers of Ukraine No. 474, 2023) do not define the process of creating geospatial data and metadata. M. Malashevskyi *et al.* (2025) established that a "national, regional and local database on the state of land and soil" would be created based on a comprehensive national observation system. At the same time, ensuring the effective operation of a unified monitoring system remains a difficult task that requires addressing a wide range of organisational, technical and other challenges.

The current state of the land monitoring system in Ukraine is accompanied by several significant problems, among which the following can be highlighted: insufficient adaptation to wartime conditions, fragmentation between different agencies, limited technical resources, lack of a unified methodology for assessing damage, weak integration with international systems, and vulnerability in data storage. At the same time, the revitalisation of the land market, confirmed by data from the State Geocadastre on the transfer of 909,483 hectares of land plots (as of February 2025), creates new challenges for the monitoring system, as it requires enhanced control over compliance with the principles of rational land use by new owners in the context of growing risks of land degradation (Rybalko, 2025). The monitoring system should be improved by optimising the monitoring process methodology, strengthening coordination between the entities involved in this process, and effectively managing them within the state land monitoring system in Ukraine. It is also necessary to ensure the integration of information resources.

The modernised LMS can ensure rapid response to land-related issues and provide a basis for sustainable land management, which is critical for agriculture, ecology and territorial development. The main areas of modernisation of the state land monitoring system include:

1) digitisation and automation: transition from paper media to digital databases and automated systems for collecting, processing and storing information on land status;

2) data integration: combining DMZ data with the results of space monitoring (space imaging), environmental monitoring, land management and cadastral registration;

3) creation of geographic information systems (GIS) – development of a national spatial data system that provides data visualisation, spatial information analysis and access to it through portals;

4) remote sensing of the earth (RSE): active use of satellite images for rapid detection of changes (flooding, erosion, pollution, disturbances);

5) forecasting and assessment: developing models to assess the current state of land and forecast negative processes such as desertification, waterlogging, pollution and soil degradation;

6) improving management efficiency: providing authorities with up-to-date and reliable information for making informed decisions on land protection and rational use.

The dissertation by K.V. Rybalko (2025) emphasises that the main obstacles to the implementation of public management tools are the institutional weakness of local self-government bodies (only 42% of communities have land management specialists), legal contradictions between the regulations of different agencies, the digital divide between levels of government (only 57% of communities have full access to electronic registries), and regional imbalances in access to resources. To overcome these problems, a comprehensive approach with differentiated management decisions is needed, considering the specifics of each region and its security situation. The study proposed theoretical and methodological foundations for an adaptive strategy for public management of agricultural land in conditions of uncertain truce. This strategy is based on a functional-spatial approach that includes the differentiation of territories according to security, environmental and socio-economic criteria. This approach facilitates a rapid response to changes in the security situation and can be used for the effective adaptation of management tools to local conditions. The strategy provides for the creation of a multi-level management system with mechanisms for rapid response to crises, the integration of specialised information systems for monitoring and analysing the state of land, and the introduction of methods for evaluating the effectiveness of tools, incorporating the specific features of each region. The implementation of this approach will ensure the sustainability of the land use system in conditions of instability, maintain the country's food security, and gradually restore agricultural potential in de-occupied and affected areas. All of these are key elements of the national strategy for Ukraine's post-war economic recovery.

Modelling an ecosystem of state land monitoring and land management based on the agile paradigm and stakeholder approach

The strategy proposed by K.V. Rybalko (2025) is based on a synthesis of the theory of resilience (stability) of systems, the concept of adaptive management, the theory of institutional change, and the methodology of management in conditions of uncertainty. The theoretical basis is the concept of resilience (stability), which defines the ability of a public management system not only to withstand external challenges but also to effectively adapt and transform under their influence, while maintaining its basic functions. It is also necessary to consider the theory of adaptive management systems, which emphasises the process of continuous learning and improvement of mechanisms and tools for effective response to changes in the external environment.

However, there is a paradigm that unites the above theories into a single concept: agile. Sustainable Agile Land Management (SALM) integrates the principles of agile project management (adaptability, iterative work, stakeholder orientation) with SLM practices (soil health, water conservation, biodiversity) to create flexible, sustainable systems that balance environmental, social, and economic needs, addressing complex issues such as climate change and resource scarcity in agriculture and land use. Such management goes beyond rigid planning, ensuring rapid adaptation to changing conditions, ensuring long-term environmental health and community well-being, focusing on the principle of "People and planet over profit" (Matias *et al.*, 2025).

Agile land monitoring for sustainable development uses iterative, adaptive approaches (such as agile/kanban) with real-time data (Internet of Things, artificial intelligence) and community feedback to continuously adjust land use, conservation and management strategies, ensuring faster and more relevant responses to environmental changes (e.g., water, soil) and achieving better social, economic, and environmental outcomes than rigid traditional methods by integrating stakeholder knowledge and focusing on flexible, sustainable practices (Weith *et al.*, 2021). The conceptualisation of such an agile land monitoring "ecosystem" is presented in Table 2.

Table 2. *Structural elements and logic of agile-oriented land monitoring*

Key concepts
Agile principles. Applications of agile software development values (feedback loops, iterations, adaptability) to land resource management
Sustainable land management (SLM). Integration of environmental, social and economic objectives for long-term productivity, sustainability and equity

Table 2. Continued

Key concepts
Adaptive management. Flexible policies and management that respond to new information and challenges, transitioning from static plans
Emphasis on risks. By initially prioritising high-risk areas, agile audits can provide timely and practical information, ensuring that critical issues affecting sustainable development are addressed promptly
Principles of operation
Data-driven iterations. Use of real-time data (sensors, satellite imagery) for continuous monitoring, enabling rapid adjustments (e.g., irrigation in agriculture)
Feedback loops. Introducing rapid feedback from local communities, farmers and stakeholders to improve interventions
Cooperation structures. Building partnerships between governments, communities and experts for joint decision-making
Technology integration. Using the Internet of Things for monitoring and AI for analysis to identify issues (such as rumours or risks) and develop adaptive strategies
Advantages of sustainable development
Resilience. Better readiness to overcome shocks (climate change, pandemics, armed conflicts) through adaptive strategies
Efficiency. Optimises the use of resources (water, soil) and reduces waste
Inclusiveness. Ensures that the needs of various stakeholders are met by involving them in the process
Improved results. Ensures more effective preservation and management by aligning with real-world conditions

***Source:** compiled by the authors*

Remote sensing technologies demonstrate high efficiency as tools for detecting changes, observing and mapping territories. At the same time, in many cases, additional sources of information are needed to reliably confirm the results, interpret them correctly and determine the nature of the damage. When remote sensing capabilities are limited or are unable to provide a full assessment of the situation, it becomes advisable to use alternative or complementary research methods, including field surveys, mobile laboratories, unmanned aerial vehicle data, local monitoring tools, eyewitness accounts, the participation of local volunteers, and analysis of secondary impacts (Kopecká *et al.*, 2025). In such conditions, the application of the stakeholder approach becomes relevant.

In addition, auditing and managing land resources in post-conflict territories is related to the need to establish clear, fair and secure land tenure regimes in situations of mass population displacement, loss or destruction of registration data, and transformation of power relations. This requires comprehensive approaches that combine formal legal norms with traditional institutions, focus on restitution and compensation mechanisms, promote the development of state institutional capacity for transparent governance, and provide for conflict resolution through dialogue with communities and reliance on an effective legal framework, which is critical for peacebuilding and preventing the recurrence of violence.

The land tenure system, in turn, should reflect all land transactions and potential changes related to land use and disposal, as interested parties need to be able to inform the relevant institutions about such transformations promptly. Discrepancies between actual land tenure patterns and existing land institutions can significantly weaken rights protection mechanisms and create conditions for instability. At the same time, there are at least two areas in which it is advisable to apply the agile framework in parallel. First, it can be used as a methodological basis for monitoring flexible, rule-based policy reform indicators, incorporating a wide range of participants in the process, including non-governmental organisations, private sector representatives and the scientific community, in compliance monitoring with the adopted recommendations. This creates a system for further oversight of resource use and respect for the rights of vulnerable groups.

Secondly, alongside flexible indicators, this approach prioritises a range of dynamic and rapidly changing areas, which necessitate the development of empirical indicators for more frequent and timely monitoring of land resource management. Key areas of such analysis include: (1) principles of land management system functioning (in particular, from the perspective of primary and secondary rights registered both for individuals and groups, with an emphasis on the gender dimension); (2) the situation of poor segments of the population, who are often deprived of access to reliable information; (3) historical trajectories of land relations development; (4) the scale and typology of conflicts that fall within the formal legal field.

In this context, auditing and managing public land resources based on a stakeholder approach involves various groups (citizens, communities, organisations) in assessing and overseeing land use, exceeding the scope of traditional top-down control to increase transparency, fairness and outcomes by incorporating local knowledge, improving accountability and balancing competing interests for sustainable development, often using tools such as stakeholder analysis and public participation frameworks. This approach uses auditing not only for financial checks, but also to assess management, effectiveness and stakeholder satisfaction, seeking “win-win” solutions by integrating diverse needs and influences. The systematisation of the main approaches, tools and expected effects of applying stakeholder logic in the audit and management of state land resources is summarised in Table 3, which can be used for a comprehensive assessment of the potential of this approach to improve the quality of public administration.

Table 3. Key concepts and principles of auditing and managing state land resources based on a stakeholder approach

Key concepts and principles
Identification of stakeholders. Recognition of all parties affected by or affecting land management (government, developers, local communities, indigenous groups, future generations)
Participatory management. Involvement of citizens and stakeholders in decision-making to improve legitimacy and environmental outcomes
Effective governance. Managing public lands for long-term economic, social and environmental benefits, with an emphasis on transparency and sustainable development
Stakeholder analysis. A tool for identifying interests, power and needs to determine dynamics and develop fair policies
Principles of operation
Engagement methods. Use of surveys, online platforms (such as social networks for citizen science), consultations and workshops to gather different points of view
Balance of interests. Active determination and prioritisation of conflicting stakeholder interests (e.g., economic development versus nature conservation) to obtain balanced solutions
Improved results. Using local expertise to obtain better data, promote community engagement and increase resilience to environmental challenges
Benefits and risks
Benefits. More democratic, transparent, fair and efficient land management, improving environmental and social outcomes and ensuring social well-being
Risks. Managing the numerous, sometimes conflicting, interests of stakeholders, ensuring meaningful (not just symbolic) participation and overcoming legal/administrative barriers

***Source**: compiled by the authors*

There is already a range of best practices that can be used to develop a modernised system of public land monitoring in post-war Ukraine. In particular, sustainable land management in post-conflict Iraq included overcoming significant land degradation, water scarcity and pollution through projects aimed at restoring wetlands with the support of the Food and Agriculture Organisation of the United Nations and the Global Environment Facility (FAO/GEF), the introduction of a socially oriented domain model for land rights registration (Social Tenure Domain Model, STDM) within the framework of the United Nations Human Settlements Programme (UN-Habitat), and the identification of pollution hotspots with the participation of the World Bank, which made it possible to simultaneously address the problems of weak governance, mass population displacement and climate change to ensure sustainable livelihoods and environmental restoration. Key strategies included agroecology, conservation agriculture, capacity building for local authorities, and innovative land use solutions for returnees and vulnerable groups that exceed the scope of traditional systems (Aoki *et al.*, 2014). The main approaches to management were identified as follows:

- comprehensive assessment: combining digital mapping of land rights with environmental data (pollution, water);
- community-oriented solutions: empowering local communities and authorities through training;
- policy and practice: adapting land management, promoting sustainable agriculture and restoring ecosystems;
- climate resilience: building adaptive capacity to water scarcity and rising temperatures.

In post-war Syria, land registry management underwent both local transformations and demonstrated considerable stability. With the destruction of state institutions and the emergence of new non-state governance structures, the old land registry system collapsed, and existing gaps between official records and property rights deepened, with significant implications for the possibility of establishing lasting peace in the country (Alsamar *et al.*, 2023). The proposed actions emphasised the importance of prioritising agricultural land in master plans, which was achieved through the recultivation of these lands after the end of the conflict. This also included restrictions and limits on construction, especially on productive agricultural land, which helped to create a healthy and adequate environment, self-sufficiency and employment opportunities for residents. Increasing public green spaces was also identified as a priority.

Covering these cases and the theoretical arguments described above, a conceptual framework for sustainable land management in post-war Ukraine can be proposed (Fig. 1). The proposed framework combines elements of equitable sustainable response, land management and post-conflict recovery strategies, and reflects opportunities for improvement through polycentric and multi-level approaches aimed at ensuring social cohesion, food security and sustainable development. The approach to land management developed by UN-Habitat (Enemark *et al.*, 2016) is based on three basic and closely interrelated principles, summarised in Table 4. Within this approach, the land management system in each country, including Ukraine, should cover four key components: land ownership, land value, land use and land development. The implementation of these functions requires interdisciplinary cooperation and the involvement of specialists from various fields, including land surveyors, engineers, lawyers, appraisers, planners, and developers.

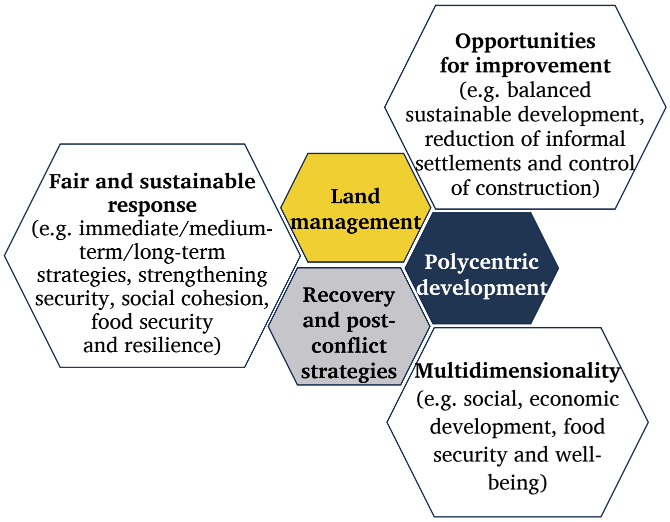

Figure 1. *Conceptual framework for sustainable land management in post-war Ukraine*
Source: *compiled by the authors*

Table 4. *Key principles of the "Fit for purpose" approach*

Spatial framework	Legal framework	Institutional framework
▪ visible (physical) boundaries, not fixed; ▪ aerial/satellite images, rather than field studies; ▪ accuracy related to the objective rather than technical standards; ▪ requirements for updating and opportunities for modernisation and continuous improvement	▪ a flexible framework developed according to administrative rather than "legal" principles; ▪ continuity of ownership, not just individual ownership; ▪ a flexible accounting system, not just registers; ▪ ensuring gender equality in land and property rights	▪ proper management of land resources, rather than bureaucratic barriers; ▪ integrated institutional structure, rather than isolated sectoral structures; ▪ a flexible approach to ICT, not just high-tech solutions

Source: *compiled by the authors based on S. Enemark et al. (2016)*

To illustrate the interrelationships between the key elements of adaptive land resource management, a schematic model of the agile ecosystem for land resource monitoring and management has been proposed (Fig. 2). At the centre of this model is the integrative involvement of stakeholders in combination with the principles of polycentric development, which determines the logic of the entire system's functioning. Interrelated processes of land monitoring and auditing, management decision-making in the field of land management, as well as the achievement of sustainable development, social well-being and justice are formed around the central core. This structure emphasises the iterative nature of the interaction between data, management decisions and social goals in a dynamic environment. Therefore, integrated spatial polycentric land use management is a key tool for recovery, peacebuilding and reconstruction strategies in Ukraine, as well as for achieving the Sustainable Development Goals. When benchmarking, it is impossible to fully adapt approaches from different cases; there is no one-size-fits-all approach, as each country has its own circumstances. Nevertheless, international and common standards can provide a general framework for research. Therefore, by combining benchmarking with local practices and experiences, key indicators of land management can be identified and evaluated to determine which aspects of the land management process need improvement.

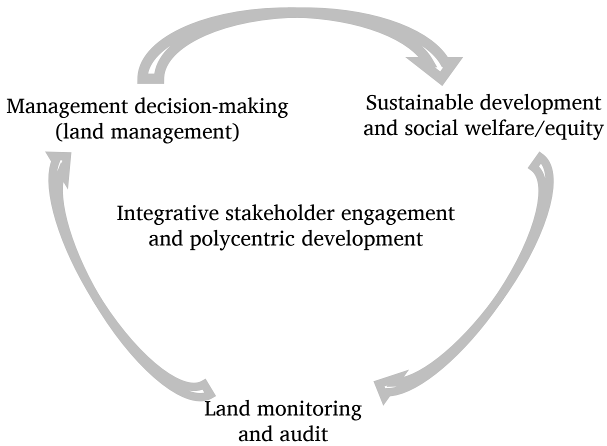

Figure 2. *Agile (iterative) ecosystem for monitoring and managing land resources with stakeholder involvement*
Source: *compiled by the authors*

The results of the study confirm the feasibility of applying the agile approach in the land relations monitoring system, which is consistent with current scientific developments in the field of adaptive land resource management. In particular, H. Azadi (2020) emphasises the need to move from static indicators to flexible, process-oriented monitoring models that consider the causes of changes in land ownership and provide effective feedback loops between data and management decisions. Similar conclusions are presented in the studies by Th. Weith *et al.* (2021) and M. Matias *et al.* (2025), which demonstrate the effectiveness of iterative, co-design and digital approaches to land use management in conditions of high uncertainty and dynamic change.

A substantial theoretical basis for interpreting the results of the study is also the article by O.V. Lazareva & V.V. Yuzva (2024), which substantiates a synergistic approach to land use in the post-war period, based on the combined action of data, institutional mechanisms and stakeholder interaction. In this context, agile monitoring of land relations can be seen as a practical tool for achieving synergy, ensuring flexible integration of information, prompt adjustment of management decisions, and coordination of environmental, economic, and social goals. This is consistent with the conclusions of T.E. Boza Espinoza *et al.* (2024), emphasising that it is adaptive, inter-institutional and data-driven monitoring systems that can improve the quality of land resource management in post-crisis and post-conflict conditions. Thus, the results of the presented study expand existing approaches, demonstrating the potential of the Agile ecosystem as a tool for implementing synergistic principles in the practice of post-war land relations management.

Conclusions

The study aimed to justify the possibility of modernising state monitoring of land relations in post-war Ukraine based on the agile paradigm and stakeholder approach. The study analysed the role of land monitoring as a tool for implementing the principles of Strong Land Governance and achieving sustainable development goals through increased transparency, accountability and fairness in governance. Existing gaps and challenges in the landscape of state land monitoring in Ukraine were identified in the context of the need to form vectors of sustainable development in the period of post-war reconstruction. In particular, the analysis showed that current approaches do not sufficiently define the processes of creating geospatial data and metadata, which complicates the integration and reuse of information. An assessment of the state of the LMS revealed systemic limitations, including fragmentation between agencies, a shortage of technical resources, a lack of a unified methodology for assessing damage, weak integration with international systems, and risks to data preservation during the war/post-war period. Based on benchmarking of international post-conflict cases, practices relevant to the Ukrainian context were summarised, and a conceptual framework for sustainable land management in post-war Ukraine was developed. As a result of the study, a conceptual model of an agile ecosystem for land resource monitoring and management was proposed, with a stakeholder core and polycentric logic that closes the cycle of "data → monitoring/audit → management decisions → sustainable development and social well-being". Polycentric development and active stakeholder engagement can promote better land use practices through proper land resource management that supports decision-making. As a result, land use can be optimised and, consequently, a more effective land resource management system can be achieved, contributing to the achievement of the Sustainable Development Goals. The study conceptualised the agile approach as a tool for transitioning from "static" control to adaptive, data-driven and inclusive land relations management, which is critical for post-war reconstruction where risks and conditions are rapidly changing. The proposed model provides a framework for the integration of geodata, institutional coordination and stakeholder participation, increasing the soundness of management decisions and the system's ability to support the achievement of SDGs. Promising areas for further research include the development of measurable agile indicators for monitoring land relations, testing the model through pilot projects in communities of different security categories, and empirical assessment of data interoperability and the effectiveness of polycentric management mechanisms.

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Conflict of Interest

None.

References

[1] Alsamar, A., Korabi, A., Jalabi, S., Khan, I., & Lintelo, D. (2023). Land registry in Syria after a decade of conflict: A tale of three cities. *International Development,* 35(8), 2667-2685. doi: 10.1002/jid.3792.

[2] Aoki, C., Al-Lami, A., & Kugaprasatham, S. (2014). Environmental management of the Iraqi marshlands in the post-conflict period. In E. Weinthal, J. Troell & M. Nakayama (Eds.), *Water and post-conflict peacebuilding* (pp. 118-136). London: Earthscan.

[3] Azadi, H. (2020). Monitoring land governance: Understanding roots and shoots. *Land Use Policy,* 94(6), article number 104530. doi: 10.1016/j.landusepol.2020.104530.

[4] Boza Espinoza, T.E., Salinas, N., Cosio, E.G., Tito, R., Nina-Quispe, A., & Roman-Cuesta, R.M. (2024). Assessing Peru's land monitoring system contributions towards fulfilment of its international environmental commitments. *Land,* 13(2), article number 205. doi: 10.3390/land13020205.

[5] Braslavska, O. (2025). GIS technologies and remote sensing in monitoring land use changes. *Urban Development and Spatial Planning*, 89, 472-487. doi: 10.32347/2076-815x.2025.89.472-487.

[6] Dyshlyk, O., Dorosh, A., Tarnopolsky, A., & Tarnopolsky, Ye. (2018). Infrastructure of geospatial data in Ukraine: Status and methodological problems of legislative regulation. *Land Management, Cadastre and Land Monitoring*, 1, 33-43. doi: 10.31548/zemleustriy2018.01.004.
[7] Embley, D., & Thalhelm, B. (2011). *Handbook of conceptual modeling: Theory, practice, and research challenges*. New York: Springer.
[8] Enemark, S., McLaren, R., & Lemmen, C. (2016). *Fit-for-purpose land administration: Guiding principles for country implementation*. Nairobi: UNHabitat.
[9] Ercan, O. (2022). Land management paradigm: Global agenda and the case of Turkey. *Konya Journal of Engineering Sciences,* 10(3), 2667-8055. doi: 10.36306/konjes.1143000.
[10] Hall, R., Scoones, I., & Henley, G. (2016). *Strengthening land governance: Lessons from implementing the voluntary guidelines. LEGEND State of the Debate Report 2016*. London: UKaid. doi: 10.13140/RG.2.1.2084.6962.
[11] Jorgensen, I., Garrick, D., & Wight, Ch. (2025). *A narrative review of social infrastructure for agricultural groundwater nature-based solutions*. Cambridge: Cambridge University Press. doi: 10.1017/sus.2025.10020.
[12] Kopecká, M., Szatmári, D., & Polyvach, K. (2025). Land cover mapping of war-affected areas. *Geographical Journal*, 77(2), 97-110. doi: 10.31577/geogrcas.2025.77.2.04.
[13] Land Code of Ukraine. (2001, October). Retrieved from https://zakon.rada.gov.ua/laws/show/2768-14#Text.
[14] Lazareva, O.V., & Yuzva, V.V. (2024). Justification of the application of the synergy approach in land use in the post-war period. In *Management and rational use of land resources in territorial communities in the post-war period: Proceedings of the VII all-Ukrainian scientific and practical conference* (pp. 26-29). Kherson: KhDAEU.
[15] Lyusak, A., & Nikolaichuk, K. (2020). Problems and areas to improve a land monitoring system in Ukraine. *Land Reclamation and Water Management*, 2, 81-88. doi: 10.31073/mivg202002-249.
[16] Malashevskyi, M., Tarnopolskyi, A., Kovalchuk, I., Malashevska, O., & Tarnopolskyi, Y. (2025). Geospatial data infrastructure for land monitoring in Ukraine. In *18th international conference monitoring of geological processes and ecological condition of the environment* (Vol. 2025, article number 156). Kyiv: European Association of Geoscientists & Engineers. doi: 10.3997/2214-4609.2025510156.
[17] Matias, M., Henriques, Ch., Damásio, C., Birra, F., & Pires, J. (2025). LAND IT: A decision support system for optimising land use planning strategies. *AGILE GIScience Series*, 6, article number 39. doi: 10.5194/agile-giss-6-39-2025.
[18] Mishchenko, R., Ilchenko, V., Kariuk, A.M. (2020). Geospatial data infrastructure in Ukraine. *Herald of the National Academy of Sciences of Ukraine*, 12, 136-140.
[19] Ndugwa, R.P., & Omusula, C.K. (2025). Institutional frameworks, policies, and land data: Insights from monitoring land governance and tenure security in the context of Sustainable Development Goals in Kenya, Rwanda, Uganda, and Zambia. *Land,* 14(5), article number 960. doi: 10.3390/land14050960.
[20] Resolution of the Cabinet of Ministers of Ukraine No. 474 "On Public Monitoring of Land Relations". (2023, May). Retrieved from https://zakon.rada.gov.ua/laws/main/474-2023-%D0%BF?utm source#Text.
[21] Reydon, B., Fernandes, V., & Telles, T. (2020). Land governance as a precondition for decreasing deforestation in the Brazilian Amazon. *Land Use Policy,* 94, article number 104313. doi: 10.1016/j.landusepol.2019.104313.
[22] Rybalko, K.V. (2025). *Mechanisms of public management of agricultural lands*. (Doctoral dissertation, V.N. Karazin Kharkiv National University, Kharkiv, Ukraine).
[23] Sharapova, S., & Kashkina, V. (2025). Current status and development directions of the land and soil monitoring system in Ukraine. *Analytical and Comparative Law,* 2(3), 39-43. doi: 10.24144/2788-6018.2025.03.2.5.
[24] Vasilieva, L. (2024). Problems and prospects of the mechanism of state management of land relations. *Pressing Problems of Public Administration*, 2(65), 83-98. doi: 10.26565/1684-8489-2024-2-05.
[25] Weith, Th., Barkmann, T., Gaasch, N., Rogga, S., Straub, Ch., & Zscheischler, Z. (Eds.). (2021). *Sustainable land management in a European context: A co-design approach*. Heidelberg: Springer. doi: 10.1007/978-3-030-50841-8.

Модернізація системи державного моніторингу земель як основа для прийняття управлінських рішень у процесі післявоєнної відбудови

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Анотація. Актуальність дослідження зумовлена необхідністю модернізації системи державного моніторингу земель в Україні в умовах повоєнної відбудови, коли від якості, оперативності та адаптивності управлінських рішень безпосередньо залежать сталий розвиток територій, продовольча безпека та соціальна згуртованість. Метою роботи було обґрунтування можливостей застосування agile-парадигми як концептуальної основи для оновлення державного моніторингу земель і моніторингу земельних відносин у повоєнний період. У дослідженні використано наративний огляд наукових джерел, аналіз нормативно-правової бази, елементи кейс-методу та концептуальне моделювання. У результаті встановлено, що чинна система державного моніторингу земель в Україні характеризується фрагментарністю, обмеженою інтеграцією даних, недостатньою адаптацією до умов воєнного та післявоєнного періоду й слабкою інституційною координацією, що знижує ефективність управлінських рішень. Обґрунтовано, що поєднання принципів Strong Land Governance, цифровізації, стейкхолдерського та поліцентричного підходів створює передумови для переходу від статичних моделей моніторингу до адаптивних ітеративних систем. Запропоновано концепцію Sustainable Agile Land Management, яка інтегрує резильєнтність, адаптивне управління та інституційні зміни й орієнтована на використання геопросторових даних у режимі наближеному до реального часу. Розроблено концептуальний фреймворк сталого управління земельними ресурсами у повоєнній Україні та модель agile-екосистеми моніторингу й управління земельними ресурсами зі стейкхолдерським ядром, що демонструють логіку взаємодії моніторингу, аудиту та прийняття управлінських рішень. Показано, що agile-підхід дозволяє оперативно реагувати на ризики деградації земель, враховувати локальний контекст і забезпечувати узгодження екологічних, економічних і соціальних цілей розвитку. Практична цінність результатів полягає в можливості використання запропонованого підходу та моделей як методологічної основи для модернізації державного моніторингу земель і підтримки управлінських рішень у процесі повоєнної відбудови України

Ключові слова: публічне управління; управління земельними ресурсами; соціальне благополуччя; сталий розвиток; землекористування

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Public policy in the field of integration of medical and social services

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Abstract. In the context of modern warfare and the transformation of healthcare and social protection systems in Ukraine, there is a need to develop a comprehensive model of integrated care that ensures continuity, comprehensiveness, and a person-centred approach. The study aimed to substantiate the feasibility of integrating medical and social services and to identify key directions for developing public policy on the implementation of this type of care, based on an analysis of international experience. The methodological framework was based on a comparative analysis of various integration models, content analysis of Ukrainian regulatory and legal acts, and a systems approach to the interpretation of data on the organisation of medical and social service delivery. As a result of the analysis of international practices, various types of integration presented in the scientific literature were identified: organisational, functional, clinical, professional, regulatory, financial, informational, sectoral, intersectoral, international, horizontal, and vertical integration, as well as service integration and patient-centred integration. It has been demonstrated that medical and social services integration contributes to improved quality and accessibility of care, increased patient satisfaction, more efficient use of resources, strengthened intersectoral interaction, and support for the development of multidisciplinary collaboration. This study systematised contemporary approaches to medical and social services integration, clarified the terminological foundations, and developed criteria for defining medical and social services and their application in the Ukrainian context. The practical significance of the obtained results lies in their potential use for shaping public policy in the field of integrated care, improving government programs, regulatory frameworks, and managerial decisions in the areas of healthcare and social protection

Keywords: public administration; healthcare; social policy; integrated care; intersectoral collaboration; international experience

Introduction

The integration of medical and social services is one of the key directions in the development of modern health care systems worldwide. The need to implement integrated care in Ukraine has become urgent in the context of war, demographic crisis, and population ageing, as well as the increasing prevalence of chronic diseases and declining quality of life. Although a medical reform has been implemented in the country, social services have been

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decentralised, and new institutions regulating the provision of medical and social services have been established, the health care and social protection sectors remain largely disconnected. Such fragmentation reduces the effectiveness of the care system, complicates access to services, and fails to ensure continuity of care for citizens. Therefore, the study of issues related to the integration of medical and social services is timely and holds significant importance for the development of public policy in the fields of health care and social protection in Ukraine.

International experience demonstrates that the medical and social services integration is a complex but necessary process, requiring a systemic approach, intersectoral collaboration, data sharing, and joint financing. In particular, R. Miller *et al.* (2021) analysed the outcomes of the integrated care system reform in the United Kingdom. The authors showed that the establishment of Integrated Care Systems improved care coordination and reduced service duplication; however, issues remain regarding unequal access to services, underfunding of the social sector, and the absence of a unified system for evaluating outcomes. The authors emphasised that integration yields the best results when it is focused on the specific needs of the community and supported by the local government.

M. Collins *et al.* (2023) studied Scotland's experience in integrating health care and social care. In particular, the authors analysed the activities of over 30 Health and Social Care Partnerships and proposed combining clinical, social, and economic criteria when setting funding priorities for medical and social services. They emphasised that effective integration requires not only institutional reforms but also transparent mechanisms for allocating resources between the medical and social sectors.

N. Shuftan *et al.* (2025) analysed the progress, barriers, and prospects of implementing integrated medical and social care in the Baltic countries (Estonia, Latvia, Lithuania) from 2019 to 2024, based on expert surveys and pilot programmes. The authors concluded that, despite political support, the integration of the medical and social sectors is progressing gradually due to challenges related to funding, workforce provision, intersectoral coordination, and data sharing. C. Matos *et al.* (2025) conducted a comparative analysis of European models of integration. The authors emphasised that there is no universal model of integration. Each country develops its own strategy based on its national context. They demonstrated that successful integration requires a national implementation strategy, strengthening of local governance, and a focus on long-term care aimed at promoting the population's well-being, using the example of Portugal.

The topic of integrating medical and social services remains underdeveloped in Ukrainian scholarly thought. In particular, M. Yukalo's (2025) dissertation examines the mechanisms of public administration of the health care system through the lens of an integration approach. The author substantiated the need to move from a fragmented system of health care provision to an integrated, patient-centred model and emphasised that the experience of the United Kingdom may serve as a benchmark for Ukraine.

Another Ukrainian researcher, N. Nazar (2022) conducted a comparative analysis of social work in the health care sectors of Canada and Ukraine. The author noted that social workers are an integral part of medical teams in Canada, whereas such interaction is only beginning to develop in Ukraine. The researcher concluded that the integration of social services into the medical system contributes to improving the quality of care and the efficiency of service provision.

The analysis of scholarly works has shown that leading countries have substantial experience in establishing integrated health care and social protection systems, whereas in Ukraine process is only just beginning. Questions regarding mechanisms of intersectoral interaction at the community level, the evaluation of the effectiveness of pilot integration projects, and the adaptation of international practices to the Ukrainian realities of wartime remain insufficiently studied. The lack of a systematic analysis of the integration of medical and social services in post-socialist countries, particularly in Ukraine, indicates the scientific and practical relevance of further research in this area. The aim of the study was to examine the feasibility of integrating medical and social services and to outline directions for public policy on the implementation of integrated care in Ukraine, taking into account international experience.

Materials and Methods

The research was based on scientific publications, Ukrainian regulatory and legal acts, analytical documents of state authorities and international organisations, as well as dissertations by Ukrainian authors. In particular, the source base included:

- international and Ukrainian scientific publications: articles, reviews, systematic reviews, and conceptual studies on the integration of medical and social services in leading countries, as well as dissertations by Ukrainian authors addressing issues related to the development of social work and integrated models of medical and social service provision in Ukraine;
- Ukrainian regulatory and legal acts: laws and subordinate legislation regulating the health care and social protection systems in Ukraine, including legislation on social services, health care, and state financial guarantees; orders of the Ministry of Health of Ukraine and the Ministry of Social Policy, Family, and Unity of Ukraine, as well as regulatory documents of the State Statistics Service of Ukraine;
- analytical documents and studies of international organisations: materials from the World Health Organization (WHO), the United Nations, and reports from international analytical centres (the UK-based independent charitable analytical centre The King's Fund and the independent UK analytical centre Nuffield Trust), highlighting practices of integrating medical and social services.

The publications primarily cover the period from 1999 to 2025, which allowed for consideration of the development of integration processes over time. The criteria for selecting sources were: studies and documents directly related to the integration of medical and social services; international and Ukrainian experience in integrating health care and social protection systems; publications in peer-reviewed journals and reputable analytical outlets; and legislative and regulatory acts governing the provision of medical and social services in Ukraine. The exclusion criteria were: sources that lack scientific or analytical value; materials with unverified origin or without a current publication date; and works addressing only one sector – either medical or social care – without considering an integration approach.

The research strategy aimed to synthesise data from various sources to provide a comprehensive and comparative analysis of the processes of integrating medical and social services. A systematic literature search was conducted using PubMed, MEDLINE, and Google Scholar to identify relevant peer-reviewed articles, government reports, and policy documents. The search included both original research articles and review studies, with no geographic restrictions, in order to ensure broad coverage of international and national experience in integration. The search terms included: "health care and social care," "social and medical integration," "integrated care," and related keywords. In addition, the reference lists of selected articles were manually reviewed to identify additional relevant sources. Data were selected based on their relevance to the study's aim, with priority given to peer-reviewed journal articles and official government documents to ensure academic rigor and reliability.

The article employed a set of scientific methods that ensured a comprehensive analysis of the integration of medical and social services in both international practice and in Ukraine. The comparative method was used to compare Ukrainian and international experience in the integration of health care and social protection systems. A comparison was made of the experiences of the United Kingdom, the United States, and Ukraine. The criteria for comparison were: the existence of a clearly developed public policy on the integration of medical and social services, the presence of legislation in the field of integration, and the availability of institutional support in this area. The application of the comparative method made it possible to develop proposals for amending Ukrainian legislation on the integration of medical and social services, adapted to Ukrainian conditions, including the suggestion of criteria for distinguishing medical and social services from other similar services.

A systems analysis was applied to integrate heterogeneous data from international and Ukrainian sources. The use of a systems approach was driven by the need to develop a comprehensive understanding of the structure, forms, and types of integration of medical and social services. This made it possible to identify: types of integration (organisational, functional, clinical, regulatory, systemic, horizontal, vertical), levels of integration (macro, meso, micro), as well as degrees of integration (full integration, coordination, linkage). The use of this method made it possible to formulate practical recommendations on the priority directions for integrating medical and social services, as well as to develop initial steps for the integration of health care and social protection systems in Ukraine.

A content analysis of Ukrainian regulatory and legal acts was conducted to clarify the meaning of the term "medical and social services" and to determine its use as a key element in the development of public policy in this area. The units of analysis were articles of law, individual provisions, paragraphs, and key terms. The selection of regulatory texts was carried out using the keywords: "integrated services," "medical and social services," and "social and medical care." The material was coded according to thematic categories: medical component and social component. The results obtained made it possible to determine the frequency and prevalence of these categories, compare groups of regulatory documents, and identify patterns in the regulation of the provision of medical and social services. Thus, the combination of the comparative method, systems analysis, and content analysis ensured a comprehensive study of international and Ukrainian experience in the integration of medical and social services, the identification of types, levels, and degrees of integration, and the development of practical recommendations for their implementation.

Results

The concept of integrated care in the international practice of providing medical and social services

Integrated medical care has become an international trend in the healthcare sector, particularly in North America and Europe. It is viewed as a way to create a more efficient healthcare system. However, the term "integrated care" is often used ambiguously: in the United States, it is associated with "managed care," in the United Kingdom with "shared care," and in the Netherlands with "transmural care," as well as other forms of comprehensive care (Kodner, 2009).

The word "integration" comes from the Latin *integer* – "whole," "complete." Integration refers to the unification of previously separate elements to achieve a common goal. Similar to systems theory, healthcare organisations consist of separate but interconnected parts that must work together to perform tasks effectively. Without integration, the quality and accessibility of services, as well as patient satisfaction, deteriorate. Historically, specialisation in medicine has led to fragmented care. The emergence of general and family medicine aims to enhance integration and ensure a comprehensive approach to fully meet patients' needs. Integration is especially important for patients with complex and chronic conditions, individuals with physical and cognitive impairments and developmental disorders, as well as for their families. Such patients require services provided simultaneously or sequentially by multiple providers, including medical, social, and psychological support. The degree of integration depends on the complexity of patients' needs: the more complex and long-term the conditions, the broader and more structured the approach required (Kodner, 2009).

A review of the literature on integrated care identified approximately 175 definitions and concepts of integrated care (Shaw *et al.*, 2011). At the same time, a key issue remains the lack of consensus on the definitions of basic concepts. As a result, there is a wide range of terms used to describe integrated care, including "coordinated care", "collaborative care", "managed care", "disease management", "case management", "user-centred care in health or social services", "care for chronic conditions", "continuity of care", "seamless care", and others (Nolte & Pitchforth, 2014). Although they may differ conceptually, the boundaries between them often remain blurred.

The concept of integration encompasses organisational, clinical, administrative, and financial aspects and includes the coordination of medical, social, and other related services. Given the multifaceted nature of this concept, integration in healthcare continues to evolve in various directions, resulting in multiple models and approaches for its implementation. Analysis of scientific sources made it possible to identify a wide range of types of integration and to define their characteristics (Table 1).

Table 1. *Types of integration*

№	Type of integration	Description	Authors
1	Patient-centred integration	Building care around the needs of a specific patient, case management, personalised care, and individual care pathways	N. Goodwin (2013)
2	Organisational integration	Formal or informal organisational collaboration: mergers, network creation, joint structures, contractual arrangements, shared budgets, or coordinated planning	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011)
3	Functional integration	Coordination of administrative and support functions: finance, human resource management, strategic planning, IT systems, and the use of shared electronic records	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011), E. Nolte & E. Pitchforth (2014)
4	Service integration	Integration of clinical services through multidisciplinary teams and the comprehensive provision of medical and social care	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011)
5	Clinical integration	Alignment of clinical processes among professionals: use of shared protocols, patient pathways, unified standards, and continuity of care	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011), E. Nolte & E. Pitchforth (2014)
6	Professional integration	Collaboration between medical and social professionals: group practices, joint teams, professional alliances	S. Shaw *et al.* (2011), E. Nolte & E. Pitchforth (2014)
7	Financial integration	Pooling of different funding sources (public, private, donor) to ensure the stability of the service delivery system	D. Yordanov *et al.* (2024), M. Yukalo (2025)
8	Information integration	Shared information systems: electronic medical records, telemedicine, and joint databases	M. Yukalo (2025)
9	Regulatory integration	Shared values, culture, vision, and trust among organisations and professionals; elimination of communication barriers and alignment of professional norms	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011)
10	Systemic integration	Alignment of policies, funding, and regulations at the healthcare system level; unified rules and regulatory approaches	N. Curry & C. Ham (2010), S. Shaw *et al.* (2011), N. Goodwin (2013)
11	Horizontal integration	Integration of organisations at the same level (hospital-to-hospital, service-to-service): shared use of resources, avoidance of duplication	N. Goodwin (2013), E. Nolte & E. Pitchforth (2014), M. Yukalo (2025)
12	Vertical integration	Integration of different levels of care (primary-secondary-tertiary) to ensure continuity of care	N. Goodwin (2013), E. Nolte & E. Pitchforth (2014), M. Yukalo (2025)
13	Sectoral integration	Integration of services within a single sector (healthcare-healthcare or social-social) for comprehensive service delivery	N. Goodwin (2013)
14	Cross-sectoral integration	Interaction of healthcare with education, social services, and the community and volunteer sectors to address complex issues	G. Simpson *et al.* (2023), M. Yukalo (2025)
15	International integration	Collaboration with international organisations and institutions to obtain resources, innovations, technical, and financial assistance	M. Yukalo (2025)

Source*: summarised by the authors*

It is important to note that the scientific literature also distinguishes four categories of integration: integration of medical and social services; integration of primary and inpatient care; integration within a single sector (e.g., mental health); and integration of preventive and curative services (Nolte & Pitchforth, 2014). In addition, some authors, notably N. Curry & C. Ham (2010) and M. Dobbins *et al.* (2016), distinguish the following levels of integration: the macro level, which involves the development of policies on service funding and the regulatory framework; the meso level, which includes the creation of multidisciplinary teams, management of medical service delivery for patients with chronic conditions, and coordination between organisations; and the micro level, which encompasses direct care provision, case management, patient-centred approaches, telemedicine, tele-support, the development of personal budgets, and so on.

The scientific literature also distinguishes "intensity of integration" – a gradation of levels that can range from full integration, where an organisation is responsible for the complete and continuous delivery of care, to collaboration, in which such care is provided by separate entities, with each organisation retaining its own responsibility for service provision. S. Shaw *et al.* (2011), E. Nolte & E. Pitchforth (2014), and W. Leutz (1999) identified the following levels of integration intensity: "full integration", "coordination", and "linkage". "Full integration" involves the formal unification of resources, enabling the creation of a new organisation, alongside the development of comprehensive services tailored to the needs of specific patient groups. The newly established organisation assumes responsibility for all services, resources, and funding, which can be consolidated into a single management structure or provided through contractual agreements between different organisations. "Coordination" involves operating through existing organisational units to coordinate various medical services, share clinical information, and manage patient transitions between different units. It includes regular information sharing, discharge planning, and the work of case managers to improve coordination of care across sectors. "Linkage" involves interaction between existing organisational units to refer patients to the appropriate unit at the right time and to facilitate communication among the professionals involved, ensuring continuity of care. Linkage operates through separate structures within existing healthcare and social service systems, where organisations retain their own responsibility, funding, selection criteria, and operational rules, with staff duties clearly divided among different teams.

The scientific literature also introduces the concept of an "integration framework", which describes three levels of integration aligned with patient needs to ensure a comprehensive approach to meeting those needs. The relationship between the level of user needs and the level of integration is manifested in various ways. At a low level of need, the focus is on the timely identification of urgent treatment requirements, referral of the patient to the necessary care, and subsequent follow-up. In addition, information is provided upon request, and clarity is ensured regarding who pays for what, corresponding to the basic level of linkage. At a moderate level of need, the primary focus is on coordination, which includes identifying at-risk population groups, planning patient discharges, conducting routine two-way reporting, the work of case managers and liaison staff, as well as determining payment mechanisms. At a high level of need, full integration is established, characterised by the operation of multidisciplinary teams managing all care across key settings; shared documentation is used, along with the pooling of financial resources to procure new services from both sectors (Leutz, 1999; Nolte & Pitchforth, 2014). The literature also describes the relationship between integration and care coordination (Curry & Ham, 2010). Four possible combinations of integration and care coordination levels are identified (Table 2).

Table 2. *Combination of integration and care coordination levels*

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Level of coordination</th></tr>
<tr><th>Low</th><th>High</th></tr>
<tr><td rowspan="2">Level of integration</td><td>High</td><td>At a high level of integration but low care coordination, there is a single healthcare provider delivering separate medical services that are not connected</td><td>At a high level of integration with strong care coordination, there is a single healthcare provider delivering coordinated and interconnected medical services</td></tr>
<tr><td>Low</td><td>At a low level of integration and weak care coordination, there are isolated healthcare providers that are not connected and deliver separate medical services</td><td>At a low level of integration with strong care coordination, there are multiple healthcare providers delivering coordinated and interconnected medical services</td></tr>
</table>

Source: *developed by the authors based on N. Curry & C. Ham (2010)*

As the analysis has shown, for the patient, it is more important how well the team of professionals works in a coordinated manner and whether they follow shared rules, guidelines, and protocols than the specific organisational structure in which these services are provided. This indicates that high levels of care coordination can be achieved both within a single organisation and among multiple organisations that closely collaborate to provide interconnected medical services. Accordingly, the key managerial priority becomes not the formal consolidation of service providers, but the implementation of effective mechanisms for interprofessional collaboration, joint planning, and continuous information exchange, all focused on the needs of the patient.

W. Leutz (1999) formulated five basic "laws of integration" for medical and social services, emphasising that: "incompatible elements cannot be integrated into a single system"; "integration must encompass multiple components simultaneously"; "integration should address the core of the systems, not just secondary functions or components"; "successful integration requires clear management and control mechanisms"; and "integration should be focused on practical activity". The author viewed integration as a systemic process of aligning medical and social institutions, aimed at improving the quality of care, patient convenience, and the efficiency of resource use.

Some authors, notably M. Minkman *et al.* (2025) have identified nine clusters in the development of integrated care, including: quality orientation, performance management, team collaboration, organisational mechanisms, role distribution, patient-centeredness, commitment, transparent governance, and learning. (1) Quality orientation in the provision of medical and social services includes a focus on patient safety, standards, protocols, and treatment effectiveness. (2) Performance management encompasses the evaluation of effectiveness, outcome monitoring, the use of quality indicators, and feedback. (3) Teamwork among medical and social workers includes regular meetings, knowledge sharing, and joint decision-making. (4) Organisational mechanisms define the organisational structure, processes, and coordination mechanisms across different levels and sectors. (5) Role distribution encompasses the clear definition of duties, responsibilities, and authority of all participants in the care delivery process. (6) Patient-centeredness ensures an individualised approach for each patient, taking into account their needs, preferences, and involvement in decision-making. (7) Commitment includes the dedication of organisations and staff to integrated care, manifested through motivation, support, and stability. (8) Transparent governance refers to openness in financial and organisational matters, ethical management, and accountability to all stakeholders. (9) Learning promotes the exchange of experience and adaptation based on outcomes and feedback. These elements of integrated care emphasise the importance of proactive, lifelong care, digital health services, and ethical, value-driven collaboration.

Thus, international publications show a clear trend toward understanding the integrated approach, describing its essence, types, and depth, outlining its advantages and disadvantages, as well as practical mechanisms for implementation and assessment of its effectiveness. A comparative analysis of international literature indicates that, regardless of the country, political system, or healthcare financing model, the integration of medical and social services is viewed as a tool to overcome fragmentation resulting from excessive specialisation and the separation of these sectors. There is a general trend toward shifting from isolated, episodic care to continuous, personalised pathways focused on patient needs. In most countries, integration takes on a systemic character and is viewed not as a one-time reform but as a long-term process of synchronising functions, resources, and authority. An important international trend is also the shift from institutional care to community-based support models, which combine primary healthcare, social services, psychological support, and rehabilitation services. The role of multidisciplinary teams, case coordination, and digital tools (shared electronic records, telemedicine, remote monitoring) is also increasing, enabling timely information exchange across sectors.

For Ukraine, the following integration models may be most useful:

1. The W. Leutz (1999) model, divided into "linkage – coordination – full integration", is the most practically applicable to Ukrainian communities, as it reflects the uneven capacities of different regions. It can be used for planning, setting priorities, and making managerial decisions.

2. The three-tier division (macro-meso-micro), proposed by E. Nolte & E. Pitchforth (2014) and N. Curry & C. Ham (2010), is important for Ukraine, where integration processes are uneven: at the macro level, legislation and funding are being reformed, while at the meso level (community level) there is a lack of management mechanisms, and at the micro level (work of doctors, nurses, and social workers) interprofessional collaboration remains underdeveloped.

3. The N. Curry & C. Ham (2010) matrix, which combines formal integration and the level of coordination, allows us to determine that for the Ukrainian context, the most realistic model in the near term is "low structural integration + high coordination" (where each service maintains autonomy, but interaction occurs through shared pathways, teams, and information exchange platforms).

Although international approaches to integration are diverse, several significant gaps exist in the theoretical domain. Chief among them is the insufficient development of integration theory under wartime conditions. Most concepts are based on data from stable economies. Theoretical models rarely take into account situations where care must be integrated for military personnel, veterans, internally displaced persons, or contexts of mass trauma and prolonged crises, which is critically important for Ukraine. This area is barely developed in international models, allowing Ukraine to become a country that shapes a new typology of integration for prolonged war contexts. Another limitation lies in the insufficient conceptualisation of the social sector's role. Most models are developed from a medical perspective and only partially consider social services. This leads to an excessive focus on the "medical component of integration", reducing the models' applicability in areas of social support, rehabilitation, caregiving, and long-term follow-up. Strengthening the role of social workers in the provision of integrated services would be particularly beneficial for the Ukrainian context. In most international systems, these professionals provide practical integration – continuous patient support, communication between the patient and physician, case management, and so on. A significant limitation is also the absence of a universal definition of integration and medical-social services. The existence of over 175 terms and concepts indicates that the theory is still in a formative stage. In many cases, different concepts describe the same phenomena, but due to contextual differences, different terms are used, which complicates comparison.

The use of the term "medical-social services" as a key element in developing public policy in this field

Despite the comprehensive coverage of medical and social service integration processes in international literature, there is no clear definition of the concept of "medical-social services" itself, nor are there well-established criteria for distinguishing them from other categories of services. Despite the widespread use of medical-social services abroad, this term is not officially recognised as a separate concept in Ukraine's legal and regulatory acts. It is often used only as part of broader terms or in the context of cross-sectoral assistance. As of December 2025, none of the legal and regulatory acts (including the "Fundamentals of Ukrainian Health Care Legislation") contained an official definition of "medical-social service". Definitions focus on the term "medical service". Specifically, Article 3 of Law of Ukraine No. 2801-XII (1992) provides definitions for the term "medical care" (as the activities of professionally trained medical personnel aimed at the prevention, diagnosis, and treatment of diseases, injuries, poisoning, and pathological conditions, as well as pregnancy and childbirth) and "medical service" (as a service provided to a patient in a healthcare facility, rehabilitation institution, or by an individual entrepreneur licensed to conduct medical practice). Article 4 of Law of Ukraine No. 2168-VIII (2017) provides a list of medical services covered by the state under the Medical Guarantees Program. These include emergency, primary, specialised, and palliative medical care; healthcare rehabilitation; medical care for children under 16 and for women related to pregnancy and childbirth; as well as services for assessing an individual's daily functioning. However, this law also does not define the term "medical-social service". Analysis of scientific literature on the provision of medical services has allowed for the classification of medical services in Ukraine (Table 3).

Table 3. *Classification of medical services*

Characteristic	Type of service
By medical care profile	Primary medical services – the basic level aimed at prevention, early detection, diagnosis, and treatment of common diseases (family medicine, outpatient care, vaccination)
	Secondary medical services – specialised care provided by physicians with narrow specialties in hospitals or specialised centres (e.g., cardiology, ophthalmology), usually requiring a referral from a primary care physician
	Tertiary medical services – highly specialised care including complex surgeries and treatment of rare or severe diseases (e.g., organ transplantation, oncological surgery), provided in research institutes and high-tech centres
	Quaternary medical services (in international practice – quaternary care) – extremely complex or experimental procedures available only in select centres, involving high-tech, innovative treatments, often within the framework of scientific research
By type of provision	Preventive – aimed at maintaining and strengthening health, and preventing diseases: medical check-ups, vaccination, and health education
	Diagnostic – focused on establishing a diagnosis and detecting pathologies: laboratory and instrumental tests (blood tests, X-rays, ultrasound, MRI)
	Therapeutic – aimed at eliminating or alleviating disease symptoms and restoring health; includes direct treatment of conditions: medication therapy, surgical interventions, restorative procedures, physiotherapy
	Rehabilitative – restoring physical and psychological functions after illnesses, injuries, or surgeries: physical rehabilitation, psychological support, social adaptation, speech therapy
	Palliative – support for patients with incurable diseases, alleviating symptoms and suffering, and improving quality of life: pain management, patient care, and psychological support for the family
By place of delivery	Inpatient – care provided with hospital stay under 24-hour supervision (hospital, medical centre)
	Day hospital – treatment and observation during the day without overnight stay
	Outpatient – care provided without hospitalisation or 24-hour stay in a medical facility (polyclinic, family doctor, medical offices, mobile medical teams)
	Home-based – services provided at the patient's residence (home visits, home care)
	Telemedicine – online consultations and remote monitoring
By form of organisation	Emergency – urgent services are provided immediately to preserve life
	Urgent – requires prompt response, but does not pose an immediate threat to life
	Planned – provided by prior appointment and preparation
By source of funding	"Green package" – free medical services (emergency, primary, and palliative care) fully covered by the state
	"Red package" – services paid for by the patient (non-emergency dentistry, therapeutic consultations without referral, aesthetic procedures)

Source: *compiled based on Law of Ukraine No. 2801-XII (1992) and Law of Ukraine No. 2168-VIII (2017)*

There are also developed classifiers related to medical procedures and services in Ukraine. In particular, these include the State Classification of Products and Services (Section Q – "Human health and social work activities"), which is used for accounting and tax purposes, including the identification of service codes for value-added tax (VAT) calculation and payment. Although it is not a clinical classifier, it is mandatory for financial reporting and contractual arrangements (State Statistics Service of Ukraine, 2010). Another such instrument is the Temporary Sectoral Classifier of Medical Procedures (Services) of the Ministry of Health, developed by the Ministry of Health of Ukraine for internal accounting of medical interventions, procedures, and examinations in healthcare institutions. This classifier is used in medical documentation and for statistical reporting. It has a temporary status until a unified national medical classifier, harmonised with international standards, is introduced (Order of the Ministry of Health of Ukraine No. 67, 2007). If these two classifiers are considered, references to medical and social services appear only in a general form in the State Classification of Products and Services, where groups Q86-Q88 include codes related to healthcare activities combined with social services. However, the concept of "medical and social services" is used only in an economic and administrative sense, rather than a clinical one. Medical and social services are encoded under general categories of social and healthcare assistance (State Statistics Service of Ukraine, 2010).

Thus, although scholars and practitioners in the fields of healthcare and social policy emphasise the importance of integrating medical and social services in order to improve their effectiveness and ensure equal access, the term "medical and social services" is not used in Ukrainian scientific medical literature or in the relevant regulatory and legal acts. Instead, the concept of "integrated social services" is widely used (Yeremenko, 2025), referring to an approach that combines social and medical components, particularly in the context of rehabilitation, care for persons with disabilities, and related areas. In particular, the term "integrated system of social protection" is used in Law of Ukraine No. 2671-VIII (2019), which provides for comprehensive social services, including services related to medical support, as well as in the Methodological Recommendations for the Implementation of an Integrated System of Social Protection (Order of the Ministry of Social Policy of Ukraine No. 282, 2019), which also address the integrated system of social protection.

Article 5 of Law of Ukraine No. 966-IV (2003) defined the following forms of social service provision: material assistance and social care services. It was stipulated that material assistance was to be provided to persons in difficult life circumstances in the form of cash or in-kind support, including food, sanitary and personal hygiene products, child care items, clothing, footwear, and other necessities, fuel, as well as technical and assistive rehabilitation devices. Social care services were to be provided in various forms and settings, including at the place of residence of individuals or children in foster families, family-type children's homes, and families of patronage caregivers; as well as in residential institutional facilities, rehabilitation institutions, day-care centres, temporary or permanent residential facilities, territorial centres for the provision of social services, and other social support institutions.

Article 5 of Law of Ukraine No. 966-IV (2003) also defined a broad range of social services, including social and household services, psychological services, social and pedagogical services, social and medical services, social and economic services, legal services, information services, and employment-related services. Social and medical services, psychological services, and social and household services were of primary importance in the context of medical and social support, as they involved the prevention of health impairments, the implementation of therapeutic and rehabilitative measures, psychological support, and the provision of conditions necessary to maintain an individual's functional autonomy. These services were aimed at supporting the physical, mental, and social well-being of recipients, making them fundamental components of integrated medical and social care.

Law of Ukraine No. 966-IV (2003) provided a clear definition of social and medical services, which were understood as "the provision of consultations on the prevention of the occurrence and development of potential organic disorders in an individual, the preservation, support, and protection of their health, the implementation of preventive and therapeutic-wellness measures, and occupational therapy". Social workers carried out these measures at the individual's place of residence, in residential facilities, rehabilitation institutions, day-care centres, temporary or permanent stay facilities, and territorial social service offices. However, as of January 1, 2020, the new Law of Ukraine "On Social Services" came into force, replacing the existing law of the same name adopted in 2003. The new Law of Ukraine No. 2671-VIII (2019) defines social services, presents a comprehensive list of them, and classifies them according to various criteria; however, it no longer makes any reference to medical and social services. According to this law, "social services are actions aimed at preventing difficult life circumstances, overcoming such circumstances, or minimising their negative consequences for individuals and families experiencing them". Article 16 of the aforementioned Law also provides a classification of social services, which distinguishes services by purpose, type, place of provision, and duration of provision (Table 4).

Table 4. *Classification of social services*

Characteristics	**Types of services**
By purpose	Social prevention – preventing the emergence of difficult life circumstances and/or preventing an individual (family) from falling into such circumstances
	Social support – facilitating an individual's (family's) ability to overcome difficult life circumstances
	Social care – minimising the negative consequences of difficult life circumstances for an individual (family), supporting their daily functioning, social status, and inclusion in the community
By type	Simple social services – services consisting of one or several measures necessary for their provision and not involving ongoing or systematic interaction between professionals and the recipient of social services. Simple social services may constitute a component of a comprehensive (complex) service
	Comprehensive (complex) social services – services consisting of a set of measures united by a common objective, within which an individual package of measures is formed depending on the needs of the social service recipient, and which involves continuous and systematic interaction between professionals and the recipient of social services
	Comprehensive specialised social services – services provided to specific categories of social service recipients (people living with HIV, persons with substance dependence, victims of human trafficking, refugees, persons with mental disorders, and others)

***Table 4.** Continued*

Characteristics	Types of services
By place of provision	At the recipient's place of residence – at their home
	At the social service provider's facility: ▪ residential (full-time) – with 24-hour stay of the service recipient, including provision of meals and living accommodations; ▪ semi-residential – during a specified period of the day, with facilities for daytime or overnight stay
	At the recipient's location outside their home and the social service provider's premises, including on the street and remotely (online)
By the duration of provision	Emergency (crisis) – provided urgently (within 24 hours) due to circumstances that threaten the life and/or health of the recipient of social services
	Ongoing – provided at least once a month for a period exceeding one year
	Temporary – provided at least once a month for a period of up to one year
	One-time

***Source:** developed in accordance with Law of Ukraine No. 2671-VIII (2019)*

Article 16 of Law of Ukraine No. 2671-VIII (2019) defines a list of 18 basic social services, including: home care, day care, supported living, social adaptation, social integration and reintegration, provision of shelter, emergency (crisis) intervention, counselling, social accompaniment, representation of interests, mediation, social prevention, in-kind assistance, physical support, sign language interpretation, care and upbringing of children in family-like settings, support during inclusive education, and mediation. Among the services listed, the most important are home care, day care, supported living, social adaptation and integration, emergency intervention, and mediation. These services combine physical and psychological support, disease prevention, rehabilitative measures, and coordination of access to medical and social resources, forming the foundation for the implementation of integrated care models that provide a comprehensive approach to supporting vulnerable population groups.

Article 16 of the same law also provides for the existence of the Classifier of Social Services of Ukraine, which was developed and approved by Order of the Ministry of Social Policy of Ukraine No. 429 (2020). It supplements the list of the 18 basic social services provided for by the law, offering a brief description of each service, including information on the service recipients, the place of provision, and the duration of service delivery. In particular, the Classifier lists the following social services: information provision, crisis hotline counselling, night shelter, short-term accommodation, transitional supported living, social and labour adaptation, social adaptation for veterans and their families, social accompaniment of families with orphaned children, employment-related social support, residential care, day care for children with disabilities, palliative care, personal assistant services, social rehabilitation for persons with intellectual and mental disorders, socio-psychological rehabilitation, socio-psychological rehabilitation for persons with substance use disorders and gambling disorders, temporary respite for parents of children with disabilities and caregivers of patients or persons with disabilities, transport services, and others. The most important services in the medical and social sector are those that combine physical care, psychological support, and social rehabilitation. These include residential and day care, palliative care, personal assistant services, socio-psychological rehabilitation for various categories of individuals, and crisis support services (crisis hotline counselling, night shelter, short-term and transitional supported living), which provide timely assistance and help prevent social isolation.

The current Classifier primarily groups services by type, although its classification differs from that provided in Article 16 of Law of Ukraine No. 2671-VIII (2019). It also does not refer to medical and social services. In addition, T. Semihina *et al.* (2024) identified a number of other issues inherent in the current Classifier. First, there is duplication in terms of content and categories of recipients: certain social services have similar content and are aimed at the same groups of clients, which complicates their clear differentiation. In particular, practitioners encounter difficulties in differentiating between social reintegration and social adaptation. Furthermore, the structure of the Classifier contains partial duplication, with identical actions being described using different terms across various services. Second, the Classifier is inconvenient for practical use, as access to it is provided only through the relevant order of the Ministry of Social Policy, which complicates the timely work with the document. Third, the logic underlying the structuring of services is unclear and confusing. Even if the developers intended a specific logic, it remains incomprehensible to external users. As a result, the search for a specific service is carried out primarily through contextual search, whereas its position in the classification should be determined logically and intuitively. Thus, the current Classifier of Social Services of Ukraine is characterised by a number of shortcomings that reduce its usability and the effectiveness of its practical application. Based on the analysis of Law of Ukraine No. 2671-VIII (2019) and the Classifier of Social Services (2020), a grouping of social services by service type has been proposed (Table 5).

Table 5. *Classification of social services by type*

Type of services	Example of social services
Care services	Home care
	Day care
	Residential care
	Palliative care
	Supported living for persons with disabilities, older persons, and homeless individuals
	Day care for children with disabilities
	Care and upbringing of children in family-like conditions
	Respite care for parents caring for children with disabilities and for caregivers of seriously ill persons
Support services	Social support for individuals in difficult life circumstances
	Social support for orphans
	Support during inclusive education
	Support in employment and at the workplace
	Personal assistant
	Physical accompaniment
	Representation of interests
	Sign language interpretation
Adaptive and rehabilitation services	Social adaptation, including for veterans and their families
	Social and labour adaptation
	Social integration and reintegration
	Socio-psychological rehabilitation (including for individuals with drug or psychoactive substance dependence and gambling addiction)
	Social rehabilitation of individuals with intellectual and mental disabilities
Crisis and protective services	Emergency (crisis) intervention
	Consultative crisis hotline
	Provision of shelter, including overnight accommodation
	Short-term and transitional housing
Consultation and information services	Counselling
	Information provision
	Social prevention
	Mediation and conflict resolution
Material and household services	In-kind assistance
	Transportation services
	Other social services

Source*: compiled in accordance with the Law of Ukraine No. 2671-VIII (2019) and the Order of the Ministry of Social Policy of Ukraine No. 429 (2020)*

As can be seen from the aforementioned list, current Ukrainian legislation does not distinguish a separate category of “medical and social services”. Law of Ukraine No. 2671-VIII (2019), which came into force in Ukraine in 2020, defines basic social services without reference to social and medical services. The new law does not separately define medical and social services as it did previously; however, most of the services provided are directly related to healthcare (Nazar, 2022). This is confirmed by the expanded Classifier of Social Services, approved in 2020.

In this regard, by analysing the list of basic and additional social services provided in the current regulatory legal acts, it is possible to identify those services that are of a medical and social nature, i.e., those that combine social and medical support. Thus, the following can be classified as medical and social services:

- all care-related services (excluding the care and upbringing of children in family-like settings if such children do not require specialised medical assistance). Specifically: home care; day care; residential care; palliative care; supported living for persons with disabilities, the elderly, and homeless individuals; day care for children with disabilities; temporary respite for parents caring for children with disabilities and for caregivers of seriously ill individuals;
- partially support services, namely: assistance during inclusive education (if it is related to medical support); personal assistant services; physical support; and sign language interpretation;
- partially adaptation and rehabilitation services, in particular: social adaptation services for veterans and their families; social rehabilitation for individuals with intellectual and mental disorders; and socio-psychological rehabilitation for persons with substance use or gambling disorders (if such rehabilitation requires medical intervention);
- partially crisis services, in particular emergency (crisis) intervention services that involve the provision of urgent medical care;
- services related to temporary accommodation, specifically the provision of temporary shelter, if such services include medical assistance for the affected individuals, and so on.

Other groups of services, such as advisory and informational services (counselling, information provision, prevention, mediation, and facilitation), as well as material and household services (in particular, in-kind assistance and transport services), do not fall under medical and social services, as they do not involve a medical component. These services are purely social, informational, legal, educational, or material and household in nature, without medical, rehabilitative, psycho-medical intervention, or palliative elements. The criteria for classifying services as medical and social, based on their content and purpose, are presented in Table 6.

Table 6. *Criteria for classifying medical and social services*

Criteria for classification as medical and social services	Criteria for classification exclusively as social services
Presence of a medical component: health status monitoring, assistance with treatment or care, palliative care, home care, and day care for children with disabilities	Exclusively social in nature: assistance not related to treatment, health care, or rehabilitation
Integration of medical and social interventions: health and social integration issues are addressed simultaneously, including social and psychological rehabilitation, and rehabilitation of individuals with addictions	Educational or developmental focus: learning, development, integration without a medical component
Focus on individuals with disabilities due to health conditions: patients, people with disabilities, and individuals with intellectual or mental impairments	Legal or administrative support: counselling, representation, assistance with documentation, and rights protection without medical care
Support in health-related critical situations: provision of emergency assistance in crises	Economic support: financial assistance, help with job search, without medical care
Involvement of healthcare professionals in service provision: doctors, nurses, psychologists, rehabilitation specialists, and others are engaged in the process	Household support: provision of housing, childcare without a medical component, transportation services, and the like

Source*: developed by the authors*

Thus, medical and social services are services in which at least one of the following components is mandatory: a medical component (involvement of healthcare professionals, medical supervision, interaction with the healthcare system); care and health support (medication administration, feeding, adherence to routines, monitoring of health status); a rehabilitation component (rehabilitation equipment, physical, social, psychological, or occupational rehabilitation); palliative and hospice care (pain management, care in terminal conditions, end-of-life care, psychological and spiritual support); psychological support (work with individuals with intellectual or mental disorders, or various types of dependency); or facilitation of access to medical services (accompaniment to a doctor, transportation to healthcare facilities, assistance with medical examinations or check-ups), among others.

Medical and social services are those that lie at the "intersection" of medicine and the social sector: they help not only to treat or provide care, but also to integrate the individual into society and support their daily functioning. Thus, medical and social services combine social support with healthcare, rehabilitation, or psychological assistance, whereas social services are limited to legal, household, educational, or social support without the involvement of medical care. This division of services is rather conditional; other services can also be classified as medical and social, provided that they meet the criteria outlined above.

Therefore, medical and social services should be understood as a set of services aimed at supporting the health and social well-being of individuals who require assistance due to their health status, age, or other life circumstances. They include medical care, social support, and counselling aimed at preserving, restoring, and improving quality of life. These services encompass both a medical component (physician consultations, diagnostics, treatment, rehabilitation, as well as the organisation of medical care and provision of medications) and a social component (assistance with household matters, support in social adaptation, representation of interests, psychological support, social protection counselling, and others). Such services are intended for older adults, persons with disabilities, individuals with chronic illnesses, as well as those facing difficult life circumstances and other vulnerable population groups. Medical and social services can be provided in residential facilities, at the patient's home, as well as in specialised centres.

Discussion

The ideas of implementing integrated care are highly relevant for Ukraine, where the medical and social sectors still operate largely independently. The implementation of an integrated approach to the provision of medical and social services at the level of hospital districts and social service centres can contribute to: the creation of a unified patient pathway ("medical care – social support"); improved coordination between institutions of different types; and a stronger focus of the system on the needs of the individual. The integration of medical and social services will improve the quality and accessibility of service delivery, increase patient satisfaction, and ensure the efficient use of resources through interprofessional collaboration and joint planning. Integrated services ensure quality of care, interprofessional teamwork, patient-centeredness, transparent management, and outcome-based learning (Minkman *et al.*, 2025).

At the same time, there are certain reservations regarding the integration of medical and social services. A report prepared by E. Nolte & E. Pitchforth (2014) showed that although integrated care models generally improve the quality of medical services, treatment outcomes, and patient satisfaction, the evidence of their cost-effectiveness is poor and inconclusive. This indicates the need to review the definitions of integrated care and the approaches to evaluating these complex strategies. The report emphasises that the lack of high-quality and methodologically sound assessments is the main obstacle to drawing reliable conclusions regarding the economic impact of integrated care. The authors emphasised the need for more comprehensive and long-term studies with clear definitions to provide an adequate basis for policymaking regarding the integration of such services. The same view is reflected in the study by M. Strandberg-Larsen (2011). He examined the provision of integrated medical services in Denmark and compared the results with those in the United States. He noted that integration remains a challenge at the national level in Denmark, and only half or fewer of the patients in need of integrated services actually receive them. The absence of a unified evaluation methodology complicates the monitoring of integration progress at different levels of the healthcare system.

Furthermore, several studies indicate that integration does not always yield immediate or expected results. In particular, S. Mercer *et al.* (2021) summarise the findings of a study conducted in England, which included interviews with key stakeholders (general practitioners, nurses, social workers, government representatives, charity organisations, patients, and caregivers) regarding the facilitators and barriers to the integration of primary medical care and social support. The authors concluded that although the healthcare and social services integration is necessary to meet the growing needs of the population, its implementation in practice faces numerous obstacles – ranging from structural and legal to staffing and technological challenges. The authors emphasised that even countries that have long implemented structural integration (Northern Ireland, Wales, Scotland) experience slow progress, demonstrating that structural changes alone do not guarantee success. They paid particular attention to the socio-economic inequality of communities – the poorer the community, the worse their access to medical and social care, and the integration of services in such regions is especially challenging. The researchers also warned about the risks of a “pilot approach”, that is, implementing numerous short-term projects without proper evaluation of their outcomes. They emphasised the need for a scientifically grounded, large-scale approach to integration, which would allow the adaptation of the best international practices to national conditions. Integration policy should be based on a systemic approach, the collection of reliable data, careful evaluation of program effectiveness, and international cooperation. Only a comprehensive, systemic approach, rather than isolated local initiatives, can truly facilitate the implementation of integration reform.

R. Miller *et al.* (2021) examined the outcomes of a decade of development in the integrated health and social care system in England following the major reforms of the 2010s. The authors analysed how the idea of integrating the resources of the healthcare system and local social services has evolved from a political concept into a real practice of public health management. Alongside the positive changes, the authors identified key challenges of integration, including differences in funding and regulatory frameworks between the healthcare and social care sectors; difficulties in measuring integration outcomes due to the absence of a unified evaluation system; a lack of shared digital patient record systems; and inequalities in access to services across regions, among others. It was also observed that government attention was largely focused on the healthcare sector, while social services, particularly care homes for older people, faced shortages of funding, protective equipment, and highly qualified staff, among other needs. The lack of funding in the social sector resulted in social services remaining institutionally weaker compared to the National Health Service. As a result, the authors concluded that integration delivers the best outcomes when it is focused on specific problems and guided by clear objectives and measurable results. England experienced varying levels of success across regions. The most effective integration occurred where there were strong local leaders, active local authorities, and good coordination of actions.

L. Thomson & H. Chatterjee (2024), examining the provision of integrated services in the United Kingdom, noted that Integrated Care Systems were formally given a legislative basis in April 2022, although the idea of integrated care itself had been actively promoted for more than sixty years. Over more than a decade, the National Health Service in England implemented three national pilot programmes of integrated care. Although these pilot projects achieved some successes, they had little impact on reducing hospital admissions. As a result of the study, the authors identified the following barriers to integration: a weak evidence base, non-standardised evaluation methods, limited evidence of cost-effectiveness, and uncertainty regarding the impact on reducing hospital admissions. Although integrated care has significant potential to increase patient satisfaction, improve access to services, and strengthen a person-centred orientation of the system, evidence of cost reduction and the achievement of systemic effects remains limited.

In view of this, it is advisable in Ukraine to allow communities the flexibility to adapt integration models to their own conditions, taking into account local infrastructure, workforce capacity, and the specific needs of the community’s population. It is also unrealistic to expect rapid changes across the entire country. Integration reforms require time, resources, training, and the establishment of new managerial and legal structures. It is also important to avoid overloading reforms with too many initiatives at once, so as not to create confusion or a disconnect from practice. The experience of foreign countries is valuable for Ukraine’s health care and social protection reforms. In the context of decentralisation, Ukraine can adapt this experience by establishing unified centres for the provision of health and social services within communities, developing joint financing and management across sectors, building digital systems for intersectoral data exchange, and orienting policies toward the comprehensive needs of individuals rather than those of specific agencies. The success of integration depends not only on laws and structures but above all on a shared vision and partnership among all system participants: healthcare professionals, social workers, administrators, and the citizens themselves.

Conclusions

The integration of health and social services is a global trend in healthcare and social protection, aimed at improving the efficiency of service delivery, ensuring continuity of care, and addressing patients' needs comprehensively, particularly for those with chronic illnesses, disabilities, or complex health and social care requirements. The literature review revealed the multifaceted nature of integration approaches, including organisational, clinical, functional, financial, informational, and intersectoral integration. At the same time, different countries employ specific models of integrated care, such as "managed care" in the United States, "shared care" in the United Kingdom, and "transmural care" in the Netherlands.

The concept of "health and social services" is not officially defined in legal and regulatory acts in Ukrainian practice. Instead, the term "integrated social services" is used, which combines social and medical components, particularly in the context of rehabilitation and support for people with disabilities. An analysis of Ukraine's legal and regulatory acts revealed the absence of a clear definition for "health and social service" and the limited use of this term in legislation, which complicates the development of state programs and policies for the provision of integrated services.

Criteria have been proposed to distinguish health and social services from other service categories, which will enable a systematic approach to their planning, financing, and coordination. Specifically, the criteria for classifying services as health and social services include: the presence of a medical component in their provision (such as health monitoring, assistance with treatment or care, palliative care, home care, or daytime care for children with disabilities); the combination of medical and social interventions, addressing both health issues and social integration (including social, psychological, and rehabilitative support, as well as assistance for individuals with addictions); a focus on people with limited capabilities due to health conditions (patients, persons with disabilities, or those with intellectual or mental impairments); provision of support in critical health-related situations (emergency assistance in crises); and the involvement of medical professionals in service delivery (doctors, nurses, psychologists, rehabilitation specialists, etc.).

International experience confirms that the integration of health and social services improves the quality of care, service accessibility, patient satisfaction, and the efficiency of resource use. At the same time, its implementation requires overcoming structural, workforce, technological, and financial barriers. Taking international experience into account and adapting it to Ukrainian conditions lays the groundwork for creating a comprehensive system of health and social services that is user-centred and aimed at providing integrated care, fostering intersectoral collaboration, and ensuring the sustainable development of the healthcare and social protection system.

Future research prospects in the field of health and social service integration in Ukraine may focus on developing comprehensive approaches to the legal and regulatory framework, including the clear definition of terminology and service categories. It is necessary to study models of institutional support for the provision of health and social services that ensure effective coordination between healthcare authorities, social protection agencies, and the civil sector. Furthermore, an important direction is the development of a strategic document or national strategy for the provision of health and social services, which would define priorities, quality standards, financing mechanisms, and criteria for evaluating the effectiveness of integrated care. Such research will provide a scientifically grounded basis for the implementation of a health and social services system in Ukraine, ensure the sustainable development of intersectoral collaboration, and improve the quality, accessibility, and comprehensiveness of care for patients with diverse health and social needs.

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Conflict of Interest

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References

[1] Collins, M., Mazzei, M., Baker, R., Morton, A., Frith, L., Syrett, K., Leak, P., & Donaldson, C. (2023). Developing a combined framework for priority setting in integrated health and social care systems. *BMC Health Services Research*, 23(1), article number 901. doi: 10.1186/s12913-023-09866-x.

[2] Curry, N., & Ham, C. (2010). *Clinical and service integration: The route to improved outcomes*. London: The King's Fund.

[3] Dobbins, M.I., Thomas, S.A., Melton, S.L., & Lee, S. (2016). Integrated care and the evolution of the multidisciplinary team. *Primary Care*, 43(2), 177-190. doi: 10.1016/j.pop.2016.01.003.

[4] Goodwin, N. (2013). Understanding integrated care: A complex process, a fundamental principle. *International Journal of Integrated Care*, 13, article number e011. doi: 10.5334/ijic.1144.

[5] Kodner, D.L. (2009). All together now: A conceptual exploration of integrated care. *Healthcare Quarterly*, 13, 6-15. doi: 10.12927/hcq.2009.21091.

[6] Law of Ukraine No. 2168-VIII "On State Financial Guarantees of Medical Services to the Population". (2017, October). Retrieved from https://zakon.rada.gov.ua/laws/show/2168-19#Text.
[7] Law of Ukraine No. 2671-VIII "On Social Services." (2019, January). Retrieved from https://zakon.rada.gov.ua/laws/show/2671-19#Text.
[8] Law of Ukraine No. 2801-XII "Fundamentals of the Legislation of Ukraine on Health Care". (1992, November). Retrieved from https://zakon.rada.gov.ua/laws/show/2801-12#Text.
[9] Law of Ukraine No. 966-IV "On Social Services." (2003, June). Retrieved from https://zakon.rada.gov.ua/laws/show/966-15#Text.
[10] Leutz, W.N. (1999). Five laws for integrating medical and social services: Lessons from the United States and the United Kingdom. *Milbank Quarterly*, 77(1), 77-110. doi: 10.1111/1468-0009.00125.
[11] Matos, C.R., Nascimento, G., Fernandes, C.A., & Matos, C. (2025). Health and social care integration: Insights from international implementation cases. *Journal of Market Access and Health Policy*, 13, article number 28. doi: 10.3390/jmahp13020028.
[12] Mercer, S., Henderson, D., Huang, H., Donaghy, E., Stewart, E., Guthrie, B., & Wang, H. (2021). Integration of health and social care: Necessary but challenging for all. *British Journal of General Practice*, 71(711), 442-443. doi: 10.3399/bjgp21x717101.
[13] Miller, R., Glasby, J., & Dickinson, H. (2021). Integrated health and social care in England: Ten years on. *International Journal of Integrated Care*, 21(S2), article number 6.
[14] Minkman, M.M.N., Zonneveld, N., Hulsebos, K., van der Spoel, M., & Ettema, R. (2025). The renewed development model for integrated care: A systematic review and model update. *BMC Health Services Research*, 25(1), article number 434. doi: 10.1186/s12913-025-12610-2.
[15] Nazar, N.I. (2022). *Development of social work in the field of health in Canada and Ukraine: A comparative analysis*. (Doctoral thesis, Lviv Polytechnic National University, Lviv, Ukraine).
[16] Nolte, E., & Pitchforth, E. (2014). *What is the evidence on the economic impacts of integrated care?* Copenhagen: World Health Organization.
[17] Order of the Ministry of Health of Ukraine No. 67 "Temporary Sectoral Classifier of Medical Procedures (Services) and Surgical Operations". (2007, February). Retrieved from https://www.dec.gov.ua/wp-content/uploads/2019/12/2007_67_klasifikator_mp_xo.pdf.
[18] Order of the Ministry of Social Policy of Ukraine No. 282 "On Approval of the Methodological Recommendations for the Implementation of the Integrated Social Protection System". (2019, February). Retrieved from https://old.msp.gov.ua/files/deinst/metod/282.pdf.
[19] Order of the Ministry of Social Policy of Ukraine No. 429 "On the Approval of the Classifier of Social Services" (2020, June). Retrieved from https://zakon.rada.gov.ua/laws/show/z0643-20#Text.
[20] Semihina, T., Slozanska, H., & Stolyaryk, O. (2024). *Classification and standardization of social services: International and Ukrainian experience*. Kyiv: UNDP.
[21] Shaw, S., Rosen, R., & Rumbold, B. (2011). *What is integrated care? Research report*. London: Nuffield Trust.
[22] Shuftan, N., Scarpetti, G., Polin, K., Kasekamp, K., Behmane, D., Murauskiene, L., & Struckmann, V. (2025). Integrated care in the Baltic countries over a five-year period: An expert-informed cross-country analysis of progress, challenges, and future directions. *Health Policy*. doi: 10.1016/j.healthpol.2025.105526.
[23] Simpson, G., Entwistle, C., Short, A.D., Morciano, M., & Stokes, J. (2023). A typology of integrated care policies in the care home sector: A policy document analysis. *Frontiers in Public Health*, 11, article number 943351. doi: 10.3389/fpubh.2023.943351.
[24] State Statistics Service of Ukraine. (2010). *Classification of types of economic activity (KVED-2010)*. Retrieved from https://kved.ukrstat.gov.ua/KVED2010/SECT/KVED10_Q.html.
[25] Strandberg-Larsen, M. (2011). Measuring integrated care. *Danish Medical Bulletin*, 58(2), article number B4245.
[26] Thomson, L.J.M., & Chatterjee, H.J. (2024). Barriers and enablers of integrated care in the UK: A rapid evidence review of review articles and grey literature 2018-2022. *Frontiers in Public Health*, 11, article number 1286479. doi: 10.3389/fpubh.2023.1286479.
[27] Yeremenko, I. (2025). *Modern approaches to the implementation of integrated social services at the community level*. Retrieved from https://www.unicef.org/ukraine/media/36691/file/Unicef_Integrated%20social%20services.pdf.
[28] Yordanov, D., Oxholm, A.S., Prætorius, T., & Kristensen, S.R. (2024). Financial incentives for integrated care: A scoping review and lessons for evidence-based design. *Health Policy,* 141, article number 104995. doi: 10.1016/j.healthpol.2024.104995.
[29] Yukalo, M.V. (2025). *Development of mechanisms of public administration of healthcare services for the population of Ukraine on the basis of an integration approach*. (Doctoral thesis, Lviv Polytechnic National University, Lviv, Ukraine).

Публічна політика в сфері інтеграції медичних та соціальних послуг

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Анотація. В умовах сучасної війни та трансформації систем охорони здоров'я та соціального захисту в Україні постає необхідність формування цілісної моделі інтегрованої допомоги, яка забезпечує безперервність, комплексність та орієнтованість на потреби людини. Метою дослідження було обґрунтувати доцільність інтеграції медичних і соціальних послуг та визначити ключові напрями формування публічної політики щодо впровадження такого виду допомоги на основі аналізу міжнародного досвіду. Методологічну основу становили порівняльний аналіз різних моделей інтеграції, контент-аналіз українських нормативно-правових актів, системний підхід до інтерпретації даних щодо організації надання медико-соціальних послуг. У результаті аналізу міжнародних практик виокремлено різні види інтеграції, представлені в науковій літературі: організаційну, функціональну, клінічну, професійну, нормативну, фінансову, інформаційну, секторальну, міжсекторальну, міжнародну, горизонтальну та вертикальну, а також інтеграцію послуг й інтеграцію, орієнтовану на пацієнта. Доведено, що інтеграція медичних і соціальних послуг сприяє підвищенню якості та доступності допомоги, задоволеності пацієнтів, забезпечує ефективніше використання ресурсів, посилює взаємодію між секторами та підтримує розвиток мультидисциплінарної співпраці. У цьому дослідженні було систематизовано сучасні підходи до інтеграції медичних і соціальних послуг, уточненні термінологічні засади, а також розроблені критерії визначення медико-соціальних послуг та їх застосування в українському контексті. Практичне значення отриманих результатів полягає у можливості їх використання для формування публічної політики у сфері інтегрованої допомоги, удосконалення державних програм, нормативного забезпечення й управлінських рішень у сферах охорони здоров'я та соціального захисту

Ключові слова: державне управління; охорона здоров'я; соціальна політика; інтегрована допомога; міжсекторальна співпраця; міжнародний досвід

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Public management of the defence sector: The role of the leader in the formation of personnel policy

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Abstract. The ability of a national defence to play its function is becoming increasingly difficult as the complexity of the current security environment, which may be defined as a complex adaptive system, grows. This study intended to highlight the patterns of efficacy of leaders' roles in defining human resources policy within the defence sector in today's strategic context. Challenges in leadership and human resource management in defence sector, in particular based on experience in various regions of the world – Australia, Persian Gulf countries, and Lithuania – are analysed. The article proves that personnel decisions in the military sector largely depend on the level of leadership competencies of managers. The characteristics and peculiarities of contemporary landscape of defence sector are described in the terms of BANI world (Brittle, Anxious, Nonlinear, Incomprehensible). The findings show that leadership in the military business in a BANI environment requires adaptability, endurance, compassion, and a focus on fostering a culture of

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trust and optimism. To manage instability, uncertainty, and emotional stress, leaders must prioritise their employees' well-being and mental health, promote open communication to develop trust, empower individuals through flexible and agile processes, and embrace continuous learning. Based on the analysis of human resource management framework' characteristics, in particular, within transformational leadership paradigm, drivers for improving leadership function on designing effective personnel policy are proposed. Expedient characteristics for BANI defence leaders and strategies for success in shaping high-performance personnel policy are summarised. The article also emphasises the need for closer attention to more effective and encouraging organisational culture creation, as well as application of Human Capital Management principles in military sector. The practical value of the study lies in outlining the vectors of development of patterns in public management within the defence sector in preparing leaders to deal with designing and implementing personnel policy under conditions of extreme dynamics, uncertainty, evolving and emerging threats

Keywords: military personnel; personnel security; defence sector HR policies; leadership; defence industry; military sector

Introduction

Public management of defence sector personnel policy entails setting principles, developing and implementing personnel strategies for recruitment, training, remuneration, and retention, as well as managing military and civilian people to ensure a capable force. Forecasting future demands, promoting career growth, cultivating integrity, and integrating human resources with strategic security objectives are all critical components. Tools such as human resource management frameworks and priority placement programmes assist firms in adapting to changing conditions and achieving their goals. Integrity, accountability, adaptability, and strategic alignment are core personnel policy elements in today's complex world of ever-changing and growing risks and problems in the defence sector.

In the defence industry, personnel policy and human resource management (HRM) are strategic functions that are vital for handling every stage of the employee lifecycle, from hiring and attracting to training, performance evaluation, and retention. Defence human resource (HR) experts create and carry out policies that support national security objectives, guaranteeing that workers have the necessary skills in fields such as advanced engineering, artificial intelligence, and cybersecurity, and that they receive enough career assistance. In the meantime, HRM in the defence industry offers a distinct set of opportunities and difficulties that provide deep insights into more general organisational procedures. The importance of personnel policy in the defence sector was emphasised, in particular, by Ukrainian scientists. Thus, in the study D. Zayats *et al.* (2025) notes that updating backend technologies is no longer the only aspect of modernizing human resources management; creating a platform to support readiness for critical tasks is also important. Furthermore, HR strategies in military and security organizations are crucial to fostering a productive and effective organization. In their research, D. Plekhanov & O. Plekhanova (2019) noted that for a long time, the competitiveness of the military sector was very low in the domestic labor market due to insufficient financial support for the military, an imperfect system of social guarantees, serious housing problems, and lack of confidence in the prospects for professional and career growth, which ultimately led to the destabilisation of the situation in the Armed Forces of Ukraine and the outflow of the most experienced and trained military specialists abroad or to other areas of society. J. Dagher *et al.* (2024) proposed a fascinating case study in human capital management the military's approach, which is distinguished by its discipline, strategic vision, and flexibility.

Crucially, HRM is a key component of operational effectiveness and strategic success in the defence industry and is not only an administrative task. As noted by F. Kiluange *et al.* (2024), recruitment, training, retention, and morale are all aspects of the military's HRM strategies that require a high degree of accuracy and planning. These tactics, developed in high-stakes situations, provide significant insights for civilian groups facing comparable challenges. Furthermore, the HRM strategies of the military industry must be flexible enough to adjust to quickly changing conditions brought on by threats, geopolitical upheavals, or technical breakthroughs. Effective HRM in such a dynamic area is characterised by the capacity to change course and adapt (Karolyi *et al.*, 2025).

K. Hansen *et al.* (2025) tried to understand how Europe's defence modernisation is changing the hiring of leaders. They asserted that the ongoing conflict in Ukraine, rising budgets, and geopolitical unpredictability are all contributing to the swift restructuring of Europe's defence industry. Increasing defence spending appears to be a sign of progress and opportunity. The level of change needed is highlighted by underlying structural problems, such as a lack of talent, fragmented industrial landscapes, deeply ingrained organisational cultures, and changing procurement expectations. As a result, a new type of leadership is developing to satisfy the changing demands of the industry.

For elite people, defence corporations increasingly directly compete with tech and AI enterprises. It's crucial to draw in mission-driven, digitally savvy people, especially in software and systems engineering. defence companies must rethink their organisational appeal and employer branding in order to successfully compete with the tech industry. Because Ukrainian companies were able to successfully recruit tech talent from civilian industries during the war, they provide compelling examples of realistic pathways that European defence corporations may follow. Ukrainian defence tech companies are actively developing it and luring talent. In order to increase the pool of Ukrainian talent in harsh environments, numerous organisations have established training platforms centred on crucial technological skills like unmanned aerial vehicle assembly and combat systems integration.

Executives must also keep a close watch on new trends, as spotting and implementing ground-breaking inventions now requires constant market research. Defence firms face challenges in meeting modern operational objectives due to organisational and cultural processes. Lean manufacturing, agile supply chain integration, and systems-level thinking are more important than ever, particularly in light of the Ukrainian war's immediate demand for output.

In their works, P. Falcone (2022) and H. Ferdman *et al.* (2025) emphasised that leaders in the defence business are changing their profiles in a significant way. In addition to an entrepreneurial attitude, operational resilience, and expertise in cross-functional systems integration, executives increasingly require hands-on experience in startup and scale-up settings. However, the ability of leaders in the military sector to effectively and competently formulate people policy and have strong HRM innovation abilities is equally crucial. In the military industry, hiring decisions are mostly based on managers' leadership skills. With this in mind, this study seeked to explore how leaders influence the effectiveness of HR policies within the defence sector in the context of the current strategic environment.

Materials and Methods

The study is based on constructivist paradigm of research, based on the prerequisite that knowledge is profoundly rooted in context, and understanding is achieved by delving into the distinctive experiences and viewpoints of persons inside their own surroundings (Denicolo *et al.*, 2016). The use of a qualitative methodology allows for a detailed description of the complex social phenomena surrounding the application of leadership techniques and their impact on enhancing the effectiveness of human resource management in the defence sector. To analyse the underlying conditions and mechanisms of these social phenomena, qualitative methods recommended by J.W. Creswell (2014) and J. Strauss & A. Corbin (2007) were used. For studying leadership in human resource management, the methodological recommendations of S.B. Merriam (2009) were applied, and for conducting a comparative analysis of different perspectives and conditions, the principles developed by N.K. Denzin *et al.* (2023) were followed.

As a methodological framework, the study employed integrative review elements. Case study approach is also applied as a kind of triangulation for theoretical perspective results. For generating the sample of items for study, the Consensus platform, which searches numerous databases simultaneously through a single interface, was used. Core scientometric databases were chosen based on the research topics and the library's general suggestions, as well as education and psychology-related resources: ScienceDirect, MDPI, Springer, ResearchGate, and JSTOR. The extra limitation "English AND/OR Ukrainian language" was also selected in this interface. After removing duplicate, the publication's scope, volume (a minimum of three pages was required for inclusion), scientific quality, and relevance to the subject were all evaluated during the screening process. The selection procedure, thus, was implemented in frames of standard PRISMA protocol, and is shown in a schematic form in Figure 1.

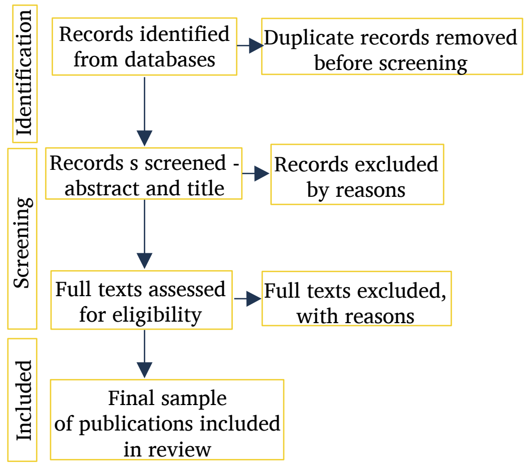

Figure 1. *Diagram of the selection process*
Source: *developed by the authors*

After forming the sample, a thorough analysis of the selected publications was conducted, focusing on the defined criteria. The analysis considered aspects such as leadership practices in human resource management, the effectiveness of applied leadership strategies, and the impact of technological and social changes on the process of personnel management. Particular attention was paid to theoretical and practical recommendations that could be applied to the development of HR strategies in the defence sector. The analysis also included an assessment of the impact of new technologies, such as unmanned systems, and geopolitical changes on personnel policy, particularly in the context of global challenges, such as cyber threats, hybrid warfare, and international instability. The final stage of the study involved integrating the results of the analysis and formulating conclusions regarding the impact of transformational leadership and personnel management approaches on the effectiveness of the defence sector. The potential for adapting current human resource management methods and leadership strategies in the context of BANI (Brittle, Anxious, Non-linear, and Incomprehensible) environments, which are a crucial part of global changes and challenges for defence organisations, was also assessed.

Results and Discussion

Defence HRM: The context, possibilities, and leadership implications

Defence industry leaders today need to be ready to work in unstable, high-pressure situations where they must make snap choices based on scant information. This specifically pertains to the HRM domain. According to Ukrainian academics O. Holota & O. Tytkovskyi (2023), the traits, skills, and behaviours of the primary strategic leader are crucial to the strategy formulation process of human resource management. In this regard, the ability of strategic leaders to develop, create, coordinate, and execute strategy as a coherent set of end-state, strategic objectives, consistent actions, and resources to accomplish them (interconnected set of ends, ways, and means) is of paramount importance for the establishment of defence institutions.

Case studies from several nations demonstrate how HR management in the defence industry may be enhanced by strong leadership. According to information of P.J. Sinaga *et al.* (2023), the Indonesian National Army (TNI – Tentara Nasional Indonesia), for instance, has put in place a number of leadership initiatives aimed at enhancing the professionalism and skill of its soldiers. TNI officers receive extensive field training in addition to strategic and technical courses as part of their leadership education and training programmes. The goal of the programme is to give officers the managerial and leadership abilities they need to successfully command military units. Good strategic leadership, according to O. Holota & O. Tytkovskyi (2022), encompasses the traits, skills, and actions of leaders in the creation and application of military HR management plans. defence companies may make sure they have employees that are prepared to take on the problems of the future by implementing the appropriate methods.

B. Kustiawan & G. Ghazalie (2025) asserted that in this period of globalisation, the issues confronting the defence sector are becoming increasingly complicated, with the emergence of new threats such as global terrorism, cyberattacks, and geopolitical instability. As a result, executives in defence human resource management must have a clear vision and effective methods in place to address these difficulties. Effective leaders must be able to see the big picture and direct the organisation toward long-term goals while simultaneously dealing with emergencies in a timely and appropriate manner. Defence organisations will be able to respond to threats more effectively and efficiently if they have both a strong operational capability and a strategic vision. In military operations and emergency situations, prompt and accurate decision-making is frequently required. In order to make the best choices quickly, leaders in the nation's defence must possess strong analytical abilities in addition to intuition and expertise. Making the correct choice can guarantee the mission's success and save lives in addition to protecting the organisation from losses. A competent leader must be able to weigh numerous pertinent factors and make the best choices given the information at hand.

On October 24, 2022, the North Atlantic Treaty Organization Building Integrity (NATO BI) Program unveiled the revised Human Resource Management Toolkit for the Public Sector. (NATO, 2022). The Norwegian Centre for Integrity in the defence Sector (CIDS) was the driving force for its creation. The toolbox provides an interactive manual for establishing integrity in the public sector, complete with employee questionnaires, methodical planning guides for HR staff, and practical tests of managerial skills. According to the text, integrity-building which entails pursuing institutions that are open, accountable, and democratic requires HRM. In order to advance good governance and put the values of integrity, accountability, and transparency into practice in the defence and linked security sector, NATO BI supports the Alliance as a whole as well as its Allies and partner nations. Employees and institutions with inadequate human resources are less able to withstand hybrid organisational risks such as corruption and bad governance. In the military and security industry, effective HR management systems are essential because they create moral leadership cultures that are trustworthy and honest. For an organisation to be effective, integrity-building in HR must be included into all aspects of the organisation, including job design, recruitment and selection, employee induction, professional development, and organisational culture.

Technological advancements, shifting geopolitical conditions, and the psychological and sociological characteristics of employees are all obstacles facing the nation's defence human resources management leadership. All facets of life, including defence, are impacted by technological breakthroughs. In order to increase operational effectiveness, leaders must make sure that the HR department they oversee is able to adopt the newest technologies and adjust to changes in the industry. This calls for a thorough understanding of new technology in addition to training and skill development investments. defence plans and programmes are also impacted by constantly shifting geopolitical conditions. defence HR management leaders need to be able to adjust to these developments and make sure their companies are ready for a variety of potential dangers. This calls for the capacity to react swiftly and efficiently as well as ongoing monitoring of global developments.

There are also major issues with the staff's social and psychological well-being. Due to their jobs and obligations, both military and civilian personnel frequently experience high levels of psychological discomfort (Papadopoulou & Karavasilis, 2024). Effective leaders must be able to support these psychological components by offering the required assistance, whether it be through counselling, welfare programmes, or work-life balance-enhancing activities. Employees that receive quality psychological support will be better able to perform on demanding duties and maintain their mental health.

The role of "context": Cases of nation-states' approaches

H. Sheikh & B. Fayek (2018) described the Gulf Cooperation Council's (GCC) efforts to develop strong, contemporary models of military sector leadership. The GCC's armed forces must now concentrate on improving its human resources after more than a decade of modernising doctrine and equipment. GCC militaries require military human resources models that recruit, retain, and train individuals to have the requisite competences throughout service and then prepare them for retirement if they are to achieve the most from this upgrade. Instead, GCC forces are currently experiencing problems with motivation, morale, and performance. Military human capital is more difficult to "purchase" than military hardware, therefore there can be a lack of employees with the necessary qualities. To attract the best personnel, properly educate them, make better use of them, and allow their reintegration into society after retirement, GCC governments must upgrade military HR paradigms (Mason, 2024). This will raise morale while also offering the skills required in times of greater security and a growing demand for advanced capabilities.

For GCC militaries to achieve this, they need military HR models that allow for flexible career assignment to increase productivity and efficiency, offer attractive pay scales based on skills and responsibility, promote mental and physical health, use more flexible recruitment, and ensure that retirees are properly assimilated into civilian life. These models should provide service members more autonomy over their careers, encourage academic and professional development, and link promotions to performance. The top applicants should be selected, training requirements should be uniform worldwide, retention initiatives should be implemented, non-operational activities should be performed by civilians, and civilian expertise in specialised industries like high tech should be leveraged. By strengthening military human resources and providing fulfilling careers, these military HR strategies will raise force effectiveness, readiness, and performance levels.

The GCC forces have concentrated on updating their operating capabilities and introducing new equipment during the last few decades. Armed forces made training investments for "front-line operators" from a personnel standpoint (Sheikh & Fayek, 2018). Regretfully, military commanders had no plans to implement more extensive HR reform. Rather, HR procedures are still mired in Second World War-era protocols, which has resulted in low morale, a lack of drive, and subpar performance. GCC militaries are failing to recruit individuals with the necessary skills and are not giving those they do hire the proper training to match current equipment or handle military threats, thus a fresh approach to HR is essential. The GCC forces cannot fully benefit from the past ten years of updating their doctrine and equipment without these qualified professionals. The GCC military's current HR models are under a lot of strain. The GCC armed forces are dealing with more proficient enemies, and geopolitical and military trends are taxing the military's human capital. With more and more unmanned, autonomous platforms and weapons showing up on the battlefield, the technological landscape is likewise evolving (Fig. 2).

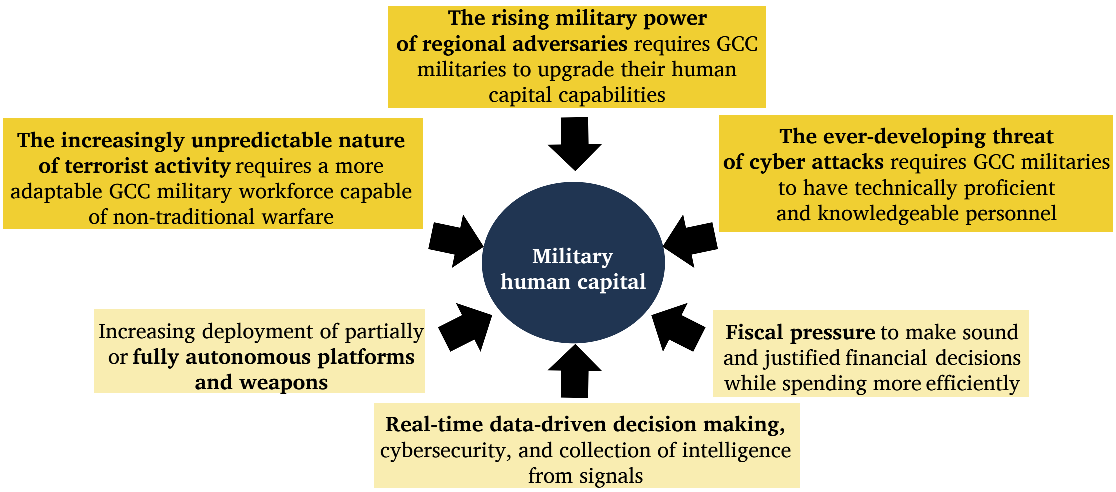

Figure 2. *Geopolitical and military trends making unsustainable demands on military HR models*
Source: *H. Sheikh & B. Fayek (2018)*

In the realm of national defence, leadership entails the capacity to inspire, encourage, and guide both military and civilian staff in accomplishing the organisation's objectives. G. Yukl (2013) defines leadership as the process of persuading people to comprehend and concur on what must be done and how to accomplish it, as well as the process of supporting both individual and group efforts to accomplish shared objectives. Leadership in the military industry encompasses developing staff competencies, making strategic decisions, and fostering professionalism and patriotism. In addition to motivating and guiding military and civilian staff, successful leadership in this field also involves managing change, making the most use of available resources, and ensuring efficient collaboration between different departments and divisions.

To accomplish the national purpose and guarantee the organisation's preparedness in the face of changing challenges, leadership that can blend strategic vision with operational expertise is essential. When it comes to defence, strategic decision-making by leaders entails a thorough examination of the circumstances and the choice of suitable measures to deal with the current problems. Adaptive HR management is crucial to maintaining defence posture in the face of uncertain and complicated strategic environment dynamics (van Houte, 2025). Enhancing defence effectiveness also requires developing staff competencies via ongoing education and training. The purpose of leadership education and training programmes is to give officers the administrative and leadership abilities needed to successfully lead military units. These programmes include technical and strategic courses as well as extensive field training.

Leaders must put a number of methods into place in order to face the difficulties and guarantee the efficacy of HR management in the defence of the nation. The application of performance-based management, collaborative and participative methods, building organisational culture, and sustainable leadership development are a few important ones. A continuous programme of leadership development guarantees that leaders keep improving their skills. Field experience, mentorship, and official instruction can all help achieve this. The most recent evolutions in global dynamics and technology should also be incorporated into these developments, as a crucially important context. In order to increase operational readiness and flexibility, A. Sarjito (2023) highlights the significance of incorporating human capital management concepts in the defence setting.

Australian Defence Forces (ADF) established three core elements of HRM leadership within military/defence context (Fig. 3). "Most of us seem to have an inbuilt preference to focus on one of the elements", according to the Australian Defence Force Leadership Doctrine. Only if one can maintain equilibrium among all three, he will be a successful leader. "If any one element is overlooked, the others are unlikely to thrive" (Australian Defence Force, 2021). The writers of Doctrine recommend addressing the three-circle model of work, team, and individual demands, which was initially presented by British veteran and professor John Adai in 1973.

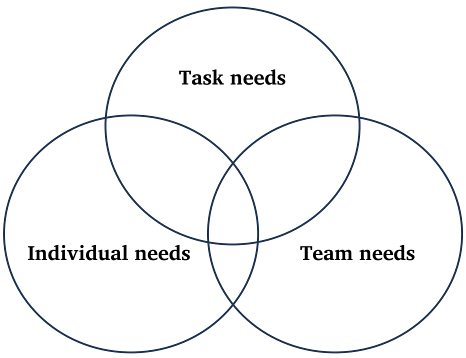

Figure 3. *The interdependence of task, team and individual needs (the three-circle model of task, team and individual needs)*
Source: *Australian Defence Force (2021)*

Most of the time, none of the three have competing needs. Individuals who are well cared for are more likely to commit to the team. If the squad is healthy, the leader should be able to fulfill the objective. However, there are moments when the demands of each element contradict. For example, there may be time and resource constraints. This may demand the team to focus on the task at hand, which may be detrimental to the persons engaged. If team and individual requirements are overlooked, the effort put into the mission may be futile. Similarly, taking time to foster a healthy team spirit without putting out effort on the work can result in the team losing focus due to a lack of accomplishment. When competing needs arise, it is beneficial to focus on the long-term aim. If modifying the immediate work at hand does not prohibit the leader from reaching his long-term goal, he can invest in the needs of the team or individuals. However, if changing the present job jeopardises the long-term aim, the leader may be forced to prioritise the assignment. Every time the leader prioritises a task, he shows goodwill. So, it is critical to accumulate adequate credit to avoid going into debt. If the team trusts the leader, they will go through great hardship and risk to complete the mission. They will give him plenty of goodwill credit (Smiljanic, 2016). However, once the assignment is completed, the leader should strive to rebalance things by investing in the team and individuals.

The ADF asserts that leadership must be influenced by and true to the defence values of service, courage, respect, integrity, and excellence in addition to the traits that are inherent to each person as an individual (Australian Defence Force, 2021). Additionally, the way a leader leads must take into account and adapt to the situation at each given moment and location. ADF leadership framework can be depicted as shown on the Figure 3.

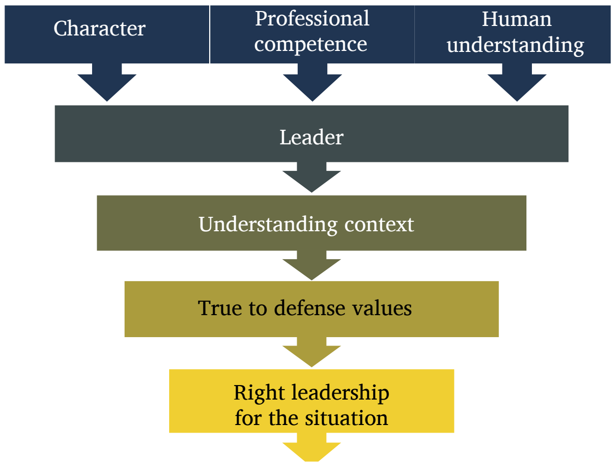

Figure 4. *ADF leadership framework*
Source: *Australian Defence Force (2021)*

In their study, A. Nugroho & G. Saputro (2025) sought to examine how transformational leadership may enhance human resource performance in defence companies. Transformational leadership is seen as a strategic approach to creating flexible, visionary, and high-performing employees in the present military environment, which is full of dynamic issues like cyber threats, hybrid warfare, and demands for professionalism. With the aid of NVivo software, the authors used data analysis techniques in a descriptive qualitative approach. Direct observation within military work units, policy documentation, and in-depth interviews with defence people (commanders, trainers, and HR staff) were used to gather data. The results showed that enhancing motivation, discipline, initiative, and loyalty among defence personnel is significantly impacted by the transformational leadership aspects of idealised influence, inspirational motivation, intellectual stimulation, and personalised concern. NVivo was used to discover critical themes such as job satisfaction, effective communication, and building a common vision. A. Nugroho & G. Saputro (2025) indicated that consistent application of transformational leadership can increase defence HR performance, resulting in professionalism, resilience, and mission-focused performance. As a result, for the effective functioning of the defence sector, it is essential to update human resource management approaches, particularly through the implementation of modern leadership models and adaptation to the changing strategic context.

Transformational leadership: New perspectives for defence sector in BANI context

Transformational leadership in the defence sector HRM requires leaders to inspire employees to achieve high performance and loyalty by a shared goal, intellectual stimulation, and personalised concern. This approach is critical for military firms to respond to problems such as cyber threats and hybrid warfare by developing flexible, imaginative, and high-performing people resources. Transformational leaders can foster greater initiative, discipline, and a deeper sense of purpose in their teams by emphasising moral underpinnings, respect, and follower development.

Crucially, a personnel policy that encourages transformational leadership in the defence industry creates a culture of change by establishing a compelling vision, motivating employees, and fostering their growth through mentorship and recognition. This results in greater dedication, flexibility, and enhanced organisational performance, all of which are crucial for handling intricate, changing security issues (den Buijs & Olsthoorn, 2024). In order to build a workforce that is resilient to emerging threats like cyberwarfare and disinformation, such policies would include procedures for training leaders, fusing strategic thinking with operational execution, and coordinating organisational and individual objectives. Key aspects of transformational leadership in defence personnel policy are given in Table 1.

***Table 1.** Key aspects of transformational leadership in defence personnel policy*

Aspect	Content
Inspirational & visionary leadership	Transformational leaders create and express a clear, compelling vision for the future of the defence organisation, motivating employees to work together toward common, lofty goals
Innovation & intellectual stimulation	Policies should promote a culture of innovation and learning, with leaders intellectually challenging their staff and encouraging creativity and problem-solving abilities to combat emerging threats and adapt to complex global dynamics
Personal attention and guidance	A strong policy emphasises attention to personnel's particular needs, mentoring them, and giving opportunities for personal and professional development, which fosters dedication and loyalty
Responsibility and empowerment	To build transformational leaders, personnel policies should gradually increase levels of power and responsibility, allowing younger officers and leaders to gain confidence and competence in managing their teams
Framework for ethics	The policy must support an ethical framework for leadership, in which leaders serve as role models, earning respect and trust while also fostering a good and productive work environment that values ethical behaviour

***Source**: created by the authors based on W. Rynecki (1998)*

V. Šimanauskienė *et al.* (2021) examined how military leadership influences creative employee behaviour using the Lithuanian Armed Forces as an example. The impact of top and middle management's leadership behaviours – support for innovation, delegation, intellectual stimulation, and rewards – on military officers' innovative behaviour was examined in this paper. A questionnaire was used in quantitative sociological research serves as the basis for the empirical validation of the four leadership behaviours that were chosen. The findings of the study indicated that, at the level of top managers (commanders), there are strong and statistically significant correlations between elements like intellectual stimulation and delegation, rewards and delegation, delegating and support for innovation, and support for innovation and rewards. In the meantime, two significant correlations between elements like rewards and delegating and delegating and support for innovation were discovered for middle-level managers (military officers). Although commanders and military officers both value the leadership styles of the Lithuanian Armed Forces' top and middle management, an analysis of the compatibility of opinions revealed that commanders are more enthusiastic about the chance to contribute fresh ideas to their military unit. Additionally, when people perceive support for innovation, they are more positive about taking the initiative and are more positive about the statement that leadership gives them the authority to make decisions and carry them out. It is concluded that the inventive behaviour of subordinates is influenced differently in the innovation promotion process at different hierarchical levels of leadership due to the observed differences in the leadership behaviours of middle and top management. In actuality, this study provided empirical support for the significance of transformational leadership in HRM and people policy in the defence industry.

The analysis of considered studies and cases allowed claiming that, to improve leadership effectiveness in defence HR management, the following strategies can be adopted:

1. Development of a leadership training program. An important first step is creating a thorough and continuous leadership training programme. The course ought to

address the interpersonal, technical, and strategic facets of leadership. The qualities, abilities, and conduct of a strategic leader are essential in the creation and execution of military HR management plans, claim O. Holota & O. Tytkovskyi (2022). A thorough training programme may ensure high operational readiness and the proper reaction to emergencies by preparing leaders to handle a variety of current and future difficulties.

2. The transformational leadership model in action. To create a happy and productive work environment, leaders must be encouraged to embrace a transformational leadership strategy that emphasises inspiring, motivating, and empowering employees. Employee motivation and morale can be raised through transformational leadership, which is particularly beneficial in the defence industry. M. Shah's (2021) research indicated that transformational leaders are able to motivate their followers to accomplish shared objectives and inspire them with a compelling vision, which eventually enhances the organisation's overall performance.

3. Coaching and mentoring. Another successful tactic is to put in place coaching and mentoring programmes to help staff members advance their managing and leadership abilities. Through coaching and mentoring programmes, the Australian defence Force has implemented a leadership paradigm that emphasises personal growth and enables military people to gain insight from senior leaders' experiences (Australian Defence Force, 2021). In addition to enhancing leadership abilities, the programme promotes the emotional and physical health of participants, which enhances military personnel performance and retention.

4. Regular evaluation and feedback. Assessing leadership effectiveness and pinpointing opportunities for development requires regular feedback and review. Organisations may make sure that their leaders are capable of handling new issues and are always changing by conducting regular assessments. Constructive criticism enables leaders to recognise their strengths and shortcomings and take the appropriate remedial action to enhance their performance, claim P. Neves *et al.* (2018). According to this study, commitment-based HR strategies might boost emotional commitment to change, which in turn can lessen resistance to future change.

5. Creating a culture of support throughout the company. Establishing an organisational culture that promotes creativity, collaboration, and personal growth is essential. Innovation thrives in environments where trust is deeply embedded within the organizational culture. Trust acts as the catalyst that sparks creative thinking and empowers employees to push boundaries beyond conventional limits. Without trust, employees often hesitate to share unconventional ideas or challenge existing processes out of fear of criticism or failure (Smyth, 2025). Job satisfaction and employee retention can be increased in a supportive work environment with appropriate acknowledgment. Employees feel appreciated and motivated to give their best work when there is a positive organisational culture. A. Sarjito (2023) asserted that the application of Human Capital Management principles in military firms shows how an encouraging organisational culture may enhance operational readiness and flexibility in the face of change.

The current security environment in which military forces must operate is commonly referred to as "VUCA" – Volatile, Unpredictable, Complex, and Ambiguous (Smiljanic, 2016). While volatility and uncertainty are not new, complexity and ambiguity might be seen as a result of the post-Cold War period. Moreover, in recent years, the war in Ukraine and in Israeli-HAMAS (Islamic Resistance Movement) war evidently testify to the onset of BANI (Brittle, Anxious, Non-linear, and Incomprehensible) era. Thus, military leadership, including the domain of HRM, cannot be generically defined as a universal construct but rather be considered a multi-layered, adaptive process.

Leadership in the defence industry in a BANI environment necessitates flexibility, fortitude, compassion, and an emphasis on cultivating a culture of trust and positivity. In order to manage instability, uncertainty, and emotional strain, leaders must emphasise their staff members' well-being and mental health, encourage open communication to foster trust, empower people through flexible and agile processes, and embrace continuous learning. A systematic literature review was carried out by F. Kiluange *et al.* (2024) in order to identify the patterns of military leadership in a BANI scenario and a VUCA environment. The information gathered indicates that military leadership in a VUCA world and BANI scenario is defined by a complex combination of competencies at the personal, relational, and organisational levels, and that traditional leadership models are unable to accurately reflect the modelling of new challenges and realities. These include the abilities to think creatively, innovatively, instinctively, resiliently, flexibly, and adaptably. These talents are based on a condition of constant alertness and mindfulness, which enables one to view the world and make the best decisions.

According to S.P. Spain *et al.* (2015), the United States Army should promote its human capital and the culture that supports it. The authors proposed that the Army reconsider and perhaps change how it recruits, trains, selects, and forms the culture of future commanders. This is especially important for enhancing officers' conceptual skills. According to the need to develop officers' conceptual abilities, which is seen as an ambition in the U.S. military education system, and the character, which is observed in some European countries (e.g., Norway Military Academy), the traditional model of military education does not adequately prepare military leaders for the challenges of the current and future strategic and operational environment. Leaders that are able to handle persistent ambiguity, identify significant trends, and see the world from the viewpoints of different stakeholders are better able to prepare and direct companies to react correctly to the difficulties of the complex environment. Characteristics for BANI defence leaders and strategies for success in shaping high-performance personnel policy can be briefly summarised as shown in Table 2.

Table 2. *Characteristics for BANI defence leaders and strategies for success in shaping high-performance personnel policy*

Characteristics for BANI defence leaders	Strategies for success in shaping high-performance (effective) personnel policy
Agile and adaptive: Instead of sticking to strict, conventional hierarchical systems, leaders need to be nimble and ready to adapt to quickly shifting circumstances and unanticipated events	**Accept uncertainty**: Instead of trying to manage chaos, leaders should develop their ability to recognise patterns, blind spots, and system dynamics in order to successfully traverse it
Resilient: To handle the stress and difficulties that come with working in a BANI workplace, leaders must develop their own resilience as well as encourage the personal growth of their teams	**Foster resilience**: Increase organisational and individual resilience by improving flexible systems and planning for interruptions
Empathetic and supportive: In an anxious society, leaders must prioritise their employees' well-being and mental health, provide security and orientation, and actively build a healthy workplace culture	**Promote well-being**: Implement programmes to assist employees' mental health and mainstream the usage of mental health services
Empowering and collaborative: To improve organisational effectiveness, leaders should delegate authority and responsibility to their followers while promoting initiative, self-assurance, and problem-solving skills	**Promote ongoing learning**: Establish an experimental culture where learning from mistakes and triumphs is a fundamental aspect of the process
Creative and innovative: Making the best choices in a complicated, non-linear environment requires the ability to think "out of the box", invent, and view the world issue from several angles	**Communicate openly and transparently**: Open and transparent communication fosters confidence and offers vital information for making decisions in an incomprehensible world
Learning-focused: In an incomprehensible environment, flexibility, unlearning, and ongoing learning are more crucial than strict, long-term planning	**Lead from "perspective vision"**: To obtain perspective, create an area where people may see system dynamics and patterns above the immediate "dance floor" of activity (Riatmaja *et al.*, 2024)

Source*: compiled by the authors*

The difficulties of the BANI era would be lessened if the distinctiveness of the defence sector workplace were acknowledged. Leaders in the military industry should also be able to absorb shocks and disruptions from any source while "designing" and implementing personnel policies. They should also be able to think strategically and react quickly to outside disturbances. The crucial requirement for agility and adaptability is reinforced by the BANI features. While providing direction for creating strong, durable, and forward-thinking tactics, each dimension presents particular difficulties. The right framework should be created by addressing both structural weaknesses and psychological difficulties. This will enable people and organisations in the defence industry to successfully negotiate the unpredictability of contemporary environments.

Conclusions

The current study outlined the patterns of effectiveness of the leaders' role in shaping HR policy within defence sector in contemporary strategic environment, but this outlining allowed revealing new landmarks. The study aligned characteristics for BANI defence leaders with strategies for success in designing and implementing high-performance (effective) personnel policy. Traditional transformational leadership patterns should be redesigned for BANI context, and more reliance on best practices of corporate sector should be definitely taken as newly approach for HRM in defence sector, in particular Human Capital Management, Agility and adaptiveness, focusing on continuous learning. For defence sector, BANI-world challenges are bigger and more crucial than for corporate sector, thus personnel policy should be accordingly aligned.

Although limited to some nation-state specific cases, the research meanwhile allowed revealing the patterns of contemporary environment in which leaders of defence sector have to function, in particular when developing and implementing personnel policy. Public management and leadership development within the defence sector should be built on recognising, comprehending, and adopting the realities of BANI, as well as integrating appropriate drivers of successful strategic HR leadership embracing uncertainty, adaptivity and agility, fostering resilience, encouraging leaders to adopt a transformational leadership approach, observing patterns and system dynamics from the perspective, creating a culture of experimentation, transparent communication. By fostering and consciously managing each of these motivations, one can attain an optimal condition of leadership. Being aware of just one or two of them is insufficient.

Combining existing knowledge on military leadership in BANI and VUCA settings can help guide future study and application. Given the dynamic and ever-changing settings, military leadership would benefit from a deeper understanding of each term's constituent parts and how they relate to effective military command and leadership. With this in mind, one can suggest that design-thinking approach in defence sector personnel strategies and policies should enter the array of prospective fields for further research, which would allow successful rearrangement and creative combining of the elements of existent frameworks, some of which are described in the article.

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Conflict of Interest

None.

References

[1] Australian Defence Force. (2021). *ADF leadership* (3th ed.). Canberra: ADF.
[2] Creswell, J.W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks: SAGE Publications.
[3] Dagher, J., Boustani, N.M., & Khneyzer, C. (2024). Unlocking HRM challenges: Exploring motivation and job satisfaction within military service (LAF). *Administrative Sciences,* 14(4), article number 63. doi: 10.3390/admsci14040063.
[4] den Buijs, T., & Olsthoorn, P. (2024). Human resource management for military organizations: Challenges and trends. In A.M. Sookermany (Ed.), *Handbook of military sciences* (pp. 1-26). Cham: Springer. doi: 10.1007/978-3-030-02866-4 68-1.
[5] Denicolo, P., Long, T., & Bradley-Cole, K. (2016). *Constructivist approaches and research methods: A practical guide to exploring personal meanings*. Thousand Oaks: SAGE Publications.
[6] Denzin, N.K., Lincoln, Y.S., Giardina, M.D., & Cannella, G.S. (Eds.). (2023). *The SAGE handbook of qualitative research* (6th ed.). Thousand Oaks: SAGE Publications.
[7] Falcone, P. (2022). *Leadership defence: Mastering progressive discipline and structuring terminations.* Nashville: HarperCollins Leadership.
[8] Ferdman, H., Kravets, O., Sivak, V., Piatnychuk, I., Symonenko, L., & Akimova, A. (2025). Matrix of innovative competencies in public administration within the ecosystem of sustainable development, national security, and financial efficiency. *Sapienza: International Journal of Interdisciplinary Studies,* 6(2), article number e25022. doi: 10.51798/sijis.v6i2.974.
[9] Hansen, K., Bidnenko, T., & Komilchenko, O. (2025). *How Europe's defence evolution is reshaping leadership hiring.* Retrieved from https://surl.li/vbampl.
[10] Holota, O., & Tytkovskyi, O. (2022). Leadership in developing a strategy for military human resource management as part of capabilities-based defence planning. *Connections: The Quarterly Journal,* 21(1), 45-59. doi: 10.11610/Connections.21.1.03.
[11] Holota, O., & Tytkovskyi, O. (2023). Role of strategic leadership in the military human resource management's strategy. *Social Development and Security,* 13(2), 41-53. doi: 10.33445/sds.2023.13.2.5.
[12] Karolyi, H., Akimova, L.M., Mishchuk, H.Y., Akimov, O.O., & Karpa, M.I. (2025). Military migration and demographic transformations in Ukraine: Military consequences for territorial communities. *Ukrainian Geographical Journal,* 3(131), 75-86. doi: 10.15407/ugz2025.03.075.
[13] Kiluange, F., Rouco, C., & Silva, A. (2024). Military leadership in a VUCA environment and BANI scenario: A systematic literature review. *Proceedings of the 20th European Conference on Management Leadership and Governance,* 20(1), 641-652. doi: 10.34190/ecmlg.20.1.3044.
[14] Kustiawan, B., & Ghazalie, G. (2025). The role of leadership in increasing effectiveness national defence human resource management. *Annals of Human Resource Management Research,* 5(1), 137-147. doi: 10.35912/ahrmr.v5i1.2865.
[15] Mason, R. (2024). *Growing military-industrial capacity in the Gulf: Drivers, issues and dominance*. Jeddah: Gulf Research Center.
[16] Merriam, S.B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey-Bass.
[17] Neves, P., Almeida, P., & Velez, M. (2018). Reducing intentions to resist future change: Combined effects of commitment-based HR practices and ethical leadership. *Human Resource Management,* 57, 249-261. doi: 10.1002/hrm.21830.
[18] Nugroho, A., & Saputro, G. (2025). Transformational leadership in improving defence human resource performance. *GPH-International Journal of Business Management,* 8(7), 45-53. doi: 10.5281/zenodo.16994035.
[19] Papadopoulou, M., & Karavasilis, I. (2024). Leadership and job satisfaction: The case of civilian technical employees of the Ministry of National Defence. *Proceedings,* 111(1), article number 8. doi: 10.3390/proceedings2024111008.
[20] Plekhanov, D., & Plekhanova, O. (2019). Improvement of personnel management in the Armed Forces of Ukraine in the context of defence reforms. *Public Administration and Regional Development,* 3, 128-141. doi: 10.34132/pard2019.03.08.
[21] Riatmaja, D., Sukmaningrum, D., Nurcahyo, N., & Saptyawati, L. (2024). The impact of human resource information systems and artificial intelligence on defence industry performance. *Nomico,* 1(5), 56-68. doi: 10.62872/jwt23y16.
[22] Rynecki, W.C. (1998). Transformational leaders and doctrine in an age of peace: Searching for a tamer Billy Mitchell. *Airpower Journal*, 22-36.
[23] Sarjito, A. (2023). Unlocking the potential: Transforming defence through human capital management. *West Science Interdisciplinary Studies,* 1(11), 1102-1113. doi: 10.58812/wsis.v1i11.333.
[24] Shah, M. (2021). Integrating HRM and leadership: A proposed framework for effective leadership in contemporary organization. *Journal of Business & Tourism,* 8(2), 49-60. doi: 10.34260/jbt.v6i2.153.
[25] Sheikh, H., & Fayek, B. (2018). *Modernising GCC military HR models improving morale, motivation, and performance*. New York: Strategy&.

[26] Šimanauskienė, V., Giedraitytė, V., & Navickienė, O. (2021). The role of military leadership in shaping innovative personnel behaviour: The case of the Lithuanian Armed Forces. *Sustainability,* 13(16), article number 9283. doi: 10.3390/su13169283.

[27] Sinaga, P.J., Almubaroq, H.Z., Sudarya, A., & Fakultas, M.P. (2023). Human resources management in the posture development of the Indonesian National Armed Forces for National Defence. *International Journal of Humanities Education and Social Sciences,* 3(1), 177-184.

[28] Smiljanic, D. (2016). Transformational military leadership – requirements, characteristics and development. *Vojenské Rozhledy,* 25(57), 18-48. doi: 10.3849/2336-2995.25.2016.05.018-048.

[29] Spain, S.P., Mohundro, J.P., & Banks, B.B. (2015). Intellectual capital: A case for cultural change. *Parameters*, 45(2), doi: 10.55540/0031-1723.2910.

[30] Strauss, J., & Corbin, A. (2007). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks: SAGE Publications.

[31] Yukl, G. (2013). *Leadership in organizations* (8th ed.). Boston: Pearson.

[32] van Houte, C. (2025). *The phenomenology of military strategy: Judgment, uncertainty, and the structure of strategic thought*. Retrieved from https://www.amazon.com/Phenomenology-Military-Strategy-Uncertainty-Phenemonological/dp/B0FFMJTSBN.

[33] Zayats, D., Bashtannyk, O., Akimova, L., Petrukha, N., Hudenko, B., & Akimov, O. (2025). Innovative human capital management practices in the security and defence sector: Challenges for public management. *TPM – Testing, Psychometrics, Methodology in Applied Psychology,* 43(S1), 556-566.

[34] NATO. (2022). *NATO releases new Human Resource Management Toolkit for the Public Sector.* Retrieved from https://www.nato.int/en/news-and-events/articles/news/2022/10/24/nato-releases-new-human-resource-management-toolkit-for-the-public-sector.

[35] Smyth, L.W. (2025). *Building a culture of trust to boost innovation and creativity*. Retrieved from https://lornawestonsmyth.com/building-culture-trust-unlocking-innovation-creativity/.

Публічне управління оборонною сферою: роль лідера у формуванні кадрової політики

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Анотація. Зростаюча складність сучасного безпекового середовища, яке можна визначити як складну адаптивну систему, ускладнює виконання функцій національної оборони. Представлене дослідження мало на меті висвітлити закономірності ефективності ролі лідерів у визначенні кадрової політики в оборонному секторі в сучасному стратегічному контексті. Були проаналізовані виклики в галузі лідерства та управління людськими ресурсами в оборонному секторі, зокрема на основі досвіду різних регіонів світу – Австралії, країн Перської затоки та Литви. У статті доводиться, що кадрові рішення у військовому секторі значною мірою залежать від рівня лідерських компетенцій керівників. Характеристики та особливості сучасного ландшафту оборонного сектору описані в термінах світу BANI: крихкого (Brittle), тривожного (Anxious), нелінійного (Nonlinear) та незбагненного (Incomprehensible). Результати дослідження показують, що лідерство у військовій справі в умовах BANI вимагає адаптивності, витривалості, співчуття та зосередженості на формуванні культури довіри та оптимізму. Щоб впоратися з нестабільністю, невизначеністю та емоційним стресом, лідери повинні ставити на перше місце благополуччя та психічне здоров'я своїх співробітників, сприяти відкритій комунікації для розвитку довіри, надавати повноваження окремим особам за допомогою гнучких і оперативних процесів та підтримувати безперервне навчання. На основі аналізу характеристик системи управління людськими ресурсами, зокрема в рамках парадигми трансформаційного лідерства, запропоновано фактори, що сприяють поліпшенню функції лідерства в розробці ефективної кадрової політики. Узагальнено доцільні характеристики для лідерів оборонного сектору в умовах BANI та стратегії успіху у формуванні високоефективної кадрової політики. У статті також наголошено на необхідності приділяти більше уваги створенню ефективнішої та заохочувальної організаційної культури, а також застосуванню принципів управління людським капіталом у військовому секторі. Практична цінність дослідження полягає у визначенні векторів розвитку моделей державного управління в оборонному секторі з метою підготовки керівників до розробки та впровадження кадрової політики в умовах надзвичайної динаміки, невизначеності, еволюції та появи нових загроз

Ключові слова: співробітники сектору оборони; кадрова безпека; кадрова політика оборонного сектору; лідерство; оборонна промисловість; військовий сектор

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Problems of public administration in the context of global security transformations: Integrative review

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Abstract. The relevance of this study is driven by profound transformations in the global security environment, the intensification of geopolitical instability, the proliferation of hybrid threats, and the expansion of digital challenges, all of which significantly reshape the operating conditions of national public administration systems. The purpose of the study was to provide a comprehensive analysis of the impact of global security megatrends on public administration and to substantiate the agile approach as an effective governance response to contemporary challenges. The methodological basis of the study relied on an interdisciplinary review of academic sources and a conceptual synthesis of approaches from public administration, security studies, resilience theory, and adaptive governance. The paper analysed key global security megatrends, including digitalisation, globalisation, geopolitical shifts, economic disruptions, and hybrid threats, and identified their cumulative effects on the transformation of public administration paradigms. The findings demonstrated that conventional bureaucratic models are increasingly inadequate in environments characterised by high uncertainty, multidimensional risks, and rapid change. The study highlighted the growing importance of adaptability and resilience as core attributes of contemporary public administration. Drawing on international studies

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and empirical cases, including examples from Africa, Indonesia, and European countries, the analysis showed that agile public administration contributes to improved public service delivery, enhanced decision-making capacity, and greater institutional responsiveness to hybrid and geopolitical challenges. Agile governance was conceptualised as an integrative management model that combined digital transformation, cross-sectoral collaboration, and citizen-oriented service design. The practical significance of the study lies in its applicability to the development of public administration reform strategies and the implementation of agile governance approaches within public sector institutions operating under conditions of contemporary global security transformation

Keywords: state administration; economic security; military security; globalisation; agile governance

Introduction

The global security situation in the field of public administration is complicated, characterised by classic dangers like interstate conflict and transnational concerns like cybersecurity, climate change, and pandemics. This necessitates a shift in public administration from a solely military perspective to a more flexible, interdisciplinary, and collaborative strategy that considers human security, developing technologies, and international cooperation. To manage these dynamic risks, public administrators must be proactive and strategic, while also retaining citizen trust and responding to non-state actors' expanding impact. Under conditions of globalisation, not only contradictory but also mutually exclusive processes are unfolding. On the one hand, there is a growing democratisation of public life, the deepening interdependence of countries and peoples, and the expansion of humanity's technological and information capabilities. But on the other hand, it is undeniable that the threats, challenges, and risks directly associated with globalisation outweigh all its achievements in many regions of the world. These include the rise of terrorism, hybrid wars, environmental problems, illegal migration, etc. In this landscape, the role of public administration in ensuring state security is becoming increasingly more crucial, which implies shaping new comprehension of public administration problems in the context of global security transformations.

Y. Papadopoulos (2025) described current-stage transformation as moving "from public to transnational administration". According to the researcher, policymaking is frequently the result of multiscalar interactions across global, regional, national, and subnational decisional levels. This has not gone ignored among public administration (PA) scholars. PA research began to push beyond the confines of "methodological nationalism", which holds the nation-state to be the most fundamental (and even natural) structuring principle of social and political relations.

As J.M. Ramirez & J. Biziewski (2020) claimed, not just individual regions, but the world as a whole was finding itself in a state of growing imbalance between prosperity and backwardness, tolerance and conflict, post-industrialism and traditionalism in lifestyle. Apparent stability is in fact deceptive, harbouring within it the seeds of tectonic shifts that could simultaneously upend all familiar notions and reference points. The researchers emphasised that these alarming processes are manifesting themselves in the political life of both individual countries and the global community as a whole. They are reflected in the work of national governments and are initiating the creation of new official structures and informal movements.

Z. Han & M. Papa (2022) in their study presented the evidence that the number of participants in international relations was growing dramatically. Geopolitical stability was being challenged, and calls for more inclusive, multipolar, and reform-oriented approaches are growing as a result of the end of the Cold War, the emergence of multipolarity, the inefficiency of existing institutions, and new technological threats. The reinterpretation of security beyond state defence to encompass human security, the incorporation of digital technologies, and the rise of organisations such as the BRICS as a force promoting a new, more sovereign-based international structure are important components of this shift.

Some scholars focused their research on the analysis of PA' future challenges. The paper by T. Christensen & P. Lægreid (2025) discussed the future theoretical, thematical, empirical, and normative problems for public administration as a research area. Theoretically, it advocated for merging organisational and institutional approaches that address theories at the meso-level while taking context into account, and stronger linkages to political science that address accountability issues and the time dimension. Furthermore, based on empirical research, the authors argued for studying public administration as "living" political organisations from a design perspective, addressing decision-making in public administration but also delving deeper into the effect chain, and studying multilevel governance and the relationships between public administration and other institutional domains.

According to P. de Santayana (2025) the prevailing belief in Western cultures that war was a thing of the past, it was brought about by the conclusion of the Cold War, the fall of the communist regime, and the subsequent success of the liberal-democratic model. Three decades later, the global landscape was completely different: nuclear weapons have reclaimed their lost importance, war has retaken the forefront of international relations, and Europe faces the possibility of a worrying escalation. The wars in the Middle East and Ukraine have damaged the US-led international order, alienated the Global South from Western leadership, and brought China and Russia, two revisionist countries, closer to North Korea and Iran.

Ukrainian researchers R. Shchokin *et al.* (2023) aimed to investigate the function of public administration in guaranteeing national security in the framework of strategy development and implementation. The findings showed that Russia's actions have exacerbated the security situation in European and transitional nations, reducing the efficacy of public administration in protecting state security. The researchers underlined that Ukraine's Fragile State Index has reached a critical level in 2023, emphasising the importance of taking prompt action to counter threats. Another team of Ukrainian scholars – H. Mykhalchenko *et al.* (2025) – in their recent research explored Ukraine's public administration within the context of global challenges, focusing on war, digital transformation trends, migration, and economic instability. The study emphasised the necessity of systemic, integrated approaches to sustain effective governance in ever evolving global environment.

All these facts testify to the increasing complexity of the structure of global security as an external environment for national public administration domains. With an emphasis on resilience, security governance, and the integration of non-state actors and networks, the evolving global security architecture has a substantial impact on national public administration and necessitates the development of new, proactive, flexible, and digitally driven paradigms. To effectively address changing, multi-domain security challenges, such as cyber threats, economic instability, and geopolitical shifts, public administrations must modernise institutional and regulatory frameworks, adopt strategic thinking and cross-sectoral coordination, and utilise digitalisation. In light of this, this paper aimed to contribute to the integrative scientific discourse analysing new roles, challenges, and prospects of public administration within the context of new global security vectors and paradigms.

During the study, the authors used methods of systems analysis, generalisation, classification, systemic, and structural and functional approaches. The authors drew on a civilisational approach to studying social phenomena. The main tool of research was integrative literature review (Cronin & George, 2020). The process of finding and screening was carried out within the following scientometric databases (libraries): ScienceDirect, Wiley, MDPI, ResearchGate, Emerald Insight. The array of inquires included: global security, global security transformation, global security and public administration, impact of global security landscape on nation-scale governance. Criteria of inclusion the entry into final sample implied the presence of empirical research/thorough theoretical study/systematic review/report/case study, time frame 2010-2025, peer-reviewed or monographic publications, English as a language of publication. Data analysis was conducted using the integrative review technique, which allowed for a comprehensive literature synthesis that included findings from various research methodologies.

Global security trends and paradigm shifts in public administration

In the third decade of the millennium, there is already rather solid array of discussions narratives and scholarly studies devoted to correlations between transformation of global security architecture and national public administrations functioning and development. The shift from an internal and introverted approach to PA in the era of New Public Management to large issues of global governance, legitimacy, resilience, and a stronger focus on large external forces and mega-trends like fiscal austerity, digitalisation and technological changes, migration and demographic changes, climate change, societal security, international relations, and globalisation is one important future trajectory that is required (Kusumasari *et al.*, 2023; Wei *et al.*, 2024). Additionally, transdisciplinary public administration research is becoming more popular (Meijer & Ettlinger, 2025). This academic approach enables the creation of a conceptual model of transdisciplinary knowledge integration in the public sector that identifies obstacles and offers solutions. Key aspects of existing narratives can be briefly summarised as shown in Table 1. Thus, it can be seen that in the sphere of public administration, new paradigms shift from old bureaucratic models to more collaborative, citizen-centric, and technologically driven approaches with an emphasis on governance, digitisation, sustainability, and public value. Multi-level governance, flexibility, performance management, transparency, and equity are important tenets that frequently use data and public input to provide more efficient and responsive services. The active digitalisation and digital transformation of public administration is a new "window to opportunities" that can provide society and public authorities with new ways to increase trust and transparency. However, new challenges arise. According to A. Baimenov & P. Liverakos (2025), public administration needs more coordination, technological innovation, and adaptive governance in the new security environment, which is moulded by complexity such as hybrid threats and cyberattacks. This entails encouraging openness, changing governmental institutions, funding the training of leaders, and putting data-driven security plans into action. To create more robust and efficient national security systems, important tactics include enhancing cybersecurity, bringing domestic laws into compliance with international norms, and fostering international collaboration. Studies by C. Yang *et al.* (2024) highlighted the crucial role of coordinated digital transformation efforts in enhancing overall efficiency. According to S. Eom & J. Lee (2022), government digital transformation was accelerated in response to the challenges posed by the COVID-19 pandemic due to the rapid development of digital technologies, which contributed to innovative effectiveness. However, it has also brought forth a number of difficulties, paradoxes, and ambiguities.

Table 1. *Global security transformation impact on national public administrations: Literature narratives summarising*

Key drivers of transformation	Impact on national public administration	Challenges and recommendations
Multi-domain environment: integrated methods are necessary as security threats increasingly emerge across the digital, information, and physical domains	Transition from reactive to proactive management: to foresee and avert dangers to security, public administrations must create strategic, forward-thinking methods	Regulatory framework updates: in order to handle emerging challenges and promote efficient governance, states need to update their institutional and legislative frameworks
Geopolitical instability: conventional security models need to be reassessed in light of the emergence of asymmetric threats and changes in the global balance of power	Stress on security governance: to handle complex threats, a move toward collaborative governance frameworks including a range of stakeholders (public, corporate, and civil society) is required	Improving human capital: it is essential to invest in educating managers and public servants about digital technology and strategic thinking
Technological developments: new vulnerabilities and capabilities that affect national security are being created by digitalisation, artificial intelligence (AI), and network technologies	Resilience and adaptability: public administrations must increase their ability to adjust to quickly shifting security environments and strengthen their country's resistance to external shocks	Balancing national sovereignty and collaboration: public administrations must discover flexible methods to participate in international collaboration while maintaining important national powers
Role of non-state players: as non-state players become more involved, innovative methods to security cooperation and adaptable partnership clusters are needed	Digitalisation and innovation: for better public service delivery and efficient decision-making, digital tools and data analysis must be integrated. Cross-sectoral coordination: for a comprehensive security response, coordination across the many branches of government economic, political, informational, etc. must be strengthened	Ensuring accountability and transparency: keeping strategic communications and decision-making transparent is essential to fostering successful collaborations and public trust

Source*: developed by the authors based on S. Lukman & A. Hakim (2024), A. Baimenov & P. Liverakos (2025), H. Ferdman et al. (2025), I. Piatnychuk et al. (2025)*

Thus, the expanding reliance on digital technologies has increased systemic exposure to cyber vulnerabilities, making security risks an inherent by-product of digital transformation in public administration. Cyber threats pose a serious risk, with state and non-state actors increasingly exploiting digital flaws to undermine critical infrastructure, steal sensitive information, and influence political processes. Since cyber threats are so widespread and can attack from anywhere in the globe while remaining anonymous, traditional protection measures are ineffective. As a result, governments are making significant investments in offensive and defensive cyber capabilities, resulting in an "arms race". In order to preserve the security of critical services, communication networks, and financial systems, governments today must protect both physical and virtual borders. In addition to the serious risks of war, the world is also at risk from unchecked and increasingly powerful AI methods, including the failure to adequately address macroeconomic and financial market vulnerabilities (Kaya, 2024). The increasing sophistication of cyberattacks, as evidenced by ransomware attacks on critical infrastructure, emphasises the necessity of comprehensive cybersecurity measures.

Taken together, these technological, cyber, and systemic risks highlight that contemporary security challenges cannot be understood in isolation from broader global structural processes. Digital vulnerabilities, economic interdependencies, and transnational threats increasingly intersect with globalisation, reshaping the environment in which public administrations operate. The monographic by H. Khan (2018) made an effort to comprehend the difficulties associated with globalisation and public sector governance. Since implementation duties necessitate collaboration between the public and private sectors, the terms "governance" and "public administration" were used interchangeably throughout the book. The significance of the relationship between the public and private sectors on a national and international scale is implied by globalisation. Therefore, managing all the parties providing government services presents significant issues for public administration. In fulfilling governmental functions, public administration operates within both internal and external environments that are profoundly shaped by globalisation. As a result, global developments increasingly influence public organisations at multiple levels. The researcher looked into how globalisation has affected public sector leadership, sustainability, e-governance, ethics and accountability, and human resource management. Public administration is impacted by globalisation in a number of ways, including the erosion of conventional sovereignty, the rise in efficiency expectations brought about by new public management strategies like privatisation, and the necessity of cross-border collaboration for problems like pandemics and climate change. Additionally, it causes problems including the failure of policies to be implemented because they do not fit local circumstances, the deterioration of social safety nets, and a rise in international inequality (Greminger, 2022; Karolyi *et al.*, 2025).

Overall, security challenges have arisen as a critical geopolitical landscape for public governance, necessitating the development of robust policies and encouraging international cooperation to sustain national and global stability. The rise of cyber threats, terrorism, and international crime has significantly altered the security landscape in an era of unprecedented technological advancements and globalisation. As a result, governments are forced to constantly innovate and adapt to a wide range of complicated and changing risks.

The era of "hybridity": New threats and their implications

Against the backdrop of globalisation, digital transformation, and intensifying geopolitical competition discussed above, contemporary security challenges are increasingly characterised by hybrid dynamics that reshape the operating environment of public administration. Threats to public administration in the era of hybridity include information warfare and disinformation campaigns that undermine public confidence, cyberattacks on vital infrastructure, foreign influence and acquisition of sensitive data, and destabilisation due to the blurring of public and private sector boundaries. Significant obstacles include the difficulty in identifying these dangers and the requirement for a more coordinated response from numerous public and private organisations. Evolving of the concept of hybrid warfare gradually led to emerging concept of "hybrid peace" (Wallis *et al.*, 2018), and every nation-state' PA has to align its functioning with this new reality.

Within the landscape of hybrid threats, careful counterterrorism plans and vigilant intelligence are required due to the persistent threat of terrorism. From well-planned, massive attacks to isolated incidents, terrorist tactics are always evolving, necessitating a multifaceted approach that includes state-of-the-art monitoring technologies, international intelligence collaboration, and community engagement programmes. Governments are forced to strike a balance between security and individual liberties as a result of this constant monitoring, which regularly leads to heated debates concerning privacy, civil liberties, and the extent of state surveillance.

Transnational crime, which encompasses people trafficking, smuggling of drugs and weapons, and other crimes, complicates the regulatory environment. The interconnectedness of the globalised world is exploited by these crimes, which easily transcend national borders and call for thoughtful, coordinated responses. International law enforcement agencies must collaborate more than ever before, sharing strategies and intelligence, in order to dismantle cross-border criminal networks. However, this necessitates overcoming significant administrative and diplomatic challenges because various countries have different legal systems, objectives, and capacities.

A bright example of new hybrid threats is China' strategy of "magic weapon". In a speech in September 2014, Xi Jinping emphasised the value of united front work and political influence initiatives, referring to them as the CCP's "magic weapons". Under Xi, the Chinese government has increased its efforts to influence other countries. The targeted governments' political systems' integrity and sovereignty could be compromised by China's foreign influence operations (Brady, 2021). This new latent threat was not fully comprehended by public administrations, but the countries of Five Eyes alliance (a long-standing intelligence-sharing partnership among the United States, the United Kingdom, Canada, Australia, and New Zealand) already manifest concerns and design vectors to counteract.

By modifying political systems, redefining national priorities, altering international norms and standards, and preserving regional stability, China's rise serves as an illustration of the shifting global power dynamics that have a substantial impact on public governance. First, China's growing influence challenges established political systems, compelling many countries to reconsider their governance frameworks in the context of China's state-led development approach. The democratic failures that have taken place globally, particularly in the U.S. and Europe, raise doubts about the fundamentals of governing systems (Saaida, 2023). This paradigm may inspire other nations to adopt it in order to achieve rapid economic growth, as it contrasts with Western democratic norms by combining economic liberalisation with authoritarian governance. Second, each country's priorities are reshaped when they coordinate their strategies to benefit from China's economic growth. For instance, nations participating in the Belt and Road Initiative, China's global infrastructure and investment strategy aimed at enhancing connectivity through transport, energy, and digital networks, alter their economic and infrastructural policies to attract Chinese investment, placing a greater emphasis on connectivity and economic development than on more conventional priorities. These forces are partly responsible for the global political and economic elites' efforts to create ever-more-comprehensive trade regulation frameworks that lessen the variety of state arrangements.

These developments illustrate that contemporary transformations in public governance are deeply embedded in broader power configurations and cross-border interactions. To systematically interpret such dynamics and their implications for public administration, a geopolitical perspective provides an essential analytical framework. According to M.M.M. Aslam *et al.* (2024), geopolitics can be viewed as a process that facilitates understanding of tensions and conflicts at local, regional, national, and global levels. Actors' power struggles may also be shown. Public governance may effectively handle these tensions and conflicts with the aid of this understanding. In summary, geopolitics plays a significant role in shaping the strategies and regulations employed by public administration. It provides a lens through which one may see the complex relationships – geography, power, politics, and international relations – that are essential to effective public governance. Therefore, a deeper comprehension of geopolitics can facilitate more clever, perceptive, and effective public governance. An unstable international climate is brought about by wars in the Middle East and Europe, the rise of authoritarian regimes, and continuing hostilities with major countries. Energy shocks and other economic vulnerabilities can be brought on by geopolitical changes, which can lead to instability that puts pressure on governmental regulations and necessitates stronger financial systems. Cross-border transfers and policy changes are influenced by geopolitical interdependence. Furthermore, in order to effectively collaborate with other countries on common issues, public administration must get past disparities in political and legal frameworks.

Beyond shaping political strategies and regulatory frameworks, geopolitical dynamics also generate profound economic consequences that directly affect governance capacity. These economic disruptions constitute a critical channel through which geopolitical and geoeconomic tensions translate into tangible challenges for public administration. Regional economic, geoeconomic, and geopolitical disputes impede trade, investment, and economic progress. Stable governance is dependent on a strong economy. Regional conflict can affect the economy in both the short and long term. In the near term, infrastructure damage can disrupt services and manufacturing, resulting in employment losses, lower personal incomes, and less revenue for the government. In the affected area, this may exacerbate poverty and inequality. The instability and uncertainty caused by conflict may eventually deter both international and domestic investment, which is evident on the example of Russo-Ukrainian war, Israeli-HAMAS war, and various local conflicts, in particular, on African continent. This lack of investment may hinder economic recovery and growth even after the conflict is gone. Furthermore, because skills and expertise may be lost or underutilised as a result of people being relocated during conflicts, human capital may be depleted (Ladreit *et al.*, 2024).

Disruptions of trade routes can affect the region immediately, but they can also have a significant effect on nearby countries that rely on them for import and export. This could affect these countries' economies by causing shortages and price increases for goods. Furthermore, the government's ability to uphold peace and provide services may be jeopardised by the economic disruptions caused by conflicts. Governments depend on a growing economy for revenue, and its disruption may limit their ability to provide public services, infrastructure, and social welfare. This might further destabilise the region by making people lose trust in the administration.

In particular, conflicts in Africa are fuelled by complicated problems including political marginalisation, governance difficulties, and winner-take-all politics, which are frequently made worse by rivalry for resources and outside intervention. Conflicts often arise in autocratic or semi-authoritarian states, while violent extremist groups frequently impact democratic countries. Public management is a significant influence. Although external responses have frequently been insufficient because of a one-size-fits-all or Western-centric perspective, effective public administration and non-military techniques are essential for handling crises. Taken together, hybrid security threats, geopolitical power shifts, and conflict-induced economic disruptions expose the growing vulnerability of public governance systems, underscoring the need for adaptive, coordinated, and resilient public administration responses in an increasingly complex and unstable global environment.

Adaptive, resilient, and agile public administration in the era of hybridity

Conditions in which regional conflicts, economic shocks, and demographic shifts overlap are particularly acute in countries of the Global South, especially in Africa. In this context, the combination of political instability, economic vulnerability, and limited institutional capacity creates a highly challenging environment for public administration. Consequently, the central issue is not only the scale of the threats themselves, but also the ability of public administrations to adapt, maintain resilience, and develop flexible governance responses to continuously evolving challenges.

E. Kikasu & N. Dorasamy (2025) investigated how to navigate the dynamic terrain of public administration governance in Africa using new adaptation and resilience techniques and tactics. The researchers underlined that effective public administration governance in the 21st century necessitates responding to a constantly changing terrain of complicated societal needs, technology breakthroughs, and altering political situations. African public administrations face an increasingly complicated governance landscape as a result of rising urbanisation, demographic shifts, and shifting global dynamics. The study argues that traditional governance systems are no longer adequate to manage the complex difficulties confronting African countries, and that new strategies are required to create resilience and adapt to an ever-changing environment. The study proposed a framework for navigating Africa's changing public administration governance landscape, highlighting the importance of continuous learning, collaboration, and innovation in ensuring successful and sustainable governance practices. Adopting a culture of experimentation, collaboration, and ongoing learning can help public administrators to become more equipped to handle new problems and grasp chances for advancement. The dynamic landscape of public administration governance in Africa through creative adaptation and resilience practices and tactics was discussed and supported by a number of theories in the context of this study. The study's conceptual framework was composed of theories such as public administration theory, complexity theory, resilience theory, adaptive governance theory, and innovation management theory (Fig. 1). Thus, PA needs a dynamic balance and integrative science across politics, management, and law. There is the shift to "integrative" public administration, and gradual adopting of agile approach within unstable and highly turbulent global environment. Negotiating the ever-changing terrain of governance calls for creative methods and tactics in public administration. Adaptation and resilience are key concepts associated with the attainment of development outcomes among the diverse creative techniques being implemented in diverse public administration environments (Meuleman, 2021). Therefore, creative techniques are essential to improve adaptation and resilience outcomes. The ability of organisations to adapt to changing conditions, seize opportunities, and reduce risks is referred to as adaptation (Bag *et al.*, 2023). Conversely, resilience comprises the ability to endure the consequences of unforeseen adverse events, bounce back quickly from disturbances, and go on with productive and efficient operations (Villasana-Arreguín & Pastor Pérez, 2023). In the context of public administration, resilience and adaptation are essential for overcoming difficult obstacles including social upheavals, pandemics, and political and economic crises. For public managers attempting to negotiate unclear and complicated challenges in a highly dynamic global context, adaptation and resilience are essential and crucial components (Sellberg *et al.*, 2018).

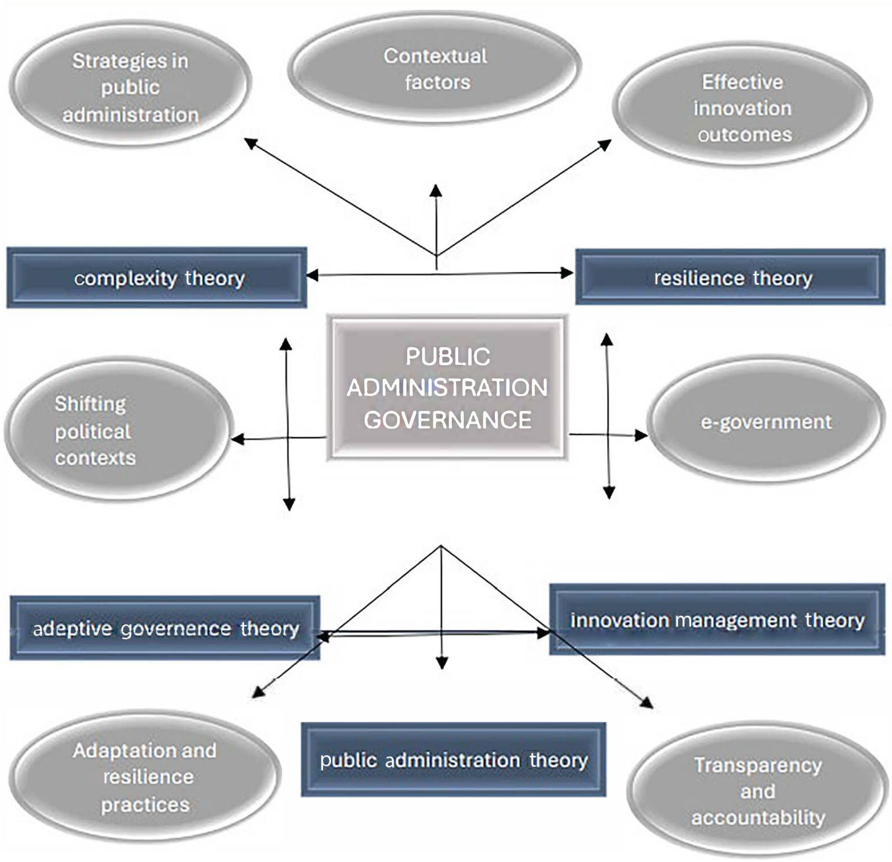

Figure 1. *Conceptual framework for studying public administration domain features in the dynamic landscape of contemporary security patterns*

Source*: E. Kikasu & N. Dorasamy (2025)*

A.V. Rakšnys & A. Valickas (2022) stated that the use of complexity theory in public administration governance takes into consideration governance structures, policymaking, decision-making, and service delivery. This indicated the following. Complexity theory can assist policymakers in understanding the potential implications of policy actions and identifying potential unintended consequences; inform decision-making by appreciating the limitations of human cognition and the significance of considering many perspectives and stakeholders; aid in comprehending the relationships between service delivery systems and the communities they serve, and how to provide more efficient services; guide the creation of governance frameworks, including decentralised decision-making procedures or networked organisations; and assist adaptive management techniques, which entail making adjustments to decisions, learning from mistakes, and adapting to changing circumstances. The adaptive governance theory is a relatively recent method of comprehending and researching governance in public administration, wherein complexity theory is applied to governance through policymaking, decision-making, and service delivery (Kreienkamp & Pegram, 2021). It emphasises the significance of adaptability, flexibility, and learning in governance systems to manage complex and dynamic situations (Head, 2022).

In the 1990s, the concept of adaptive governance was developed within the work of the Resilience Alliance – an international research network focused on understanding resilience and adaptive capacity in complex social-ecological systems – initially with an emphasis on ecosystem and natural resource management (Partelow *et al.*, 2020). It was then applied in other sectors, including as urban planning, disaster management, and healthcare. Adaptive governance is a governance style in public administration that respects uncertainty and complexity, and the fact that the environment is inherently variable and complicated, making outcome prediction impossible. It facilitates cooperation between different stakeholders, such as government agencies, civil society organisations, and private sector entities; emphasises achieving desired outcomes over structures; permits adjustments and changes in response to new information, feedback, and changing circumstances; and integrates diverse perspectives, including those from science, community, and practice. It also promotes experimentation, learning from failures, and continuous improvement to address emerging challenges. But according to L. Kong *et al.* (2022), resilience theory is an interdisciplinary idea that has grown in acceptance recently, especially when it comes to public administration and governance. The ability of a system, group, or individual to endure, adjust, and bounce back from hardship, trauma, or disturbance is known as resilience (Mujjuni *et al.*, 2021). Resilience theory can be used in the context of public admiration governance to comprehend how public institutions and governments might increase their ability to handle uncertainty, respond to crises, and promote favourable results. Adaptation, flexibility, teamwork, learning from mistakes, equity, and social justice are the main tenets of resilience theory in public administration (Laskey *et al.*, 2023).

As a result, according to resilience theory, interactions between people, organisations, and institutions produce resilience, which is a system-level attribute. To consider the relationships between the various parts of the system, public administrators take a comprehensive approach. Instead, then just responding to changing conditions, it entails adapting to them (Frigotto *et al.*, 2022). Public managers should place a high priority on adaptive capacity, which enables them to modify plans and actions when circumstances change. Furthermore, according to this idea, resilient systems can adapt to changing conditions without becoming inflexible or rigid (Eriksen *et al.*, 2021). This calls for public administrators to be flexible and quick to adjust to new knowledge or unforeseen circumstances. Moreover, cooperation between various stakeholders, such as governmental bodies, nonprofits, corporations, and neighbourhood associations, is frequently necessary for resilience. Public administrators in this situation must encourage collaborations and networks to take advantage of group assets and capabilities.

The above ideas are progressively evolving into the agile public administration paradigm, which is characterised by its human-centred focus, cross-functional teams, iterative and adaptive nature, collaboration and feedback, and evidence-based learning (Hong & Kim, 2020). Agile public administration uses data analytics, collaborative efforts, and adaptive governance to tackle emerging issues such as deepfakes, information overload, and shifting threats. Through ongoing feedback loops and iterative procedures, this strategy enables governments to adapt to complicated circumstances more swiftly and efficiently, increase efficiency, and provide better services. Development of leadership abilities that encourage experimentation and cross-agency collaboration, and movement from inflexible, old models to adaptable, data-driven, and constituent-centred frameworks, are important components. In order to increase efficiency, citizen-centricity, and adaptability in the delivery of policies and services, agile public administration applies private-sector agile concepts such as cross-functional teams, iterative work, and continuous feedback to government. Through human-centric design, evidence-based learning, and prompt adaptation, it moves away from inflexible, command-and-control structures and toward flexible, collaborative procedures that enable quicker answers to changing citizen requirements and complicated situations.

Agile public administration as a response to hybrid and geopolitical challenges

While traditional public administration models struggle to cope with uncertainty, rapid change, and overlapping security, economic, and societal pressures, agile public administration emerges as a practical framework for translating adaptability and resilience into concrete institutional practices. In this context, the idea of agile governance, which emphasises flexibility, adaptability, and responsiveness to quickly changing conditions, represents a paradigm shift in public administration (Li *et al.*, 2023). Adopting agile governance approaches is essential for improving the effectiveness of public service delivery and policy execution as governments throughout the world struggle with complex issues (Mengqi & Yin, 2023).

As societal expectations change as a result of globalisation, public administrators are under pressure to provide services that are more responsive and focused on the needs of the public. Government organisations today are expected by the public to be responsive, accountable, and nimble. This expectation calls for a change from the conventional bureaucratic model to one that is more focused on the consumer needs. To better understand and satisfy the expectations of the public, public administrators are increasingly implementing customer relationship management principles (Topal, 2022; Medaglia *et al.*, 2023). Agile governance should take the issue of migration into its "orbit" as a pressing issue that has to be resolved immediately, as it has become one of the key elements influencing the security transition in host nations.

These governance challenges are increasingly being examined through empirical studies that illustrate how agile approaches operate in specific national contexts. In the context of Indonesia, the results of the study by S. Lukman & A. Hakim (2024) offered a thorough analysis of the intricate connections among inclusive decision-making, digital transformation, agile governance, political stability, and civilian satisfaction with public services. Agile governance and citizen happiness were found to be positively correlated.

The adoption of agile in public administrations was examined by O. Neumann *et al.* (2024) using translation theory and Scandinavian institutionalism as a framework. The researchers examined how agile was implemented in public contexts and how they handle related issues by interviewing representatives of 19 German public administrations. Three translation mechanisms were identified by the findings: agile as a methodology that closely adheres to its original values and principles, agile as governance to promote cross-functional collaboration, and agile reduced to a cultural concept.

J. Dowdy & K. Rieckhoff (2017) discussed leveraging agile principles to address national security. The phrase "agile security" just surfaced. This phrase suggested that governments need to approach security with an agile mindset. Only agile public administration can effectively take into consideration and cope with agile security elements and its overall landscape. Agile approaches have the power to revolutionise a government's operations, planning, and service delivery. Significant progress has already been achieved by certain government agencies. Every level of government should adopt agile ideas and practices in order to overcome obstacles to change. In fact, the most successful agile tenets will vary depending on the tasks and priorities of the central government, its agencies, and their teams, as well as the various levels of government organisations. Ch. Hastings (2024) proposed the conceptual idea of particular agile principles that might be implemented at various governmental levels (Fig. 2).

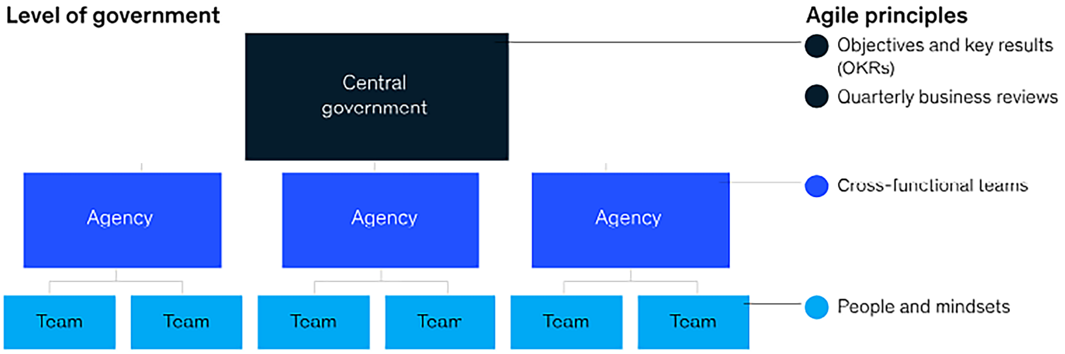

Figure 2. *Specific agile principles that can be applied at different levels of government*
Source: *Ch. Hastings (2024)*

Accelerated digitalisation and "agile" as a management concept could be used to improve the flexibility, responsiveness, adaptability, and resilience of public administrations during times of crisis, allowing them to function in accordance with good governance principles in today's VUCA world – a world characterised by "volatility", meaning rapid and often unpredictable changes; "uncertainty", when future developments and the consequences of decisions are difficult to foresee; "complexity", arising from the interaction of multiple interdependent actors, rules, and processes; and "ambiguity", where causal relationships are unclear and situations can be interpreted in different ways. Agile's contributions to public administrations include, but are not limited to, the development of flexible organisational structures to overcome silo approaches, improved understanding of the requirements, processes, and procedures for new services, the responsible use of discretionary power by public servants, improved resource sharing, increased accountability and transparency, and increased collaboration with stakeholders, including increased citizen participation. According to this method, one of the main forces behind good governance is the integration of the complementary and/or mutually supporting aspects of an agile and digitalised public administration.

Conclusions

The review conducted in the study showed that in the context of accelerating global change, public administration is faced with new challenges, among which the most significant ones are the unprecedented growth of information flows, and the globalisation of economic, social, and political and administrative processes, which create new opportunities and constraints for the functioning of national governments. Globalisation and technologisation are rapidly changing institutional design and public administration practices. National governments, while remaining key actors in the political process, are facing fundamentally new challenges associated with an exceptionally dynamic external environment characterised by the continuous evolution of threats and challenges.

The study examined global security megatrends, including digitalisation, globalisation, geopolitical instability, hybrid threats, and economic disruptions, and analysed their cumulative impact on public administration systems. Particular attention was paid to the transformation of governance paradigms, the growing role of resilience and adaptation, and the increasing relevance of hybrid and multi-domain security environments. The analysis also explored the implications of geopolitical power shifts and conflict-driven economic shocks, with a special focus on governance challenges in fragile and developing regions.

The findings demonstrated that conventional bureaucratic models of public administration are increasingly inadequate in addressing the complexity, uncertainty, and interconnectedness of contemporary global security challenges. In this context, agile public administration emerges as a coherent and integrative governance paradigm capable of translating adaptability, resilience, and flexibility into concrete institutional practices. Agile governance enables public administrations to respond more effectively to hybrid threats, geopolitical pressures, technological disruptions, and evolving societal expectations.

In conclusion, successful public governance in the 21st century depends on negotiating the complex terrain of geopolitical problems. Adaptive and resilient governance systems are necessary due to the interplay of international conflicts, economic changes, environmental changes, and technological improvements. To handle these complications and protect national stability, governments must give diplomacy, security, and sustainable development top priority. In the end, governments' success in guaranteeing wealth and security for their inhabitants will depend on their capacity to foresee, respond to, and manage geopolitical problems. In an interconnected world, governments can manage the uncertainties of the global landscape and emerge stronger through proactive and adaptive governance. Future research should further explore empirical applications of agile governance across diverse national and regional contexts, examine its long-term institutional effects, and investigate the interplay between agile public administration, democratic accountability, and public trust in environments characterised by persistent geopolitical and security instability.

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Conflict of Interest

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References

[1] Aslam, M.M.M., Mahadi, S.R.S., & Mizan, M.N. (2024). Geopolitical challenges in public governance. *International Journal of Strategic Studies,* 1(2), 17-23. doi: 10.59921/icestra.v1i2.52.

[2] Bag, S., Srivastava, G., Gupta, S., Zhang, J.Z., & Kamble, S. (2023). Change adaptation capability, business-to-business marketing capability and firm performance: Integrating institutional theory and dynamic capability view. *Industrial Marketing Management,* 115, 470-483. doi: 10.1016/j.indmarman.2023.11.003.

[3] Baimenov, A., & Liverakos, P. (Eds.). (2025). *Public administration in the new reality*. London: Palgrave Macmillan.

[4] Brady, A.-M. (2021). Magic weapons and foreign interference in New Zealand: How it started, how it's going. *Policy Quarterly,* 17(2), 70-79.

[5] Christensen, T., & Lægreid, P. (2025). Future challenges of public administration. *Public Performance & Management Review*, 1-26. doi: 10.1080/15309576.2025.2549297.

[6] Cronin, M.A., & George, E. (2020). The why and how of the integrative review. *Organisational Research Methods,* 26(1), 168-192. doi: 10.1177/1094428120935507.

[7] de Santayana, P. (2025). War has strongly returned to geopolitics. *IEEE, Analysis Paper,* 41.

[8] Dowdy, J., & Rieckhoff, K. (2017). *Agility in US national security*. Retrieved from https://www.mckinsey.com/~/media/McKinsey/Industries/Public%20Sector/Our%20Insights/Agility%20in%20US%20national%20security/Agility-in-US-national-security.pdf.

[9] Eom, S., & Lee, J. (2022). Digital government transformation in turbulent times: Responses, challenges, and future direction. *Government Information Quarterly,* 39(2), article number 101690. doi: 10.1016/j.giq.2022.101690.

[10] Eriksen, S., *et al.* (2021). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance? *World Development,* 141, article number 105383. doi: 10.1016/j.worlddev.2020.105383.

[11] Ferdman, H., Kravets, O., Sivak, V., Piatnychuk, I., Symonenko, L., & Akimova, A. (2025). Matrix of Innovative competencies in public administration within the ecosystem of sustainable development, national security, and financial efficiency. *Sapienza: International Journal of Interdisciplinary Studies*, 6(2), article number e25022. doi: 10.51798/sijis.v6i2.974.

[12] Frigotto, M.L., Young, M., & Pinheiro, R. (2022). Resilience in organisations and societies: The state of the art and three organizing principles for moving forward. In R. Pinheiro, M.L. Frigotto & M. Young (Eds.), *Towards resilient organisations and societies. Public sector organisations* (pp. 3-40). Cham: Palgrave Macmillan. doi: 10.1007/978-3-030-82072-5 1.

[13] Greminger, T. (2022). *Reforming the global security architecture*. Retrieved from https://www.gcsp.ch/publications/reforming-global-security-architecture.

[14] Han, Z., & Papa, M. (2022). Brazilian alliance perspectives: Towards a BRICS development – security alliance? *Third World Quarterly,* 43(5), 1115-1136. doi: 10.1080/01436597.2022.2055539.

[15] Hastings, Ch. (2024). *The agile government: Blueprint for modern public administration*. Ahrensburg: Tredition Gmbh.

[16] Head, B.W. (2022). *Wicked problems in public policy: Understanding and responding to complex challenges*. London: Palgrave Macmillan. doi: 10.1007/978-3-030-94580-0.

[17] Hong, K., & Kim, P.S. (2020). Building an agile government: Its possibilities, challenges, and new tasks. *Halduskutuur,* 21(1), 4-21. doi: 10.32994/hk.v21i1.235.

[18] Karolyi, H., Akimova, L.M., Mishchuk, H.Y., Akimov, O.O., & Karpa, M. (2025). Military migration and demographic transformations in Ukraine: Military consequences for territorial communities. *Ukrainian Geographical Journal,* 3(131), 75-86. doi: 10.15407/ugz2025.03.075.
[19] Kaya, A. (2024). *How are geopolitical risks affecting the world economy?* Retrieved from https://www.economicsobservatory.com/how-aregeopolitical-risks-affecting-the-world-economy.
[20] Khan, H. (2018). *Globalisation and the challenges of public administration: Governance, human resources management, leadership, ethics, e-governance and sustainability in the 21st century*. London: Palgrave Macmillan.
[21] Kikasu, E., & Dorasamy, N. (2025). Navigating through the dynamic landscape of public administration governance through innovative adaptation and resilience practices and strategies in Africa. *Journal of Information Systems Engineering and Management,* 10(7s), 203-228. doi: 10.52783/jisem.v10i7s.854.
[22] Kong, L., Mu, X., Hu, G., & Zhang, Z. (2022). The application of resilience theory in urban development: A literature review. *Environmental Science and Pollution Research,* 29(33), 49651-49671. doi: 10.1007/s11356-022-20891-x.
[23] Kreienkamp, J., & Pegram, T. (2021). Governing complexity: Design principles for the governance of complex global catastrophic risks. *International Studies Review,* 23(3), 779-806. doi: 10.1093/isr/viaa074.
[24] Kusumasari, B., Sajida, S., Santoso, A.D., & Fauzi, F.Z. (2023). The reinventing of public administration in the new hybrid world. *Teaching Public Administration,* 42(2), 206-229. doi: 10.1177/01447394231191927.
[25] Ladreit, C., Mircheva, B., & Matheson, T. (2024). *Scars of conflict are deeper and longer lasting in Middle East and Central Asia*. Retrieved from https://www.imf.org/en/Blogs/Articles/2024/06/05/scars-of-conflict-are-deeperand-longer-lasting-in-middle-east-and-central-asia.
[26] Laskey, A.B., Stanley, E., Islam, K., Schwetschenau, S., Sobeck, J., Smith, R.J., McElmurry, S.P., Kilgore, P., Taylor, K., & Seeger, M.W. (2023). Perspectives and propositions on resilience as interdisciplinary, multilevel, and interdependent. *Natural Hazards Review,* 24(3), article number 03123004. doi: 10.1061/NHREFO.NHENG-1471.
[27] Li, Y., Fan, Y., & Nie, L. (2023). Making governance agile: Exploring the role of artificial intelligence in China's local governance. *Public Policy and Administration*, 40(2), 276-301. doi: 10.1177/09520767231188229.
[28] Lukman, S., & Hakim, A. (2024). Agile governance, digital transformation, and citizen satisfaction moderated by political stability in Indonesia's socio-political landscape. *Journal of Ethnic and Cultural Studies,* 11(1), 210-228. doi: 10.29333/ejecs/2001.
[29] Medaglia, R., Gil-Garcia, J.R., & Pardo, T.A. (2023). Artificial intelligence in government: Taking stock and moving forward. *Social Science Computer Review,* 41(1), 123-140. doi: 10.1177/08944393211034087.
[30] Meijer, A., & Ettlinger, K. (2025). Transdisciplinary public administration research: Developing and testing a model for transdisciplinary knowledge integration in the public sector. *Perspectives on Public Management and Governance,* 8(2), 106-120. doi: 10.1093/ppmgov/gvaf009.
[31] Mengqi, D., & Yin, Y. (2023). Exploring the agile governance model of city clusters in the context of smart cities: Taking the Guangdong-Hong Kong-Macao Greater Bay Area as an example. In Y.-J. Cha (Ed.), *Advances in urban construction and management engineering* (pp. 477-484). Boca Raton: CRC Press.
[32] Meuleman, L., (2021). Public administration and governance for the SDGs: Navigating between change and stability. *Sustainability,* 13(11), article number 5914. doi: 10.3390/su13115914.
[33] Mujjuni, F., Betts, T., To, L.S., & Blanchard, R.E. (2021). Resilience a means to development: A resilience assessment framework and a catalogue of indicators. *Renewable and Sustainable Energy Reviews,* 152, article number 111684. doi: 10.1016/j.rser.2021.111684.
[34] Mykhalchenko, H., Cherniaieva, O., Bashtannyk, O., Shumliaieva, I., & Pitet, N. (2025). Public administration in the context of global challenges. *Management,* 3, article number 209. doi: 10.62486/agma2025209.
[35] Neumann, O., Kirklies, P.C., & Schott, C. (2024). Adopting agile in government: A comparative case study. *Public Management Review,* 26(12), 3692-3714. doi: 10.1080/14719037.2024.2354776.
[36] Papadopoulos, Y. (2025). From public to transnational administration: A system-level perspective on accountability beyond state borders. *Public Performance & Management Review*, 1-31. doi: 10.1080/15309576.2025.2491402.
[37] Partelow, S., *et al.* (2020). Environmental governance theories: A review and application to coastal systems. *Ecology and Society,* 25(4), article number 19. doi: 10.5751/ES-12067-250419.
[38] Piatnychuk, I., Akimova, L., Serhieiev, V., Bashynskyi, I., Radchenko, R., & Akimov, O. (2025). Competences of public administration leaders in the face of threats to national security: Strategic development guidelines. *TPM – Testing, Psychometrics, Methodology in Applied Psychology,* 32(S1), 340-349.
[39] Rakšnys, A.V., & Valickas, A. (2022). The application of complexity theory in the context of public governance challenges. *Public Policy and Administration,* 21(4), 526-536. doi: 10.13165/VPA-22-21-4-14.
[40] Ramirez, J.M., & Biziewski, J. (Eds.). (2020). *A shift in the security paradigm: Global challenges: Is Europe ready to meet them?* New York: Springer.
[41] Saaida, M. (2023). The rise of China as a global superpower and its implications for international relations. *Zenodo*. doi: 10.5281/zenodo.10884268.

[42] Sellberg, M.M., Ryan, P., Borgström, S.T., Norström, A.V., & Peterson, G.D. (2018). From resilience thinking to resilience planning: Lessons from practice. *Journal of Environmental Management,* 217, 906-918. doi: 10.1016/j.jenvman.2018.04.012.
[43] Shchokin, R., Soloviov, O., & Tantsiura, I. (2023). The role of public administration in ensuring state security: Strategies and mechanisms of implementation. *Journal of Law and Sustainable Development,* 11(8), article number e1521. doi: 10.55908/sdgs.v11i8.1521.
[44] Topal, S. (2022). Rethinking piety and the veil under political Islam: Unveiling among Turkish women after 2016. *American Journal of Qualitative Research,* 6(3), 99-123. doi: 10.29333/ajqr/12527.
[45] Villasana-Arreguín, L., & Pastor Pérez, M. (2023). Resilience and capabilities adopted by enterprises to cope with disruptive events. In S. Estrada (Ed.), *Digital and sustainable transformations in a postCOVID world: Economic, social, and environmental challenges* (pp. 121-157). Cham: Springer International Publishing. doi: 10.1007/978-3-031-16677-8_4.
[46] Wallis, J., Kent, L., Forsyth, M., Dinmen, S., & Bose, S. (2018). *Hybridity on the ground in peacebuilding and development: Critical conversations*. Canberra: ANU Press.
[47] Wei, R.-Z., Liu, X.-Y., & Lyu, P.-H. (2024). Bibliometrics of public administration research hotspots: Topic keywords, author keywords, keywords plus analysis. *Heliyon,* 10(21), article number e39352. doi: 10.1016/j.heliyon.2024.e39352.
[48] Yang, C., Gu, M., & Albitar, Kh. (2024). Government in the digital age: Exploring the impact of digital transformation on governmental efficiency. *Technological Forecasting and Social Change,* 208, article number 123722. doi: 10.1016/j.techfore.2024.123722.

Проблеми публічного управління в умовах глобальних безпекових трансформацій: інтегративний огляд

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Анотація. Актуальність дослідження зумовлена глибокими трансформаціями глобального безпекового середовища, зростанням геополітичної нестабільності, поширенням гібридних загроз та цифрових викликів, які суттєво змінюють умови функціонування національних систем державного управління. Метою статті був комплексний аналіз впливу глобальних безпекових мегатрендів на розвиток публічного управління та обґрунтування agile-підходу як ефективної управлінської відповіді на сучасні виклики. Методологічною основою дослідження був міждисциплінарний аналіз наукових джерел, концептуальний синтез підходів з публічного управління, безпекових студій, теорії стійкості та адаптивного врядування. У статті проаналізовано ключові мегатренди глобальної безпеки, зокрема цифровізацію, глобалізацію, геополітичні зсуви, економічні потрясіння та гібридні загрози, і визначено їхній сукупний вплив на трансформацію парадигм державного управління. Показано, що традиційні бюрократичні моделі дедалі менше відповідають умовам високої невизначеності, багатовимірності та швидких змін. Обґрунтовано зростання ролі адаптивності та стійкості як базових характеристик сучасного публічного управління. На основі аналізу міжнародних досліджень і кейсів (зокрема країн Африки, Індонезії та європейських держав) доведено, що agile-публічне управління сприяє підвищенню ефективності надання публічних послуг, покращенню управлінських рішень і здатності інституцій реагувати на гібридні та геополітичні виклики. Agile-підхід розглянуто як інтегративну управлінську модель, що поєднує цифровізацію, міжсекторальну співпрацю та орієнтацію на потреби громадян. Практична цінність дослідження полягає у можливості використання отриманих висновків при розробленні стратегій реформування публічного управління та впровадженні agile-підходів у діяльність органів державної влади в умовах сучасних безпекових трансформацій

Ключові слова: державне управління; економічна безпека; військова безпека; глобалізація; agile управління

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The essence and classification of methods of public administration in the context of the development of the Smart City concept

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Abstract. Under conditions of the digital transformation of public authority, the strengthening of the role of urban territories in ensuring sustainable development and the growing societal demand for transparency, accountability and citizen participation, the rethinking of methods of public administration through the prism of the development of the Smart City concept becomes particularly relevant. The aim of the study was the conceptual substantiation and systematisation of approaches to understanding methods of public administration under conditions of the digitalisation of management processes and the introduction of smart-oriented models of urban development. The article provided a theoretical and methodological analysis of the essence of methods of public administration in the context of the transformation of the public governance system under the influence of digitalisation and the development of the Smart City concept. The evolution of academic approaches to interpreting methods of public administration is revealed – from the classical rational-legal model to contemporary concepts of good governance, results-oriented management and digital governance. It is substantiated that, in the Smart City environment, methods of public administration acquire an integrative character, combining legal regulators, administrative and organisational procedures, economic incentives and communicative instruments with digital platforms, data analytics, electronic services and mechanisms of citizen participation. It is shown that traditional classifications of methods, formed within the hierarchical model of governance, do not fully correspond to the challenges of network interaction, interoperability, digital by default and the growing role of data-driven governance. A generalised classification of methods of public administration is proposed in the context of the development of the Smart City, which takes into account organisational, economic, digital and social aspects of governance and reflects the functional purpose in the "goals – functions – methods – instruments – results" system of sustainable development of urban territories. The practical value of the study lies in the possibility of using the proposed classification of methods of public administration in the activities of local self-government bodies to increase the effectiveness of management decisions and to adapt European Smart City approaches to national conditions

Keywords: digitalisation of public authority; data-driven governance; electronic services; citizen participation; sustainable development of territories; public governance

Introduction

Contemporary processes of reforming public administration have taken place under conditions of the digital transformation of management processes and the strengthening of the role of cities as centres of economic, social and innovation-driven development. In this context, the academic discourse on the Smart City is increasingly shifting from the technological description of solutions to the analysis of management mechanisms, institutional capacities and policy implementation practices. Specifically, E. Przeybilovicz & M.A. Cunha (2024) emphasised that the development of Smart Cities is largely dependent on managerial and institutional factors, including the ability of public authorities

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to coordinate digital initiatives, align them with public policy objectives, and integrate technological solutions into sustainable management processes, rather than treating them as autonomous technical projects. A similar logic of the development of "smart" urban practices in Europe was revealed by L. Brzeziński & M.K. Wyrwicka (2022), who stressed that the effect of the Smart City is determined not by the set of technologies but by the manageability of change, institutional coherence and the ability of cities to scale solutions at the level of policies.

The organisational and managerial conditions of the digitalisation of local self-government are also in the focus of contemporary research. O. Bobrovska (2020) emphasised that the introduction of digital technologies in public governance requires managerial "re-tuning" – changes in procedures, the distribution of responsibility, data management and new competences, otherwise digitalisation reproduces the traditional bureaucratic logic in a new form. In the context of the quality of public services, T. Mamatova & O. Kravtsov (2021) underlined that digital transformation changes not only the channels for providing services but also the requirements for management methods – from process control to managing outcomes and user experience, which requires measurable criteria and constant feedback.

A separate group of contemporary works comprises studies that describe the Smart City through the prism of citizen participation and platform-based models of interaction. I. Dunayev *et al.* (2023) proposed a platform-oriented model of civic participation within the Smart City, showing that co-participation mechanisms (e-participation) become effective only under conditions of institutional consolidation of procedures, transparent rules for the use of data and the integration of participation into the policy cycle. In the same direction, A. Kuzior *et al.* (2023) and K.V. Dziundziuk (2023) summarised global trends in e-governance in smart cities and identified the factors that "switch on" digital governance: interoperability, data management, trust, cyber-resilience and organisational capacity for change. These results made it relevant not only to describe digital tools, but also to systematise precisely the methods of managerial influence through which digital tools are implemented.

In the Ukrainian academic discourse, attention to the managerial content of the Smart City and to the need to classify methods of public administration taking into account the digital environment has increased. B. Karpinskyi *et al.* (2022) substantiated a strategic-management approach to smart urbanism, within which the "smart city" is considered as a model of managed development that requires the alignment of management instruments with the goals of territorial competitiveness and sustainability. O.V. Nemirovska (2025) revealed the Smart City as a social space of sustainable development, stressing that management effects are formed at the intersection of institutional decisions, digital services and social interaction, and therefore methods of public administration should be analysed as an integrated mechanism rather than as a list of disparate instruments. H. Komarnytska (2025), studying the Smart City in the system of open data and e-governance, emphasised that open data are not only a technical resource but also a management instrument of transparency and accountability that changes the design of regulatory and communicative methods.

Thus, despite the growing number of Smart City studies, in many approaches the technological or institutional perspective dominates, whereas methods of public administration often remain secondary or are described fragmentarily. In this context, there is a need for theoretical and methodological clarification of the essence of methods of public administration and the formation of the generalised classification capable of reflecting the conditions of digital transformation and the practice of implementing the Smart City at the level of urban territories and communities. The aim of the article was defined as the theoretical and methodological substantiation of the essence of methods of public administration and the formation of the classification, taking into account the specific features of the implementation of the Smart City concept in the contemporary public governance system.

Materials and Methods

The methodological basis of the study consisted of approaches from the theory of public governance and public administration, as well as the conceptual provisions of digital governance and sustainable urban development formulated in contemporary academic works devoted to the transformation of management practices in the digital environment (Bobrovska, 2020; Kuzior *et al.*, 2023). To substantiate the management dimension of the Smart City, approaches of strategic and institutional analysis of urban development were used, as proposed in the works of B.A. Karpinskyi *et al.* (2022) and E. Przeybilovicz & M. Cunha (2024).

The materials of the study were academic publications on the problems of methods of public administration, the digital transformation of public authority and the development of the Smart City, selected on the basis of targeted bibliographic search. The search was carried out in the academic databases Scopus, Web of Science and Google Scholar, as well as in Ukrainian national specialist journals that are indexed in international databases or have stable DOIs. The main search queries were: "public administration methods", "Smart City governance", "digital governance", "urban management", "Smart City Ukraine". The criteria for including sources in the analysis were defined as follows: publication period 2020-2025; academic character of the publication (articles in specialist or indexed journals); the presence of a direct connection with the subject of management methods, digital governance or the Smart City; the availability of the full text and a correct bibliographic description. Analytical reports and programme documents of international organisations – United Nations Human Settlements Programme (2024), OECD (2015; 2023), World Bank Group (n.d.) – were used as contextual and auxiliary sources for interpreting the results but did not constitute the basis of the academic analysis.

At the first stage of the study, methods of analysis, synthesis, and generalisation of academic sources were applied, which made it possible to systematise approaches to interpreting methods of public administration in the works of contemporary researchers. The analysis was carried out according to the logic of content analysis and conceptual comparison of management categories described in works devoted to methods of public governance, digitalisation and the Smart City (Vdovychenko, 2022; Frolova, 2023; Nemirovska, 2025). Within this stage, the key features and functional characteristics of methods of public administration relevant to the conditions of digital transformation and sustainable urban development were identified.

At the second stage, a comparative method was used, which made it possible to compare traditional classifications of methods of public administration with the approaches proposed in contemporary studies of the Smart City and digital governance. The comparison was carried out according to such criteria as management logic, toolkit of influence, the role of digital technologies and the level of stakeholder involvement (Brzeziński & Wyrwicka, 2022; Dunayev *et al.*, 2023; Kuzior *et al.*, 2023). The result of this stage was the identification of the limitations of existing classifications and the substantiation of the need for the integration, taking into account the digital and institutional dimensions of governance.

In the process of generalising the results of analysis and comparison, the method of conceptual modelling was applied, within which generalising tables and schemes were formed. In particular, the basic principles of applying methods of public administration under conditions of sustainable development were identified and groups of methods were defined, taking into account the specific features of the functioning of the Smart City. These generalisations formed the basis for the development of the author's integrated classification of methods of public administration.

At the third stage of the study, systemic and institutional approaches were applied, according to which methods of public administration were considered as interconnected elements of a holistic management mechanism aimed at achieving sustainable development goals and the effective functioning of urban systems. Institutional analysis made it possible to assess the role of public authorities and local self-government in the selection and implementation of management methods in the environment of digital transformation and decentralisation (Murayev, 2020; Shulzhik *et al.*, 2025; Serhiichuk, 2025). The use of this set of methods ensured the academic robustness of the study's results and made it possible to form a classification of methods of public administration adapted to the conditions of implementing the Smart City concept in the contemporary public governance system.

Results and Discussion

Public administration in contemporary public governance science appears as a multidimensional category that integrates legal, managerial, economic, social, and digital mechanisms for achieving socially significant goals. Its evolution has been driven by transformations of statehood and political systems, the strengthening of the role of civil society, the development of market relations, as well as digitalisation and urbanisation processes. As a result, public administration has gradually moved away from an exclusively administrative and hierarchical model and has acquired the features of an integrated management mechanism oriented towards effectiveness, openness, and interaction with stakeholders. This has led to an expansion of the toolkit of public administration and a complication of methods of managerial influence, which is particularly evident in the context of digital transformation and the development of the Smart City concept.

Classical approaches to administration were formed within the Weberian model of rational-legal bureaucracy, where legality, procedurality, competence and the formalisation of managerial activity are key (Weber, 1978). At the same time, in response to the increasing complexity of socio-economic processes and the dynamism of the environment, modern management concepts were formed: New Public Management (orientation towards effectiveness and client-oriented service), Good Governance (transparency, accountability, citizen participation, inclusiveness, the rule of law and anti-corruption approaches) (OECD, 2015), as well as digital governance (Digital Governance), which is based on electronic services, data, digital registers, analytics, and tools for automating management decisions. As a result, public administration has developed as a combination of managerial, network and digital practices, and the Smart City environment has strengthened the role of data and smart infrastructure as the technological core of modern governance (OECD, 2023; Przeybilovicz & Cunha, 2024).

In this study, public administration is defined as a systemic process of searching for and applying the best ways of using resources to achieve the socially significant goals of public policy, taking into account the principles of sustainable development, urbanisation and Smart City technologies. This understanding makes relevant the systematisation of the methods through which public authority performs its functions and influences socio-economic processes, forming the operational architecture of public policy. Public administration methods reflect the instruments and ways of targeted influence by public authorities on social processes in order to achieve policy goals, ensure manageability and the sustainability of territorial development. The academic discourse offers several complementary approaches to the classification of methods, each of which captures a particular dimension of governance:

- functional approach (linking methods with management functions) (Bobrovska, 2020);
- legal approach (methods as ways of legal influence);
- economic approach (budgetary, tax, tariff, and investment instruments);
- sociopsychological approach (persuasion, engagement, trust-building) (Frolova, 2023);

- institutional approach (network governance, partnerships, co-regulation) (Murayev, 2020; Serhiichuk, 2025);
- digital approach (e-government, data-driven governance, digital platforms) (OECD, 2019; Zablotskyi *et al.*, 2021).

In the academic tradition of public governance, the basic classification of methods for a long time has been into administrative, legal, economic, sociopsychological, organisational and information methods (Bobrovska, 2020; Mamatova & Kravtsov, 2021; Hrytsak & Durman, 2022). At the same time, modern academic approaches, including developments in the field of smart urbanism and digital governance, emphasise the need to rethink the classification in view of digital transformation and the Smart City (Chourabi *et al.*, 2012; Kuzior *et al.*, 2023; Dunayev *et al.*, 2023). As a result, an integrated classification that combines different approaches and takes into account the digital layering of methods is appropriate.

As shown in Figure 1, public administration methods perform the function of an integrating link between strategic development goals and specific instruments for implementing public policy. These methods ensure the transformation of normative and programme guidelines into measurable results of sustainable development and the functioning of the Smart City system. This logic underlines that the effectiveness of applying methods is determined not only by the instrumental content, but also by adherence to the principles on which managerial influence is based.

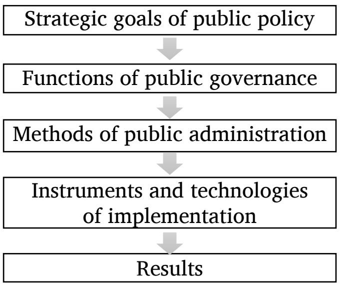

Figure 1. *The place of public administration methods in the "goals – functions – methods – instruments – results" system*
Source*: developed by the author on the basis of M. Weber (1978), B.A. Karpinskyi et al. (2022), L.B. Hrytsak & M.O. Durman (2022)*

Methods should be considered as a set of coherent procedures, instruments, and technologies through which public authorities: (1) specify and implement policy goals; (2) ensure the functions of the management cycle; (3) influence the behaviour of actors; (4) achieve balanced results in the dimensions of economic, social, environmental and institutional sustainability. These methods constitute a dynamic system that changes under the influence of the transformation of governance models, technological development, the growing role of citizens and the dominance of the principles of sustainable development.

The essence of public administration methods is revealed through the system of principles of the application, which, in the context of sustainable development and the Smart City, significantly expands classical ideas about governance. Alongside the principles of legality, validity, effectiveness and responsibility, contemporary practice requires a systemic combination of different groups of methods, an orientation towards the openness and transparency of managerial decisions, as well as clear provision of the accountability of public authorities. Of particular importance are the principles of scientific character and evidence-based practice, which involve the use of data, analytics and modelling in decision-making, as well as the principle of orientation towards sustainable development, which requires the alignment of management methods with long-term economic, social and environmental goals.

In the context of digital transformation, special importance is attached to the principles of citizen and stakeholder participation, which are implemented through instruments of e-democracy and co-governance, as well as the "digital by default" principle, according to which priority is given to methods capable of functioning in a digital environment with opportunities for scaling and interoperability. The application of these principles leads to a change in the logic of public administration – from the dominance of formally procedural decisions to the use of flexible, data-oriented and participatory methods of managerial influence. In this context, digital tools are regarded not only as technical means but as components of a new governance paradigm. The generalisation of these principles is presented in Table 1, which serves as a methodological framework for the transition from a formally procedural model of governance to a results-oriented system of public administration based on data, participation, and innovation.

Table 1. *Basic principles of applying public administration methods in the context of sustainable development*

Principle	Content of the principle	Practical manifestation in the activities of public authorities	Example in urban/agglomerated governance
Legality	Application of methods within the Constitution, laws and by-laws	Existence of legal grounds for decisions, observance of procedures, administrative appeal	Adoption of a decision on the introduction of a video surveillance system on the basis of a council decision and a regulation on data processing
Systemic character	Co-ordinated use of different groups of methods within a single policy	Combination of administrative, economic, sociopsychological and digital methods	Accompanying tariff reform with an information campaign, e-services and benefits for vulnerable groups
Openness and transparency	Accessibility of information on the content of methods and the results of the application	Publication of regulatory acts, open budgets, open data, reports on programme implementation	City open data portal with information on tariffs, infrastructure projects and environmental indicators

***Table 1.** Continued*

Principle	Content of the principle	Practical manifestation in the activities of public authorities	Example in urban/agglomerated governance
Accountability	Clear identification of those responsible for the adoption and implementation of decisions	Delimitation of powers, regular reporting, audit	Identification of the department responsible for implementing the Smart City platform and public presentation of results
Efficiency and effectiveness	Orientation towards achieving goals with optimal use of resources	Evaluation of policies by results and not only by processes; use of indicators	Evaluation of the effect of introducing "smart" lighting through energy savings and improved safety
Scientific character and evidence-based practice	Use of data analysis, scientific approaches and expertise	Analytical briefs, scenario analysis, impact assessment	Use of transport models for planning new public transport routes
Orientation towards sustainable development	Alignment of methods with economic, social and environmental goals	Consideration of SDGs, environmental standards and social impact	Integration of green infrastructure and energy-efficient solutions in the reconstruction of neighbourhoods
Citizen participation	Engagement of residents and stakeholders at all stages of policy	Public consultations, electronic participation instruments, participatory budgeting	Use of an e-platform for voting on priority projects in the Smart City sphere
Digital by default	Priority of digital methods and solutions	Transition to e-services, interoperability of systems, minimisation of paper procedures	Introduction of electronic building permits, digital city maps, resident mobile applications
Adaptability and innovation	Ability to rapidly adjust methods and seek new solutions	Pilot projects, experiments, updating regulations	Testing new mobility instruments (for example, e-scooters) on the basis of temporary regulations

***Source**: developed by the author on the basis of B. Zablotskyi et al. (2021), O.A. Morhunov (2021), OECD (2023)*

The systematisation of the principles of applying public administration methods makes it possible to consider these principles not in isolation but as an interconnected methodological basis for the formation and implementation of public policy in the context of sustainable development and the Smart City. This approach creates a basis for analysing how different groups of public administration methods are aligned with one another and directed towards achieving the strategic development goals of urban systems, particularly in the economic, social, environmental and institutional dimensions of resilience. Figure 2 schematically presents the correlation between individual groups of public administration methods and the achievement of the corresponding Sustainable Development Goals within urban systems. The proposed scheme shows that public administration methods have a clearly defined functional purpose in the system of sustainable development, and the level of the alignment and comprehensive application is a determining factor in the effectiveness of urban policy implementation.

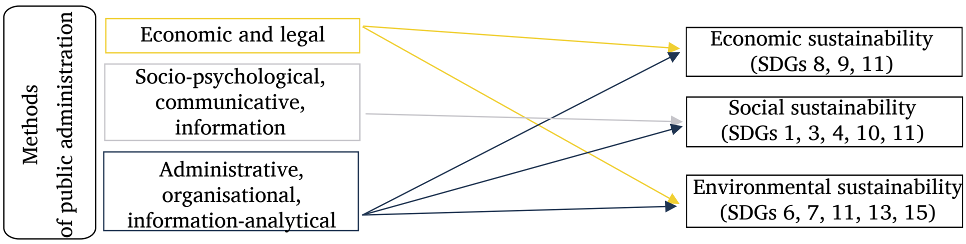

***Figure 2.** Scheme for aligning public administration methods with sustainable development goals in the smart city system*

***Note:** SDGs – Sustainable Development Goals. The numbers in brackets correspond to goal numbers: 1 – no poverty; 3 – good health and well-being; 4 – quality education; 6 – clean water and sanitation; 7 – affordable and clean energy; 8 – decent work and economic growth; 9 – industry, innovation, and infrastructure; 10 – reduced inequalities; 11 – sustainable cities and communities; 13 – climate action; 15 – life on land*

***Source**: developed by the author on the basis of United Nations (2015), L. Brzeziński & M.K. Wyrwicka (2022), I. Dunayev et al. (2023)*

The presented scheme reflects the alignment of the main groups of public administration methods with the economic, social and environmental dimensions of sustainable development in the smart city system. It demonstrates the multi-vector nature of managerial influence, whereby individual methods simultaneously contribute to achieving several Sustainable Development Goals, ensuring the complexity of managerial decisions. Economic and legal methods are oriented mainly towards economic sustainability, sociopsychological, communicative and information methods towards social sustainability, whereas administrative, organisational and information-analytical methods form the basis of environmental sustainability, which collectively confirms the integrated nature of public administration in the Smart City context.

In order to deepen the above generalisation, the composition and substantive characteristics of the relevant groups of public administration methods in the context of sustainable urban development and the Smart City were specified. The specific features of the implementation in the smart city system are also revealed (Table 2). This approach made it possible to show the specific nature of applying individual methods, taking into account digital "layering", institutional changes and data-driven governance practices.

***Table 2.** Groups of public administration methods in the context of sustainable urban development and the smart city*

Group of methods	Content and specific features of implementation in the Smart City	Examples / emphases
Administrative	Authoritative and directive decisions, regulations, supervision and permitting procedures; in the Smart City, these are supplemented by the regulation of digital platforms, data access procedures, sensor networks and digital services	Introduction of "smart" video-surveillance systems with the designation of responsible persons, access regimes and data retention procedures
Legal	Normative framework (norms, procedures, rights and obligations, liability), in particular in the spheres of e-services, personal data, cybersecurity, open data and e-democracy; adaptation of procedures in crisis and reconstruction conditions	Regulation of digital public services while maintaining standards of rights protection
Economic	Budgetary, tax, tariff, and investment instruments that form incentives for modernisation and resource saving; in the Smart City, these instruments are implemented through digital payment services and consumer "cabinets"	Transparent digital payment services, more precise calibration of incentives
Sociopsychological	Information, persuasion, engagement, formation of trust and responsible behaviour; strengthened by digital communication channels and e-participation	Mobile applications, personalised messages, instruments of electronic participation
Organisational	Building structures and processes (coordination, regulations, teams, working groups); in the Smart City – digital transformation units, operation centres, project offices	City operation centres, inter-municipal mechanisms for agglomerations
Information and analytical	Collection, analysis, visualisation and monitoring of data to support management decisions; transition to data-driven governance	Analytical dashboards, systems for monitoring urban services
Communicative and innovation-project	Consultations, co-creation of policies (co-production), participation platforms; project-oriented implementation of changes, pilots and "living laboratories"	Participation platforms, pilot projects, scaling of innovations

***Source:** developed by the author on the basis of H. Chourabi et al. (2012), O. Bobrovska (2020), B. Zablotskyi et al. (2021)*

The proposed classification of groups of public administration methods reflects the multidimensional nature of managerial influence in the context of sustainable urban development and the functioning of Smart City systems. It creates an analytical basis for comparing the proposed approach with existing scientific concepts and management models that dominate the contemporary discourse on digital governance. A detailed comparative analysis of the integrated classification of public administration methods with the approaches presented in current research on Smart City and digital governance showed that, in a significant proportion of academic works, attention was focused mainly on the technological and institutional components of governance, whereas the methods of managerial influence as such were considered indirectly or fragmentarily. Thus, in the works of H. Chourabi *et al.* (2012) the Smart City was conceptualised as a multidimensional system combining technological infrastructure, organisational processes, governance institutions and social interactions. At the same time, public administration methods in these studies were not singled out as an independent analytical object, but rather appeared as derivatives of the architecture of digital platforms or institutional decisions. Against this background, the results of this study make it possible to broaden the analytical framework by bringing the methods of managerial influence into a separate dimension and considering these methods as a connecting link between the institutional structure of the Smart City and the practical implementation of public policy.

In OECD (2015) studies, attention was focused on the concept of smart government, within which the key factor of effectiveness is recognised as the ability of public authorities to integrate data, digital tools and management innovations. The authors stressed that digital technologies do not transform public governance without changes in decision-making mechanisms and interaction with stakeholders. The obtained results are consistent with this position, while at the same time detailing it through the identification of information and analytical as well as communicative methods as independent groups of managerial influence rather than merely technical tools for decision support.

A comparison with works in which the Smart City is considered as an instrument of sustainable urban development and digital transformation of public governance showed that the scientific discourse is dominated by the issue of fragmented governance and the gap between digital initiatives and the strategic development goals of cities. In particular, B. Zablotskyi *et al.* (2021) pointed to the risk of a "project-based approach", in which digital solutions are implemented in isolation from the overall logic of public policy. In this context, the results of the article correspond to the above criticism while at the same time offering an alternative framework of interpretation – through aligning groups of public administration methods within a unified system of principles and goals of sustainable development.

Analytical materials of the World Bank Group (n.d.) and the European Union (2020) focused on the institutional preconditions for the successful implementation of the

Smart City, in particular on the ability of local public authorities to combine regulatory, financial and investment instruments. In these studies, economic methods were considered primarily as mechanisms for stimulating innovation and engaging the private sector. The obtained results broaden this interpretation, demonstrating that, under conditions of digital transformation, economic methods are increasingly implemented through digital services and integrated with information and analytical instruments, which changes the nature of the managerial influence.

In the report of the United Nations Human Settlements Programme (2024) emphasis is placed on the social dimension of the Smart City, in particular on the role of citizen participation, inclusiveness and improving quality of life. At the same time, management methods in these materials are presented rather as general principles or recommendations. The results of this study make it possible to refine this approach by differentiating sociopsychological and communicative methods of public administration and showing the distinct functional role in the processes of citizen engagement and the formation of trust in public authorities.

A separate dimension for comparison is formed by approaches that focus on e-governance and digital factors in the implementation of the Smart City (Kuzior *et al.*, 2023). Unlike approaches that focus on outcomes and indicators, the results of this article concentrate on the managerial mechanisms for achieving such outcomes. This makes it possible to consider public administration methods as a precondition for the implementation of institutional and technological solutions rather than as a derivative element of monitoring.

In the study by H. Komarnytska (2025), devoted to the implementation of the Smart City concept in the system of open data and e-governance, the importance of the institutional capacity of local self-government bodies for the effective digital transformation of managerial processes is emphasised. The author highlighted managerial risks associated with the fragmentation of digital solutions, asymmetry of access to data and insufficient coordination between public authorities. A comparison with the results obtained here makes it possible to broaden this approach by showing that the systematisation of public administration methods can serve as an instrument for reducing such risks through the alignment of organisational, legal and information-analytical methods within a single managerial logic.

In academic research devoted to the digital transformation of public governance, for a long time the dominant approach linked the development of the Smart City primarily with the introduction of electronic services and the technological modernisation of management processes. In particular, in the works of T. Mamatova & O. Kravtsov (2021), emphasis is placed on ensuring the quality of public services under conditions of digital transformation, where digital tools are regarded as means of increasing the effectiveness of administrative activity. In comparison with such approaches, contemporary Smart City concepts, as well as the results of this study, demonstrate the evolution of scientific discourse from technologically-oriented solutions to management-oriented models in which digital tools are integrated into a broader system of public administration methods.

Thus, the comparison of the results obtained with contemporary academic and analytical sources indicates different approaches to understanding the Smart City – from indicator-based and technological to institutional and managerial. The logic of the integrated consideration of public administration methods proposed in the article makes it possible to embed managerial instruments into the broader context of sustainable development and digital transformation, which distinguishes it from most existing approaches focused on individual dimensions of the "smart city".

Conclusion

As a result of the conducted study, it has been established that, in the context of sustainable development and the implementation of the Smart City concept, public administration methods should be interpreted as a holistic, multidimensional system of managerial influence rather than as a set of isolated instruments. The transformation of public governance driven by the digitalisation of management processes, urbanisation changes and the growing role of civic participation has objectively broadened the content and functional purpose of public administration methods and complicated the logic of the application.

The study has substantiated that traditional approaches to the classification of methods, formed within the framework of the hierarchical-bureaucratic model of governance, do not fully reflect the current managerial realities of digital transformation and Smart City development. Under these conditions, administrative, legal, economic, sociopsychological and organisational methods undergo digital "layering" and are supplemented by information and analytical, communicative and innovation-project components, which determines the feasibility of applying an integrated classification of public administration methods taking into account technological, institutional and behavioural aspects of governance. It has been proved that the effectiveness of applying public administration methods is determined not by individual managerial instruments but by the level of the coherence and the correspondence to a system of principles oriented towards legality, systemic character, openness and transparency, accountability, scientific validity and evidence-based practice, citizen participation, the digital by default principle and adaptability. Fundamentally well-grounded use of methods in this context ensures a transition from a formally-procedural model of governance to a results-oriented system of public administration based on data, participation, and innovation.

Therefore, in the Smart City environment, public administration methods take on the character of an integration mechanism that combines the strategic goals of sustainable development with practical instruments for implementing public policy and ensures the transformation of programme-normative guidelines into measurable outcomes for the development of urban territories. The comprehensive application forms a managerial basis for strengthening the institutional capacity of public authorities and local self-government and at the same time reinforces the theoretical and methodological foundations of research in the field of public governance and administration. Prospects for further research are connected with the operationalisation of the proposed integrated classification through the development of a system of indicators and criteria for assessing the effectiveness of applying individual groups of public administration methods in urban governance practice, particularly under conditions of digital "layering". This will make it possible to carry out empirical verification of the effects of managerial decisions and to increase the reproducibility and comparability of the practices of local self-government bodies in sustainable development and Smart City projects.

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References

[1] Bobrovska, O. (2020). Managerial approaches to the implementation of digital technologies in public administration. *Aspects of Public Administration*, 8(1 SI), 12-14. doi: 10.15421/152029.

[2] Brzeziński, Ł., & Wyrwicka, M.K. (2022). Fundamental directions of the development of the smart cities concept and solutions in Poland. *Energies*, 15(21), article number 8213. doi: 10.3390/en15218213.

[3] Chourabi, H., Nam, T., Walker, S., Gil-Garcia, J.R., Mellouli, S., Nahon, K., Pardo, T.A., & Scholl, H.J. (2012). Understanding smart cities: An integrative framework. In *45th Hawaii international conference on system sciences* (pp. 2289-2297). Maui: IEEE. doi: 10.1109/HICSS.2012.615.

[4] Dunayev, I., Gavkalova, N., & Kud, A. (2023). Designing a platform-based model of civic participation within the smart-city concept for post-war Ukrainian cities. *Eastern-European Journal of Enterprise Technologies*, 4(13(124)), 46-56. doi: 10.15587/1729-4061.2023.285448.

[5] Dziundziuk, K.V. (2023). Experience of implementing the concept of a Smart City in developing countries. *Problems of Modern Transformations. Series: Law, Public Management and Administration*, 7. doi: 10.54929/2786-5746-2023-7-02-01.

[6] European Union. (2020). *New Leipzig charter: The transformative power of cities for the common good*. Brussels: European Commission.

[7] Frolova, E.I. (2023). Methods of public administration: Essence and features. *Juris Europensis Scientia,* 1, 114-117. doi: 10.32782/chern.v1.2023.22.

[8] Hrytsak, L.B., & Durman, M.O. (2022). Local self-government in the system of public administration. *Public Administration and National Security*, 4. doi: 10.25313/2617-572X-2022-4-8099.

[9] Karpinskyi, B.A., Karpinska, O.B., & Pfister, D.H. (2022). Fundamentals of smart urbanism based on state-building patriotism: A strategic management approach. *Scientific Perspectives*, 7(25), 232-252. doi: 10.52058/2708-7530-2022-7(25)-232-252.

[10] Komarnytska, H. (2025). Smart City in the system of open data and e-government. *Aspects of Public Administration*, 13(3), 92-99. doi: 10.15421/152535.

[11] Kuzior, A., Pakhnenko, O., Tiutiunyk, I., & Lieonov, S.V. (2023). E-governance in Smart Cities: Global trends and key enablers. *Smart Cities*, 6(4), 1663-1689. doi: 10.3390/smartcities6040078.

[12] Mamatova, T., & Kravtsov, O. (2021). Ensuring the quality of public services under digital transformation. In *Development vectors in public management and administration* (pp. 208-228). Riga: Baltija Publishing. doi: 10.30525/978-9934-26-082-7-10.

[13] Morhunov, O.A. (2021). Administrative and legal methods of public administration in the field of physical culture and sports. *Private and Public Law*, 4, 72-76. doi: 10.32845/2663-5666.2021.4.12.

[14] Murayev, Y.V. (2020). Ukrainian experience in implementing the smart city concept: Achievements and challenges. *Bulletin of Khmelnytskyi National University*, 2, 91-96.

[15] Nemirovska, O.V. (2025). Management approach to Smart City as a social space of sustainable development. *Transformations Journal*, 4(9), 12-17. doi: 10.32782/2786-8141/2024-9-2.

[16] OECD. (2015). *OECD principles on water governance*. Paris: OECD Publishing.

[17] OECD. (2019). *The path to becoming a data-driven public sector*. Paris: OECD Publishing. doi: 10.1787/059814a7-en.

[18] Przeybilovicz, E., & Cunha, M.A. (2024). Governing in the digital age: The emergence of dynamic smart urban governance modes. *Government Information Quarterly*, 41(1), article number 101907. doi: 10.1016/j.giq.2023.101907.

[19] Serhiichuk, L. (2025). Artificial intelligence in the Ukrainian public administration system: Legal development and implementation risks. *Bratislava Law Review*, 9(2), 243-260. doi: 10.46282/blr.2025.9.2.1062.

[20] Shulzhik, Y.O., Kvasnii, Z.V., & Oslikovskyy, V.V. (2025). Development of "Smart communities": Implementation of Smart City solutions at the local level. *The Actual Problems of Regional Economy Development*, 2(21), 180-189. doi: 10.15330/apred.2.21.180-189.

[21] United Nations Human Settlements Programme. (2024). *World cities report 2024: Cities and climate action*. Nairobi: UN-HABITAT. doi: 10.18356/9789211065602.
[22] United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. Retrieved from https://sdgs.un.org/2030agenda.
[23] Vdovychenko, O.M. (2022). Application of public administration methods in current conditions: Theoretical and practical aspects. *Pivdennoukrainskyi Pravnychyi Chasopys*, 3, 124-132. doi: 10.32850/sulj.2022.3.20.
[24] Weber, M. (1978). *Economy and society: An outline of interpretive sociology*. Berkeley, CA: University of California Press.
[25] World Bank Group. (n.d.). *Smart cities for sustainable development*. Retrieved from https://academy.worldbank.org/en/infrastructure/urban-resilience/Smart-cities-for-sustainable-development.

Сутність та класифікація методів публічного адміністрування в контексті розвитку концепції Smart City

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Анотація. В умовах цифрової трансформації публічної влади, посилення ролі міських територій у забезпеченні сталого розвитку та зростання запитів суспільства на прозорість, підзвітність і участь громадян особливої актуальності набуває переосмислення методів публічного адміністрування крізь призму розвитку концепції Smart City. Метою дослідження було концептуальне обґрунтування та систематизація підходів до розуміння методів публічного адміністрування в умовах цифровізації управлінських процесів і впровадження смарт-орієнтованих моделей розвитку міст. У статті здійснено теоретико-методологічний аналіз сутності методів публічного адміністрування в умовах трансформації системи публічного управління під впливом цифровізації та розвитку концепції Smart City. Розкрито еволюцію наукових підходів до трактування методів публічного адміністрування – від класичної раціонально-правової моделі до сучасних концепцій належного врядування, результатоорієнтованого управління та цифрового врядування. Обґрунтовано, що в середовищі Smart City методи публічного адміністрування набувають інтегративного характеру, поєднуючи правові регулятори, адміністративні та організаційні процедури, економічні стимули й комунікативні інструменти з цифровими платформами, аналітикою даних, електронними сервісами та механізмами участі громадян. Показано, що традиційні класифікації методів, сформовані в межах ієрархічної моделі управління, не повною мірою відповідають викликам мережевої взаємодії, інтероперабельності, «digital by default» та зростання ролі data-driven governance. Запропоновано узагальнену класифікацію методів публічного адміністрування в контексті розвитку Smart City, яка враховує організаційні, економічні, цифрові та соціальні аспекти управління і відображає їх функціональне призначення у системі «цілі – функції – методи – інструменти – результати» сталого розвитку міських територій. Практична цінність дослідження полягає у можливості використання запропонованої класифікації методів публічного адміністрування в діяльності органів місцевого самоврядування для підвищення ефективності управлінських рішень та адаптації європейських підходів Smart City до національних умов

Ключові слова: цифровізація публічної влади; data-driven governance; електронні сервіси; участь громадян; сталий розвиток територій; публічне управління

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Voluntary formation of a territorial community: Mechanisms of state administration and financing

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Abstract. With the intensification of global security challenges, nation-states are increasingly confronted with the active emergence and development of paramilitary formations. For Ukraine, in the context of the Russo-Ukrainian war, this issue has acquired particular significance. The study aimed to analyse the organisation, functions, governance, financing of voluntary territorial community formations as paramilitary groups and determine the specific features of their operation and the consequences of their activities for society, including latent and non-evident effects. The study was based on an integrative review methodology combined with elements of the case study approach. The analysis highlighted globally relevant yet nationally specific forms of territorial paramilitary groups within modern nation-states. Based on theoretical frameworks and empirical data, including an examination of the activities of such groups in the United States, Ukraine, and Iraq, the study explored the benefits and challenges those voluntary paramilitary formations pose for national security. The findings demonstrated that strategies for addressing paramilitarism must cover both the positive and negative dimensions of this phenomenon, avoiding universal solutions. To determine the nature of any paramilitary group, it is necessary to develop clear criteria, threshold indicators, and assessment methodologies. While the state may derive potential benefits from self-organised citizen volunteers engaged in defence and security matters, the effective utilisation of this resource requires a clear legislative framework, transparent financing mechanisms for

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paramilitary formations, and a well-defined role for such groups within the national security system, including from a long-term perspective. The practical value of the study is determined by the development of an analytical foundation for assessing the overall role of voluntary territorial paramilitary formations within the security landscape of states operating under the dynamic conditions of hybrid war and hybrid peace

Keywords: paramilitary formations; hybrid war; national security; local budgets; local communities

Introduction

Since the beginning of the 21st century, policymakers and the media have become more concerned regarding paramilitary groups, partially due to perception as a possible threat to the peace (or at least the status quo of the existing political systems) in the nations. The establishment of organised, armed groups, frequently supported by the state or non-state, to protect and govern a particular geographic area is known as paramilitary territorial formations. The necessity for local security in the absence of an efficient state response to conflict or social crises, the lack of official military force, or the implementation of political goals such as thwarting aggression or reaffirming national identity are some of the circumstances that cause the creation of such forces. Official territorial defence forces (TDFs), such as those in Ukraine, or unofficial organisations with radical ideologies and differing degrees of state incorporation are covered by the definition. The emergence and further development of such organisations is related to particular historical and political contexts (Hristov *et al.*, 2022).

T. Böhmelt & G. Clayton (2018) argued that governments frequently complement their conventional military forces with paramilitaries and pro-government militias (PGMs). At the same time, the factors that determine a state's choice of one type of auxiliary force over another remain insufficiently explored, as do the mechanisms underpinning the evolution of these formations. The study highlighted the substantial differences between the two categories: paramilitary forces are integrated into the state apparatus and operate as an extension of it, whereas PGMs function outside official institutions. Within a principal-agent framework, the researchers demonstrated that a state's investment in a particular auxiliary force structure is shaped by available resources, the need for control or deniability, and the nature of domestic threats.

Extending this analytical perspective, U. Üngör (2020) further explored a comprehensive conceptualisation of paramilitarism as a modality of organised violence that operates in close proximity to, yet formally outside, the institutional architecture of the state. The comparative investigation demonstrated that paramilitary actors are not contingent or marginal phenomena, but constitute purposeful instruments through which state authorities or dominant political elites delegate coercive functions, expand territorial reach, and externalise the repression while preserving strategic deniability. Author's framework underscored the centrality of historical trajectories in shaping the emergence, consolidation, and transformation of paramilitary formations across diverse geopolitical settings. In this context, paramilitarism should be regarded not solely as a security-related occurrence, but as an integral component of broader state-society relations, wherein informal armed groups assume roles in governance, social regulation, and conflict management in accordance with prevailing political opportunities and constraints.

The phenomenon of territorial defence involves mobilisation of local residents to defend the homeland, ensuring rapid deployment of forces, leveraging local knowledge, and high motivation as people protect homes and families. Territorial defence combines military and civilian components, not only performing combat missions but also maintaining law and order, protecting critical infrastructure, and assisting the population in emergency situations. As noted by H. Karolyi *et al.* (2025), in Ukraine, the voluntary formations of the territorial community (VFTC) was central in the liberation of many settlements from occupation during Russo-Ukrainian war and continue to perform combat missions in many. However, the concepts of "territorial defence forces" and "volunteer formations of the territorial community" are still often interpreted as similar. Notably, the concepts of "territorial defence forces" and "volunteer formations of the territorial community" were introduced after the Law of Ukraine No. 1702-IX (2021) was introduced. According to this Law, a voluntary formation of a territorial community is a paramilitary unit formed on a voluntary basis from citizens of Ukraine living within the territory of the relevant territorial community, which is intended to participate in the preparation and implementation of territorial defence tasks.

The political role of voluntary formations of territorial communities, in the official definition, is to ensure security and defence capability, as well as to contribute to trust and unity of citizens, forming patriotism and responsibility for the security of the community. S.V. Petrukha *et al.* (2024) and N. Petrukha *et al.* (2025) noted that voluntary formations of territorial communities are an instrument for implementing state policy in the field of defence and at the same time an expression of an active civic position that influences decision-making at the local level, although they have limited political functions. Although VFTCs do not have political influence in the traditional sense, their activities are part of a complex process of forming and implementing territorial defence programs that affects the security policy of the community. However, as the history of the creation and functioning of such formations and modern cases of their activity shows, the political component is an integral element of their landscape, which is largely determined by the mechanisms of state governance and financing of these formations. Meanwhile, the unified framework for assessment of the essence and security (including long-term ones) implications of paramilitary formations was not yet developed. In this context, the study aimed to analyse the patterns and concerns of the organisation, purpose, management, and financing of voluntary formations of territorial communities as paramilitary groups phenomenon, to outline the features of their roles and implications for public administration and society, including the latent ones.

Materials and Methods

The study was of qualitative nature and was based on integrative review methodology toolkit, according to six stages suggested by M. de Souza *et al.* (2010): formulating the leading question, conducting a literature search or sample, gathering data, critically analysing the included studies, discussing the findings, and presenting the overall findings. The integrative review approach was selected due to suitability to the study of complex and multidimensional phenomena such as paramilitary formations, incorporating empirical studies, theoretical analyses, policy reports, and case-based research into a single analytical framework. The guiding question was formulated as follows: what are the origins, role, functions, actual activities, and security implications of paramilitary voluntary territorial formations within contemporary nation-states?

The process of search and screening was conducted within the following scientometric databases (libraries): ScienceDirect, Wiley, MDPI, JSTOR, ResearchGate, Emerald Insight. To locate expert reports and monographic works, supplementary searches were performed via Google Scholar, Google, and Amazon Books. The array of inquires included: "paramilitary formations in contemporary world"; "theories of paramilitary"; "territorial defence"; "paramilitary formation interaction with government"; "public administration concern of paramilitary formations"; "paramilitary governance and financing". Only publications in English and Ukrainian (specifically for obtaining data on Ukrainian case) were considered. Criteria of inclusion the entry into final sample implied the presence of empirical research/thorough theoretical study/systematic review/report/case study.

To obtain a multidimensional concept of paramilitary formations, the analysis was conducted across two complementary layers, each serving a distinct analytic purpose and contributing critical insights to the overall synthesis. Vertical (within-case) analysis examined each national context – United States, Ukraine, Iraq – independently, prioritising internal structures, historical trajectories, and national security environments. This identified specific drivers of emergence and transformation paramilitary formations in each country; reconstructed the interaction of paramilitary units with state institutions; highlighted case-specific governance, operational, and financing arrangements. The second horizontal (analytic) layer arranged the findings from each national case into comparative perspective, identifying structural commonalities and divergences across contexts with very different political orders and conflict conditions. This underscored broader patterns that transcend individual cases; highlighted paramilitarism as a global phenomenon rather than isolated national anomalies; created conceptual generalisations regarding hybrid security governance, militia institutionalisation, and the political economy of paramilitary formations. Together, the two-layer analytical design provided both depth (via country-specific investigation) and breadth (via cross-case conceptualisation), ensuring that the phenomenon of paramilitarism was covered not only in its local manifestations but also in its broader structural and theoretical significance.

Results

Paramilitary forces, particularly those that emerge within territorial communities, were created in different forms over the world (Vukušić, 2022; Mireanu, 2023). A paramilitary organisation, also referred to as a quasi-militarised force, is an unofficial group that operates outside of a jurisdiction of national armed forces. It is a semi-militarised group that functions similarly to a professional military in terms of training, tactics, organisational structure, and subculture (Powell, 2019). Furthermore, while state-affiliated paramilitary groups typically act as non-state actors, they can sometimes function autonomously or in support of state objectives, with some striving for complete executive control. Their function as adjuncts to conventional armed units or during times of conflict, civil conflicts, and instability caused by various types of irregular warfare is a crucial component of their creation. A general outline of the nature and functions of paramilitary formations makes it possible to turn to an analysis of their manifestations in the United States, Ukraine, and Iraq, where they assume different forms based on the prevailing political, security, and social conditions.

Paramilitary structures and territorial formations in the United States

In the United States, paramilitary territorial formations encompass a broad spectrum of actors, including militarised police units and specialised federal agencies. Their development spans from historically sanctioned militias and vigilante groups to contemporary private organisations (Table 1). The late 20th witnessed a renewed proliferation of private militias, often motivated by anti-government sentiment and the defence of property, while earlier entities such as the Pinkerton Agency can be regarded as organisational predecessors. In parallel, the 21st has been marked by an intensified militarisation of policing, driven in part by overseas operational experience and the transfer of surplus military equipment to law-enforcement agencies. Thus, as evident from the table above, the essence and conceptual foundations of paramilitarism in the USA did not manifest paradigmatic evolutionism up to 21st century, except larger emphasis on border security, which related to illegal migration from Mexica and corresponding increasing crime (particularly drug crime) rates. P. Kraska

& V. Keppeler (1997) analysed the rise in the number of police paramilitary units (PPUs) in the US, their distinctive features, and a notable change in their composition. The results showed a direct connection between PPUs and the armed forces, an increase in PPU activity, and the normalisation of PPUs into mainstream policing. The results also showed that despite rhetoric regarding community and problem-oriented policing reform, many police departments had taken an aggressive stance. Critics (Masera, 2021) contend that this strategy, which is demonstrated by police using armoured trucks and riot gear during rallies, fosters a "militarised" atmosphere that views people as enemies, increasing the risk of violence and disproportionately hurting minority groups. Police use of military methods has the potential to erode community trust and increase the volatility of nonviolent protests.

Table 1. *Paramilitarism in the USA: History and modernity*

Historical roots	The modern era
Colonial militias: in the past, every physically fit man served in a colony's militia, which acted as a local defence force for towns and villages	Private militias: groups proclaiming to be militias, or the "unorganised militia", began to appear in all 50 states after the early 1990s
Vigilante movements: in the 18th and 19th centuries, these organisations were formed as coordinated, but frequently transient, attempts to uphold moral and social principles by local residents, occasionally without the assistance of official law enforcement	Based on the reactions to racial justice and climate change movements, right-wing extremist groups – including white power organisations – often present their activities as the justifiable protection of property rights and American values
Private security: for instance, in the 19th century, the Pinkerton National Detective Agency operated as a sizable, privately hired police force that pursued criminals and suppress strikes by big companies	Border patrol: following 9/11, there was a greater emphasis on border security, which resulted in border patrol training and activities abroad

Source*: compiled by the authors based on A. Cooter (2024)*

The United States National Guard, founded as a citizen force in 1636, is a "ready" reserve corps of over 400,000 men and women who serve voluntarily in all 50 states and four U.S. territories. Guard members work civilian jobs while pursuing part-time military training. They are summoned to serve during civic disturbance, natural catastrophes, labour strikes, conflicts, health emergencies, and riots (Üngör, 2020). Guard troops, which exist as both a state and federal force under the United States Constitution, may be ordered to maintain public safety, order, and peace at homeland in times of disaster, as well as to serve as key components of America's military abroad.

The great majority of the United States National Guard's financing comes from the federal government through the Department of Defence budget, which Congress has approved. This federal financing includes staff, equipment, operations, and training. While states provide some financing, often around 10%, for state-specific tasks such as disaster relief, the federal government is the primary source, paying for approximately 90% of a state's National Guard budget. The National Guard is unique from the other federal reserve forces: the Army, Navy, Air Force, and Marines. National Guard troops are directed by state governors until the president of the United States orders them into active federal duty for home or abroad emergencies. Guard troops normally serve in home states, in place of employment and residence, with drills planned one weekend per month and an annual two-week training program. The National Guard serves at the community and national levels, responding to combat and reconstruction missions, domestic emergencies, etc. It has been involved in every major U.S. conflict, having evolved over nearly 400 years from local Colonial militias to fighting in the first American Revolution battles, serving in two world wars, and defending the U.S. capitol from the riots in 2021 (Jefferson, 2023).

The National Guard claims that since the terrorist attacks of September 11, 2001, it has deployed over 500,000 soldiers for federal tasks and has been instrumental in homeland protection and disaster assistance as part of its state duty. Approximately 50,000 National Guard members were sent to the Gulf Coast in 2005 for rescue, evacuation, and humanitarian efforts during Hurricane Katrina (Üngör, 2020). In 2020, the Guard deployed approximately 100,000 troops to support anti-racism demonstrations, California wildfires, and the coronavirus epidemic. National Guard assistance was requested during the unrest in U.S. Capitol on January 6, 2021, the day Congress convened to formally count the Electoral College vote. Despite California Governor Gavin Newsom's complaints, President Donald Trump ordered the deployment of 2,000 National Guard troops in Los Angeles in June 2025 to put an end to demonstrations against the administration's immigration crackdown (Kennedy, 2025).

State Defence Forces (SDFs) are state-authorised, volunteer military groups in the United States that, in contrast to the National Guard, are not federalised and remain under governor command. They assist the home state National Guard and civilian organisations, primarily with disaster response, homeland security, and public safety duties. SDFs, authorised by § 109 of the United States Code No. 32 (1956), are a valuable and low-cost force multiplier for states. However, funding, training, and structure differ by state.

In the United States, state general money, special appropriations, or grants are the main sources of funding for SDFs; federal funding is either non-existent or significantly limited. Compared to the National Guard, which receives substantial state assistance for people, equipment, and maintenance, these state-funded forces frequently function at a fraction of the cost. SDFs can provide homeland security and disaster response capabilities due to funding that assists with operational expenses, equipment, and training.

Core characteristics of these formations are as follows:

1. State jurisdiction: SDFs are commanded by the governor of their respective states and function exclusively under the jurisdiction of their state governments.

2. Volunteer-based: the majority of SDFs consists of volunteers participating in regular training sessions and drills, usually once a month and during yearly training sessions.

3. Not federalised: SDFs are a state asset in times of crisis since, in contrast to the National Guard, they cannot be federalised.

4. Force multiplier: they support civilian authorities and the National Guard in a variety of domestic operations, acting as an invaluable force multiplier.

5. Cost-effective: SDFs operate at a substantially lesser cost than federal troops because they are frequently unpaid volunteers and depend on state resources.

This is not a complete list of voluntary territorial paramilitary organisations in the United States. Although there is no widely accepted criterion that a group must meet to be classified as a "militia", numerous organisations within the larger anti-government extremist movement in the United States exhibit comparable ideologies and methods. These common characteristics reflect the movement's public image and serve as signals among supporters. A militia is a group of physically fit individuals between specific ages (e.g., 17 to 45; §246 "Militia: composition and classes" of the United States Code No. 10 (1956)) who may be called into action by the federal government or a state government during emergencies, as per federal and state legislation. Members of the U.S. National Guard, state national guards, and other state-established military units are considered "organised" militias. All other members of the federal militia or a state militia, as well as the relevant population of physically fit citizens, are considered "unorganised" militias. In the United States, paramilitary groups are commonly referred to as militias by law enforcement, journalists, and politicians, despite not being militias in the legal sense of the word (Crothers, 2019). The trend, depicted in the Figure 1, suggests that aggravation of social and political issues in the USA causes sharp rising of patriot and militia groups. After 2008 crisis and occurrence of new acute social disbalances, the militia movement enjoyed a major resurgence.

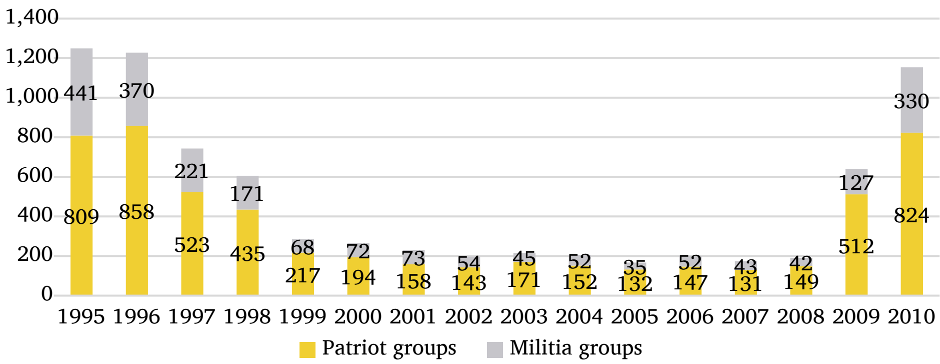

Figure 1. *Militia groups rising in U.S., 1995-2010*

Source: *A. Cooter (2024)*

The statistics showed that compared to the militia groups of the 1990s, militia groups founded after 2008 tended to have a notably younger membership (Doxsee, 2021). D. Pankhurst (2023) and A. Cooter (2024) argued that several factors contributed to this resurgence, with the expanding dominance of social media platforms being particularly influential in attracting younger individuals to the militia movement. Militia groups increasingly shifted their activity to social media platforms – initially MySpace, and later Facebook and YouTube – using these outlets to establish networks, disseminate ideological materials, and share training content. Such online presence facilitated first contact with the militia movement for many individuals, particularly younger adults, and contributed to the rapid and wide-scale expansion of reach of such groups. An illustrative example of these trends is present in a 2024 Facebook post disseminated by a U.S. paramilitary-style group. The post urged more than 650 members of the "Free American Army" community to "Join Your Local Militia or III% Patriot Group", accompanied by the Three insignia of Percenters and an image of a person holding a long rifle and wearing military gear. Such online mobilisation efforts reflect the broader patterns of recruitment, ideological signalling, and self-legitimation characteristic of contemporary American paramilitary movements (Owen, 2024).

As statistical data on the development of paramilitary groups in the United States after 2010 were unavailable at the time of the study, their dynamics can be assessed only based on news reports and open-source information covering their activities between 2010 and 2025. Although quantitative data are lacking, qualitative evidence indicates the continuation of an upward trend. In 2014, members of the militia and other anti-government movements moved to Bunkerville, Nevada, for internal armed standoff. Federal law enforcement authorities were present to pursue millions of dollars in unpaid federal land grazing fees owed by cattle rancher Cliven Bundy, who assembled anti-government activists for assistance (Sottile, 2024). As a result, state and federal authorities withdrew, giving the anti-government movement a unique triumph that influenced organisational activities throughout the ensuing ten years. Since the Bunkerville standoff, the U.S. militia movement has alternated between periods of increased and decreased public visibility, interspersed with sporadic violent occurrences. Its most recent climax was in 2020, when a range of militia movement organisations patrolled racial justice demonstrations as vigilante security forces defending private property and appeared at statehouse marches to protest COVID-19 lockdowns (Doxsee *et al.*, 2022). A few militias joined the "Stop the Steal" campaign following the 2020 election, and on January 6, 2021, they assisted in the storming of the U.S. Capitol Building (Gartenstein-Ross *et al.*, 2022).

The main idea of militias is to prepare for an existential violent danger, and members frequently view themselves as heroes defending and upholding their communities and families. Though ideas and actions differ from group to group, the militia movement exhibits far greater ideological coherence between distinct groupings than the individual paramilitary groups that served as their inspiration. While most militia groups are generally against the government and law enforcement, others view themselves as possible partners for specific law enforcement organisations, including U.S. Customs and Border Protection (CBP). In certain instances, such as their collaboration with CBP officers or their attendance at protests in the summer of 2020 to purportedly defend businesses, militia members once more positioned themselves as the last line of defence against alleged threats such as immigrants or left-wing protestors. Private, self-designated groups are financed through private donations, membership dues, or foreign backing, and they function without any legal governmental oversight, in contrast to the official National Guard receiving funds from both the federal and state governments.

Territorial defence and volunteer paramilitaries in Ukraine

Due to ongoing armed conflict, Ukrainian case differs significantly from that of other countries in Central and Eastern Europe. It demonstrates how paramilitarism can develop during a conflict. The Ukrainian volunteer paramilitary movement was substantial in the war with Russia. Although almost all volunteer battalions have been legalised within the security forces, the era of volunteerism remains relevant.

The flight of the Supreme Commander-in-Chief, Russia's occupation of Crimea, and the outbreak of hostilities in Donbas demonstrated the inability of Ukraine's state security forces in 2014 to effectively counter real threats. There were many reasons for the failure, including the overall low professional level, equipment, and quality of weapons, stemming from the marginal status of the Ukrainian Armed Forces and their residual funding, as well as the general demoralisation of the security forces following the change of power in Kyiv and the onset of the Russian intervention. The demoralisation of the security forces was dominant in the spring of 2014, when Russia attempted to conceal the involvement in the outbreak and escalation of the conflict in Donbas, operating behind the Ukrainian pro-Russian radicals and Russian militants. In the context of localised hostilities and the overall small size of the opposing groups, relatively small but motivated formations could exert significant influence on the course of the fighting. Various volunteer paramilitary organisations became such groups (Seheda & Mashtalir, 2022). The Ukrainian volunteer paramilitary movement can be divided into several components. A. Martyniuk (2023) proposed the following division.

Firstly, these are volunteers and their groups who joined the existing units and subdivisions of the Ukrainian security forces at that time. This category of volunteers initially viewed themselves as part of the Armed Forces, the National Guard, etc. Therefore, their integration into the state security forces occurred automatically upon enlistment in active service.

Secondly, there were volunteers who joined the new battalions and companies of the Ministry of Internal Affairs of Ukraine. In 2014, these units effectively became the primary form of legalisation for volunteers within the Ukrainian security forces. These formations varied in size, structure, and weaponry, and most closely resembled irregular forces. Among the most well-known formations of this type, there were the "Dnipro-1" and "Azov" battalions, which were later reformed into regiments.

At the same time, the diverse social background of units in this category caused further integration into other security formations (such as the "Azov" battalion, which became part of the National Guard), merged, or even disbanded. In the latter case, disbandment could have been considered due to widespread crimes (Azov, n.d.). Moreover, some units managed to undergo the disbandment process twice. For example, after the decision to disband the "Shakhtarsk" battalion due numerous crimes committed by its members, the "Tornado" battalion was formed from the remaining battalion members (Militaryland, 2014). It also was later disbanded due to criminal activity.

A significant portion of the volunteer units of Ministry of Internal Affairs have undergone some form of reorganisation. This was also caused by the shift in the nature of the fighting in Donbas from a police operation against illegal armed groups to combined arms operations. These changes necessitated an increase in the firepower of volunteer units. This was difficult within the Ministry of Internal Affairs' special battalions, so the "Azov" battalion, for example, transferred to the National Guard, where it was not only expanded to a regiment but also received a significant amount of heavy weapons, including tanks, howitzers, and heavy mortars.

The third category was the territorial defence volunteer battalions. These battalions were first formed in the spring of 2014, both on a voluntary basis and through the mobilisation of conscripts (Ukrainian military pages, 2022). Accordingly, the composition of the territorial defence battalions was heterogeneous. Notable volunteer units included the "Kyivska Rus" battalions (the 11^{th} and 25^{th}), the 34^{th} "Batkivshchyna" battalion, and the 40^{th}

"Kryvbas" battalion. After the territorial defence battalions were incorporated into the Ground Forces as motorised infantry battalions, this category of volunteers was fully integrated into the Armed Forces of Ukraine.

The fourth group includes volunteer formations that initially operated as non-state armed groups but were later integrated into various state security agencies. Among these formations, the "Donbas" and "Aidar" battalions are notable. The former was proclaimed as a Territorial Defence Battalion, but was not included among such battalions. The battalion was later integrated into the National Guard as a reserve battalion (Militaryland, n.d.).

Thus, the volunteer paramilitary formations in Ukraine, born of the inadequacy of state structures to address new threats, were diverse in nature, structure, and departmental subordination. Over the course of their development, a number of them underwent transformations: expanding into larger formations or, conversely, merging with others, changing departmental subordination, restructuring, and even disbanding. Most of the volunteer units were integrated into various state security agencies.

After the introduction of martial law, DFTG was transitioned to the operational control of the military units of the territorial defence forces, therefore rendering them a part of the official defence system with appropriate budgetary support. With state approval of the creation and growth of civilian militias to support the national army, the number of militia troops has increased by 100,000 over a three-year period. The new Territorial Defence Brigades are state-controlled, locally organised volunteer organisations that recruit from civilians and reservists, in contrast to the "grassroots troops" of 2014. Local self-defence is overshadowed by the territorial defence forces and the far more well-known paramilitary volunteer organisations (volunteer battalions) such as "Azov". Furthermore, local self-defence is a unique political phenomena that is not related to any other volunteer activity. Local self-defence was created to ensure resilience of homeland and communities in disaster situations.

The term "territorial defence" is a simplified form of the term "voluntary paramilitary formation of a territorial community". According to the Law of Ukraine No. 1702-IX (2021), territorial defence is a holistic system that consists of three components – military, civilian, and military-civilian. The military component of territorial defence includes military command bodies, military units of the territorial defence forces of the Armed Forces of Ukraine and other forces and means of security forces and defence forces. The civilian component includes state bodies and local self-government bodies. At the same time, the VFTCs are included in the military-civilian component, which also covers the headquarters of the territorial defence zones (districts) (Fig. 2). The difference between the territorial defence forces and volunteer paramilitary formations of territorial communities is firstly determined in the procedure for their formation and staffing. The territorial defence forces are staffed in peacetime with military personnel under contract and conscripted officers, and in a special period – with military personnel under contract, conscripted officers, and territorial reserve. Staffing of volunteer formations of territorial communities is conducted voluntarily. Accordingly, a member of the territorial defence forces can terminate the contract at any time, even during martial law. Employees of the territorial defence forces do not have such an opportunity. Moreover, an age limit is established for employees of the territorial defence forces – 60 years (in certain cases 65 years), while there are no such restrictions for employees of VFTCs. Notably, participation in the VFTC does not exempt from the obligation to perform military service upon conscription during mobilisation. That is, if necessary, VFTC' participants can be drafted to military units of the territorial defence forces and other components of the defence forces on a territorial basis, if they are fit in terms of health and have a military-accounting specialty.

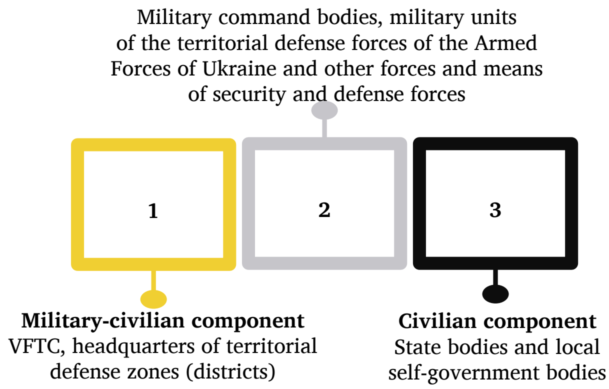

Figure 2. *Role of VFTC in military-civilian territorial administration*
Source: *compiled by the authors*

A territorial community on its territory may form several voluntary paramilitary formations, incorporating resource and human capabilities. A voluntary formation is formed by a meeting of an initiative group of residents of a territorial community. The meeting is considered eligible if at least five people participate in it, as well as the commander of a military unit of the territorial defence forces of the Armed Forces of Ukraine and representatives of the local self-government of the relevant territorial community. Therefore, five people can initiate the formation of a VFTC.

Conceptually, voluntary formation of a territorial community is a paramilitary unit formed on a voluntary basis from citizens of Ukraine living within a certain territorial community to perform tasks of territorial defence. VFTCs participate in the protection of public order, protection of infrastructure facilities, air defence and preparation of the population for national resistance. VFTCs' participants undergo selection, conclude a volunteer contract, and retain their job and salary. The main functions of the VFTC are as follows:

1. Defence and security: protection of the community territory, protection of important objects, creation of checkpoints and patrolling.

2. Air defence: mobile fire groups are created within the VFTC to detect and neutralise enemy air targets, in particular UAVs.

3. Training of the population: participation in training the population for national resistance.

4. Activities within the Armed Forces of Ukraine: members of the VFTC can be drafted into the ranks of the Armed Forces of Ukraine and replenish their personnel.

The mechanisms of state management of voluntary formations of territorial communities include the conclusion of contracts by volunteers, control by the local military administration, and coordination with the territorial defence forces of the Armed Forces of Ukraine. The logistical support and financing of the activities of the VFTC are provided at the expense of the state budget, local budgets, and other sources not prohibited by the legislation of Ukraine. A clearer definition of the powers of local self-government bodies is contained in the Budget Code of Ukraine (2010). Article 91 of the Budget Code provides that all local budgets may finance measures on territorial defence and local mobilisation training. Given the provisions of paragraph 2 of Article 4, which provides that if another regulatory legal act defines budgetary relations differently than in this Code, the relevant provisions of this Code shall apply. Therefore, measures on territorial defence are financed from the local budget.

The VFTC is provided with individual standard weapons and ammunition by the Armed Forces of Ukraine, however, in the public domain, there are no detailed procedures for financing and providing the VFTC with weapons. Members of the VFTC have the right to use personal hunting weapons, small arms, other types of weapons and ammunition for territorial defence tasks (self-defence, repelling and deterring armed aggression) following the procedure approved by the Resolution of the Cabinet of Ministers of Ukraine No. 1448 (2021). The volunteer formation is conducted under the direct leadership and control of the commander of the military unit of the territorial defence forces of the Armed Forces on a territorial basis. In the event of martial law in Ukraine or in its individual localities, all volunteer formations of territorial communities are transferred to the operational subordination of the commanders of the relevant military units of the territorial defence forces of the Armed Forces of Ukraine.

Paramilitary forces and security sector transformation in Iraq

After the United States invasion of Iraq in 2003, the Iraqi security sector came under significant pressure to undergo reform. Despite years of efforts by international partners to modernise the armed forces and police, no programme succeeded in adapting to the country's complex realities. Iraq's formal and informal sectors are intertwined in a complicated framework. This is relevant for the security forces as well. In the period following 2003, numerous paramilitary formations emerged, linked to various political, religious, and ethnic groups. Some operated autonomously, while others maintained formal ties to the state. This became particularly evident after the withdrawal of U.S. forces in 2011, when the resulting security vacuum strengthened the role of non-state armed actors. The officially recognised Iraqi military and hundreds of paramilitary organisations with different affiliations and objectives that have been formally and unofficially integrated into the Iraqi security sector make up the country's armed forces.

When Islamic State (IS) militants began seizing substantial territory, Grand Ayatollah Ali al-Sistani issued a fatwa urging citizens to defend the country. This did not create new groups ex nihilo, but it consolidated existing armed formations and encouraged the emergence of new volunteer units. Building on these structures, the Popular Mobilisation Forces (al-Hashd al-Shaabi/PMF) were established. The creation of the PMF was used by a network of military groups to bolster the pre-existing security forces through coordination at the national, regional, and local levels while maintaining a high degree of autonomy. This was necessary as the state-sponsored military forces in Iraq were unable to accumulate the required manpower to counter the growing threat of IS (Cherry, 2020).

These groups had a variety of relationships, including ties to nations such as Iran and Shia or Sunni leaders. Misunderstandings amongst international parties attempting to implement security sector reform in Iraq have arisen due to the continued ties with religious institutions of the founders of paramilitary groups. Despite being mostly composed of paramilitary organisations with Shia affiliations, the Popular Mobilisation Forces (PMF) should not be viewed as a religiously and sectarianism-based organisation. Instead, following the requirements of various groups and geographical areas across the nation, the PMF is representative of the various cultures and groups that are present across Iraq. Notably, not all of these PMF paramilitary groups share a Shia ideology. There are PMF factions that represent Christian, Yazidi, and Sunni groups. However, because many of these paramilitary organisations function as policing units in tandem with the official national police and army, they could be a threat to the reform of the security sector.

Since 2015, the al-Hash'd al-Shaabi have strengthened their hold on political authority and extended their sway outside the scope of regional paramilitary groups. Iraqi elites have risen to power as politicians and paramilitary leaders due to their desire for political success while maintaining their independence through paramilitary forces. After the Islamic State's defeat in 2017, the Iraqi government has institutionalised the al-Hash'd al-Shaabi forces, creating an official, highly independent security actor with political influence and access to state finances. Paramilitary forces in Iraq became substantial in the national security, especially in locations outside the capital where Islamic State extremists were still active.

The PMF's involvement in the Iraqi security sector has grown over time. An estimated 150,000 combatants were enlisted in the PMF in 2019, but only 122,000 of them were authorised to receive a national income

(Cherry, 2020). Tens of thousands of fighters have been officially registered into the national security system and were paid by the government for their participation in paramilitary groups through the PMF Commission and the Iraqi Ministry of Finance, even though the actual number of fighters who identify as PMF members may be much higher.

Since IS's demise in 2017, paramilitary leaders have gained more confidence within the Iraqi Army and in national politics. The nation held its first national elections since the collapse of IS in 2018, and they were a highly contested event. With over 20 factions of the PMF forming an alliance with the Fatah Alliance, led by Hadi Amiri, the former Minister of Transport and head of the Badr Organisation (another paramilitary group) within parliament, the election results amply illustrated the power of the PMF forces in the nation. The result of this broad alliance showed the PMF's increasing political clout and capacity to obtain popularity. The PMF evolved into an influential actor in Iraq's domestic politics, drawing on both state and non-state mechanisms of legitimacy.

Despite their formal integration, the PMF remain a highly autonomous structure. Their close ties to religious and political centres outside the state complicate the implementation of reforms proposed by the international community. In several regions, the PMF effectively perform the functions of both police and army, creating parallel mechanisms of authority.

Despite their formal integration into the security sector, the PMF maintain a complex and multi-layered system of financing that significantly contributes to their autonomy and political influence. Their primary source of funding is the Iraqi state budget: each year, parliament allocates substantial resources for the upkeep of forces, including salaries, equipment, and administrative costs, rendering the PMF an officially recognised beneficiary of public expenditure. In 2024, the PMF budget exceeded 4.5 trillion Iraqi dinars, reflecting their growing institutional weight (Rudaw, 2024). At the same time, studies of Arab Gulf States Institute (2022) highlighted the existence of parallel, informal revenue streams, including control over border crossings, logistical hubs, the collection of "security fees", and involvement in grey-market economic activities. The combination of formal state financing and informal economic flows provides the PMF with a high degree of material self-sufficiency, complicating governmental oversight. Thus, paramilitary formations have become an integral element of Iraq's contemporary security landscape, while simultaneously constituting one of the principal challenges to long-term stabilisation and security-sector reform.

Overall synthesis and implications

A comparative examination of the United States, Ukraine and Iraq revealed several structural tendencies that characterise contemporary paramilitarism, despite the profound differences in their political systems, security environments and historical trajectories. Across all three contexts, the boundaries between state and non-state armed actors have become increasingly blurred. In the United States, the coexistence of federally controlled National Guard units, state-level defence forces and privately organised militia groups overlap spheres of authority and hybrid modes of security provision. In Ukraine, volunteer battalions emerged as de facto substitutes for state capacity during the initial stages of the 2014 conflict and were only later incorporated into formal structures, while local territorial defence formations continue to operate in a hybrid military-civilian format. In Iraq, the Popular Mobilisation Forces are the most pronounced example of a formally state-recognised yet substantively autonomous paramilitary system, one that operates simultaneously inside and outside state hierarchies.

A second cross-cutting tendency concerns fragmentation and the proliferation of competing power centres. In all three cases, the emergence or empowerment of paramilitary formations was initially justified as a rapid and cost-effective response to acute security threats. However, once institutionalised, these structures often evolved into semi-permanent actors with internal organisational interests, political ambitions and territorial bases of authority. This has been particularly evident in Iraq, where PMF factions have consolidated political influence and economic resources, and in the United States, where private militias increasingly act as self-legitimised guardians of public order, sometimes in tension with state authorities. In Ukraine, fragmentation is evident in divergent trajectories of volunteer units – from formal integration to disbandment due to criminal activity – demonstrating the difficulty of managing heterogeneous paramilitary groups during prolonged conflict.

A further unifying theme is the complexity of financing paramilitary structures. Although formal mechanisms exist, such as federal and state appropriations for U.S. National Guard and SDFs, Ukrainian budgetary provisions for territorial defence forces and DFTG units, or direct Iraqi Ministry of Finance allocations to the PMF – these rarely represent the full spectrum of resources. In Iraq, for example, substantial off-budget funding streams such as control over border checkpoints, security levies and informal economic activities enhance the autonomy of paramilitary actors and reduce the leverage of the central state. In Ukraine, volunteer units historically depended partly on private donations and local community support, which contributed to their early operational effectiveness but also to their structural heterogeneity. In the United States, private militias rely on decentralised funding mechanisms that require no governmental accountability. Together, these patterns illustrate how financial pluralism strengthens paramilitary resilience but complicates efforts at oversight, reform and demobilisation.

These empirical patterns correspond to theoretical debates within security studies. The widening civil-military gap, highlighted by scholars such as D. Stanar (2020), is reinforced when paramilitary structures operate at the interface of civilian communities and formal armed forces. Volunteer formations may strengthen societal resilience, yet they also risk normalising militarised citizenship and eroding civilian oversight. The contrast between state-centric paramilitary models and decentralised or politically instrumentalised models underscores divergent approaches to management of non-state force. Decentralised models offer flexibility and rapid mobilisation but tend to carry higher risks of political capture, extremism or fragmentation. Reliance on militias as a strategic tool, whether for territorial defence, counterinsurgency or local security governance, has well-documented long-term consequences, including weakened state authority, contested sovereignty and the entrenchment of armed non-state intermediaries within political processes. Collectively, these findings highlight paramilitarism not as an aberration but as an increasingly institutionalised feature of modern security governance.

Discussion

A comparison of the three case studies revealed a range of critical implications for policymakers and practitioners in cross-cutting ways: 1) increased fragmentation and lack of control; 2) blurred distinctions between state and non-state entities; 3) competition for governance; 4) economic incentives; and 5) diversity and division in PGMs. PGMs are no longer one-time responses to insecurity; rather, they are becoming an increasingly permanent component of conflict landscapes in the twenty-first century. Their utility is crucial, being related the main sources of power and the surrounding region. Such conclusions are confirmed by numerous studies.

A. Day (2020) analysed how paramilitary organisations and militias influence post-conflict transitions. The study claimed that government cooperation with pro-government militias has been a factor in over 80% of conflicts over 1990-2020, and that the emergence of transnational violent extremist groups has led to an even greater reliance on PGMs in countries such as Syria, Afghanistan, Iraq, Somalia, and Nigeria. Auxiliary forces were central in assisting governments retake land, counter rebel forces, and consolidate military strength. They are a rapid and inexpensive way to mobilise force and may provide unique local expertise and intelligence, increasing traction among contested groups or constituencies. Based on extensive field study in Nigeria, Somalia, and Iraq, the study determined the role of PGMs in conflict and post-conflict settings. The study emphasised how PGMs may benefit or harm prospects for long-term peacebuilding. The study highlighted that, while each country is unique in terms of the nature of its conflict and how PGMs have been used, they contain common characteristics.

B. Onamu & I. Nyadera (2024) examined the role and impact of paramilitary groups in domestic politics, as well as how their engagement leads to political (un)stability. The study addressed how the interactions between Sudan's Rapid Support Forces, a paramilitary group, and the Sudan Armed Forces have resulted in a humanitarian catastrophe following the fall of Omar Al Bashir in 2019. The study stated that the development of paramilitary groups is intended to safeguard the government from internal and external dangers, but these groups can shift or withdraw their commitment to the political leadership. According to the authors, such a change increases the probability of conflict between paramilitary and regular troops, leaving civilians vulnerable to mass murder and war crimes. The study analysed the history, distribution, and operations of militia groups both internationally and regionally. Moreover, the study examined Sudan's past and present encounters with paramilitary organisations. The study determined that their behaviours during a crisis are influenced by the paramilitary troops' favourable treatment.

The common assumption has been that paramilitary units are developed to assist efforts of regular forces in maintaining stability and addressing internal and foreign threats (Böhmelt & Clayton, 2018). Studies have also been conducted to investigate the reason for the development of these paramilitary units (Jentzsch *et al.*, 2015), while others have explored how they can be a barrier to peace (Maher & Thomson, 2018). However, the threat posed by paramilitary groups, particularly in nations where governments are being overthrown by uprisings, remains understudied. Most studies assume that paramilitary groups are loyal to the government as to the founder and support. In fact, a more thorough examination of many situations demonstrated that there are a range of dynamic relations in existence. They may occasionally change based on the political environment and the actors' interests in the paramilitary outfit.

Paramilitary forces' detractors contend that they are a sign of a nation's larger security and governance issues. When these troops are used, it indicates a more substantial threat to the stability of the state and could prolong fighting by escalating already-existing tensions. The creation of paramilitary groups has frequently been used by leaders, particularly in autocratic nations, as a tool to bolster authority and quell opposition. For instance, as noted P. Mutibwa (1992) during the 1970s, Idi Amin of Uganda used paramilitary groups such as the State Research Bureau to consolidate control and suppress political opposition. Amin's reign was characterised by extensive human rights violations, and paramilitary units were central in imposing autocratic authority. Under Robert Mugabe's tenure in Zimbabwe, the formation of paramilitary formations such as the Central Intelligence Organisation (CIO) was critical to preserving political power. These forces were critical in quelling criticism and maintaining the regime's hold on power.

Both democratic and non-democratic nations have witnessed an increase in the number of paramilitary groups in the last several decades. Countries have been prompted to reconsider their security formations and units due to the evolving nature of threats to states, the rise in armed non-state players, and the complexity of war tactics. M. Kandrík (2020) addressed the issue of paramilitarism in Central and Eastern Europe. The study claimed that paramilitarism has made a comeback with new intensity in several countries in Central and Eastern Europe. That such war-related behaviour should emerge in a region often described as relatively peaceful and stable may appear counterintuitive. However, several explanatory factors can be identified. These include the historical foundations of statehood, as many contemporary organisations draw on the legacy of pre-war predecessors – the sociocultural context marked by perceived insecurity and limited opportunities for individuals interested in military or quasi-military engagement outside professional service, and substantial shifts in the security environment, notably the migration crisis and the war in Ukraine. Across this spectrum – from vigilante groups involved in migrant "hunting" to self-defence militias, state-aligned formations, and paramilitary organisations formally incorporated into national security structures – paramilitarism in Central and Eastern Europe constitutes a highly heterogeneous phenomenon. There are two distinct models in the region: the state-centric and pro-social model in the Baltic countries, and the decentralised and often extremist-influenced model, with Poland and Ukraine as exceptions. To counteract the negative effects of paramilitarism and capitalise on its advantages, both models advocate for different sets of government strategies. For example, the risk of providing extremists with military training and structures rather than increasing the number of potential recruits for the defence of the nation and improving relations of young people with communities through civic-patriotic education. The significance of the state's participation is illustrated by the experiences of Lithuania, Poland, and Latvia. Those interested in military action should have access to territorial armies, active reserves, and national guards, but not as a full-time job. These offer a possibility for citizens to voluntarily participate in defence, which can satisfy such people in a context that is lawful, professional, and under state control.

Outside structural and political explanations, studies highlight the significance of individual-level psychological and moral factors that shape engagement in paramilitary formations. A growing number of empirical studies demonstrate that participation in such groups is not merely a reaction to security deficits or political grievances but is also a moral, identity dynamic and personality trait issue. P. Kosnáč *et al.* (2023), analysing the Slovak paramilitary organisation Slovenskí Branci, demonstrated that members exhibit distinct moral foundations, elevated group-based loyalty and particular personality profiles compared to the general population. These findings reinforce the view that paramilitary activism is sustained not only by political opportunity structures but also by psychosocial predispositions that make certain individuals more receptive to militarised forms of collective action. Integration of this dimension is essential for determination of why paramilitary mobilisations persist even in relatively stable environments and why they often acquire cohesive internal cultures that strengthen organisational resilience.

There will always be a willingness to use civic voluntary involvement as a crucial auxiliary component of the larger defence system, even when states use professional military forces as their primary means of national defence. This position has several significant causes. The problem of the civilian-military divide is a topic of significant scholarly and military professional debate (Stanar, 2020). There is minimal cooperation between the professional military and civilian sectors as a result of the professionalisation of the armed forces and the increasing commercialisation of defence and security issues. This is a significant departure from the past, when both military and paramilitaries were natural components of society and were frequently central in establishing national identity.

Paramilitary groups, both state and non-state, can serve as a bridge connecting the civilian and professional military spheres of society. They can unite military and civilian expectations, desires, and concerns in meaningful and complementary ways due to varied experience. Political leaders must be aware of this to make judgments about defence and security, as well as to acquire and keep the support of the public for any necessary security reforms or plans for military modernisation. In addition to the direct deployment of paramilitary organisations as an armed entity, which is frequently of limited use and not their primary purpose, they can engage in a wide range of activities, such as training, education, preparation, advocacy, and the popularisation and promotion of patriotic sentiments, citizen responsibilities, and military matters.

Meanwhile, public management policy should carefully analyse the evolution within the declared principles and practical functioning of paramilitary groups, including under the prospective view angle. Notably, there are no universal patterns of paramilitary emerging and functioning, and overall nation-state specific landscape, as well as "current moment" political and societal situation are factors of crucial influence. Paramilitaries can become both a policy tool and national security danger, which necessitates application of a kind of design-thinking approach from public administration institutions.

Conclusions

The study examined the origins, roles, functions and security implications of paramilitary voluntary territorial formations in contemporary nation-states. By analysing the United States, Ukraine and Iraq through an integrative review framework, the research explored how paramilitary structures emerge, transform and interact with state institutions, and what governance challenges and opportunities they generate. The multi-layered analysis revealed several consistent tendencies across cases, including blurred boundaries between formal and informal security structures, the proliferation of competing power centres, and the growing political relevance of paramilitary actors. These findings collectively demonstrated that there is no universal pattern of paramilitarism; instead, each national context produces internal hybrid configurations shaped by political culture, security pressures and institutional capacity.

These can have various organisational structures, sizes, and shapes, various financing sources and patterns. There are instances of effective state, semi-state, and non-state programs that involve people who are already involved in or interested in paramilitary groups. These organisations can influence their surroundings, create more defence potential, directly and indirectly serve the national defence system, and improve societal stability in general. The phenomenon of paramilitarism is dynamic and complex.

A state can substantially benefit from self-organised citizen volunteers interested in defence and security. At the community level, the analysis showed that local self-defence initiatives play an important role in resilience and crisis response, but their paramilitary nature necessitates strategic state management to amplify benefits and minimise risks. There must be a clear legal framework in place that eliminates any room for doubt regarding the legitimacy of paramilitary or quasi-paramilitary groups and their operations.

Effective state-aligned models demonstrate that, under appropriate legal and institutional frameworks, paramilitary or quasi-paramilitary groups may enhance defence capacity, strengthen community resilience, and contribute to stability. At the same time, their dynamic and complex nature requires careful management aimed at mitigating risks such as fragmentation, political instrumentalisation and challenges to state authority. Future research should address remaining gaps, particularly the need for systematic empirical data on paramilitary dynamics, deeper examination of financing mechanisms, and studies on how hybrid armed actors affect state capacity, democratic oversight and regional security in the long term.

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References

[1] Arab Gulf States Institute. (2022). *By violent means: Iraq's PMF descent from popularity to corruption and repression*. Retrieved from https://agsi.org/analysis/by-violent-means-iraqs-pmf-descent-from-popularity-to-corruption-and-repression/?utm source.
[2] Azov. (n.d.). *Unit's history, structure, combat record, and traditions*. Retrieved from https://azov.org.ua/en/about-azov.
[3] Böhmelt, T., & Clayton, G. (2018). Auxiliary force structure: Paramilitary forces and progovernment militias. *Comparative Political Studies,* 51(2), 197-237. doi: 10.1177/0010414017699204.
[4] Budget Code of Ukraine. (2010, July). Retrieved from https://zakon.rada.gov.ua/laws/show/2456-17#Text.
[5] Cherry, E. (2020). *The al-Hash'd alShaabi, paramilitary groups in Iraq*. Retrieved from https://www.bic-rhr.com/sites/default/files/inline-files/December%20Analysis%20-Iraq%20Paramilitary%20Groups..pdf.
[6] Cooter, A. (2024). *Nostalgia, nationalism, and the US militia movement*. Oxfordshire: Routledge.
[7] Crothers, L. (2019). *Rage on the right: The American militia movement from Ruby Ridge to the Trump presidency*. Lanham: Rowman & Littlefield Publishers.
[8] Day, A. (2020). *Hybrid conflict, hybrid peace: How militias and paramilitary groups shape post-conflict transitions*. New York: United Nations University.
[9] de Souza, M., da Silva, M., & de Carvalho, R. (2010). Integrative Review: What is it? How to do it? *Einstein (SÃ£o Paulo),* 8(1), 102-106. doi: 10.1590/S1679-45082010RW1134.
[10] Doxsee, C. (2021). *Examining extremism: The militia movement*. Retrieved from https://www.csis.org/blogs/examining-extremism/examining-extremism-militia-movement.
[11] Doxsee, C., Jones, S.G., Thompson, J., Hwang, G., & Halstead, K. (2022). *Pushed to extremes: Domestic terrorism amid polarisation and protest*. Retrieved from https://www.csis.org/analysis/pushed-extremes-domestic-terrorism-amid-polarisation-and-protest.
[12] Gartenstein-Ross, D., Clarke, C., & Hodgson, S. (2022). *Militia violent extremists in the United States: Understanding the evolution of the threat*. Hague: International Center for Counter-Terrorism.
[13] Hristov, J., Sprague, J., & Tauss, A. (2022). *Paramilitary groups and the state under globalisation*. Oxfordshire: Routledge.
[14] Jefferson, T. (2023). *The case against paramilitary policing*. Oxfordshire: Routledge.
[15] Jentzsch, C., Kalyvas, S.N., & Schubiger, L.I. (2015). Militias in civil wars. *Journal of Conflict Resolution,* 59(5), 755-769. doi: 10.1177/0022002715576753.
[16] Kandrík, M. (2020). *The challenge of paramilitarism in central and Eastern Europe*. Washington: The German Marshall Fund of the United States.
[17] Karolyi, H., Akimova, L.M., Mishchuk, H.Y., Akimov, O.O., & Karpa, M.I. (2025). Military migration and demographic transformations in Ukraine: Military consequences for Territorial communities. *Ukrainian Geographical Journal*, 3(131), 75-86. doi: 10.15407/ugz2025.03.075.
[18] Kennedy, L. (2025). *What are the origins of the US National Guard?* Retrieved from https://www.history.com/articles/us-national-guard.
[19] Kosnáč, P., Lane, J.E., Toft, M.D., & Shults, F.L. (2023). Paramilitaries, parochialism, and peace: The moral foundations and personality traits of Slovenskí Branci. *PLOS One,* 18(3), article number e0281503. doi: 10.1371/journal.pone.0281503.

[20] Kraska, P., & Keppeler, V. (1997). Militarizing American police: The rise and normalisation of paramilitary units. *Social Problems,* 44(1), 1-18.
[21] Law of Ukraine No. 1702-IX "On the Fundamentals of National Resistance". (2021, July). Retrieved from https://zakon.rada.gov.ua/laws/show/1702-20#Text.
[22] Maher, D., & Thomson, A. (2018). A precarious peace? The threat of paramilitary violence to the peace process in Colombia. *Third World Quarterly,* 39(11), 2142-2172. doi: 10.1080/01436597.2018.1508992.
[23] Martyniuk, A. (2023). The essence, content and features of the territorial defence of Ukraine. *Legal, Economic Science and Praxis,* 8, 32-36.
[24] Masera, F. (2021). Police safety, killings by the police, and the militarisation of US law enforcement. *Journal of Urban Economics,* 124, article number 103365. doi: 10.1016/j.jue.2021.103365.
[25] Militaryland. (2014). *Shakhtarsk battalion*. Retrieved from https://militaryland.net/ukraine/special-police-forces/shakhtarsk-battalion.
[26] Militaryland. (n.d.). *Donbas battalion*. Retrieved from https://militaryland.net/ukraine/national-guard/donbas-battalion.
[27] Mireanu, M. (2023). Taming Transylvania: Paramilitaries building state and peace after World War I. *East European Politics and Societies*, 38(2). doi: 10.1177/08883254231203336.
[28] Mutibwa, P. (1992). *Uganda since independence: A story of unfulfilled hopes*. Trenton: Africa World Press.
[29] Onamu, B., & Nyadera, I. (2024). Paramilitary forces, domestic politics and conflict: A case of the Sudan crisis. *Obrana a Strategie (Defence & Strategy),* 24(1), 143-158. doi: 10.3849/1802-7199.24.2024.01.143-158.
[30] Owen, T. (2024). *Over 100 far-right militias are coordinating on Facebook*. Retrieved from https://arstechnica.com/tech-policy/2024/05/over-100-far-right-militias-are-coordinating-on-facebook.
[31] Pankhurst, D. (2023). When militias go "rogue": Explaining anti-government extremism in so-called "pro-nationstate" militias in the United States of America and Ukraine. *Dynamics of Asymmetric Conflict,* 16(3), 206-223. doi: 10.1080/17467586.2023.2219703.
[32] Petrukha, N., Petrukha, S., & Hudenko, B. (2025). Financial support of volunteer formations of territorial communities: issues of theory and practice. *RFI Scientific Papers,* 1(110), 36-51. doi: 10.33763/npndfi2025.01.036.
[33] Petrukha, S.V., Tripak, M.M., Petrukha, N.M., & Konovalenko, D.V. (2024). Modernisation of public finances and resilience of veteran business. *The Problems of Economy,* 3(61), 249-260. doi: 10.32983/2222-0712-2024-3-249-260.
[34] Powell, J. (2019). Institutional arsenals for democracy? The postcoup effects of conscript militaries. *Armed Forces Society*. doi: 10.1177/0095327X19871982.
[35] Resolution of the Cabinet of Ministers of Ukraine No. 1448 "On Approval of the Procedure for the Use of Personal Hunting Weapons, Small Arms, Other Types of Weapons and Ammunition by Members of Voluntary Formations of Territorial Communities when Performing Territorial Defence Tasks". (2021, December). Retrieved from https://zakon.rada.gov.ua/laws/show/1448-2021-%D0%BF#Text.
[36] Rudaw. (2024). *Iraqi government decides to increase PMF budget*. Retrieved from https://www.rudaw.net/english/middleeast/iraq/030920242?utm source.
[37] Seheda, S., & Mashtalir, V. (2022). Territorial defence of Ukraine as a phenomenon of national military history. *Ukrainian Historical Journal,* 4, 148-158. doi: 10.15407/uhj2022.04.148.
[38] Sottile, L. (2024). *What the bundy Bunkerville standoff foreshadowed*. Retrieved from https://surl.lu/mdmtfv.
[39] Stanar, D. (2020). Paramilitary organisations and private military companies in war: How to restrain what you do not control? In P. Mileham (Ed.), *Jus post bellum: Restraint, stabilisation and peace* (pp. 362-387). Leiden: Brill. doi: 10.1163/9789004411043 016.
[40] Ukrainian military pages. (2022). *Territorial defence forces*. Retrieved from https://www.ukrmilitary.com/p/territorial-Defence-forces.html.
[41] Üngör, U. (2020). *Paramilitarism: Mass violence in the shadow of the state*. Oxford: Oxford University Press.
[42] United States Code No. 10 "Armed Forces". (1956, August). Retrieved from https://www.govinfo.gov/content/pkg/USCODE-2016-title10/pdf/USCODE-2016-title10-subtitleA-partI-chap12-sec246.pdf.
[43] United States Code No. 32 "National Guard". (1956, August). Retrieved from https://www.govinfo.gov/content/pkg/USCODE-2019-title32/pdf/USCODE-2019-title32.pdf.
[44] Vukušić, I. (2022). *Serbian paramilitaries and the breakup of Yugoslavia. State connections and patterns of violence*. New York: Routledge.

Добровольче формування територіальної громади: механізми державного управління та фінансування

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Анотація. Із загостренням глобальних викликів безпеці національні держави все частіше стикаються з активним розвитком феномену парамілітарних формувань. Для України в умовах російсько-української війни це питання набуло особливого значення. Метою статті було дослідити організацію, призначення, управління та фінансування добровільних територіальних громадських формувань як парамілітарних груп, а також пояснити особливості їх функціонування та наслідки їх діяльності для суспільства, зокрема приховані, не очевидні на перший погляд. Було застосовано методологію інтегративного огляду в поєднанні з елементами методу кейс-стаді. Аналіз висвітлив глобально значущі, але національно специфічні форми парамілітарних територіальних груп у національних державах. На основі теоретичних підходів та емпіричних даних, включно з аналізом діяльності таких груп у США, Україні та Іраку, досліджено переваги й виклики, які добровільні парамілітарні формування створюють для національної безпеки. Результати дослідження чітко показали, що стратегія боротьби з парамілітаризмом повинна враховувати як позитивні, так і негативні аспекти цього явища, уникаючи універсальних рішень для вирішення відповідних проблем. Для визначення характеру будь-якої парамілітарної групи, необхідно розробити критерії, порогові значення та методи оцінки. Держава може отримати потенційну вигоду від самоорганізованих громадян-добровольців, зацікавлених у питаннях оборони та безпеки, але для належного використання цього ресурсу необхідно забезпечити чіткість законодавчої бази та механізмів фінансування парамілітарних угруповань, а також визначити їхню роль у забезпеченні національної безпеки, в тому числі в довгостроковій перспективі. Практична цінність дослідження полягає у формуванні аналітичної бази для оцінки загальної ролі воєнізованих формувань добровільних територіальних громад у безпековому ландшафті країн у динамічних умовах гібридної війни та гібридного миру

Ключові слова: парамілітарні формування; гібридна війна; державна безпека; місцеві бюджети; місцеві громади

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Mediation in preventing litigation in land conflicts: A comparison of the legislation of Ukraine and the EU

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Abstract. The relevance of the research topic lies in the growing need to develop an effective system for protecting the rights and interests of parties involved in land relations in Ukraine, particularly in the agricultural sector. The aim of the article was to analyse the legal basis and practices of mediation in resolving land disputes in Ukraine and European Union countries in order to determine the possibilities for their adaptation in the context of European integration. The study used systematic, comparative legal, dogmatic and narrative methods. As a result, it was established that mediation is an effective alternative mechanism for preventing lengthy court proceedings in land conflicts, which helps to reduce the burden on the courts and improve the quality of state management of land resources. The study analysed the peculiarities of the legal regulation of mediation in Ukraine and the EU and identified key problems in its practical application, in particular low awareness, the limited role of courts in directing parties to mediation, and the underdevelopment of institutional infrastructure. The feasibility of introducing a mandatory initial mediation session as an element of state policy in the field of land dispute resolution is justified. Particular attention was paid to the development of online mediation, ODR platforms and the prospects for using artificial intelligence tools within the concept of "augmented

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justice", as well as the associated ethical and legal risks. A mediation effectiveness matrix is proposed, and the need to take into account the experience of European countries in the process of developing the institution of land dispute mediation in the legal field of Ukraine is justified. The results of the study may be useful for state authorities and local self-government bodies in resolving issues related to the integration of mediation into the system of land conflict resolution in Ukraine

Keywords: public governance; land disputes; legal certainty; out-of-court dispute resolution; state management of land resources

Introduction

In modern Ukraine, conflicts and disputes in the field of land relations have become an integral part of public life. Resolving issues related to land plots is often complicated by their diversity and multifaceted nature, which, in the absence of proper regulation, can become a source of serious problems – economic losses, social tensions and even environmental crises. The lack of clarity and ambiguity of the legislative framework in this area frequently lead to difficulties and inconsistency in the dispute resolution process.

In a democratic society, an important element is the ability to independently resolve legal conflicts within one's own environment, minimising the need for state judicial intervention. That is why creating conditions for the implementation of alternative dispute resolution methods is particularly relevant. As noted by T. Valyanska (2024), the importance of such approaches lies in strengthening the self-regulatory mechanisms of civil society, which contribute to the protection of rights and legitimate interests by offering effective alternatives to traditional court proceedings. Traditional methods of dispute resolution, in particular court proceedings, are often characterised by their length, high costs and do not always lead to a mutually beneficial outcome. In situations where one or even both parties remain dissatisfied with the court's decision, the conflict may only escalate or take on a more complex form. In this regard, the use of alternative methods of land dispute resolution is becoming a relevant and promising practice. In many countries around the world, such methods have long been established as an effective tool for conflict resolution (Deineha, 2022). Ukraine's focus on adapting European approaches in its legal system also includes the integration of such alternative methods. Such methods are still relatively new to the Ukrainian legal system and have not been sufficiently researched, particularly in specific categories of disputes such as land conflicts.

Land disputes are a complex category of cases in many jurisdictions, as they usually involve issues of land ownership, use and management. D.V. Fedchyshyn (2024) pointed out in his work that such conflicts most often arise due to disputes over property rights, territorial boundaries, rules of use and other aspects of land-related relations. An additional complicating factor is the limited availability and high value of land resources, which often exacerbate conflicts between interested parties. Land disputes can be resolved through various legal instruments that take into account the specific nature of conflicts in the field of land relations. The most common methods of such settlement are mediation, the conclusion of amicable agreements, and combined methods of dispute resolution.

In contemporary legal environment, mediation is becoming increasingly popular as an effective tool for alternative dispute resolution. Given the overload of the judicial system and the length of proceedings, particularly in the field of land relations, mediation is becoming a valuable mechanism for rapid, effective and peaceful conflict resolution. According to T. Whatling (2021), this approach allows parties to reach mutually beneficial agreements, avoid protracted court proceedings, unnecessary costs and damage to relationships. Mediation is particularly important in the context of resolving land conflicts, as such disputes are often complex in nature and can affect both private interests and public needs. This was emphasised by S.K. Agegnehu *et al.* (2021). They pointed out that land disputes often arise between neighbours, family members or communities, making it extremely important to maintain positive relations between the parties. In such situations, mediation helps to find a compromise solution that takes into account the interests of all parties, promotes social peace and prevents the escalation of conflict.

L. Kanivets (2024) noted that mediation is an effective means of resolving land disputes through mutual agreement, as participation in this process is entirely voluntary for both parties. It is based on an agreement between the parties on how to resolve the conflict, which includes agreeing on the terms of participation, selecting a mediator, and determining the procedure and substance of the agreement. Thanks to this, mediation offers a dispute resolution mechanism based on the principles of voluntariness, mutual agreement on the process and its outcome, and provides the parties with flexibility and autonomy in establishing the terms of conflict resolution. In EU countries, mediation in land disputes is developing very actively as an alternative to court proceedings, offering the parties (farmers, landowners, the state) the opportunity to find a mutually acceptable solution through an independent intermediary. According to G. De Palo (2025), this is particularly relevant in the context of complex issues of land use, inheritance, demarcation and compensation, which have their own specific difficulties and require legal adaptation.

Based on a review of the literature, it can be argued that mediation, as a method of alternative dispute resolution in land disputes, is an extremely promising tool for the effective and rapid resolution of conflicts in Ukraine. However, despite its recognised effectiveness in international practice, the Ukrainian legal system still lacks sufficiently developed mechanisms for applying mediation in land disputes, which creates a need for more in-depth research and adaptation of international standards to the Ukrainian context. Issues of legal adaptation of mediation to the specifics of land relations, in particular regarding the resolution of conflicts involving both private and public interests, as well as the lack of regulatory support for mediation in such cases, remain insufficiently studied and require further research and legislative initiatives. Based on this, the aim of the study was to analyse the legal basis and effectiveness of mediation in the settlement of land disputes in Ukraine and EU countries and to develop recommendations for improving the regulatory framework for this institution, taking into account European experience and digital tools.

Materials and Methods

The methodological basis of the study was a set of general scientific and special legal methods of cognition, the application of which is determined by the complex interdisciplinary nature of the issue of mediation in the field of land relations and its significance for the system of public administration. The basic methodological approach was the dialectical method, which allowed to consider the institution of mediation as a dynamic legal phenomenon that develops under the influence of socio-economic, political and legal factors, as well as in connection with the evolution of land relations and public authority. Methods of formal logic, analysis and synthesis were used for the consistent processing of normative material, doctrinal positions and practical approaches to alternative dispute resolution in land disputes.

The method of systematic analysis played an important role in the research, allowing for the assessment of the legal regulation of mediation as a holistic system that includes norms of substantive and procedural law, institutional mechanisms, and the role of courts, local self-government bodies, and other public administration entities. Within the framework of this method, the state and trends of the use of mediation in the resolution of land disputes in Ukraine and the European Union countries, as well as the relationship between state policy in the field of alternative dispute resolution and the effectiveness of land rights protection, were analysed.

Using methods of abstraction and generalisation, doctrinal scientific approaches to the legal regulation of mediation were systematised, and key concepts, models and problematic aspects of its application in land conflicts were identified. The dogmatic (formal-legal) method was used to study the content of the legislation of Ukraine, the European Union and individual EU member states regulating mediation, alternative dispute resolution and land relations. This made it possible to identify regulatory gaps, conflicts and potential for improving legal regulation, taking into account European experience. The systemic-structural method was used to analyse the stages, forms and procedures of mediation, in particular in the context of contractual settlement of land disputes, online mediation and the use of digital tools, taking into account their functioning within the public law environment. The use of a mediation effectiveness matrix was also proposed to assess its effectiveness based on two main indices: the success index and the index of balance between the number of mediations and court cases, which allows for a comprehensive assessment of the effectiveness of this practice at the macro level.

The source base of the study included normative acts, scientific articles, as well as research by European and Ukrainian scientists and practitioners. Key sources include Law of Ukraine No. 1875-IX (2021), Land Code of Ukraine (2001), Directive 2008/52/EC (2008), as well as Recommendation No. R(98)1 (1998), Recommendation No. R(99)19 (1999), Recommendation Rec(2001)9 (2001), Recommendation Rec(2002)10 (2002), and Recommendations for Mediators (2022). Scientific sources included peer-reviewed articles on mediation and land relations. The search for sources was carried out in the scientific databases ScienceDirect, MDPI, Springer and ResearchGate, as well as using the Google search engine. The analysis included publications in English and Ukrainian of at least three pages in length that corresponded to the topic of the study and were of an appropriate scientific level.

The study was based on qualitative methodology and a constructivist paradigm, which involved analysing mediation not only as a formal legal mechanism, but also as a socially conditioned practice of conflict resolution. The logic of the presentation is based on a narrative approach, which allowed for the integration of legal analysis, comparative data and practical examples into a comprehensive concept of the development of mediation in the system of state management of land relations.

Results and Discussion

Legal basis and problems of applying mediation in resolving land disputes in Ukraine

Land disputes can be resolved through a series of legal mechanisms that take into account the specific nature of conflicts in the field of land relations. The main methods of contractual settlement of such disputes are mediation, settlement agreements and the use of combined methods. The law defines mediation as a voluntary and confidential process outside of court proceedings, in which the parties, with the support of a mediator (or several mediators), attempt to avoid or resolve the conflict through negotiation. This procedure is regulated by Law of Ukraine No. 1875-IX (2021). Mediation can be effective in resolving land disputes related to determining plot boundaries, transferring or obtaining land rights, removing obstacles to its use, restoring the violated rights of owners or users, establishing easements and rules for the use of land plots.

N. Mazaraki (2018) classified types of mediation agreements based on the time of their conclusion. In particular, she identified:

- a mediation clause, in which the parties agree to resort to mediation in the event of a dispute;
- a mediation agreement, under which the parties agree to initiate mediation and agree on its terms, including

the selection of a mediator. Such agreements may be concluded both before and after the filing of a lawsuit;

- an agreement concluded following mediation, which records the mutual agreements reached by the parties during the negotiations.

In a dissertation study conducted by H.O. Ogrenchuk (2016), a classification of mediation agreements into two main categories is proposed. The first covers agreements aimed at establishing mediation relations, for example, an agreement between the parties to the dispute on the organisation of mediation and an agreement between the parties to the dispute and the mediator on the conduct of the procedure. The second category includes agreements that are the result of the mediation process, i.e. mediation agreements. When analysing the legislative aspects governing mediation, various types of documents in this area can be identified, including a mediation clause (a separate document), a mediation agreement and an agreement concluded as a result of mediation.

In turn, M. Deineha (2022) divides these documents (agreements) into two main categories: those relating to the organisation and conduct of mediation, and those that consolidate the results of the settlement of the conflict between the parties. According to this classification, mediation agreements are divided into the following types: 1) a standard mediation agreement or a combined agreement containing additional provisions or conditions for the use of other alternative methods of conflict resolution or a mediation clause; 2) an agreement on the organisation of mediation for the purpose of resolving a conflict or dispute; 3) an agreement concluded before the start of court proceedings, as well as an agreement drawn up during court proceedings; 4) an agreement in written or oral form; 5) an agreement with payment for services or one that provides for their free provision.

The main causes of land disputes are: insufficient regulation or incomplete regulation of relevant legal relations by current legislation; internal contradictions in land law provisions relating to the same legal relations; conflicts between the provisions of land legislation and the norms of other branches of law that regulate similar aspects; lack of consistency between the principles and rules in land legislation, etc. (Kanivets, 2024).

The regulation of the process of resolving land disputes is provided for in Chapter 25 of the Land Code of Ukraine (2001), which is devoted to guarantees of land rights. Article 158 of this law defines the list of bodies authorised to consider such disputes. These include courts and local government bodies. Land disputes concerning the ownership, use and disposal of land plots owned by citizens and legal entities, as well as issues of demarcation of territories of villages, settlements, towns, districts and regions, are resolved exclusively by the court in accordance with part 2 of Article 158 of the Land Code of Ukraine. In turn, in accordance with part 3 of the same article, local government bodies are authorised to consider land disputes within the territories of territorial communities. This applies to the determination of the boundaries of land plots owned or used by citizens, issues of restrictions on land use, land easements, compliance with good neighbourliness rules, as well as the demarcation of district boundaries within cities. In general, appeals for the protection of violated rights are made through the relevant state authorities, local self-government bodies or courts within the jurisdiction of protection, which may be judicial or administrative.

Detailed legislative regulation of the procedure for considering cases with the participation of interested parties, ensuring guarantees for the adoption of a lawful decision and adaptability to the resolution of complex disputes create significant advantages in the application of judicial protection of violated rights compared to other forms, increasing its effectiveness. In cases where entities independently defend their violated rights without appealing to the competent authorities, they use a non-jurisdictional form of protection. The main difference between these forms is that jurisdictional protection of rights and interests is carried out by state-authorised bodies that have a clearly defined legal status and operate within the procedural framework regulated by law. In contrast, non-jurisdictional protection of rights takes place within the framework of substantive legal relations, usually directly by the participants in these legal relations themselves.

Despite the existence of various mechanisms for protecting the rights of participants in land legal relations, in practice, priority is given to judicial protection. O.P. Podtserkovny & G.M. Budurova (2023) drew attention to the current problems of multiple jurisdictions facing justice in this area, especially in the context of growing public expectations for the effective resolution of land disputes. In land relations, disputes with the same subject matter are divided between different jurisdictions: public law aspects (appeals against decisions of state authorities and local self-government bodies) fall within the jurisdiction of administrative courts, while issues of property rights to land plots and contractual relations fall within the jurisdiction of civil and commercial courts. According to scholars, this leads to inconsistency in judicial practice, provokes jurisdictional conflicts, and makes it impossible to resolve land disputes within a single court case.

Among the key problems affecting the quality of justice and the establishment of the rule of law are the overload of judges, often unjustified delays in the consideration of cases, the ineffective enforcement of court decisions, and other systemic shortcomings. The Russian invasion in 2014, which was followed by the occupation of territories, caused additional difficulties in resolving court disputes. As noted by O.I. Nastina (2014), the current regulatory procedures for court proceedings do not allow for the effective operation of the legal mechanism for resolving most land disputes due to delays in efficiency and the complexity of conflict resolution.

At the same time, Ukraine has created conditions for the development and implementation of alternative dispute resolution tools, with particular emphasis on the involvement of mediators. Mediation is considered one of the most effective ways to resolve conflicts, which is rapidly gaining popularity in various spheres of human activity due to its flexibility and versatility (Fedchyshyn & Ignatenko, 2024). It is important that part 3 of Article 124 of the Constitution of Ukraine (1996) provides for the possibility of establishing a mandatory pre-trial dispute resolution procedure by law. Law of Ukraine No. 1875-IX (2021) establishes the organisational and legal basis for the use of mediation as a means of out-of-court conflict and dispute resolution. This law regulates the processes related to mediation aimed at preventing future conflicts and resolving them, regardless of the nature of the dispute – civil, family, labour, economic, or administrative. It also covers cases of administrative offences and criminal proceedings aimed at reconciliation between the victim and the suspect or accused (Article 3). The law provides for the possibility of establishing specific features of mediation for certain categories of conflicts and disputes. Based on its provisions, the main goal of the process is not only to resolve existing disputes, but also to prevent them from arising in the future. This provision does not contain direct references to the possibility of using mediation to resolve land disputes, but allows the use of mediation for "any conflicts (disputes)" with certain exceptions. In particular, this refers to disputes that affect or may affect the rights and legitimate interests of other persons not involved in the mediation process. This gives reason to believe that the mediation procedure can also be used in land disputes. The procedure for settling such disputes through mediation is set out in Article 158-1 of the Land Code of Ukraine (2001), which obliges courts and local authorities to support the reconciliation of parties in land disputes.

Mediation, as defined in Article 1 of Law of Ukraine No. 1875-IX (2021), is an out-of-court procedure based on voluntariness, confidentiality and a clearly defined structure. During mediation, the parties, with the support of a mediator or group of mediators, attempt to avoid conflict or resolve an existing dispute through negotiation. The mediator is a specially trained professional who is neutral, independent and impartial. Their task is to conduct mediation in compliance with legal requirements, the terms of the mediation agreement, the rules for its organisation and professional ethics standards. The use of a professional mediator in resolving land disputes is advisable, as it allows for an individual approach to conflict resolution, builds constructive dialogue between the parties and achieves a balance of their interests.

Following the mediation, an agreement is concluded, the content of which is regulated by Article 21 of Law of Ukraine No. 1875-IX (2021). It specifies the obligations agreed upon by the parties, the methods and terms of their fulfilment, and provides for the consequences of non-fulfilment or improper fulfilment. If the agreement reached as a result of mediation is not performed or is performed improperly, the parties have the right to refer the land dispute to the relevant authorities authorised to consider such issues (part 4 of Article 158-1 of the Land Code of Ukraine (2001)).

Mediation is mentioned not only in the aforementioned law, but also in procedural acts, in particular in the Civil Procedure Code of Ukraine (2004). In particular, during the preparatory hearing, the court determines whether the parties intend to reach a settlement agreement or settle the dispute out of court through mediation. If the parties decide to do so, the court must suspend the proceedings at their request. At the same time, procedural law allows for the possibility of reconciliation between the parties, including through mediation, at any stage of the proceedings. Ukrainian law also provides for a so-called financial incentive for reconciliation between the parties. In particular, if, as a result of mediation, the parties reach an agreement on a settlement, the plaintiff withdraws the claim or the defendant acknowledges the claim, the court considers the possibility of refunding 60% of the court fee paid by the claimant when filing the claim.

In the process of Ukraine's integration into the European Union, the legislator will need to implement Directive 2008/52/EC (2008) into the national legal system, which concerns certain aspects of mediation in civil and commercial disputes. In particular, Article 6 of this Directive obliges Member States to create conditions for the enforcement of written agreements concluded as a result of mediation, with the consent and at the request of the parties. Despite constant attempts by legislators to improve land legislation, the number and complexity of land disputes continues to grow every year. Table 1 presents the main problems that arise when applying mediation in the resolution of land conflicts.

Table 1. *Key problems in the application of mediation in land disputes*

Nature of the problem	Implications
Reservations regarding media coverage and public interest	Some land disputes involve the rights of third parties or public interests, which makes it impossible to resolve them through mediation under the law
Low awareness	Many parties to conflicts are often unaware of the possibility of mediation or do not trust this method of dispute resolution as an alternative to litigation
Emotional barriers	The history of conflicts and the fear of "loss of face" create obstacles to honest and open dialogue between the parties
Imbalance of power	When one party has more influence, for example, due to greater resources or power, this can make it difficult to reach a fair agreement
No guarantee of results	Unlike a court decision, mediation does not guarantee that an agreement will be reached, which may discourage parties from participating

Nature of the problem	Implications
Insufficient legal framework and practice	Mediation standards are not always clear and explicit, and court practice is limited in the application of mediation agreements
Communication barriers	Misunderstandings, mistrust and the inability to engage in constructive dialogue between the parties

Source*: compiled by the authors based on S.K. Agegnehu et al. (2021), D.M. Danilik et al. (2025)*

Law of Ukraine No. 1875-IX (2021) provides that land disputes cannot be resolved through mediation if they affect or may affect the rights and legitimate interests of third parties who are not involved in the mediation. D.V. Fedchyshyn & I.V. Ignatenko (2024) noted that land disputes involving legal entities often involve significant assets and strategic interests, and litigation in such cases can be protracted, creating risks for business, investment attractiveness and economic stability. Mediation offers a fast, confidential and less costly way to resolve disputes, focusing on protecting the common interests and partnership of all parties. It avoids lengthy formal court proceedings, promoting conflict resolution through compromise and constructive dialogue. Researchers emphasised that in the context of decentralisation and the development of a legal culture in Ukraine, mediation can be a decisive tool for sustainable land management and the creation of a legal environment focused on harmonious coexistence between business and communities.

In addition, one of the main problems in this area is the lack of a sufficient number of qualified mediators, which is critical to the effectiveness of the conflict resolution process. However, the requirements for mediators in Ukraine are currently not very high, especially in specialised areas of law such as land law. This is one of the shortcomings of the law on mediation, as the lack of skills testing after only 90 hours of training and professional development may lead to mediators receiving their certificates formally, while there is a shortage of qualified experts. Land disputes usually involve complex legal issues, the resolution of which requires the mediator to have a deep understanding of housing, land, civil and even urban planning legislation. A mediator without the proper qualifications is not able to effectively resolve such conflicts. They may not take into account all the legal nuances or propose a solution that does not meet the interests of both parties, which in turn undermines confidence in mediation as a means of dispute resolution.

Another problem is the low level of awareness among citizens and even legal entities about the possibilities of using mediation. Many people do not know that there is an alternative to court proceedings that can be not only faster but also more cost-effective. Many participants in housing disputes view the court system as a more reliable and authoritative mechanism. For many citizens, the court is perceived as the only institution capable of protecting their rights. Mediation, on the other hand, which is based on the principles of voluntariness and compromise, is often considered a less effective tool (Danilik *et al.*, 2025).

Currently, judicial authorities in Ukraine do not have the power to require parties to undergo mediation before bringing a case to court. At the same time, as evidenced by research by L. Hola *et al.* (2021), courts in many EU countries actively recommend the use of mediation to resolve disputes. In cases where the parties refuse this option, such refusal may be regarded as opposition to conflict resolution, which sometimes entails the application of certain sanctions. Such measures include fines or the obligation to compensate court costs by the party evading the mediation procedure. In addition, as noted by researchers, according to the Austrian Civil Procedure Code, the judge must, if necessary, advise the parties to use alternative dispute resolution methods, including mediation, and inform them about organisations that specialise in non-violent conflict resolution. A similar position is taken by the German Federal Supreme Court, which, in its decision of 13 February 2007, emphasised the importance of prioritising amicable dispute resolution over litigation. The judge has the right to suggest that the parties resort to mediation and, with their consent, suspend the court proceedings for the duration of the mediation.

At the same time, the situation in this area in Ukraine is becoming more complicated due to the deepening economic, social and food crises, which are intensifying against the backdrop of military action. In this regard, there is a need for a systematic solution to the problem of accumulating and settling land disputes. This has become a powerful factor in intensifying scientific and practical research into alternative methods of resolving land conflicts. At the same time, it is important to understand which land conflicts need to be resolved in the short term and in the long term. In particular, it is noteworthy that military operations on agricultural land, as well as the peculiarities of modern intensive farming, significantly increase the burden on land resources and bring to the fore the problem of their restoration (Kharytonova & Hryhorieva, 2024). At the same time, disputes over the restoration of agricultural areas have their own specific features and require a more careful approach to their resolution, as they combine environmental and property aspects. In the context of contemporary challenges, the relevance of a mediation approach to resolving such conflicts in the sensitive area of land restoration is becoming apparent. The use of mediation could provide the advantages of this alternative dispute resolution method, including efficiency, compromise, minimal resource costs and reduced risk of repeat conflicts.

Legal regulation of mediation in the EU and problems with its implementation

At the EU level, mediation is regulated by Recommendation Rec(2002)10 (2002), which defines it as a dispute resolution procedure in which the parties to a conflict discuss problematic issues through professional mediators in order to reach a compromise. Separate legal acts of the Council of Europe define the specifics of the application of alternative dispute resolution methods in certain areas of law. This group of acts includes recommendations in the field of criminal law (Recommendation No. R(99)19, 1999), family law (Recommendation No. R(98)1, 1998) and administrative law (Recommendation Rec(2001)9, 2001). The concept of "mediation" has also been enshrined in Directive 2008/52/EC (2008), in accordance with Article 3 of which it is defined as a structured procedure in which the parties to a dispute voluntarily and on their own initiative seek to reach a mutually acceptable settlement of the conflict with the assistance of a mediator – an independent and neutral third party. This procedure may be initiated either by agreement of the parties or on the recommendation of the court. In order to summarise the main provisions of the legal regulation of mediation at the European Union level, it is advisable to systematise the basic provisions of the relevant normative act (Table 2).

Table 2. *Key aspects of legal regulation of mediation in the EU*

Aspect	Explanation
Voluntary basis	Mediation is generally a voluntary process, although national legislation may sometimes require a mandatory initial mediation session
Confidentiality	The process is confidential, and mediators cannot generally be compelled to testify in court
Applicability	The parties may request that agreements reached through mediation be enforced by a competent national court or authority (e.g. a notary)
Suspension of time limits	The time limits for bringing legal proceedings are suspended during mediation, ensuring that the parties do not lose their right to go to court

Source*: compiled by the authors based on Directive 2008/52/EC (2008)*

In accordance with Directive 2008/52/EC (2008), Member States are required to ensure that agreements reached in mediation, in particular pre-trial mediation agreements, are enforceable. Such agreements reached through mediation are binding on the parties and can be enforced through the courts. At the same time, a mediation agreement allows the parties to resolve conflicts through mutual compromise, thus ensuring a quick and peaceful settlement of disputes (Whatling, 2021). The parties entering into such agreements seek their prompt and simplified enforcement, including the possibility of compulsory enforcement. Various approaches may be used for this purpose. In particular, legal practice indicates that a mediation agreement or its individual provisions may be approved by a court in accordance with applicable law. In addition, it is also possible to have agreements concluded in the mediation process certified by a notary (Busuyok, 2020).

Most European countries have adopted national regulations on mediation. In particular, in Germany, as reported by N. Alexander *et al.* (2017), the relevant law establishes procedures for out-of-court dispute resolution and provides for their detailed integration into the provisions of the country's Civil Procedure Code. In accordance with the requirements of this regulatory act, the parties to the dispute are required to indicate in the procedural documents initiating court proceedings information about the mediation measures taken and their results. If mediation is successful, the parties conclude an agreement, which is certified by a mediator (lawyer or notary) and given the force of an enforceable document.

As follows from a retrospective study by A. Tvaronavičienė *et al.* (2022), the institutionalisation of mediation in most European countries took place in stages. The first stage was characterised by the formation of national mediation institutions with the active participation of professional mediator organisations, starting in the 1980s. The second stage was associated with the development of international cooperation and joint initiatives aimed at unifying approaches to alternative dispute resolution. At the same time, this model was not typical for the Baltic countries, which regained their independence only in the early 1990s. Lithuania, Latvia and Estonia did not have the necessary institutional prerequisites for the development of mediation for a long time and only recently began its national institutionalisation. The Council of Europe's initiatives aimed at promoting and implementing mediation played an important role in accelerating this process, which was subsequently reflected in European Union legislation. The adoption of Directive 2008/52/EC (2008) was a key impetus for EU Member States to introduce or revise national legislation in the field of mediation. The Directive was based on the principle of "soft regulation", which allowed for the specific features of national legal systems to be taken into account without imposing a unified model. This approach ensured the minimum level of harmonisation necessary primarily for the settlement of cross-border disputes, while not restricting states in expanding the scope of mediation within domestic legal relations. At the same time, the consequences of liberal regulation proved to be ambiguous. In countries that already had a well-established culture of alternative dispute resolution, the provisions of the Directive contributed to the rapid development of mediation. In contrast, in a number of countries, including Lithuania and Estonia, the introduction of mediation remained fragmented for a long time, and its development was based mainly on the principle of non-interference by the state ("laissez-faire"), which led to a lack of systematic progress in this area.

The issue of proper implementation of the Mediation Directive remains relevant, as this act continues to be the only supranational instrument aimed at harmonising mediation standards within the European Union. In 2017, the European Parliament noted that the objectives of the Directive had not been fully implemented in many Member States, which negatively affects the accessibility of mediation and limits the potential for reducing public expenditure on the functioning of the judicial system (Broński *et al.,* 2024). The experience of Lithuania, which began implementing the Directive by adopting the Law on Conciliatory Mediation in Civil Disputes in 2008 and extending uniform rules for mediation to both cross-border and domestic disputes, is illustrative in this context. At the same time, the implementation process was mainly formal and gradual, without the introduction of additional mechanisms capable of stimulating the development of mediation. For almost ten years, its application remained limited, which can be explained to a large extent by the focus on a court-related model of mediation in civil cases, the lack of uniform and clear requirements for the professional training of mediators (with the exception of court mediators), insufficient funding, weak information support and low public awareness of the advantages of this tool. The combination of these factors necessitated a shift towards a more active state policy in the field of mediation, which became the basis for reforms initiated in 2017 and continuing to this day.

Estonia, in turn, implemented the provisions of the Directive by adopting the Conciliation Act in early 2010. However, as research shows, the introduction of this regulatory act did not lead to significant changes in the country's mediation practice. According to the conclusions of A. Tvaronavičienė *et al.* (2022), one of the key reasons was the limited scope of legal regulation, as the law applied exclusively to civil cases and did not cover administrative proceedings. Additional constraints included the lack of clearly defined mechanisms for supervising mediation activities, regulating the professional certification of mediators, and establishing the profession itself in law. Although the legislation formally defined the mediation procedure and imposed an obligation on the state to promote its use, further attempts to improve legal regulation and bring it into line with EU standards in Estonia proved ineffective.

Latvia implemented the Mediation Directive by adopting the Mediation Law in 2014, which established uniform rules for all types of mediation procedures and made corresponding amendments to the Civil Procedure Law. Although this legislation was adopted somewhat later than required by the Directive, it has proven to be a balanced and stable instrument of legal regulation, which has not undergone any significant changes since then. The law comprehensively regulates the basic principles of mediation, the procedure for conducting it, the specifics of court-oriented mediation, the legal status of certified mediators, and the procedure for considering complaints about their activities. Shortly after it came into force, a resolution "On the certification and attestation of mediators" was adopted, which detailed the mechanism for professional certification and further attestation of mediators (Tvaronavičienė *et al.*, 2022). Thus, even EU member states experienced difficulties in implementing mediation. However, this experience can serve as a powerful benchmark for Ukraine in implementing truly effective and applicable mediation procedures and practices. This applies, in particular, to the qualification of mediators.

An analysis of the development of mediation in the European Union between 2008 and 2012 revealed the so-called "EU mediation paradox", which consists of an apparent discrepancy between the declared advantages of this tool and its practical application. Despite the fact that wider use of mediation provides significant savings in time and financial resources for both the parties to the dispute and the judicial system and taxpayers, the level of recourse to mediation in Member States remained extremely low. This has raised questions about the reasons for this disproportion and the difficulty of achieving a balanced model of interaction between judicial and alternative dispute resolution methods. At first glance, this situation may appear to be a manifestation of irrational behaviour on the part of both the parties to the conflict and the states themselves. At the same time, the results of a study on the impact of the Mediation Directive conducted by G. De Palo (2025) revealed a much more complex nature to this phenomenon. The decision to use mediation is influenced by a combination of numerous factors, among which the regulatory environment, the presence or absence of effective incentives, the quality of mediation services and the professional level of mediators, as well as the degree of awareness of potential participants play a leading role. Thus, although arguments about saving time and money are an important basis for promoting mediation, they are not sufficient on their own to overcome both objective and subjective barriers that prevent its real and systematic application.

The experience of Italy is illustrative in this context, where until 2011, despite the existence of legislative provisions supporting mediation since 1993, the practice of commercial mediation was virtually non-existent. As noted in a study by G. De Palo (2018), the situation changed after the adoption of a government decree in 2011, which introduced mediation as a mandatory prerequisite for court proceedings in a number of categories of cases, including banking and insurance contracts, real estate and medical liability. This led to a sharp increase in the number of mediation procedures – to several hundred thousand per year, of which about a fifth were voluntary. At the same time, in 2012, the Italian Constitutional Court ruled that the introduction of mandatory mediation by government decree was unconstitutional, pointing to the need for parliamentary regulation, which led to a sharp decline in the number of mediation procedures. In 2013, the Italian legislature reintroduced mandatory mediation at the legislative level, while significantly softening its content. The new regulation only required the parties to participate in an initial informational meeting with the mediator, leaving open the possibility of terminating the procedure after that meeting for a minimal fee. This model has ensured a stable level of mediation use, which has since exceeded 150,000 procedures annually, despite the fact that mandatory mediation covers less than 10% of civil cases.

Thus, the Italian experience confirms that combining a mandatory element with the possibility of quick and inexpensive withdrawal from further participation in the procedure can significantly increase the use of mediation. Moreover, the introduction of mandatory mediation also has a positive effect on the number of voluntary procedures, which indicates the formation of a sustainable culture of alternative dispute resolution. At the same time, empirical research by K. Blankley & M. Weston (2017) has shown that in countries where mediation remains exclusively voluntary, even with incentives in place, its practical application remains limited. Thus, the experience of the European Union shows that the effectiveness of mediation depends not only on the formal enshrinement of its principles in legislation, but also on a comprehensive combination of regulatory incentives, institutional support and an adequate level of professionalism among mediators. The problems identified and the successful practices of EU Member States form a valuable basis for adapting a balanced and effective model of mediation in national legal systems, in particular in Ukraine.

Online mediation and artificial intelligence in the alternative dispute resolution system

In the contemporary context of the rapid development of digital technologies, online mediation is becoming increasingly widespread as a form of alternative dispute resolution. The use of electronic means of communication has significantly transformed the nature of interaction between the parties to a conflict and the neutral third party, affecting not only the way information is exchanged and agreements are reached, but also how participants perceive one another, the role of the mediator and the dispute resolution procedure itself. Under these conditions, the issue of trust formation becomes particularly significant, as in the online environment it cannot be based exclusively on traditional mechanisms of interpersonal interaction. An additional challenge is the insufficient level of regulatory framework in this area, since, despite the introduction of certain instruments at the EU level, online mediation remains little known and insufficiently understood by lawyers, business entities, consumers and national regulators. At the same time, online dispute resolution (ODR) is not merely a simple transfer of traditional alternative procedures into a digital environment. Technologies play an independent and active role in this process, significantly influencing the substance and dynamics of conflict resolution. As noted by V. Terekhov (2019), digital tools can not only facilitate communication, but also support or partially replace the functions of a third party, which has led to the emergence of the concept of the so-called "fourth party" – technology as an independent participant in the dispute resolution process. The use of specialised software allows for the automation of mediation sessions, the systematisation and analysis of information, the provision of relevant materials to the parties at a convenient time, the monitoring of procedural deadlines, and even the formulation of recommendations on possible options for resolving the dispute based on previous practice. Thus, within the framework of ODR, technologies not only complement the activities of the mediator, but also perform their own functional tasks, which significantly changes the traditional view of alternative dispute resolution mechanisms.

The practical application of online mediation demonstrates its ability to effectively use various digital tools, from asynchronous communication (e-mail, messengers) to synchronous formats, including video conferencing and specialised online platforms. In practice, the most effective are comprehensive digital platforms designed with the specifics of alternative dispute resolution in mind, which ensure a structured procedure and procedural convenience for the parties. A notable example is the European Union's platform for online consumer dispute resolution, created by the European Commission on the basis of Regulation (EU) No. 524/2013 (2013) with the aim of simplifying access to out-of-court dispute resolution in the field of e-commerce. Despite its significant potential, the practical effectiveness of this platform has been limited due to low seller participation and a significant proportion of complaints remaining unanswered. Statistics showed that in 2022, this figure was 80-85%; only 6% of consumers who encountered a problem used the platform, and less than 2% of visits resulted in the completion of a complaint form. In fact, 17,012 complaints were submitted, of which only 318 were referred to alternative dispute resolution, and 107 were successfully resolved (Giacalone & Saleh, 2022).

Collectively, online mediation technologies should facilitate effective communication between the mediator and the parties, create an atmosphere conducive to settlement, and provide the information and support needed by the participants. Online mediation in land disputes uses digital platforms (video calls, secure portals) for neutral third-party assistance in resolving property disputes, offering cost savings, convenience and speed, avoiding court, which is ideal for geographically separated parties or complex issues that require effective resolution, although establishing trust and ensuring proper legal documentation (e.g., notarisation) are key considerations.

With the rapid development of artificial intelligence technologies, mediation is undergoing a significant conceptual rethinking. In particular, an "augmented justice" approach is emerging, which involves the use of digital tools to support the work of mediators and arbitrators without eliminating the decisive role of humans in the decision-making process (Rodríguez-Salcedo *et al.*, 2025). The integration of artificial intelligence into mediation and arbitration procedures is seen as a factor in the transformation of traditional dispute resolution models, as such tools create the conditions for optimising procedural procedures, improving the soundness of decisions and strengthening the principles of fairness and efficiency in the relevant legal processes.

The integration of artificial intelligence into traditionally human-oriented mediation procedures is considered one of the most innovative and, at the same time, problematic trends in modern alternative dispute resolution. The use of AI has the potential to increase the speed, efficiency and accessibility of mediation procedures, particularly in an online environment, but at the same time raises a number of ethical, legal and practical challenges that require careful consideration. From a practical point of view, AI-based tools can be used to analyse the positions of the parties, model possible settlement scenarios taking into account previous practice and applicable regulatory rules, and support communication between the parties to the dispute. Such technologies can offer automated solutions, reducing the need for the physical presence of the parties and cutting costs, which in turn expands access to mediation for remote or vulnerable groups. The use of algorithmic approaches is also associated with a potential reduction in the influence of subjective biases, since, when properly designed, AI can process large amounts of data without emotional or personal influence, providing a more consistent and formally unbiased analysis (Sharma *et al.,* 2025).

However, the use of artificial intelligence in mediation has significant limitations. One of the key risks is the reduction of the role of interpersonal interaction, which is fundamental to classical mediation. The effectiveness of this procedure largely depends on the mediator's ability to establish trust, interpret emotional signals, identify the hidden interests of the parties, and creatively adapt approaches to a specific conflict situation. Unlike algorithmic systems, a human mediator is not limited to a formal analysis of positions, but directs the process towards achieving a mutually beneficial compromise that may go beyond purely legal arguments. It is this empathetic and creative component that remains irreplaceable and constitutes one of the key limitations of the use of artificial intelligence in mediation procedures.

Despite the potential of artificial intelligence to ensure formal impartiality, its use in mediation is not without significant risks. Algorithmic systems are developed and trained on historical data, which may reproduce existing biases embedded in previous decisions or caused by structural inequality in society. When using unrepresentative or biased data, automated mediation tools can produce unfair results or even reinforce discriminatory practices. Under such conditions, excessive reliance on artificial intelligence may not eliminate systemic problems of fairness, but rather reproduce them. In addition, the use of AI in mediation procedures may encounter low levels of trust from the parties to the dispute. Some individuals, especially those who lack sufficient digital skills, perceive automated systems as opaque and difficult to understand, which raises doubts about the reliability and relevance of the proposed solutions. There is also a risk that algorithmic recommendations will not take into account the individual needs of the parties and the emotional context of the conflict, which is essential for the successful resolution of the dispute. In this regard, the introduction of digital and algorithmically supported mediation requires a balanced approach, combining technological tools with human control and ensuring the transparency and accountability of the relevant procedures.

Integration of mediation into the system of land conflict resolution in Ukraine

Mediation practices are being actively implemented in Ukraine in the field of land relations for effective conflict resolution and improvement of the legal environment. One of the main problems remains the significant number of disputes related to the ownership, use and management of land plots (Valyanska, 2024). The National Association of Mediators of Ukraine is making a significant contribution to the development of mediation services in this area, promoting awareness of the principles and benefits of mediation among stakeholders. In turn, some regional authorities and local community organisations are actively implementing mediation support programmes to resolve land conflicts. A significant advantage of using mediation in land issues is the possibility of prompt and peaceful resolution of disputes, which contributes to the stability of economic relations and creates a favourable climate for attracting investment in the development of the land and agricultural sectors. Along with these positive developments, further promotion of mediation in this area remains an important task. This involves ensuring the accessibility of services for all parties, raising awareness of its advantages, and strengthening institutional support for the sustainable development of this practice.

Scholars emphasise the importance of mediation as an independent extrajudicial procedure or as a component integrated into civil, commercial, administrative, and criminal proceedings, especially in the modern and post-war periods. In particular, D.I. Piddubnyi (2022) noted that the functioning of the justice system during martial law faces serious challenges, many of which are caused by armed aggression. Mediation helps to avoid these difficulties and enables the parties to choose the most effective and mutually acceptable way to resolve conflicts. It should be considered an important element of the legal system that contributes to strengthening the principle of the rule of law and ensuring justice.

Mediation can take various forms, depending on the level of participation of the parties and the nature of legal regulation. In particular, it can be voluntary, mandatory at certain stages, or combined, combining elements of voluntariness and sanctions to encourage participation. According to the results of a study by J.L. Schulz (2025), four basic models of mediation organisation are distinguished in the scientific literature:

1. The first model based on complete voluntariness and provides for the possibility of the parties turning to a

mediator to settle any dispute that has not been resolved through direct negotiations. With this approach, the existence of special regulatory provisions for mediation is not a prerequisite.

2. The second model is characterised by voluntary participation with the use of incentives or sanctions, where the parties are recommended to use mediation and the state creates the legal and institutional conditions to encourage such practice. The implementation of this model requires legislative regulation and is often referred to as the voluntary participation model.

3. The third model provides for a mandatory initial mediation session, during which the parties are required to participate in the first meeting with the mediator (free of charge or for a minimal fee) in order to assess the feasibility of continuing the procedure. This approach also requires a legislative basis and is known as the "opt-out" model, as the parties may terminate the procedure after the initial session.

4. The fourth model based on fully mandatory mediation, whereby the parties' participation in the entire mediation process and its financing is a prerequisite for access to court proceedings. At the same time, the obligation applies only to participation in the procedure, while reaching a settlement agreement remains an exclusively voluntary decision of the parties.

Many EU Member States have more than one mediation model depending on the nature of the dispute, and different countries use different combinations of these models in different situations. However, given Italy's experience described above and the critically insufficient use of mediation in land disputes in Ukraine, the introduction of a mandatory element – an initial mediation meeting – seems appropriate.

The effectiveness of mediation is an important criterion for assessing its role in alternative dispute resolution and ensuring access to justice. Several indicators are used to determine the effectiveness of mediation, including the balanced relations index, which reflects the ratio between the number of mediations and the number of court cases, as well as the mediation success rate, which assesses the effectiveness of the mediation process. The assessment of these indicators allows not only to determine the intensity of mediation use, but also to evaluate its real contribution to reducing the court workload and improving the effectiveness of legal dispute resolution. The balanced relations index (Mediation/Court Cases) is determined by the formula:

$$\text{Balanced relations index} = \frac{\text{Number of mediations}}{\text{Number of court proceedings}} \text{ x } 100. \quad (1)$$

In an ideal effective model, this ratio would be at least 50%, with one mediation for every two court cases. However, a more effective public policy goal could be to resolve most disputes out of court, with this ratio exceeding 100% to ensure that the limited resources of judges and courts are directed only to disputes that require a court decision (Simon & West, 2022).

The second important indicator is the mediation success rate:

$$\text{Mediation success rate} = \frac{\text{Number of successful mediations}}{\text{Number of mediations}} \text{ x } 100. \quad (2)$$

The number of mediations conducted cannot serve as a sufficient criterion for assessing the effectiveness of the relevant system. At the macro level, an effective mediation policy must also take into account the fact that unsuccessful procedures create an additional burden for the parties and effectively delay their access to judicial protection. Thus, it is advisable to analyse the effectiveness of the system according to two parameters simultaneously: the intensity of mediation use and its success rate. These indicators can be summarised in a matrix that allows the functioning of the system to be assessed both in terms of the number of cases referred to mediation and the proportion of disputes successfully settled. Given the current low level of mediation and the cautious approach, an effective mediation model should meet the parameters of the second quadrant of such a matrix: at least 50 mediations per 100 court cases, provided that at least 50% of mediation procedures result in a successful settlement of the dispute (Fig. 1).

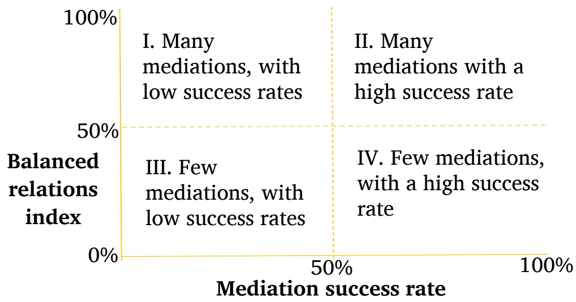

Figure 1. *Mediation effectiveness matrix*
Source: *D. Simon & T. West (2022)*

The matrix constitutes a useful visual tool for understanding the effectiveness of mediation. The X-axis is an index of mediation success, and the Y-axis is an index of the balance between mediation and litigation. Thus, the matrix forms four quadrants of effectiveness.

Quadrant I: high number of mediations with low effectiveness. This segment illustrates the typical problems of mandatory mediation systems. The formal referral of parties to mediation with the aim of increasing its quantitative indicators is often not accompanied by adequate quality assurance and prior selection of cases suitable for mediation. As a result, the emphasis is placed on the volume of procedures conducted without corresponding investment in professional standards and quality control mechanisms, which can lead to ineffective mediations and an imbalance between alternative dispute resolution and the right to access justice.

Quadrant II: high number of mediations with a high success rate. This quadrant reflects the optimal model of mediation system functioning, where a significant number of procedures is combined with a high proportion of successfully settled disputes. Achieving such indicators is usually accompanied by a noticeable reduction in the court workload. In an ideal jurisdiction, both indicators should exceed 100%, i.e. the number of mediations exceeds the number of court cases, and the average success rate is at least 50%.

Quadrant III: low number of mediations with low effectiveness. The indicators in this quadrant represent the least effective model. The limited number of mediations indicates a low level of awareness and interest among the parties, while the low percentage of successful procedures reflects the system's weak ability to provide quality mediation services. In such conditions, there is usually a minimal level of investment in the development of mediation infrastructure, both on the part of the state and on the part of market participants.

Quadrant IV: low number of mediations with a high success rate. This result is characteristic of fully voluntary or consensual mediation models, in which procedures demonstrate high effectiveness – often over 70% of successful cases – but are used in a limited number of cases.

Each quadrant of the matrix reflects different aspects of the success of mediation procedures, in particular their number and effectiveness, which directly depends on quality organisation and control. However, the practice of EU Member States confirms that in the absence of active public policy instruments aimed at encouraging or obliging the parties to at least consider mediation, its practical use remains insignificant. At the same time, the role of the mediator is important and is not limited to organising the procedure: the mediator is the professional who ensures the proper conduct of negotiations and facilitates the achievement of compromise between the parties. It should be noted that although the mediator does not make decisions on the settlement of the conflict and does not influence the parties' decision-making, they must understand the possible scenarios of negotiation development. In addition, together with the parties to the conflict, the mediator should discuss the strengths and weaknesses of the proposed solutions. Land disputes are distinguished by their complexity due to multifaceted legal aspects, including issues of ownership, land use, tenants' rights, boundary delimitation and other elements of land legislation. In this regard, the participation of a mediator with knowledge of land law is advisable, as it contributes to a more informed, impartial and effective resolution of the conflict, taking into account the specific legal nuances of land relations. A high level of competence of the mediator in land law is an important factor in protecting the parties from manipulation or undue influence on any participant in the conflict. It is also necessary for both the mediator and the parties to make efforts to avoid situations that could lead to the emergence of new disputes.

The concepts of online mediation are actively discussed in Ukraine. An important step in the implementation of online mediation was the approval by the board of the public organisation "National Association of Mediators of Ukraine" of Recommendations for mediators (2022). The content of these recommendations suggests that online mediation is a way of resolving conflicts between parties with the help of a third neutral party – a mediator. This process is aimed at finding solutions that take into account the interests of all participants and takes place in the form of negotiations using information and communication technologies in remote synchronous (simultaneous) or asynchronous (non-simultaneous) mode.

Online mediation is recognised as an important component of ODR. Among its advantages is a reduction in the level of stress for the parties, as they do not meet in person, which allows to better control their emotions. This contributes to faster and more effective conflict resolution. Research by S. Sharma *et al.* (2025) confirms that users of online mediation feel calmer, less hostile and more confident than participants in traditional face-to-face meetings. This format helps to focus on the essence of the problem and the search for mutually beneficial solutions, rather than on confrontation or disputes between the parties.

One of the disadvantages of online mediation is that in this format it is impossible to fully apply the mediator's skills related to the analysis of non-verbal communication. In particular, the mediator is unable to assess the facial expressions, gestures, or body language of the participants, which limits the use of a number of techniques and methods. The issue of confidentiality remains particularly relevant. On the one hand, this concerns protection from outside interference, such as hacker attacks or data interception. On the other hand, there is a risk that the participants themselves may save recordings of video meetings or copy chats for further use in court cases. In the context of the rapid development of the IT sector and digital technologies in Ukraine, there is also a threat of premature implementation of artificial intelligence-based solutions in online mediation processes without proper testing and preparation.

The introduction of mediation procedures in the resolution of land disputes is a modern approach that meets the requirements and challenges of society. This method offers a number of important advantages, among which the following can be highlighted: focus on the needs and interests of the parties; expanded opportunities to influence the outcome of conflict resolution, allowing for a mutually acceptable solution to be reached, taking into account key issues; saving time and financial resources by avoiding costly and lengthy litigation; and facilitating effective communication between the parties.

In Ukraine's land relations system, further improvement of mediation approaches, procedures and tools is of particular importance not only for the agricultural sector, but also for the sphere of state management of land resources. Agricultural relations are characterised by multi-level interaction between farmers, landowners and tenants, suppliers, investors, local communities and public authorities, which objectively increases the potential for conflict. Land disputes related to the use and disposal of land, the fulfilment of contractual obligations or the implementation of administrative decisions by public authorities can have significant socio-economic consequences. The judicial resolution of such conflicts is often accompanied by significant time and financial costs, reduces the level of trust in public institutions and complicates the implementation of state land policy. In this context, the development of effective mediation ecosystems integrated into public administration mechanisms can contribute to the preventive settlement of land conflicts, improve the quality of administrative decisions, and ensure a balance between public and private interests.

Conclusions

The article analysed the legal basis, practices and prospects for the development of mediation as an alternative method of resolving land disputes in Ukraine, taking into account the experience of the European Union and the role of mediation in the system of state management of land resources. The study examined theoretical approaches to mediation, current legislation in Ukraine and the EU, and the practice of institutionalising mediation in EU member states. The relationship between judicial and extrajudicial forms of protection of rights in land relations was examined, the main factors contributing to the low level of mediation in Ukraine were identified, and European experience in the regulatory and practical implementation of mediation procedures was summarised. Particular attention is paid to the role of courts and public authorities in promoting mediation, analysing models of its implementation, effectiveness of application, as well as the possibilities of integrating online mediation and digital tools, including elements of artificial intelligence, into the mechanisms of public administration of land relations.

A summary of the results obtained gives grounds to assert that mediation can be considered not only as an alternative method of resolving private land disputes, but also as a tool of modern public administration aimed at preventive conflict resolution, improving the quality of management decisions and reducing social tensions in the field of land use. The effectiveness of this institution is determined by a complex of factors, in particular the existence of a clear regulatory framework, balanced incentives for participation in mediation, an adequate level of professional training for mediators, as well as institutional support from courts, local self-government bodies and other public authorities. The introduction of a mandatory initial mediation session in certain categories of land disputes and the development of online mediation ecosystems can increase the effectiveness of state land policy implementation and optimise administrative and judicial procedures. Promising areas for further research include the development of models for integrating mediation into the state land management system, the definition of procedures for interaction between mediators and public authorities, the improvement of standards for the training and certification of mediators in the field of land law, and a comprehensive analysis of the legal, ethical and managerial aspects of the use of online mediation and artificial intelligence tools in the settlement of land conflicts.

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Conflict of Interest

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References

[1] Agegnehu, S.K., Dires, T., Nega, W., & Mansberger, R. (2021). Land tenure disputes and resolution mechanisms: Evidence from peri-urban and nearby rural kebeles of Debre Markos Town, Ethiopia. *Land,* 10(10), article number 1071. doi: 10.3390/land10101071.

[2] Alexander, N., Walsh, S., & Svatos, M. (2017). *EU mediation law pandbook: Regulatory robustness ratings for mediation regimes*. Alphen aan den Rijn: Wolters Kluwer.

[3] Blankley, K., & Weston, M. (2017). *Understanding alternative dispute resolution*. Durham: Carolina Academic Press.

[4] Broński, W., Dąbrowski, M., Sławicki, P., & Wiechetek, M. (2024). Readiness to use mediation – judges' and entrepreneurs' perspective. *Utrecht Law Review*, 20(4), 20-33. doi: 10.36633/ulr.1020.

[5] Busuyok, D. (2020). Types of mediation as forms of resolving land disputes. *Journal of the Kyiv University of Law,* 1(3), 268-272.

[6] Civil Procedure Code of Ukraine. (2004, March). Retrieved from https://zakon.rada.gov.ua/laws/show/1618-15#Text.

[7] Constitution of Ukraine. (1996, June). Retrieved from https://zakon.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80#Text.

[8] Danilik, D.M., Myronyuk, E.G., & Hutsul, S.R. (2025). Mediation as a method of resolving land conflicts regarding citizens' compliance with the rules of good neighborliness: Legal mechanisms and effectiveness. *Analytical and Comparative Jurisprudence,* 6(2), 120-124. doi: 10.24144/2788-6018.2025.06.2.19.

[9] De Palo, G. (2018). *A ten-year-long "EU mediation paradox": When an EU directive needs to be more …directive*. Brussels: European Parliament.

[10] De Palo, G. (2025). From promise to practice: Resolving the mediation paradox in Europe. *Brazilian Journal of Labor, Law and Justice*, 3(3), 182-201. doi: 10.37497/RevistaTDJ.TRT9PR.3.2025.143.

[11] Deineha, M. (2022). Mediation as an alternative method of dispute resolution: International and national practices in legal regulation. *Law. Human. Environment,* 13(4), 16-25. doi: 10.31548/law2022.04.002.
[12] Directive 2008/52/EC of the European Parliament and of the Council "On Certain Aspects of Mediation in Civil and Commercial Matters". (2008, May). Retrieved from https://eur-lex.europa.eu/eli/dir/2008/52/oj/eng.
[13] Fedchyshyn, D.V. (2024). Land-legal aspects of the use of mediation in Ukraine. *Scientific Bulletin of Uzhhorod National University*, 85(2), 201-205. doi: 10.24144/2307-3322.2024.85.2.29.
[14] Fedchyshyn, D.V., & Ignatenko, I.V. (2024). Mediation as an alternative method of resolving land disputes with the participation of legal entities. *Scientific journal of the Mykhailo Dragomanov Ukrainian State University*, 43(18), 82-88. doi: 10.31392/NPU-nc.series18.2024.43.12.
[15] Giacalone, M., & Saleh, S. (2022). An empirical study of mediation in civil and commercial disputes in Europe: The mediation service providers perspective. *Revista Ítalo-Española de Derecho Procesal,* 2, 11-54. doi: 10.37417/rivitsproc/802.
[16] Hola, L., Večeřa, M., Urbanová, M., Holas, J., & Fiedor, D. (2021). *Mediation in the reflection of law and society: European perspectives*. Alphen aan den Rijn: Wolters Kluwer.
[17] Kanivets, L. (2024). On the effectiveness of the use of mediation in land disputes. *Law and Society,* 2(1), 337-343. doi: 10.32842/2078-3736/2024.1.2.50.
[18] Kharytonova, T., & Hryhorieva, H. (2024). Mediability of land disputes on the example of disputes over the restoration of agricultural lands. *Scientific Bulletin of the International Humanitarian University. Series: Jurisprudence,* 70, 62-66. doi: 10.32782/2307-1745.2024.70.12.
[19] Land Code of Ukraine. (2001, October). Retrieved from https://zakon.rada.gov.ua/laws/show/2768-14#Text.
[20] Law of Ukraine No. 1875-IX "On Mediation". (2021, November). Retrieved from https://zakon.rada.gov.ua/laws/show/1875-IX#Text.
[21] Mazaraki, N. (2018). General characteristics of contracts concluded in the field of mediation. *Enterprise, Economy and Law*, 2, 171-175.
[22] Nastina, O.I. (2014). Mediation as an alternative and effective way to resolve border land disputes. *Bulletin of the Ministry of Justice of Ukraine*, 3, 129-134.
[23] Ogrenchuk, H.O. (2016). *Legal regulation of the use of mediation in resolving civil disputes*. (Doctoral dissertation, National Academy of Internal Affairs, Kyiv, Ukraine).
[24] Piddubnyi, D.I. (2022). Development of the institute of mediation under martial law in Ukraine. *Juris Europensis Scientia*, 3, 130-134. doi: 10.32782/chern.v3.2022.24.
[25] Podtserkovny, O.P., & Budurova, G.M. (2023). On the needs of introducing specialization of commercial courts in land and investment disputes. *Precarpathian Legal Bulletin*, 5(52), 36-41. doi: 10.32782/pyuv.v5.2023.7.
[26] Recommendation No. R(98)1 of the Committee of Ministers to Member States of the Council of Europe "On Family Mediation". (1998, January). Retrieved from https://rm.coe.int/1680747b77.
[27] Recommendation No. R(99)19 of the Committee of Ministers to Member States of the Council of Europe "Concerning Mediation in Penal Matters". (1999, September). Retrieved from https://search.coe.int/cm?i=090000168062e02b.
[28] Recommendation Rec(2001)9 of the Committee of Ministers to Member States "On Alternatives to Litigation between Administrative Authorities and Private Parties". (2001, September). Retrieved from https://rm.coe.int/16805e2b59.
[29] Recommendation Rec(2002)10 of the Committee of Ministers to Member States "On Mediation in Civil Matters". (2002, September). Retrieved from https://search.coe.int/cm?i=09000016805e1f76.
[30] Recommendations for Mediators "On Preparing for and Conducting Online Mediation". (2022, January).Retrieved from https://namu.com.ua/ua/info/mediators/uyenspyereashchkl-ses-sroamr-pyeekashchkl-.
[31] Regulation (EU) No. 524/2013 of the European Parliament and of the Council "On Online Dispute Resolution for Consumer Disputes and Amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Regulation on consumer ODR)". (2013, May). Retrieved from https://eur-lex.europa.eu/eli/reg/2013/524/oj/eng.
[32] Rodríguez-Salcedo, E., Molina-Torres, M., Chagcha-Solís, C., Naranjo-Ruiz, V., & Naranjo-Llerena, L. (2025). Rethinking mediation and arbitration in the age of artificial intelligence: A systematic review. *Salud, Ciencia y Tecnología,* 5, 2316. doi: 10.56294/saludcyt20252316.
[33] Schulz, J.L. (2025). Mediation. In L.E. Reimer & R. Jochelson (Eds.), *The other side of the bar* (pp. 91-108). Singapore: Palgrave Macmillan. doi: 10.1007/978-981-96-9748-9 5.
[34] Sharma, S., Mishra, Y., Sharma, R., Kumar, R., Ranjan, R., & Kumari, S. (2025). Artificial intelligence and online dispute resolution in consumer tribunals. *Advances in Consumer Research,* 4, 4561-4567.
[35] Simon, D., & West, T. (2022). *Self-determination in mediation: The art and science of mirrors and lights.* Eagle: Association for Conflict Resolution.
[36] Terekhov, V. (2019). Online mediation: A game changer or much ado about nothing? *Access to Justice in Eastern Europe,* 3(4), 33-50. doi: 10.33327/AJEE-18-2.4-a000018.

[37] Tvaronavičienė, A., Kaminskienė, N., Rone, D., & Uudeküll, R. (2022). Mediation in the Baltic states: Developments and challenges of implementation. *Access to Justice in Eastern Europe,* 16, 68-86. doi: 10.33327/AJEE-18-5.4-a000427.
[38] Valyanska, T. (2024). *Alternative resolution of conflicts in the sphere of land relations: Legal aspects*. (Doctoral dissertation, Lesya Ukrainka Volyn National University, Lutsk, Ukraine).
[39] Whatling, T. (2021). *Mediation and dispute resolution: Contemporary issues and developments.* Jessica Kingsley Publishers. doi: 10.5040/9781805015031.

Медіація у запобіганні судовим процесам у земельних конфліктах: порівняння законодавства України та ЄС

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Анотація. Актуальність теми дослідження визначається зростаючою потребою у формуванні дієвої системи захисту прав та інтересів суб’єктів земельних відносин в Україні, зокрема в аграрному секторі. Метою статті був аналіз правових засад і практик застосування медіації у вирішенні земельних спорів в Україні та країнах Європейського Союзу для визначення можливостей їх адаптації в умовах євроінтеграції. У дослідженні використано системний, порівняльно-правовий, догматичний та наративний методи. У результаті встановлено, що медіація є ефективним альтернативним механізмом запобігання тривалим судовим провадженням у земельних конфліктах, який сприяє зниженню навантаження на суди та підвищенню якості державного управління земельними ресурсами. Проаналізовано особливості правового регулювання медіації в Україні та ЄС, виокремлено ключові проблеми її практичного застосування, зокрема низький рівень обізнаності, обмежену роль суддів у спрямуванні сторін до медіації та недостатній розвиток інституційної інфраструктури. Обґрунтовано доцільність запровадження обов’язкової початкової медіаційної сесії як елементу державної політики у сфері вирішення земельних спорів. Окрему увагу приділено розвитку онлайн-медіації, ODR-платформ і перспективам використання інструментів штучного інтелекту в межах концепції «доповненого правосуддя», а також пов’язаним із цим етичним і правовим ризикам. Запропоновано матрицю ефективності медіації, а також обґрунтовано необхідність врахування досвіду європейських країн в процесі розвитку інституту медіації земельних спорів у правовому полі України. Результати дослідження можуть бути корисними для органів державної влади та місцевого самоврядування при розв’язані питань щодо інтеграції медіації у систему врегулювання земельних конфліктів в Україні

Ключові слова: публічне врядування; земельні спори; правова визначеність; позасудове вирішення спорів; державне управління земельними ресурсами

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Public management of digital transformation in communities: Integration of artificial intelligence into local development strategies

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Abstract. The research relevance of digital transformation of local self-government using technologies, in particular artificial intelligence, is determined by the need to improve the efficiency of management processes and services for citizens in many countries around the world. The study aimed to analyse the implementation of digital solutions in local community management, in particular the use of artificial intelligence to optimise administrative and social processes. The study used a multi-method qualitative approach, including case studies and a literature review. The results of the study demonstrated that the integration of technology into local government can significantly improve the efficiency and transparency of public services, facilitating access through online platforms and mobile applications. By analysing technical, social and institutional barriers, key obstacles to the implementation of e-government services were identified, especially among vulnerable population groups. The results of the study showed that insufficient digital literacy, accessibility issues and fragmented governance structures remain critical obstacles to achieving full digital inclusion. At the same time, broad citizen engagement and effective data management, particularly in the context of artificial intelligence-based predictive models, have significant potential for shaping sustainable "digital" communities. An analysis

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of the experiences of Singapore, Mexico and other countries that actively use digital innovations confirmed that the use of big data and artificial intelligence in public administration improves resource management, helps reduce corruption and increases citizen participation in decision-making processes. One of the relevant aspects identified was digital inclusion and the need to reduce the digital divide to ensure equal access to e-government for all social groups. The practical value of the study is determined by proposals for adapting innovative technologies to improve management processes and increase the efficiency of local administrations based on real-life cases

Keywords: local self-government; digital inclusion; e-governance; data management; administrative services

Introduction

Digital transformation in the context of globalisation is central in the development of public administration, which is reflected in the changing approaches of local authorities to interacting with citizens and modernising their activities through digitalisation. The introduction of modern digital technologies, in particular artificial intelligence (AI), significantly improves the efficiency of management processes, ensuring more transparent and accessible public services. For Ukraine, as for other countries, this process is a substantial area of development, as many local authorities still use outdated systems that require modernisation. The Ministry of Digital Transformation of Ukraine (2023) has initiated the creation of a Community Digital Transformation Index, which can be used for the assessment of the level of digital services and infrastructure at the local level, as well as the identification of priority areas for the further development of digital services. At the same time, given the regional characteristics and the duration of digitalisation processes at the local level, in-depth research is needed into digital transformation processes in Ukrainian communities and their integration with the use of AI to achieve sustainable development.

The process of digital transformation in local communities, which involves the integration of new digital technologies, has a significant impact on social projects and management processes. A. Marmulyak *et al.* (2024) studied the impact of digital technologies on social projects, prioritising the improvement of management processes and ensuring transparency. The study emphasised that digital tools contribute to more effective citizen engagement in social initiatives, which can optimise the use of resources. However, it also requires the adaptation of organisational structures to new digital realities and increased digital literacy among local authorities. In turn, N. Piskokha (2021) emphasised the need to create digital communities that will improve interaction between local authorities and citizens. The study highlighted the significance of the modernisation of management processes through digital services, platforms, and e-government tools to ensure the accessibility and transparency of administrative services. At the same time, the article also highlights the difficulties communities face during digital transformation, in particular the insufficient organisational capacity of local authorities and the need to bridge the digital divide between different regions.

A substantial aspect is the role of artificial intelligence in digital transformation, which can improve the efficiency of local government. I. Bakhov *et al.* (2025) demonstrated that the use of AI can significantly improve the efficiency of management processes in communities, particularly in areas such as data analysis, forecasting, process automation, and improving communication between authorities and citizens. At the same time, the transformation must consider local characteristics, needs and cultural differences, which are substantial factors for the successful implementation of AI in management practices. Furthermore, according to S.A.A. Bokhari *et al.* (2025), the integration of AI into digital governance processes contributes to increased efficiency through citizen trust and active participation. Empirical research conducted by the authors based on surveys demonstrated that trust is a substantial mediator between technological changes and citizens' perception of digital services as effective and legitimate. The study emphasised the socio-behavioural aspects of digital transformations, emphasising that the success of e-governance depends not only on technology. G.H. Djatmiko *et al.* (2025) noted that, despite progress in digitalisation, low digital literacy, lack of internet access, and other socio-economic factors can lead to unequal access to services. To improve the situation, researchers have proposed a range of policy and technical solutions, such as digital literacy programmes and the integration of AI and cloud solutions to ensure equal access to digital services.

A substantial study in the field of e-government was conducted by T. Yigitcanlar *et al.* (2024). The authors analysed 50 years of digital technology implementation in local government, including the use of AI. They found that in the 21st century, AI has become a substantial element of digital transformations in local governments, particularly in the areas of planning, security, and energy. However, the study also noted that ethical issues, particularly data privacy, and the role of the public in these processes, remain underestimated.

The digital transformation of local communities, which includes the integration of artificial intelligence into local development strategies, has significant potential to increase the efficiency and transparency of governance, as well as improve interaction between authorities and citizens. However, this process is accompanied by several challenges, particularly in terms of organisational readiness, digital literacy and inclusiveness. It is therefore necessary to study the impact of AI on digital local development strategies, which will not only modernise management processes but also promote sustainable community development. Therefore, the study aimed to analyse current trends in the implementation of digital technologies, particularly AI, at the local level and their potential for the development of sustainable and inclusive communities in Ukraine.

Materials and Methods

A multi-method qualitative approach was used to study the digital transformation of local government, which provided a deep and comprehensive overview of issues related to the integration of digital solutions into public administration. This methodology was chosen to determine contextual factors, social and cultural aspects, and user experiences in different communities, where quantitative methods might not reflect all the realities of digital transformation, particularly in low-income and remote regions.

One of the main methods used in this study is the thematic research method proposed by J.W. Creswell & C.N. Poth (2016). This approach provided an in-depth examination of the issue of integrating digital solutions into management processes and e-government services, as it focuses on user experience. Thematic studies identified key barriers to accessing digital services, issues of digital literacy, and problems of trust in new technologies.

In addition, a literature review method based on conceptual mapping (de Ries *et al.*, 2022) was used for the theoretical framework. This method identified key concepts and theoretical approaches to digital transformation, GovTech, and their impact on local self-government, which became the basis for analysing the effectiveness of digital initiatives. This method organised scientific approaches to the topic, highlighting the correlation between different aspects of digital technologies and how they're used in local government.

The main sources for this study were peer-reviewed scientific publications, reports, and official documents in the field of digital governance, including materials from international organisations such as the Organisation for Economic Co-operation and Development (OECD) alongside the Development Bank of Latin America (CAF) (OECD/CAF, 2023), Connect Europe (Wood & Sherrington, 2025), as well as data from studies and projects implemented in Latin America and Southeast Asia. Academic articles, monographs, and scientific studies describing the stages of digital transformation in different countries, particularly regarding the implementation of AI in management processes, were also used. The sources selected for analysis were selected through the scientometric databases Scopus, MDPI, Springer and ResearchGate, as well as using the Google search engine.

The emphasis on Latin America and Southeast Asia was determined by several factors. These regions are actively implementing digital technologies in community management, which facilitates the assessment of their impact on socio-economic development. As these countries face similar challenges in accessing modern digital technologies, their experience in digital transformation is valuable for the further development and adaptation of such initiatives at the global level.

Results and Discussion

Conceptual vision of the digital transformation of local self-government

The digital transformation of community management is a necessary step in modernising local self-government, aimed at improving the efficiency, transparency and accessibility of public services. It involves the integration of the latest information technologies, which ensure a transition from traditional manual processes to more efficient, data-driven management models. It also includes strengthening citizen engagement in decision-making and ensuring digital inclusion, providing access to modern services. However, digital transformation also requires the development of reliable infrastructure and the implementation of innovative solutions, such as process automation, big data and analytics for resource management. The key characteristics, objectives and benefits of digital transformation in community management are summarised in Table 1.

Table 1. *Key features and benefits of digital transformation in community management*

Key aspects
Service modernisation: process automation, online permits, document management, and AI chatbots for instant support
Citizen engagement: introduction of interactive websites, online town halls and platforms for idea crowdsourcing and feedback
Data-driven decision-making: use of big data, analytics and data governance to inform policy and resource allocation
Digital inclusion: ensuring access to digital services and participation for all residents, including marginalised groups
Infrastructure and security: creation of a reliable digital infrastructure and ensuring cybersecurity for secure data processing
Aims and benefits
Efficiency and transparency: simplification of bureaucratic tasks and an increase in openness
Improved service delivery: access to public services anytime, anywhere through mobile-first approaches
Expanded participation: creating new models for involving citizens in decision-making
Sustainable development: alignment with global sustainable development goals by promoting equitable access and efficient use of resources
Governance structures: establishment of clear policies, standards and decision-making processes (Digital Development)

Source*: compiled by the authors based on A. Marmulyak et al. (2024), I. Bakhov et al. (2025), Y. Zhang & Y. Li (2025)*

This implies transformation of traditional local government into a smart, adaptive system that uses technology to meet the evolving needs of citizens and build sustainable, inclusive communities. When done right, digital transformation at the local government level can create many opportunities. It is an opportunity for stakeholders, government officials and the local community to collaborate and identify ways to transform the services they use every day.

Global practice shows that digital transformation at the local government level can include automation of manual processes; configuration of online permits; ensuring document management; holding online meetings in the city council; providing interactive content on the website; introducing CRM for stakeholders to improve coordination; crowdsourcing ideas and feedback on local projects and issues; creating programmes that ensure digital inclusion for all residents; setting up AI-based chatbots to help answer frequently asked questions; providing a mobile experience and applications for access anywhere, anytime (Yigitcanlar *et al.*, 2024). For local authorities, meeting the needs of voters is the main driver of digital transformation. However, this is rarely the only catalyst. Voters or local communities expect their local government to deliver on the implications listed in Table 2.

***Table 2.** Implications of digital transformation that local communities expect from their local authorities*

Expected critical elements
Efficient platforms: efficient and functional platforms that make it easy to perform relevant tasks such as filling out forms, making appointments, and searching for government-related information
Security: a secure environment and confidence that any data transmitted or collected is protected
Ease of access: performing tasks related to local self-government at a convenient time and using a convenient device
Greater value: digital technologies that lead to cost savings, which in turn lead to budget reallocation
Greater resilience: bigger steps towards sustainable development and better environmental consideration with data collection and analysis technologies
Expectations regarding the workforce for digital local self-government
Efficient operation: optimised workflows that maximise functionality and efficiency, providing additional time for staff to prioritise high-value tasks
Regulatory compliance: platforms that comply with national data security regulations
Analytics: access to data, analytics, and local information needed for decision-making
Access: remote access to ensure continued operations even outside government offices and eliminate reliance on paper forms or outdated systems

***Source**: compiled by the authors based on O. Lyulyov et al. (2020), I. Smyrnova et al. (2021), J. Liebowitz (2023)*

Digital transformation involves modernising administrative and social processes through the integration of digital technologies, which greatly contributes to the development of technologically prepared communities. However, in order to achieve success in this area, it is necessary to avoid excluding those for whom the transition to digital technologies may be difficult and unclear. The challenge is to achieve an optimal balance that covers the needs of all population groups without creating new forms of social inequality.

Digital inclusion and challenges in ensuring equal access to e-services

Despite the significant potential of advanced technologies to create new digital services, such as e-government or digital health, not all countries and communities have equal access to these opportunities. The problem of the digital divide occurs in the lack of equal conditions for access to technology, particularly in regions where infrastructure is not sufficiently developed. For example, although mobile broadband coverage reaches 96% of the population in South-East Asia, 39% of people still lack access to mobile Internet services. This phenomenon, known as the "usage gap" in technology, is a major challenge for the global mobile ecosystem, as evidenced by studies by C.K. Sanders & E. Scanlon (2021), J. Lay & K. Fietz (2023) and P. de Pablos *et al.* (2025).

Ukraine also faces the problem of unequal access to digital technologies. According to S. Kemp (2025), 82.4% of Ukrainians (over 31.5 million people) use the internet, but this means that almost 17.6% of the population (approximately 6.7 million people) still do not have access to the network. The situation is complicated by regional differences: access to high-speed internet is significantly better in cities than in rural areas, where coverage, connection quality and infrastructure remain weak. Although 94.1% of mobile connections in Ukraine provide broadband access (3G/4G/5G), weak infrastructure in some regions and limited digital literacy hinder the full use of digital services. Such inequalities limit citizens' ability to use online services, participate in e-government, or receive digital services on equal terms, underscoring the need to bridge the digital divide as one of the key tasks of digital transformation in Ukraine.

The digital divide is also a substantial issue for other regions, particularly in Europe. Although internet access in the EU is widespread, inequality in access to high-speed networks and digital technologies remains noticeable, particularly between urban and rural areas. For example, as shown by a study by R. Wood & S. Sherrington (2025), even though gigabit internet coverage in Europe is 82.5% of the population, more than 45 million people still do not have access to this technology. In addition, 5G networks are only available to 40% of the population, further exacerbating digital inequality, particularly for those living in less economically developed regions. These figures indicate that even in economically developed countries, the digital divide remains one of the main problems limiting citizens' access to modern services and technologies that should be available to all.

Digital inclusion is a key element of sustainable e-governance, as it ensures equal access to digital public services for all citizens, regardless of their socio-economic situation or place of residence. At the same time, limited digital literacy, uneven development of digital infrastructure and institutional barriers significantly complicate the implementation of digital services, especially for marginalised and vulnerable groups of the population. G.H. Djatmiko *et al.* (2025) emphasised that public-private partnerships, digital literacy programmes, and the introduction of innovative technologies such as artificial intelligence, blockchain, and cloud computing, which can improve the accessibility, security, and quality of digital services, are substantial for overcoming these obstacles. The researchers also noted the significance of integrating digital inclusion policies with the UN Sustainable Development Goals, particularly in the areas of education, infrastructure, reducing inequality, and strengthening institutions, which enhances the long-term impact of digital governance. These findings point to the need for a comprehensive and multilateral approach with long-term investments in accessibility, cybersecurity and user trust, as well as the promise of applying mixed methodologies and comparative studies in different socio-economic contexts to further improve digital inclusion strategies.

The introduction of chatbots based on artificial intelligence, blockchain to ensure transaction security, and mobile applications for the provision of public services contributes to improving accessibility for citizens, especially in urbanised and semi-urbanised regions. However, the effectiveness of e-government largely depends on the level of digital literacy and user acceptance of these technologies, which varies across demographic and socio-economic groups. Many studies confirm that digital skills directly influence the willingness to use e-services, as low digital literacy significantly limits trust in government platforms and reduces citizens' willingness to use online services. Improvement of digital skills, in turn, is associated with greater participation in the digital life of society. Research by T. Lee *et al.* (2020) confirmed that digital skills directly influence the willingness to use e-services. In addition, socio-economic factors such as income level, place of residence (urban or rural), language barriers and age have a significant impact on the accessibility to e-services. For example, low-income households, rural residents and people who do not speak the official language are significantly less likely to use digital public services (Singh & Chobotaru, 2022). These factors highlight the need for comprehensive measures to reduce the digital divide and ensure equal access to online services for all social groups.

Low levels of digital literacy significantly limit trust in government platforms and reduce citizens' willingness to use online services. On the other hand, improved digital skills are associated with greater participation in the digital life of society. Socio-economic factors such as income level, education and place of residence have a significant impact on citizens' ability to interact with digital government platforms. In addition, infrastructure problems, fragmented policy frameworks and insufficient institutional support continue to hamper efforts to ensure equal access to digital governance (Morte-Nadal & Esteban-Navarro, 2022). Furthermore, infrastructure problems, fragmented policy frameworks and insufficient institutional support continue to hamper efforts to ensure equal access to digital governance (Tremblay-Cantin *et al.*, 2023).

Addressing digital inequality in access to e-government services requires a comprehensive approach that includes technological solutions as well as political, educational and organisational interventions. This issue is complex and involves not only infrastructure limitations, but also socio-economic, educational and cultural barriers. To effectively address these challenges, targeted policy interventions and close cooperation between the public and private sectors are needed. A substantial component is the development of flexible strategies tailored to the needs of marginalised and vulnerable communities, which will reduce barriers to access. Governments should prioritise digital equality by focusing their policies on the user, improving accessibility features and implementing proactive engagement strategies that ensure inclusivity and real benefits from e-government for all citizens.

Therefore, the transition from centralised models to more localised approaches better meet the needs of citizens. Digital governance, using modern technologies, can significantly improve access to public services, reduce corruption and increase transparency. However, to achieve sustainability and ensure equal access, it is necessary to overcome barriers, particularly in the areas of digital literacy and cybersecurity, and to promote the development of inclusive digital infrastructure. Partnerships between government agencies, the private sector and civil society organisations are substantial in this process, ensuring the effective implementation of innovations and support for digital initiatives. For successful digital transformation at the local level, it is necessary to incorporate the experience of other countries and implement long-term strategies focused on sustainable development and ensuring access to services for all segments of the population.

Implications of digital transformation for decentralisation

Scholars and policymakers have noted that centralised governance is not the optimal path to development. The hierarchical and bureaucratic nature of centralised governance has failed in developing countries. The shift from a centralised to a localised approach to governance was intended to bring governance processes closer to communities for several reasons. First, local communities should strive to create autonomous institutions at the local level, which ensures active participation in decision-making and facilitates the resolution of local issues through partnerships (Jönsson & Bexell, 2021). Second, a reduction in the role of the state attracts new investment to small and medium-sized enterprises and fosters innovation that contributes to sustainable development. Thirdly, service delivery at the local level is more efficient as local authorities are more aware of citizens' needs and can prioritise spending to improve service delivery. Localising development creates resilient communities that can learn from experiences through continuous feedback, which is particularly relevant in service delivery (Suranto *et al.*, 2025). Crisis management is a prime example of how local authorities gain experience from previous crises in the region or community, enabling them to respond more effectively to new challenges (Foschi *et al.*, 2025). Therefore, effective public management of digital transformation at the local community level is one of the key principles of progress in governance.

Digital governance provides more efficient mechanisms for delivering public services, improves interaction with business and industry, and empowers citizens through access to information and optimised community management. It helps reduce corruption, increase transparency and convenience, grow revenues and cut costs. S. ElMassah & M. Mahieldin (2020) noted that digital transformation supports the achievement of the Sustainable Development Goals (SDGs) by transforming collected information into actionable data for monitoring progress and improving policies. This creates new opportunities for implementing the SDGs with lower transaction costs. Digital transformation also supports local authorities' efforts to build sustainable communities through inclusive data collection, emphasising the five key dimensions of SDG 16: efficiency, inclusiveness, openness, reliability and accountability. The use of best practices in digital transformation provides local authorities with guidelines for adapting sustainable development strategies at the local level.

Cooperation between government agencies, private enterprises, and civil society organisations is essential for building a stable and inclusive digital infrastructure. O. Mordvinov *et al.* (2021) and A. Žuvela *et al.* (2023) have highlighted that multilateral partnerships significantly improve the accessibility, affordability and overall coverage of digital services, enabling a wide range of user needs to be met. By leveraging the resources, experience, and technological capabilities of the private sector, governments can develop more ambitious and effective e-government strategies, facilitating access to digital services for broader segments of the population. One notable example of such partnerships is Google's expanded Public Sector Partnership Programme, which aims to support digital transformation in the public sector, including governments, educational institutions and non-governmental organisations. The programme provides partners with resources, tools, and training to implement innovative solutions such as artificial intelligence, data analytics, and security, including through new discount models, certification, and joint marketing. This initiative is designed to accelerate digital transformation by enabling partners to develop their practices and adapt Google's cutting-edge technologies to the real needs of government agencies, thereby contributing to the creation of effective and sustainable solutions for the public sector (Bertram, 2024).

Another relevant initiative is Microsoft's Artificial Intelligence for Accessibility programme, which promotes collaboration with government agencies to develop inclusive technologies for people with disabilities. This programme aims to overcome accessibility barriers by integrating artificial intelligence to improve digital tools, such as speech-to-text software, real-time captioning, and adaptive interfaces for people with visual or motor impairments. In their study of this programme, P. Radanliev *et al.* (2023) emphasised that even in the most advanced digital environments, such as the Metaverse, people with physical limitations are often excluded from using technology due to a lack of standards and regulations and insufficient attention to their specific needs. At the same time, developing solutions to ensure access to e-government services for people with disabilities can significantly improve user engagement among marginalised groups.

Stable and sustained investment in digital inclusion programmes is necessary for achieving sustainability in digital governance. Although many governments prioritise the development of physical infrastructure for digital technologies, often insufficient attention is paid to initiatives aimed at improving digital literacy, ensuring cybersecurity, compliance with legal norms and ensuring accessibility, which ultimately only provokes the preservation of digital inequality, as noted by M.G. Kibria & P. Hong (2024). Short-term funding and fragmented implementation of digital strategies, particularly in countries with economic problems, can create obstacles to successful digital transformation, which is also true for Ukraine. Therefore, analysis of best practices of other countries is critical for the improvement of government practices. To overcome these challenges, policymakers should develop strategies focused on sustainable development that include:

- sustained funding for digital literacy programmes, particularly for rural areas and low-income groups, through public-private partnerships and multi-year budget allocations;
- implementation of measures to improve access to digital technologies for the most vulnerable social groups. In particular, these could include Internet subsidies, tax breaks for inexpensive devices, and zero tariffs for basic e-government services;
- ensuring robust cybersecurity and personal data protection, which will help build trust in digital government platforms;
- establishment of independent supervisory bodies to monitor compliance with citizens' digital rights to ensure confidentiality and prevent misuse of personal data.

A substantial component of success is a sustainable development strategy that includes not only the development of physical infrastructure, but also support for digital literacy programmes, cybersecurity, and compliance with legal norms. Such initiatives, as exemplified by various countries, can help adapt innovative technologies to achieve the Sustainable Development Goals, creating opportunities for scaling digital solutions at the local level. In this context, it is necessary to study the role of artificial intelligence in e-government, in particular its impact on improving management processes and services, emphasising examples of effective use of AI in local government.

Artificial intelligence as a tool for transforming urban management

By adopting a holistic approach that emphasises sustainable development, governments can ensure equal access to digital technologies while strengthening the long-term sustainability and adaptability of e-government systems. Artificial intelligence can significantly influence the development of sustainable digital transformation at the local community level. According to Z. Lin *et al.* (2025), greater diversity in the data used in AI is associated with improved economic performance, reduced financial inequality, and expanded access to education and healthcare. Initiatives aimed at collecting data with the participation of communities significantly improve the quality and representativeness of this data, which in turn increases the accuracy and fairness of AI models. In addition, the application of ethical principles in AI governance helps to strengthen public trust, improve the perception of technologies as fair, and promote the active involvement of stakeholders. J. Liebowitz (2023) identified key aspects of digital transformation in local government where the application of AI-based solutions can be particularly effective:

1. Digital infrastructure. This includes servers, cloud platforms, network equipment and communication tools. It can be used by local authorities to manage electronic data and provide services online and create opportunities for scaling and expanding digital services as needed.

2. Online services for citizens. These are convenient web platforms and mobile applications for citizens to interact with local authorities. Examples of such services include online applications for permits, tax payment systems, and requests for information. Ensuring that such services have a simple and intuitive interface increases citizen participation, reduces waiting times, and improves user satisfaction.

3. Data management systems. These are databases, analytical platforms and data warehouses that help process large amounts of data. These systems collect, store, analyse and share information. Well-configured data management makes it easier for local authorities to make informed decisions in real time and ensures transparency by giving citizens access to relevant data.

4. Cybersecurity measures. This is a set of technologies and protocols for protecting citizens' data from cyber threats. It includes firewalls, encryption, attack detection systems, and regular security checks. Reliable protection of personal data will help strengthen citizens' trust in electronic services.

5. Platforms for public engagement. These tools are designed to inform and support communication between local authorities and citizens. They also help gather feedback and encourage public participation in decision-making processes. Established dialogue increases transparency and trust between authorities and the public, which in turn contributes to more effective governance.

6. Process automation tools. These optimise workflows, hence employees can prioritise more pressing tasks. This reduces the probability of human error, which increases the reliability of results and speeds up responses to citizens' requests, leading to improved service efficiency and customer satisfaction.

7. Performance indicators. These help local authorities evaluate the results of their services and programmes. Analysis of key performance indicators (KPIs) can identify problem areas and ensure that resources are allocated effectively to meet community needs. These indicators also increase transparency and accountability, demonstrating the government's activities and improving public trust.

8. Change management strategies. These help overcome the difficulties associated with the introduction of new technologies and processes. Through training and support, government employees can improve mastery of digital tools and promote the development of an innovative culture. Such strategies ensure effective communication and interaction between all participants in the change process.

Interagency coordination mechanisms that facilitate the creation and maintenance of a common agenda are necessary for the development of more rational processes in public policy. As noted in a joint report by the Organisation for Economic Co-operation and Development and the Development Bank of Latin America (OECD/CAF, 2023) dedicated to digital governance in Latin America and the Caribbean, effective management of digital transformation requires a robust coordination framework at different levels of government that can align strategies, policies and actions between central and subnational authorities, as well as between agencies dealing with technology, data and service delivery. Many countries in the region have established coordination bodies and mechanisms that bring together key stakeholders to align digital governance policies, but only a few have the power to make decisions and ensure coordination between different agencies and levels of government.

AI technologies are central to implementing such policies. They form the basis for control panels in smart cities, where relevant life support data is accumulated to optimise city management and improve the quality of life for citizens. For example, the Command, Control, Communications and Computers (C4) Centre in Bogota is an integrated platform for monitoring, analysing and coordinating operational data used for security management, emergency response and overall management of city functions. It combines video cameras, an emergency call system and other sensors into a single digital system that collects and analyses information about events occurring in the city in real time and coordinates the actions of law enforcement and emergency response services. The centre also serves as a "think tank" for planning and implementing urban security and infrastructure management strategies, promoting data-driven decision-making and improving the quality of life for Bogota's residents (Fierro, 2024).

Notably, in Latin America and the Caribbean, artificial intelligence is used as an effective tool for solving various problems at the community level, particularly in the areas of combating corruption, managing natural disasters, and social integration. For example, AI is used to detect corruption schemes through the analysis of government transactions, as well as to improve emergency response through predictive models that can forecast extreme weather events and optimise resource allocation for rapid and effective assistance (Plaw *et al.*, 2020).

AI also has significant potential in achieving the Sustainable Development Goals, particularly in the context of implementing modern GovTech strategies in local communities. As noted in a study by E. Zapata *et al.* (2022), AI, in collaboration with innovative start-ups, can significantly improve natural resource management, optimise transport systems to reduce carbon emissions, and promote innovative approaches to waste management. GovTech solutions have a proven impact on SDGs related to the provision of public services, in particular through the creation of new data and improved analytics that support monitoring and policy-making.

Artificial intelligence is a substantial tool that is being actively implemented in digital governance to optimise decision-making processes and improve the efficiency of public service delivery. In particular, in the context of digital transformation, AI helps automate routine administrative tasks, provides predictive systems for emergency management, and improves interaction with citizens through personalised services. S.A.A. Bokhari *et al.* (2025) have shown that AI can significantly improve management efficiency by helping governments make informed decisions based on big data and analytics. However, the implementation of AI also requires considerable attention to ethical aspects, in particular trust on the part of citizens, which is a substantial mediator between technological change and the actual results of digital transformation. Additionally, AI is substantial in ensuring the inclusiveness of digital services, as analytics can be used to ensure equal access to public services, even for marginalised groups. At the same time, to successfully implement AI in government systems, it is necessary to ensure transparency and stakeholder inclusion, which will maximise the potential of this technological tool in the digital transformation process.

AI also has significant potential in the development of proactive public policy, particularly at the local government level. Such policies prioritise the anticipation and resolution of future issues before they reach critical levels, enabling local governments to be more proactive rather than merely reactive. Using real-time and historical data, AI can help local authorities predict new trends, challenges, and potential threats at the community level and develop appropriate strategies to prevent them.

One of the main areas of application for AI at the local level is forecasting and preventing crises that could affect the community, such as natural disasters, epidemics or social conflicts. Thanks to AI technologies, local authorities can predict these events based on the analysis of data, such as climate or medical data, and take preventive measures long before these problems become critical for the community. Resource optimisation is another relevant area where AI can help at the local level. Forecasting demand for local services, such as medical, educational or social services, improves efficiency of allocation of limited resources, preventing shortages at key moments and ensuring timely access to services for all community members. This facilitates efficient budget planning, cost reduction and overall service improvement for local governments.

AI also helps improve public services at the local level by using data to identify underserved or under-resourced areas. Local authorities can obtain relevant information for making decisions on investments in new services, which promotes equal access to services for all segments of the population. For example, data analysis can identify where the greatest need for medical services arises or where there is a shortage of educational resources to respond to these needs in a timely manner. The implementation of AI in the context of proactive policy at the local level creates new opportunities for proactive management, where local authorities not only respond to problems but are also able to anticipate and prevent them, creating a more adaptive and resilient management system for the community.

Examples of successful cases of AI application in e-government

The successful implementation of digital governance using artificial intelligence demonstrates how technological innovations can not only automate administrative processes but also transform the way citizens and the state interact, increasing the efficiency, transparency and quality of public services. Governments have started to implement proactive AI-based digital solutions in different countries around the world to address a wide range of socio-economic issues, from security and health care to city management and crisis prediction. This section presents a range of successful cases illustrating real-life practices of AI application in e-government, their impact on the development of local self-government, and the results achieved, which can serve as a benchmark for other administrative systems in the process of digital transformation.

Singapore has become a leader in applying innovative technologies to improve the public sector, using design thinking as its primary strategy for transforming public services. One of the most successful examples is the Moments of Life initiative, which was developed by the government technology agency GovTech in 2017 (Ganesan *et al.*, 2019). The programme aims to consolidate services provided by various government agencies into a single platform focused on the needs of citizens. The first phase of this initiative prioritises support of young parents. To this end, a mobile application was created that can be used by citizens to register the birth of their children, access medical records, navigate healthcare and childcare options, and apply for a child bonus programme aimed at reducing the financial costs of parenthood.

A key element of the programme's success was the establishment of interdepartmental cooperation within the government. The "whole-of-government" approach involves close interaction between different government agencies to ensure the coherence of policies, processes and operations necessary for project implementation. This has not only reduced service fragmentation but also created a platform that is convenient for citizens and meets their real needs. According to V. Ganesan *et al.* (2019), the programme has become popular among citizens: since its launch in 2018, the app has been downloaded more than 32,000 times, and in subsequent versions, the GovTech team plans to expand services to cover other relevant stages of life, including ageing and care for the elderly.

In addition, Singapore is actively improving inclusivity for persons with disabilities. A 2016 survey of persons with disabilities revealed that most of them do not feel socially included. In response to these issues, the National Council of Social Service (NCSS) in Singapore, together with the DesignSingapore Council, created a team to study the problems and find solutions. They used an immersive ethnographic research method to further determine the daily lives of people with disabilities and identify their needs. The data collected led to the creation of several new initiatives, such as the "Joy Box", which are personalised packages for people with disabilities that learning and discovery of new aspects of life, and the "Social Combinator", an acceleration programme for developing business ideas and involving people with disabilities in economic life. These programmes have been adapted by local organisations to the needs of different social groups, including children with special needs.

Artificial intelligence is also actively used in Singapore to address biodiversity issues. AI algorithms process huge amounts of data on species distribution and movement in the natural environment. This makes it possible to create priority strategies for protecting and restoring ecosystems, predict invasive species, and actively respond to changes in nature. Thus, Singapore is a notable example of how digital technologies and AI can not only improve the quality of public services, but also promote inclusiveness, community development and environmental protection.

Despite the urgent need for governments to digitise their processes, many face challenges due to limited human resources and technical expertise. This has created significant demand for innovative technological solutions to stimulate innovation in the local public sector. Mexico's experience is interesting in this regard. It is worth noting that the digital divide in Mexico and Latin America remains significant, and none of these countries are among the world's leading indices of digitisation and public innovation (OECD/CAF, 2023). This gap represents a missed opportunity for progress, hindering economic growth and social development in the region. Open source technologies and innovative solutions, such as Visor Urbano in Mexico, offer affordable and adaptable tools to meet the unique needs and challenges of each city (GovStack, 2022). By providing scalable solutions, these technologies provide the basis for more inclusive and effective governance, ensuring positive change in communities across the region.

At the local level, there are several challenges, including inadequate infrastructure and technological resources, regions with limited access to high-quality internet, and the lack of a favourable regulatory framework to encourage the adoption of technology in public institutions. In addition, there is a shortage of digital skills and competencies needed to fully leverage the benefits of technology. To overcome this problem, innovations such as Visor Urbano are based on the ethos of "sharing for improvement". In this context, open innovation (strategies for increasing efficiency, using technology, and enabling organisations to gather a multitude of ideas from different sources to solve a specific problem) and free and open-source technologies (publicly available software that can be viewed, modified, adopted, and distributed by anyone under certain licensing conditions) become relevant. Since many governments lack the financial or technical resources to develop independent technologies, open innovation and open source solutions are central in promoting progress and overcoming barriers to technological advancement.

In Mexico, Visor Urbano is notable as a digital platform that promotes transparent and efficient land management. This free software helps local authorities digitise urban development processes, such as business and construction licences, while promoting digital integration among officials and citizens. Developed in Guadalajara in 2016, it helps local authorities digitise urban development processes, including business and construction licensing. Supported by Bloomberg Philanthropies, the platform has expanded to other cities and has had significant positive results. In Guadalajara, it has caused a 74% reduction in bribes thanks to online forms that have reduced interactions between the government and citizens by 84%. In Tototlán, municipal revenues have increased by 320%. In Cocula, the platform made it possible to digitise all business licences and create a new tool for building permits. In Gómez Farías, reducing the time to obtain business licences from 15 days to less than one day made it possible to issue 1,700 licences. Cabo Corrientes united municipal departments in a digital format, reducing time and costs for residents. Visor Urbano has significantly improved municipal management in more than 50 cities in Mexico and has the potential for further expansion (Plaw *et al.*, 2022).

Successful examples of digital platform implementation demonstrate the importance of adapting technologies to the specific needs of each city and community, rather than simply introducing new solutions for the sake of novelty. This underscores the need for a strategic approach to digitalisation that considers local contexts and needs. The key lessons learned from these successful implementations can be summarised as follows:

- The driving force for technology implementation must extend the scope of novelty. It should encompass the adaptation of digitisation processes to the unique context of each city, addressing the concerns of residents and improving their quality of life, which ensures a more personalised and effective approach to technology implementation.

- Any process of technological development or implementation must be accompanied by a comprehensive digital integration strategy. This ensures the development of digital skills not only among civil servants but also among a wider range of citizens, thereby promoting inclusiveness and the involvement of all stakeholders.
- When developing or replicating such software, user-centred principles must remain at the forefront. Furthermore, once implemented, it is necessary to encourage feedback, testing and continuous iteration so that the technology is constantly improving and meeting user needs.
- Replication of successful practices is a substantial priority. Carefully measuring and evaluating the impact of these solutions provides evidence and supports more cities along their path to becoming smarter and more innovative, thereby enhancing the effectiveness of the solutions implemented.
- Improving cities through technology requires collective efforts not only from governments, but also from the entire community, including business, academia, civil society and other ecosystem organisations. This collaborative, multi-sectoral approach ensures that diverse voices are included and prevents exclusion from design and decision-making processes, contributing to greater effectiveness and sustainability of change.
- The key to transforming a city with technology is often an individual or a specialised group that strives to catalyse significant change and implement innovative solutions. Cultivating these internal leaders is a substantial factor for the successful implementation of technological initiatives, ensuring the sustainability and adaptability of digital transformations.

However, for the successful implementation of digital technologies in local government, it is necessary to ensure a harmonious balance between political and bureaucratic processes and the needs of society. By moving from e-government to digital government, local authorities are changing not only their management methods but also their methods of interaction with citizens. This process has been made possible by the active use of information and communication technologies (ICT) and concepts such as open data, open government and digital platforms for citizens. The use of open data, which is available to both citizens and businesses, ensures not only transparency but also public involvement in governance processes. At the same time, digital governance is not limited to improving administrative efficiency using the latest technologies, but emphasises the active participation of citizens in data-driven decision-making and forecasting the future needs of communities. This not only ensures a rapid response to citizens' requests but also ensures a high level of public satisfaction at all stages of interaction with government agencies. As a result, digital governance contributes to the creation of more efficient, transparent and inclusive management systems that meet the needs of modern society.

Conclusions

The study analysed the conceptual aspects of digital transformation of local self-government and the impact of new technologies on community management, as well as their application to ensure access to public services. The main characteristics of digital transformation, such as process automation, big data utilisation, digital inclusion, and AI application, were examined. As a result, the study determined that the digital transformation of local government contributes to the improvement of the efficiency of service delivery, reduction of corruption, and transparency and ease of access to public services for citizens. The introduction of the latest technologies ensures the automation of many routine administrative tasks, such as processing applications for permits, filing taxes, and interacting with local authorities. This reduces the burden on government agencies, facilitating more relevant tasks and improving the quality of service to citizens.

In addition, the introduction of digital platforms ensures active citizen participation in governance processes, as citizens can provide feedback through interactive websites and online platforms for crowdsourcing ideas, which improves the quality of decisions and increases trust in public authorities. A substantial aspect is digital inclusion, which guarantees access to services for all residents, including marginalised groups, thereby promoting greater social equality. However, there are several challenges to the successful digital transformation of local government, such as limited access to digital technologies in certain regions, insufficient digital literacy among citizens, and cybersecurity issues. To overcome these challenges, targeted measures must be implemented, including investing in infrastructure development, providing training for all segments of the population, and ensuring reliable data protection.

Promising areas for further research include studying the role of artificial intelligence in improving management processes, as well as its potential for solving problems such as crisis prediction, resource optimisation, and improving environmental management at the local level. It is also necessary to explore ethical issues in the context of AI applications in local government how to ensure transparency in decision-making and guaranteed fairness for all social groups. These areas of research will help develop strategies and tools for more effective and inclusive local government, contributing to sustainable development and improving the quality of life for citizens.

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References

[1] Bakhov, I., Niema, O., Kravchenko, T., Borysenko, O., Kuspliak, I., & Zayats, D. (2025). Local self-government digital transformation in the context of sustainable development: Potential of artificial intelligence. *Sapienza: International Journal of Interdisciplinary Studies,* 6(2), article number e25019. doi: 10.51798/sijis.v6i2.955.

[2] Bertram, T. (2024). *A new era of partnership: Unveiling Google public sector's enhanced partner program*. Retrieved from https://surl.lu/kzlcqf.

[3] Bokhari, S.A.A., Park, S.Y., & Manzoor, S. (2025). Digital government transformation through artificial intelligence: The mediating role of stakeholder trust and participation. *Digital*, 5(3), article number 43. doi: 10.3390/digital5030043.

[4] Creswell, J.W., & Poth, C.N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks: Sage publications.

[5] De Pablos, P., Almunawar, M., & Anshari, M. (2025). *Digital healthcare, digital transformation and citizen empowerment in Asia-Pacific and Europe for a healthier society*. London: Academic Press.

[6] de Ries, K.E., Schaap, H., van Loon, A., Kral, M., & Meijer, P. (2022). A literature review of open-ended concept maps as a research instrument to study knowledge and learning. *Quality & Quantity,* 56, 73-107. doi: 10.1007/s11135-021-01113-x.

[7] Djatmiko, G.H., Sinaga, O., & Pawirosumarto, S. (2025). Digital transformation and social inclusion in public services: A qualitative analysis of e-government adoption for marginalized communities in sustainable governance. *Sustainability,* 17(7), article number 2908. doi: 10.3390/su17072908.

[8] ElMassah, S., & Mahieldin, M. (2020). Digital transformation and localizing the Sustainable Development Goals (SDGs). *Ecological Economics,* 169, article number 106490. doi: 10.1016/j.ecolecon.2019.106490.

[9] Fierro, C. (2024). *Are you familiar with the Command, Control, Communications and Computing Center of Bogotá?* Retrieved from https://bogota.gov.co/mi-ciudad/seguridad/centro-de-comando-control-comunicaciones-y-computo-de-bogota.

[10] Foschi, E., Pennellini, S., Fochi, P., Paletta, A., & Bonoli, A. (2025). Localizing the United Nations 2030 Agenda to leverage shared accountability through collaborative governance. *Discover Sustainability,* 6, article number 963. doi: 10.1007/s43621-025-01765-x.

[11] Ganesan, V., Lam, Y., & Lin, D.-Y. (2019). *How Singapore is harnessing design to transform government services*. New York: McKinsey&Company.

[12] GovStack. (2022). *Digital leaders spotlight: Visor Urbano*. Retrieved from https://govstack.global/news/digital-leaders-spotlight-visor-urbano/.

[13] Jönsson, K., & Bexell, M. (2021). Localizing the Sustainable Development Goals: The case of Tanzania. *Development Policy Review,* 39, 181-196. doi: 10.1111/dpr.12497.

[14] Kemp, S. (2025). *Digital 2025: Ukraine*. Retrieved from https://datareportal.com/reports/digital-2025-ukraine.

[15] Kibria, M.G., & Hong, P. (2024). E-government in Asian countries: A conceptual framework for sustainable development. *Transforming Government: People, Process and Policy,* 18(4), 616-637. doi: 10.1108/TG-01-2023-0003.

[16] Lay, J., & Fietz, K. (2023). *Digital skills in the Global South: Gaps, needs, and progress.* Retrieved from https://iap.unido.org/articles/digital-skills-global-south-gaps-needs-and-progress

[17] Lee, T., Lee, B.-K., & Lee-Geiller. S. (2020). The effects of information literacy on trust in government websites: Evidence from an online experiment. *International Journal of Information Management*, 52, article number 102098. doi: 10.1016/j.ijinfomgt.2020.102098.

[18] Liebowitz, J. (2023). *Pivoting government through digital transformation*. Boca Raton: Auerbach Publications.

[19] Lin, Z., Dou, H., & Lin, Sh. (2025). Community-powered AI: Enhancing regional development through dataset diversity and ethical governance. *Technovation,* 147, article number 103315. doi: 10.1016/j.technovation.2025.103315.

[20] Lyulyov, O., Pimonenko, T., Kwilinski, A., Us, Y., Arefieva, O., Akimov, O., & Pudryk, D. (2020). Government policy on macroeconomic stability: Case for low-and middle-income economies. In *Proceedings of the 36th international business information management association (IBIMA)* (pp. 8087-8101). Granada: IBIMA.

[21] Marmulyak, A., Tryhuba, A., Malanchuk, O., & Tryhuba, I. (2024). The impact of digital transformation of communities on the initiation and planning of social projects. *Management of Development of Complex Systems,* 59, 62-72. doi: 10.32347/2412-9933.2024.59.62-72.

[22] Ministry of Digital Transformation of Ukraine. (2023). *Results of digital transformation in the regions of Ukraine*. Retrieved from https://thedigital.gov.ua/news/technologies/rezultati-tsifrovoi-transformatsii-v-regionakh-ukraini-1.

[23] Mordvinov, O., Kravchenko, T., Vahonova, O., Bolduiev, M., & Romaniuk, N. (2021) Innovative tools for public management of the development of territorial communities. *Ad Alta: Journal of Interdisciplinary Research,* 11(1), 33-37.

[24] Morte-Nadal, T., & Esteban-Navarro, M.A. (2022). Digital competences for improving digital inclusion in e-government services: A mixed-methods systematic review protocol. *International Journal of Qualitative Methods,* 21. doi: 10.1177/16094069211070935.

[25] OECD/CAF. (2023). *Digital government review of Latin America and the Caribbean: building inclusive and responsive public services*. OECD Publications.
[26] Piskokha, N. (2021). Digital transformation of local government: Defining the concept and directions of creating digital communities. *Public Administration Aspects*, 9(6), 39-45. doi: 10.15421/152168.
[27] Plaw, A., Gurgel, B., & Plascencia, D. (Eds.). (2020). *The politics of technology in Latin America (Volume 1): Data protection, homeland security and the labor market*. London: Routledge.
[28] Radanliev, P., De Roure, D., Novitzky, P., & Sluganovic, I. (2023). Accessibility and inclusiveness of new information and communication technologies for disabled users and content creators in the Metaverse. *Disability and Rehabilitation: Assistive Technology*, 19(5), 1849-1863. doi: 10.1080/17483107.2023.2241882.
[29] Sanders, C.K., & Scanlon, E. (2021). The digital divide is a human rights issue: Advancing social inclusion through social work advocacy. *Journal of Human Rights and Social Work,* 6(2), 130-143. doi: 10.1007/s41134-020-00147-9.
[30] Singh, V., & Chobotaru, J. (2022). Digital divide: Barriers to accessing online government services in Canada. *Administrative Sciences*, 12(3), article number 112. doi: 10.3390/admsci12030112.
[31] Smyrnova, I., Krasivskyy, O., Shykerynets, V., Kurovska, I., Hrusheva, A., & Babych, A. (2021). Analysis of the application of information and innovation experience in the training of public administration specialists. *International Journal of Computer Science and Network Security,* 21(3), 120-126. doi: 10.22937/IJCSNS.2021.21.3.16.
[32] Suranto, B., Kovač, N., Haryono, K., Rahman, S., Shukri, A., Suder, M., Kusa, R., & Zugic, D. (2025). State of digitalization in the Southeast Asia region – bibliometric analysis. *Quality & Quantity*. doi: 10.1007/s11135-025-02296-3.
[33] Tremblay-Cantin, C.A., Mellouli, S., Cheikh-Ammar, M., & Khechine, H. (2023). E-government service adoption by citizens: A literature review and a high-level model of influential factors. *Digital Government: Research and Practice,* 4(1), 1-24. doi: 10.1145/3580369
[34] Wood, R., & Sherrington, S. (2025). *State of digital communications 2025*. Brussels: Connect Europe.
[35] Yigitcanlar, T., Senadheera, S., Marasinghe, R., Bibri, S., Sanchez, Th., Cugurullo, F., & Sieber, R. (2024). Artificial intelligence and the local government: A five-decade scientometric analysis on the evolution, state-of-the-art, and emerging trends. *Cities,* 152, article number 105151. doi: 10.1016/j.cities.2024.105151.
[36] Zapata, E., Barbero, M., & Ortiz, A. (2022). *The role of GovTech in achieving the Sustainable Development Goals*. Caracas: CAF.
[37] Zhang, Y., & Li, Y. (2025). The impact of artificial intelligence on government digital service capacity. *International Review of Economics & Finance,* 102, article number 104374. doi: 10.1016/j.iref.2025.104374.
[38] Žuvela, A., Šveb Dragija, M., & Jelinčić, D.A. (2023). Partnerships in heritage governance and management: Review study of public-civil, public-private and public-private-community partnerships. *Heritage,* 6(10), 6862-6880. doi: 10.3390/heritage6100358.

Публічне управління цифровою трансформацією громад: інтеграція штучного інтелекту в стратегії місцевого розвитку

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Анотація. Актуальність теми цифрової трансформації місцевого самоврядування з використанням технологій, зокрема штучного інтелекту, зростає у зв'язку з необхідністю покращення ефективності управлінських процесів та послуг для громадян у багатьох країнах світу. Метою роботи був аналіз впровадження цифрових рішень в управління місцевими громадами, зокрема застосування штучного інтелекту для оптимізації адміністративних та соціальних процесів. У дослідженні використовувались методи багатометодного якісного підходу, включаючи тематичні дослідження та огляд літератури. Результати дослідження показали, що інтеграція технологій у місцеве управління дозволяє значно підвищити ефективність та прозорість публічних послуг, полегшуючи доступ громадян до них через онлайн-платформи та мобільні додатки. Шляхом аналізу технічних, соціальних та інституційних бар'єрів, було виділено ключові перешкоди на шляху впровадження послуг електронного урядування, особливо серед вразливих груп населення. Результати дослідження засвідчили, що недостатня цифрова грамотність, проблеми доступності та фрагментовані структури управління залишаються критичними перешкодами для досягнення повної цифрової інклюзії. Водночас, широка залученість громадян та ефективне управління даними, зокрема в рамках прогнозних моделей на основі штучного інтелекту, мають значний потенціал у формуванні стійких «цифрових» громад. Аналіз досвіду Сінгапуру, Мексики та інших країн, що активно застосовують цифрові інновації, підтвердив, що використання великих даних та штучного інтелекту у сфері публічного управління покращує управління ресурсами, сприяє зменшенню корупції та підвищує участь громадян у процесах прийняття рішень. Одним із важливих аспектів було визначено цифрову інклюзію та необхідність зменшення цифрового розриву, щоб забезпечити рівний доступ до е-урядування для всіх соціальних груп. Практична цінність роботи полягає у пропозиціях щодо адаптації інноваційних технологій для покращення управлінських процесів та підвищення ефективності місцевих адміністрацій на основі реальних кейсів

Ключові слова: місцеве самоврядування; цифрова інклюзія; електронне врядування; управління даними; адміністративні послуги

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Mechanisms of public management of cross-border innovation clusters: International models and prospects for Ukrainian regions

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Abstract. The relevance of the research topic lies in the growing role of cross-border innovation clusters as an important tool for regional economic development and enhancing their competitiveness through integration into global economic and innovation networks. The aim of the study was to analyse the development of cross-border innovation clusters, identify their advantages and opportunities for internationalisation in the context of globalisation and European integration. To achieve this, conceptual analysis methods, case studies, and empirical research were employed, focusing on various cross-border clusters, particularly in Europe and beyond. The findings revealed that cross-border innovation clusters contribute to the reindustrialisation of regions, reduce dependency on large corporations, and create competitive advantages for small and medium-sized enterprises. Case study analysis, including examples such as Future Position X in Sweden and the Cascadia Innovation Corridor in North America, demonstrated the significant potential of cross-border initiatives to attract new technologies, resources, and international markets. Key factors influencing the effectiveness of such clusters were identified, including geopolitical and institutional proximity, scientific-technological interaction, as well as cultural and relational aspects of cross-regional collaboration. Additionally, a model for the internationalisation

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of regional clusters was developed, encompassing clear stages for the coordination and development of external relations, enabling the full realisation of the international potential of clusters and fostering their effective development. This study can be valuable for government bodies, regional administrations, cluster organisations, small and medium-sized enterprises, as well as academic institutions in the development of cross-border cooperation strategies, optimisation of internationalisation, and the enhancement of innovation development in border regions

Keywords: cohesion policy; innovation policy; innovation systems; regional development; sustainable development

Introduction

Against the backdrop of increasing globalisation of the economy, the trend of regionalisation has strengthened, which has been scientifically described in terms of "glocalisation". In the 21st century, regions in many countries have become active and independent participants in economic processes, creating an objective precondition for the intensification of international competition and highlighting the need for new approaches to the development of national economies, taking regional factors into account. As international experience suggests, clusters play an important role in the process of shaping and implementing regional strategies, which have been thoroughly analysed by J. Engel (2023). Regional development scenarios, based on the concept of competitive advantages, theoretically and methodologically rely heavily on the cluster approach. Its use aims to increase the competitiveness of the regional economy, ensure the inflow of knowledge and skilled labour.

However, the mere existence of a cluster does not automatically make a region competitive. For this, the regional cluster must occupy a significant place in the system of economic relations at both national and possibly global levels. One solution to this task, according to M.M. Salikhov (2025), is the active development of international and foreign economic relations within clusters, i.e., their internationalisation. This includes seeking investors, suppliers, and markets, as well as integration into international industry networks, expert communities, the development of research and technological platforms, and diverse communications in the context of globalisation. The integration of Ukrainian regional clusters into global value creation chains will enhance the national scientific and technological base, increase the speed and quality of economic growth by improving the international competitiveness of the cluster and its participants. Importantly, the main function of clusters is to drive economic growth. Accordingly, as noted by M. Heidenreich & J. Mattes (2025), their internationalisation is not an end in itself, but one of the forms and tools for attracting the resources that the region lacks. In this regard, the most popular mechanism for such internationalisation is cross-border innovation clusters.

Cross-border clusters are networks of interconnected businesses, suppliers, and institutions in neighbouring countries that collaborate across national borders to enhance regional competitiveness, innovation, and economic development, leveraging shared geography and resources for mutual benefit. These clusters often focus on specific sectors, such as logistics, tourism, or technology, through joint projects and strategies. They are a strategic tool for peripheral regions to overcome border-related challenges and integrate into broader economic zones, improving trade and knowledge exchange (Reznikova *et al.*, 2020).

A key challenge facing regions today is the transition towards building a knowledge-based economy, where intellectual capital becomes central to the factors driving sustainable economic growth and social progress. In this regard, establishing innovation clusters in border regions, utilising the opportunities provided by cross-border cooperation, is essential to engage in more meaningful global economic interactions. Research by H.A. Alcalde-Heras *et al.* (2024) and N. Danko & O. Izmailov (2025) showed that the development and implementation of innovation is the most promising method for increasing the competitiveness of regional economies.

Despite the growing interest in cluster policy and internationalisation, a thorough analysis of the opportunities and challenges of integrating cross-border innovation clusters, particularly in the context of Ukraine's border regions, is still lacking. For Ukraine, which aspires to join the European Union, adopting best practices from Europe and other parts of the world in the formation and development of clusters has become one of the key reform priorities. Studying foreign experience in cluster policy will help draw conclusions about effective mechanisms for developing innovation clusters and forming networks between businesses, research institutions, and government bodies. The aim of this study was to analyse the development of cross-border innovation clusters as a tool for enhancing the competitiveness of border regions, specifically Ukraine, through integration into international economic and scientific-technological networks.

Materials and Methods

The study of cluster internationalisation is a relatively new subject in academic research, which requires the use of methods capable of comprehensively analysing complex economic processes. This research was based on the analysis of existing theoretical approaches and empirical data related to cross-border innovation clusters. The primary method employed in the research was systemic analysis, which allowed for the consideration of clusters as part of a broader regional economy, examining their interconnections with other economic entities, as well as with cross-border institutions. Qualitative research methods were used, including the analysis of scientific publications, monitoring regional initiatives and programmes, as well as the analysis of specific case studies of cross-border clusters. Additionally, conceptual review and modelling techniques were applied.

Conceptual analysis facilitated a deeper understanding of various subject areas, particularly the internationalisation of regional clusters, and enabled conceptual modelling of objects that reflect the essence and interrelations of these processes. In this context, objects were described not only through their basic properties but also through the properties of relations between them, significantly enhancing the theoretical analysis of complex subject areas.

The methodology of the study also involved the use of the case-study method, which was crucial for examining real examples of building and developing cross-border innovation clusters. This allowed for the analysis of cross-border cooperation experiences in different regions of the world, including clusters such as Future Position X (FPX) in Sweden, the Cascadia Innovation Corridor between British Columbia and Washington State, and the Hong Kong-Shenzhen cluster. As a result, basic principles defining the effectiveness of cluster internationalisation were formulated, and a model algorithm for organising this process was proposed.

An important element of the methodology was also the analysis of the impact of various factors on the effectiveness of cross-border cooperation, including geopolitical, economic, institutional, and technological aspects. Special attention was paid to internationalisation models for clusters, including the development of an algorithm to determine the stages of this process, which enables the evaluation of cooperation potential among participants and coordination of international relations at each stage of the cluster's development. Key research methods also included analysis of external connections, and benchmarking to compare clusters from different regions. This approach allowed for the identification of the strengths and weaknesses of cross-border innovation clusters.

The research's source base comprised academic works examining the cluster approach in economics and the internationalisation of business entities. Literature searches were conducted through scientometric databases such as ScienceDirect, MDPI, ResearchGate, and Taylor&Francis, as well as through direct searches on Google. Key search queries focused on cross-border cooperation between regions in the context of innovation development. This methodological approach, which combined conceptual analysis, case studies, and several analytical methods, provided a deep understanding of the processes of international integration of regional clusters and their development through cross-border cooperation.

Results and Discussion

Cross-border innovation clusters are a significant tool for strengthening regional innovation potential. According to the Industry 4.0 concept presented at the Hannover Messe in Germany in 2011 (Włodarczyk, 2019), new opportunities for creating innovation clusters have emerged, combining innovations with networked production systems. A key feature of such clusters is the use of cutting-edge network technologies to develop new products and services. These cross-border innovation clusters result from the implementation of innovation strategies at the regional level. Their advantage lies in their ability to promote the reindustrialisation of regions, reduce dependence on mass production monopolies, and enable successful competition with large corporations by focusing on consumer needs.

Research on innovation in recent years has become a crucial part of regional scientific studies, particularly due to its growing significance in developing new knowledge and economic growth. Most of these works focus on the concept of regional innovation systems (RIS), where the emphasis is on how spatial proximity and institutional structures contribute to innovation, particularly in generating and disseminating knowledge (Asheim *et al.*, 2019). However, given that RIS often encompass cross-border contexts that include different countries or administrative units (Wang *et al.*, 2021; Chandra *et al.*, 2023), the term "cross-border regional innovation systems" (CBRIS) has been introduced.

The concept of CBRIS emerged from discussions emphasising the need to expand the understanding of regional innovation dynamics across national borders, regardless of what these "borders" may represent. Cross-border innovation systems have become an important topic not only because of their existence but also due to their growing significance in the context of the increasing need for regions to develop cooperative links and economic interaction with neighbouring territories. The interdependence of innovation processes across borders is often highlighted by political initiatives, demonstrating the importance of CBRIS not only as an analytical tool for studying realities but also as a means of shaping normative strategies that promote innovation (Derudder & Liu, 2025). Overall, the development of CBRIS highlights the potential to strengthen technologies and innovations across borders by integrating regional efforts and leveraging their complementarities.

N. Reznikova *et al.* (2020) identified several key determinants affecting the effectiveness of cross-border cooperation between regions. First, geopolitical factors such as proximity to peaceful or hostile states, as well as potential threats of border changes due to military conflicts, are crucial. Second, geoeconomic factors, particularly the ability to overcome technological asymmetry through integration into global value chains, are significant. This also includes the ability to engage in expansionist trade and investment activities, as well as utilising the potential of the internal market and diversifying the economic structure. Third is the institutional aspect, where higher institutional inclusiveness and a weaker extractive character of their activities make it easier to address structural defects and infrastructure deficiencies in the economy. This also contributes to a better ability of economic entities to adapt to the challenges of cross-border cooperation. The last factor is the structural aspect, considering the regional resource potential, including mineral and human resources. The existing specialisation of a region can either stimulate or limit the effectiveness of cooperation.

A. Osarenkhoe & D. Fjellstrom (2022) investigated how a cluster organisation creates a platform to foster itsinternationalisation, thereby enhancing the competitiveness of its participants within the regional innovation system. This is achieved by providing access to global value chains and promoting innovation. They applied an interaction approach, which emphasises the process of interaction, partners, relationships, and the environment of these relations. The qualitative research was conducted in the Swedish cluster organisation, Future Position X (FPX). Between 2017 and 2019, 58 interviews were conducted, including 48 in-depth interviews with key respondents, representatives from 28 small and medium-sized enterprises, 10 members of the regional innovation systems to which FPX belongs, and four managers of regional and local networks. Additionally, in 2021, online interviews were conducted with 10 members of the regional innovation systems via Microsoft Teams. The results revealed that the FPX cluster actively interacts with participants in the quadruple helix, facilitating the signing of new partnerships globally to ensure the necessary resources and expertise that allow firms in the FPX network to enter international markets. Thus, internationalisation expands the cluster's knowledge base beyond the usual environment of its participants. The common goal of these participants was to engage in new innovations, establishing companies, products, and services for sustainable and smart cities of the future. This encompasses both the private and public sectors, implementing projects in research, development, monitoring, and evaluation. A. Osarenkhoe & D. Fjellstrom (2022) noted that the FPX innovation platform is actively used by companies and organisations seeking new models of interaction with users, clients, or markets to support innovation.

J. Wang *et al.* (2021) explored the development of the cross-border innovation system of Hong Kong-Shenzhen, focusing on cognitive proximity, interaction between innovation actors, cooperation, and global connectivity. To achieve this, the authors analysed patent and publication data from 2001 to 2015. The results indicated substantial potential, particularly through the growing convergence of scientific research between the two cities, steady growth in collaboration outcomes, and complementarity among innovation actors. The authors highlighted that the effectiveness of cross-border regional innovation systems (CBRIS) can be systematically evaluated through the analysis of cognitive proximity, collaboration level, and connectivity between participants.

According to S. Neuberger *et al.* (2023), the innovation environment in cross-border agri-food enterprises significantly influences the processes of developing and launching innovative products. The authors developed a conceptual framework to define the "cross-border innovation environment", based on the theoretical foundations of innovation systems and innovation management. To analyse this, a series of semi-structured interviews were conducted with representatives of agri-food enterprises located in the Netherlands-Germany region of Rhine-Waal. The study showed that the innovation environment of these enterprises was mostly oriented towards national-level factors, while cross-border aspects and links between regions were less pronounced. Innovations in these enterprises were predominantly driven not only by scientific or research achievements but also largely by market demands and consumer needs. The researchers highlighted the importance of integrating clients and business partners during research and technological development stages, which is essential for overcoming current challenges, particularly those related to ecological transformation in line with the EU Green Deal requirements. Understanding how the innovation environment impacts innovation processes in agri-food enterprises can assist in the development of relevant policies.

F. Cappellano (2019) examined the concept of cross-border innovation economies using the example of the Cascadia Innovation Corridor – a geographical region located between British Columbia (Canada) and Washington State (USA), which is unique in its economic integration and development. Cascadia has become an important example of a region embedded in several socio-ecological discourses, with sustainable development as its core theme. This concept is supported by all political parties advocating for ecological positivism, which encompasses not only economic but also environmental aspects of development. In the 21st century, the two main cities of the Cascadia region – Seattle and Vancouver – have become key economic hubs, particularly in the high-tech sector. These cities are actively developing in fields such as computer science, aviation, logistics, and biotechnology, and have earned global recognition through world-class companies such as Microsoft, Amazon, and Boeing. Both cities share many economic clusters (Table 1), which fosters both cooperation and competition. The mobility of highly qualified labour is an important factor for the growth of these economies.

Table 1. *Key economic sectors of Seattle and Vancouver, British Columbia*

No.	Seattle	Vancouver, British Columbia
1	Business services	Business services
2	Aerospace and defense	Distribution and e-commerce
3	Distribution and e-commerce	Education and knowledge creation
4	Information technology and analytical instruments	Hospitality and tourism
5	Hospitality and tourism	Financial services
6	Education and knowledge creation	Transportation and logistics
7	Transportation and logistics	Marketing, design, and publishing
8	Marketing, design, and publishing	Wood products
9	Wood products	Information technology and analytical instruments
10	Insurance services	Communication equipment and services

Source: *F. Cappellano (2019)*

This table shows that both Seattle and Vancouver share similar economic sectors, which fosters the development of joint innovation initiatives and reduces barriers for inter-city collaborations. This synergy between the cities stimulates not only workforce mobility but also the exchange of knowledge, technologies, and investments. Since 2016, supported by Microsoft, the "Cascadia Innovation Corridor" initiative has aimed to transform the region into a global technology hub. The plan focuses on leveraging the region's competitive advantages to promote it on the global stage. One key element is the development of transportation infrastructure, including the high-speed rail project designed to connect the major cities of Cascadia and reduce travel time between them. This project has received funding from both the governments of British Columbia and Washington State, as well as private investors, highlighting support for regional integration. Additionally, alternative transportation options, such as hydroplanes, are being considered to connect Seattle and Vancouver, where major international tech companies are headquartered (Cappellano, 2019).

A valuable contribution to understanding the factors that define innovation interactions in cross-border regions was made by H. Basche (2022). In his work, the author analysed the impact of institutional and technological proximity, spatial distance, and European integration on innovation links, measured by the number of joint patents in 45 cross-border regions of Europe. Using negative binomial gravity models, the scholar identified key determinants that explain variations in cross-border joint patenting levels. Specifically, the results show that spatial and technological distances consistently have a negative impact on joint patenting activity: the further the regions are from each other and the less technologically similar their innovation bases are, the fewer joint patents they generate. In contrast, institutional proximity, measured by the presence of a common official language, significantly stimulates such cooperation: regions with a shared language have 1.83-2.49 times more joint patents under otherwise equal conditions. An important and surprising finding was the role of European integration: longer EU membership is associated with reduced joint patenting activity, while membership in Central and Eastern European countries has a positive impact on patent cooperation. This means that, compared to cross-border regions of founding EU states, Eastern European cross-border regions demonstrate higher innovation interaction in the form of joint patents under the same conditions. Therefore, it is not only geographic and technological barriers that hinder innovation cooperation, but also cultural and institutional factors play a crucial role. These findings are especially relevant for Ukraine, which is currently working on developing cross-border innovation clusters, as they show that reducing institutional barriers and enhancing commonality (linguistic, regulatory, cultural) can foster greater innovation interaction in border regions.

Numerous studies dedicated to innovation and regional integration meticulously explore the barriers associated with the lack of geographical and relational aspects of territorial proximity. However, an analysis of existing thematic research has shown that the relationship between different types of territorial proximity and the level of integration is significantly more complex and ambiguous than the CBRIS concept suggests. For instance, contrary to expectations, even regions with a high level of relational proximity are rarely strongly integrated (Peck & Mulvey, 2018; van den Broek *et al.*, 2018; Cappellano & Makkonen, 2020). Moreover, cultural and institutional differences, which may initially seem to be barriers for cross-border innovation, sometimes not only do not hinder these processes but may even enhance them (Makkonen *et al.*, 2018). It turns out that the elements of the CBRIS model that influence cross-border integration are not always linearly related: some aspects of integration may promote innovation, while other integration models may have either no effect or a considerably weaker one.

N. Maroun (2025) analysed cross-border cooperation between clusters within the framework of the Euromed Clusters Forward (ECF) programme, funded by the European Union in coordination with ANIMA and Berytech. This initiative focuses on cluster development in the Mediterranean region by fostering cross-border cooperation between southern and European partners. The cooperation includes resource sharing, strategic coordination, and aligning efforts to address common challenges, thereby strengthening the overall sector and regional competitiveness. According to his conclusion, by working together, the involved clusters aim to expand their reach to global markets, increasing their collective impact and competitiveness internationally. Therefore, this enhances the efficiency and effectiveness of the entire value chain.

Knowledge transfer within clusters can be effectively simplified through structured initiatives, such as the Euromed Clusters Forward Face-to-Face Academy, which offers training programmes to support clusters in developing strategies to improve their value chains. Additionally, initiatives like technical assistance (TA) vouchers provide clusters with access to expert support, helping them stay updated on the latest trends in the industry. These structured programmes ensure that knowledge sharing is not merely incidental but an integral part of cluster cooperation. Clusters can form meaningful joint partnerships through initiatives like Cluster Connect, which fosters partnerships and partner searches between clusters and supporting organisations in various industrial ecosystems. This promotes collaboration between clusters and between small and medium-sized enterprises, providing businesses with access to new technologies, resources, and regional markets. This collaboration is further supported by initiatives such as Tech Days and joint projects, which serve as platforms for innovation and the establishment of strong cross-border partnerships.

Clusters can combine their resources and experience for targeted initiatives through political dialogue sessions and Tech Days within the Euromed Clusters Forward framework. These initiatives focus on common goals such as sustainable development, digital transformation, and workforce development. By collectively addressing these challenges, clusters can create solutions that benefit all participants in their value chains. These targeted initiatives, aligned with international standards, particularly for entering EU markets, ensure the global competitiveness of the clusters.

Ukrainian researcher O. Demedyuk (2020) attempted to identify the prospects for the development of cross-border clusters along Ukraine's western border, considering their proximity to the EU, the specialisation of neighbouring regions, and the peculiarities of cluster functioning in Ukraine. The article discusses the specifics of cluster policies in both the EU and Ukraine. The author noted that geographic proximity to the European Union and a shared border with four of its member states open significant opportunities for Ukrainian companies, especially those based in border regions. These companies can adopt positive experiences in clustering from neighbouring countries, expand their activities beyond the border, participate in EU cluster development initiatives and programmes, or even create cross-border clusters that meet modern European standards in this field. The article also emphasises the importance of one of the key directions of European cluster policy: the internationalisation of clusters. This process involves activating network cooperation between clusters and business structures across borders and between different sectors in both Europe and third countries. To achieve this goal, several initiatives have been launched, including the European Cluster Collaboration Platform. It provides companies with the opportunity to present themselves, exchange experiences, find partners for cooperation, and access information about already implemented or ongoing cluster development projects. Furthermore, the platform offers data on current calls within development programmes. Under its aegis, international events are held to find partners both within EU member states and third countries, including Ukraine. These events often take place in countries outside the European Union, demonstrating an open approach to cooperation. However, an analysis of cluster functioning on Ukraine's western border revealed certain issues. The activities of some clusters remain declarative, and after their establishment, there has been little follow-up action. For example, Lviv region has the largest number of clusters, while in Zakarpattia, despite having significant potential-particularly in logistics and cross-border activities – this area is largely ignored. Attracting EU funding through joint projects plays an important role in stimulating regional economic development, creating new jobs, and enhancing the investment attractiveness of border areas.

Cooperation between the border regions of Ukraine and EU countries is gradually becoming a powerful driver of innovative consolidation and knowledge exchange, realised through the Interreg NEXT cross-border cooperation programmes. This strengthens integration with the EU at the local level, attracts funding, and supports the implementation of EU law, which is crucial for Ukraine's European integration. Ukraine has actively joined several programmes, including Interreg NEXT Poland-Ukraine and Romania-Ukraine, which create opportunities for joint projects in regional development, business, and infrastructure. This cooperation enables the adoption of the European Union's experience in innovation, energy, ecology, and governance, which supports the implementation of modern approaches in these areas (Volkova, 2023).

Therefore, in Ukraine, cross-border cooperation (CBC) is considered from two key perspectives: as a tool for the development of border areas and as an instrument for realising the country's European integration goals. However, the development of CBC between Ukraine's border regions and neighbouring countries is significantly hindered by excessive ambition, the political situation, and the unclear definition of the role of European regions on the borders of Ukraine and Central European states. Although there is a declared desire to jointly solve problems in various spheres of public life, clear mechanisms to achieve these goals are still lacking. Additionally, regional cooperation projects in Ukraine are primarily implemented based on practical experience, which is done without proper theoretical or methodological foundations. As a result, there is an urgent need to create scientifically grounded frameworks that would facilitate more effective interaction between the border regions of Ukraine and the EU. These approaches could become a driving force for innovative development, the unification of efforts, and knowledge exchange.

In this context, it should be noted that traditionally an innovation cluster is seen as a set of interconnected economic actors located within a single geographical area (local clusters) or territorially distant (regional clusters), functioning within one or more industries and concentrating their resources. Based on the theory of multiplicities, the basic types of innovation clusters are identified (linked clusters – type A, new industrial zones – type B, innovation environment – type C, and neighbouring clusters – type D), which are characterised by the features of geographical location, the specifics of interaction and cooperation processes among cluster participants, as well as the degree of their integration (Table 2). The definition of the appropriate model for the internationalisation of a regional cluster is aimed at identifying the untapped potential for international cooperation among the cluster participants and adjusting the work on the development of its external connections. This allows for the optimisation of internationalisation strategies by taking into account the strengths and weaknesses of existing approaches. A brief description of the models is presented in Table 3. It is also possible to combine models, which allows for classifying various approaches to internationalisation depending on the level of involvement of cluster participants and their strategic orientations. The result of the formation and operation of an innovative cluster is the creation of innovation that will contribute to the emergence of competitive advantages. An important feature of any innovative cluster is the innovation-oriented nature of its activities. Therefore, all cluster formations, regardless of their type, must continuously consider current trends and the latest changes, as well as seek ways to enhance their competitiveness.

Table 2. *Characteristics of innovation clusters*

Type of innovation cluster	Cluster characteristics
Type A. Related clusters	▪ location: within a city, often in the city centre; ▪ quick response to innovations; ▪ flexibility of the cluster; ▪ openness of the cluster
Type B. New industrial zones	▪ combination of large enterprises and small/medium businesses; ▪ location: outside the city; ▪ macro-international trade; ▪ effort to influence innovation through the planning of actions by manufacturers and suppliers; ▪ closed nature of the cluster
Type C. Innovation environment	▪ location: outside the city; ▪ importance of social capital; ▪ high degree of integration with the regional economy
Type D. Neighbouring clusters	▪ small and medium-sized enterprises and micro-firms; ▪ location: outside the city; ▪ micro-international trade; ▪ the region is a location, not part of the production system

Source*: created by the authors based on O. Mordvinov et al. (2021), D. Castellani et al. (2022), H. Karolyi et al. (2025)*

Table 3. *Typology of regional cluster internationalisation models*

Model name and description	Advantages	Disadvantages	Strategies
"Priority participation": one group of cluster participants serves as the main driver of internationalisation, while the other two groups are also involved in developing external relations but with less noticeable contributions	▪ clearly defined focus of internationalisation; ▪ resource support for the chosen direction	▪ untapped potential in other directions; ▪ less active participants may perceive internationalisation as someone else's responsibility	▪ most active involvement of lagging participants in the internationalisation processes; ▪ development of common areas in the cluster's internationalisation
"Equal participation": at least two groups of cluster participants are equally involved in the internationalisation process. The concept of equal participation should be considered in the sense that the contribution to the development of external relations is equally high	▪ strong competitive positions in the international sphere; ▪ consistency in actions among participants regarding external relations development; ▪ maximum realisation of internationalisation potential	▪ risk of conflicts of interest among participants, or conversely, dilution of priorities and responsibility; ▪ maintaining balance requires significant effort and resources	▪ regular assessment of participants' activities, adjusting internationalisation priorities; ▪ maintaining balance by the cluster organisation; ▪ searching for new internationalisation goals
"Exclusion participation": at least one group of cluster participants is not involved in the internationalisation process	▪ indicates lack of urgency and artificial development of the cluster; ▪ can be a temporary phenomenon	▪ uneven development of international connections of the cluster; ▪ lost opportunities in the "excluded" direction; ▪ risk of weakening the cluster's competitive position	▪ analysing the internationalisation potential of the "excluded" participant; ▪ engaging the "excluded" participant in international projects of other cluster participants

Source*: created by the authors based on B. Sousa (2025), I. Piatnychuk et al. (2025)*

Based on the characteristics of the basic types of innovation clusters, it can outline their distinctive features, which reflect the presence of internal links between firms and individual participants in innovation activities, including both trade and non-trade relations, and related to social capital (qualified and trained personnel), physical capital (financing from company funds, venture capital, public grants, and loans). Therefore, participants in innovation clusters operate within a regional production network, in line with regional priorities and goals for innovation development.

In the current period, among the diversity of cluster formations, the innovative type of cluster has gained particular significance, as it uses innovation as a technology to achieve competitive advantages and as a means of achieving success, as well as a strategy for future development. For a regular cluster, innovation may manifest at a certain stage of the technological cycle, meaning that within an innovation cluster, the process from the idea's inception to its implementation must be ensured. Innovation clusters should be formed around specific areas of economic activity, such as covering one or more industries or even economic sectors, and should be oriented towards the production of final innovative products. In turn, the involvement of foreign partners in the cluster promotes investment from both the private and public sectors abroad, while foreign partners from the cross-border space can take on the role of monitoring the cluster's activities, as well as facilitating the exchange of experience, particularly in the area of scientific developments, among others.

Economic and innovation links often span regional administrative boundaries, including international ones. However, political efforts frequently overlook this fact, thereby limiting the economic and innovative potential of many border regions. Promoting cross-border regional innovation policy is challenging due to several barriers, including those created by the policy itself. At the same time, political will is a crucial factor in launching or ensuring long-term support for cross-border efforts. Typically, the local level has the most interest, as it directly feels the costs and benefits. For innovation policy, the region is generally a more suitable scale than individual localities, as it encompasses the relevant range of firms, universities, employees, and other participants in innovation activities. National (and supranational) governments can either promote or hinder cross-border cooperation in the policy realm, depending on regulation and funding across a wide range of policies impacting the cross-border territory.

The formation and operation of innovation clusters in border regions within the framework of cross-border cooperation essentially aligns with the development of regional innovation clusters as a whole. However, an innovation cluster in a border region, which is formed, operates, and will develop under cross-border cooperation conditions, differs from a regional innovation cluster and enables the utilisation of advantages inherent in cross-border cooperation, defined by its territorial placement. A cross-border innovation cluster involves the unification of relevant participants who gain positive effects and competitive advantages from collaborating within the respective cross-border space.

Intersectoral connectivity, which is an integral part of the cluster concept, is a decisive factor for creating a critical mass for transformative activities. Furthermore, clusters often bring together participants of the quadruple helix, which is critically important for cooperative leadership in the process of entrepreneurial innovation. H. Alcalde-Heras *et al.* (2024) examined the characteristics that allow cross-border cooperation initiatives to evolve into cross-border clusters that support smart specialisation strategies. The study focused on how to eliminate barriers to traditional cooperation and encourage companies to adhere to smart specialisation plans. The analysis was based on the development project of a cross-border cluster in the cross-border region of Nouvelle-Aquitaine – Basque Country – Navarre (NAEN). The authors identified six critical opportunities that cross-border cooperation projects should develop to support the emergence of cross-border clusters: adaptability, territorial connection, network management group profile, facilitation, openness, and acceleration.

Modern competition is global, and therefore, neighbouring regions may need to resort to "cooptation" – collaboration aimed at strengthening competitive positions. It is important to understand the potential costs and benefits, as well as the alignment or lack of appropriate incentives. Usually, favourable conditions for innovation in a region increase the benefits and reduce costs. However, implementing innovation policy can be challenging, as it is difficult to predict the outcomes given the initial costs and the uncertainty that often accompanies investments in this area. Furthermore, over time, additional measures can be taken to increase economic efficiency. The cost of lack of cooperation may even turn out to be higher. Experts of Organisation for Economic Co-operation and Development (OECD) C. Nauwelaers *et al.* (2013) provided several key recommendations for managing cross-border cooperation:

- policies should be motivated to address this issue, understanding that their timelines and motivations are typically short-term;
- identify the points for national (supranational) governments where they can support cross-border efforts;
- assess various costs and benefits, as well as their alignment at the international level to ensure long-term cooperation that fosters trust;
- involve non-governmental structures in governance by creating secretariats that support the activities of official (even informal) governance bodies.

Cross-border tools will be more effective if they are part of a broader strategy or action plan based on data, participant mapping, and analytics. Sometimes, cross-border political tools serve as experimental tests, allowing participants to test them in traditional innovation programmes. However, since government funding is often limited by national borders, an alternative solution is to harmonise tools across borders, allowing participants from different jurisdictions to cooperate more effectively. Tools that force cooperation when barriers exist (due to regulations, funding, or lack of quality partners) cannot be sustainable. International experience with various political tools allows identifying their advantages and disadvantages so that lessons learned can be applied in other regions.

Based on the network model of internationalisation developed by J. Johansson and L. Matgsok, four scenarios of regional cluster internationalisation can be identified (Formahl & Grashof, 2021):

- "Potential internationalisation": neither the cluster itself nor the region where it is based has developed international and foreign economic relations;
- "Internationalisation alone": the cluster already has developed relationships with foreign partners, but the region does not engage in active international activity. Advantage – the cluster holds a pioneering position. Disadvantage – lack of necessary support from regional institutions;
- "Delayed internationalisation": the cluster, with low levels of international contacts, is located in a region where other entities are actively developing external connections. Advantage – integration into the international space is facilitated by actively learning from the leaders. Disadvantages – high competition and lost opportunities;
- "Supported internationalisation": both the cluster and its base are characterised by a high level of internationalisation. In this situation, the cluster can make the most

of the region's external connections, while the region gains maximum benefits from the cluster's international activity.

One of the issues with the internationalisation of regional clusters is the underdeveloped coordination system and fragmented methodological support for this process, which leads to the need to create comprehensive methodological developments. The creation of these developments is one of the most important functions of public management in cross-border innovation clusters. The internationalisation algorithm for the cluster should be understood as a specific sequence of actions aimed at developing international and foreign economic relations within the cluster. The content of its main stages is presented in Table 4.

Table 4. *Content of the main stages of the internationalisation algorithm for a regional cluster*

Stage title	Description
1. Goal setting	▪ identifying participants interested in the development of international cooperation at a specific stage of the cluster's life cycle and studying their motivation; ▪ developing a goal tree; ▪ defining target indicators for internationalisation effectiveness
2. Diagnosis	▪ assessing the cluster's existing external connections, international potential, resource capabilities, and limitations for internationalisation; ▪ analyiing the external environment; ▪ studying foreign cluster websites and databases, specialised cluster development institutes, and promoting international cooperation; ▪ analysing statistical information, benchmarking domestic and foreign clusters using case study methods (successful practice analysis) and active participation (attending specialised seminars, exhibitions, conferences)
3. Programme development	▪ SWOT analysis of internationalisation vectors, assessing the prospects for developing the cluster's external connections; ▪ designing key measures to implement strategic priorities and target indicators for internationalisation in key areas; ▪ developing effectiveness indicators (target indicators for programme implementation)
4. Preparation	▪ distributing responsibility for the development of international activities and creating a coordination mechanism; ▪ searching for and attracting necessary resources, their distribution; ▪ operational planning of international activities; ▪ employee training; ▪ establishing contacts with administrations, embassies, international organisations in Ukraine, trade missions abroad, chambers of commerce; ▪ selecting partners; ▪ preparing and disseminating information about the cluster and its participants
5. Project organisation	▪ developing specific projects for the development of international cooperation in various areas: education, research, manufacturing, organisational, marketing; ▪ implementing initial projects; ▪ evaluating results; ▪ feedback; ▪ disseminating positive experiences
6. Functioning	▪ maintaining information about the cluster and its participants in international databases; ▪ participating in specialised events and organising events with invitations for foreign participants; ▪ systematising international contacts of cluster participants and stimulating knowledge exchange; ▪ interacting with government structures and development institutes; ▪ interacting with foreign clusters at professional community platforms, expanding the pool of partners; ▪ regularly upgrading specialists' qualifications

Source*: created by the authors*

One of the challenges in the management of the internationalisation of regional clusters is the weak development of the coordination system and methodological support for this process. The proposed algorithm for developing a regional cluster internationalisation programme is aimed at organising the activities of the cluster's participants and coordinators to maximise the realisation of its international and external economic potential. It is also appropriate for developing programmes to strengthen, restructure, and optimise cooperation between the border regions of Ukraine and EU countries.

Conclusions

The article explored the advantages and opportunities of creating innovative clusters in border regions through cross-border cooperation. The results confirmed that such cooperation has a significant impact on enhancing regional competitiveness, fostering innovation, and improving the overall quality of life for local populations. In this context, a cluster serves as a direct tool for introducing economic and innovation-driven changes within a region. This is supported by the successful use of the cluster model in other countries, where such initiatives have proven effective. Cross-border sectoral clusters are presented as vibrant, dynamic platforms for interconnected knowledge-based activities, shared among complementary partners in a close geographical setting, where success lies in the ability to leverage the experience of their members to boost the overall competitiveness of the group. The strong dynamics of innovation generation in regions are crucial for achieving national and regional growth targets. Furthermore, clusters are not bound by borders but are often distributed across several different territories, which promotes inter-regional collaboration, often seen as an advantage in reaching a critical mass in transformational operations. The importance of such initiatives is underlined by clusters' ability to stimulate regional value chains and contribute to global innovations and economic growth.

The article discusses four internationalisation scenarios for clusters, including "potential internationalisation", "internationalisation in isolation", "late internationalisation", and "supported internationalisation", which allowed for the analysis of clusters' involvement in international processes. An internationalisation algorithm was also developed for clusters, including stages from goal setting to project implementation, aimed at effectively organising international cooperation. Key aspects of this process included analysing external links, developing strategic priorities, and coordinating actions among all cluster participants. Conceptually, this approach enables the classification of various internationalisation strategies and helps determine the most effective paths for international cooperation. The results obtained demonstrate that the internationalisation of clusters in border regions is an important tool for their integration into global economic and innovation networks.

Further research should focus on studying the impact of cultural and institutional barriers on the effectiveness of cross-border innovation clusters, as well as developing new models for improving collaboration between different regions. Additionally, it is essential to explore mechanisms for supporting cross-border initiatives from both public and private entities to ensure the sustainable development of such clusters.

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Conflict of Interest

None.

References

[1] Alcalde-Heras, H., Lorenz, U., & Oleaga, M. (2024). Cross-border collaboration: Enabling cross-border clusters to support innovation. *Ekonomiaz Revista Vasca de Economía,* 106(2), 188-215. doi: 10.69810/ekz.1488.

[2] Asheim, B., Isaksen, A., & Trippi, M. (2019). *Advanced introduction to regional innovation systems*. Cheltenham: Edward Elgar Publishing.

[3] Basche, H. (2022). Determinants of cross-border co-patents: Empirical evidence from 45 European regions. *Review of Regional Research,* 42, 1-22. doi: 10.1007/s10037-021-00151-0.

[4] Cappellano, F. (2019). *Cross border innovation economies: The Cascadia Innovation Corridor case*. Washington: Border Policy Research Institute.

[5] Cappellano, F., & Makkonen, T. (2020). The proximity puzzle in cross-border regions. *Planning Practice & Research,* 35(3), 283-301. doi: 10.1080/02697459.2020.1743921.

[6] Castellani, D., Perri, A., Scalera, V., & Zanfei, A. (2022). *Cross-border innovation in a changing world*. Oxford: Oxford University Press. doi: 10.1093/oso/9780198870067.001.0001.

[7] Chandra, K., Wang, J., Luo, N., & Wu, X. (2023). Asymmetry in the distribution of benefits of cross-border regional innovation systems: The case of the Hong Kong – Shenzhen innovation system. *Regional Studies*, 57(7), 1303-1317. doi: 10.1080/00343404.2022.2126450.

[8] Danko, N., & Izmailov, O. (2025). Cluster model of cross-border cooperation between Ukraine and Poland in the context of European integration. *Sustainable Economic Development*, 6(57), 361-366. doi: 10.32782/2308-1988/2025-57-47.

[9] Demedyuk, O. (2020). Perspectives of cross-border clusters development in the border oblasts of the Western Ukraine. *Regional Economy,* 2, 58-71. doi: 10.36818/1562-0905-2020-2-5

[10] Derudder, B., & Liu, X. (2025). Cross-border regional innovation systems: Concepts, approaches and perspectives. *Regional Studies*, 59(1), article number 2418704. doi: 10.1080/00343404.2024.2418704.

[11] Engel, J. (Ed.). (2023). *Clusters of innovation in the age of disruption*. Cheltenham: Edward Elgar Publishing.

[12] Formahl, D., & Grashof, N. (Eds.). (2021). *The globalization of regional clusters: Between localization and internationalization*. Cheltenham: Edward Elgar Publishing.

[13] Heidenreich, M., & Mattes, J. (2025). Regional innovation systems and innovation clusters. In I. Schulz-Schaeffer, A. Windeler & B. Blättel-Mink (Eds.), *Handbook of innovation* (pp. 1-18). Cham: Springer. doi: 10.1007/978-3-031-25143-6 44-1.

[14] Karolyi, H., Akimova, L.M., Mishchuk, H.Y., Akimov, O.O., & Karpa, M.I. (2025). Military migration and demographic transformations in Ukraine: Military consequences for territorial communities. *Ukrainian Geographical Journal*, 3(131), 75-86. doi: 10.15407/ugz2025.03.075.

[15] Makkonen, T., Williams, A., Mitze, T., & Weidenfeld, A. (2018). Science and technology cooperation in cross-border regions: A proximity approach with evidence for Northern Europe. *European Planning Studies,* 26(10), 1961-1979. doi: 10.1080/09654313.2018.1500528.

[16] Maroun, N. (2025). *The importance of cross-border collaboration between clusters*. Retrieved from https://berytech.org/the-importance-of-cross-border-collaboration-between-clusters/.

[17] Mordvinov, O., Kravchenko, T., Vahonova, O., Bolduiev, M., & Romaniuk, N. (2021). Innovative tools for public management of the development of territorial communities. *Ad Alta: Journal of Interdisciplinary Research,* 11(1), 33-37.

[18] Nauwelaers, C., Maguire, K., & Marsan, G. (2013). *The case of the top technology region/ Eindhoven-Leuven-Aachen Triangle (TTR-ELAt) – regions and innovation: Collaborating across borders*. Paris: OECD. doi: 10.1787/5k3xv0lg3hf5-en.

[19] Neuberger, S., Darr, D., Oude Lansink, A.G.J.M., & Saatkamp, H.W. (2023). The influence of the cross-border innovation environment on innovation processes in agri-food enterprises – a case study from the Dutch-German Rhine-Waal region. *NJAS: Impact in Agricultural and Life Sciences*, 95(1), article number 2194259. doi: 10.1080/27685241.2023.2194259.

[20] Osarenkhoe, A., & Fjellstrom, D. (2022). A cluster's internationalization as a catalyst for its innovation system's access to global markets. *EuroMed Journal of Business,* 19(2), 229-250. doi: 10.1108/EMJB-11-2020-0127.

[21] Peck, F., & Mulvey, G. (2018). Cross-border collaboration in economic development: Institutional change on the Anglo-Scottish border. *Journal of Borderlands Studies,* 33(1), 69-84. doi: 10.1080/08865655.2016.1257365.

[22] Piatnychuk, I., Akimova, L., Serhieiev, V., Bashynskyi, I., Radchenko, R., & Akimov, O. (2025). Competences of public administration leaders in the face of threats to national security: Strategic development guidelines. *TPM – Testing, Psychometrics, Methodology in Applied Psychology,* 32(S1), 340-349. doi: 10.5281/zenodo.17295047.

[23] Reznikova, N., Rubtsova, M., & Yatsenko, O. (2020). The role of innovation clusters in building up investment and innovation strategies in the cross-border cooperation context. *Actual Problems of International Relations,* 142, 85-98. doi: 10.17721/apmv.2020.142.1.85-98

[24] Salikhov, M.M. (2025). Policy on the development of innovation clusters in the EU. Conclusions and tasks for Ukraine. *Statistics of Ukraine,* 109(2), 30-39. doi: 10.31767/su.2(109)2025.02.03.

[25] Sousa, B. (2025). *Cross-border regions cooperation and implications for organizations*. Hershey: IGI Global. doi: 10.4018/979-8-3373-1912-4.

[26] van den Broek, J., Benneworth, P., & Rutten, R. (2018). Border blocking effects in collaborative firm innovation. *European Planning Studies,* 26(7), 1330-1346. doi: 10.1080/09654313.2018.1476470.

[27] Volkova, N. (2023). Cross-border cooperation of Ukraine with EU countries in the conditions of the Russian-Ukrainian war. *Economy and Society*, 48. doi: 10.32782/2524-0072/2023-48-52.

[28] Wang, J., Chandra, K., Du, C., Ding, W., & Wu, X. (2021). Assessing the potential of cross-border regional innovation systems: A case study of the Hong Kong – Shenzhen region. *Technology in Society,* 65, article number 101557. doi: 10.1016/j.techsoc.2021.101557.

[29] Włodarczyk, E. (2019). *Industry 4.0: The role of IIoT in digital transformation of the manufacturing sector*. Innsbruck: Comarch.

Механізми публічного управління транскордонними інноваційними кластерами: міжнародні моделі та перспективи українських регіонів

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Анотація. Актуальність теми дослідження полягає в зростаючій ролі транскордонних інноваційних кластерів як важливого інструменту для розвитку регіональних економік та підвищення їх конкурентоспроможності через інтеграцію в глобальні економічні та інноваційні мережі. Метою роботи був аналіз розвитку транскордонних інноваційних кластерів, виявлення їх переваг та можливостей для інтернаціоналізації в контексті глобалізації та євроінтеграції. Для досягнення мети було використано методи концептуального аналізу, кейс-стаді, а також емпіричне дослідження на прикладі різних транскордонних кластерів, зокрема в Європі та за її межами. Результати дослідження показали, що транскордонні інноваційні кластери сприяють реіндустріалізації регіонів, зменшують залежність від великих корпорацій і створюють конкурентні переваги для малих і середніх підприємств. Аналіз кейсів, зокрема таких як Future Position X у Швеції, Інноваційний Коридор Каскадії в Північній Америці та інші, продемонстрував значний потенціал транскордонних ініціатив для залучення нових технологій, ресурсів і міжнародних ринків. Визначено важливі фактори, що впливають на ефективність таких кластерів, зокрема геополітична і інституційна близькість, науково-технологічна взаємодія, а також культурні та реляційні аспекти співпраці між регіонами. Крім того, було розроблено модель інтернаціоналізації регіональних кластерів, яка включає чіткі етапи координації та розвитку зовнішніх зв'язків, що дозволяє максимально реалізувати міжнародний потенціал кластерів та сприяє їх ефективному розвитку. Це дослідження може бути корисним для державних органів, регіональних адміністрацій, кластерних організацій, малих та середніх підприємств, а також академічних установ для розробки стратегій транскордонної співпраці, оптимізації інтернаціоналізації та покращення інноваційного розвитку в прикордонних регіонах

Ключові слова: політика згуртування; інноваційна політика; інноваційні системи; регіональний розвиток; сталий розвиток

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