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Institutional Mechanisms for Modernizing Public Administration of Education in the Context of Digitalization: Challenges and Prospects

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ABSTRACT

The article examines the institutional mechanism for the modernization of public education management in Ukraine in the context of digitalization, with a special focus on regulatory and legal principles, organizational and managerial tools, key challenges and strategic vectors of development. The purpose of the study is to substantiate and systematize the institutional mechanisms for the digital transformation of public education management, identify the main barriers to digitalization, and formulate practical recommendations for building a sustainable digital architecture of the education sector, taking into account European standards. The methodological basis is based on a systematic analysis of the regulatory and legal acts of Ukraine in the field of digital transformation of education. The methods of theoretical generalization, comparative and institutional analysis, modeling of management processes, as well as the author's tabular and graphical models for the visualization of organizational and managerial measures and strategic directions of modernization, are used. The obtained scientific results show that the regulatory framework has already formed the basic digital infrastructure, but its effectiveness is limited by uneven access, low level of digital maturity of regions, shortage of qualified personnel, cybersecurity risks and institutional resistance to transformation processes. The need to transition to a hybrid centralized-decentralized management model and the introduction of approaches focused on adaptivity and agility is substantiated. Organizational and management proposals and strategic directions of institutional modernization are formed, which systematize key tools and indicators of achieving target indicators. The practical significance of the study lies in the development of specific organizational and management measures and a strategic model that can be implemented by the Ministry of Education and Science, regional state administrations and educational institutions to intensify digital transformation. Prospects for further scientific explorations are associated with empirical verification of the proposed model at the regional level and assessment of the impact of artificial intelligence on the processes of managerial decision-making in the educational sector. Special attention is required to develop mechanisms for the full integration of Ukrainian digital educational systems into the European digital space.



KEYWORDS

digital transformation of education, public administration, institutional modernization, digital governance, European integration.



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Інституційні механізми модернізації публічного управління освітою в умовах діджиталізації: виклики та перспективи

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Стаття досліджує інституційний механізм модернізації публічного управління освітньою сферою в Україні в контексті цифровізації, з особливим фокусом на нормативно-правових засадах, організаційно-управлінських інструментах, ключових викликах та стратегічних векторах розвитку. Мета дослідження полягає в обґрунтуванні та систематизації інституційних механізмів цифрової трансформації публічного управління освітою, ідентифікації основних бар'єрів цифровізації, а також формулюванні практичних рекомендацій щодо побудови стійкої цифрової архітектури освітнього сектору з урахуванням європейських стандартів. Методологічна основа базується на системному аналізі нормативно-правових актів України у галузі цифрової трансформації освіти. Використано методи теоретичного узагальнення, компаративного та інституційного аналізу, моделювання управлінських процесів, а також авторські табличні та графічні моделі для візуалізації організаційно-управлінських заходів та стратегічних напрямів модернізації. Одержані наукові результати засвідчують, що нормативно-правова база вже сформувала базову цифрову інфраструктуру, проте її ефективність обмежується нерівномірним доступом, низьким рівнем цифрової зрілості регіонів, дефіцитом кваліфікованих кадрів, ризиками кібербезпеки та інституційним опором трансформаційним процесам. Обґрунтовано необхідність переходу до гібридної централізовано-децентралізованої моделі управління та запровадження підходів, орієнтованих на adaptivity, agility. Сформовано організаційно-управлінські пропозиції та стратегічні напрямки інституційної модернізації, які систематизують ключові інструменти та індикатори досягнення цільових показників. Практична значущість дослідження полягає у розробці конкретних організаційно-управлінських заходів та стратегічної моделі, які можуть бути імplementовані Міністерством освіти і науки, обласними державними адміністраціями та закладами освіти для інтенсифікації цифрової трансформації. Перспективи подальших наукових розвідок пов'язані з емпіричною верифікацією запропонованої моделі на регіональному рівні та оцінюванням впливу штучного інтелекту на процеси прийняття управлінських рішень в освітній галузі. Особливої уваги потребує розробка механізмів повноцінної інтеграції українських цифрових освітніх систем у європейський цифровий простір.



КЛЮЧОВІ СЛОВА

цифрова трансформація освіти, публічне управління, інституційна модернізація, цифрове врядування, європейська інтеграція.

1. Introduction

In the context of the processes of large-scale digital transformation of public administration, the educational system of Ukraine needs institutional modernization, aimed at ensuring its sustainability, effectiveness and ability to adequately respond to the challenges of the digital economy and knowledge society. The process of digitalization of the educational sphere involves not only the implementation of technological innovations, but also the systematic updating of management practices, the transformation of the regulatory framework, the development of analytical capacity and the formation of qualitatively new forms of interaction between public authorities, regional structures, territorial communities and educational institutions. At the same time, the current state of public administration in education can be characterized through the prism of fragmentation of digital initiatives, disproportionality of levels of digital maturity of territorial units, a deficit of professional competencies and an insufficient degree of integration of managerial decisions, which form obstacles to the creation of a consolidated digital educational ecosystem. The problems of the study are to identify critical institutional, organizational and technological determinants that hinder the digital modernization of the educational sphere, and to scientifically substantiate the strategic vectors of their elimination in the context of the formation of an updated architecture of the public administration system.

2. Literature Review

The analysis of the scientific discourse shows the increased attention of researchers to the problems of digital transformation of public administration in the educational sphere, which is determined by global trends in the development of digital technologies and the objective need to modernize institutional management mechanisms. In the studies of G. Dey [2], I. Lomachynska et al. [7], A. Rachynskyi and O. Tytarenko [11] emphasis is placed on the fact that the digitalization of education cannot be considered exclusively as a technological process, since it involves fundamental structural transformations of the governance model, rethinking managerial functions and the introduction of innovative approaches to the organization of educational processes. Scientists substantiate the thesis that digital platforms, electronic document management systems and analytical tools are able to increase the transparency, efficiency and accountability of educational management, but their effectiveness is determined by the level of institutional readiness and the formation of the digital culture of managerial entities.

A significant array of scientific publications, including the research by T. Birkovych et al. [1], V. Suprun [14], is devoted to the problems of digital asymmetry, the deficit of digital competencies and the challenges of coordination between state authorities and local self-government. These works emphasize that the differentiation of the levels of digital maturity of regions and educational institutions forms obstacles to the implementation of unified digital development strategies, and the lack of standardized infrastructure complicates the integration of local systems with national information registers. A separate area of scientific research, represented by the works of M. Vatkovska and O. Motuz [16], M. Zaitsev, R. Demchenko and O. Volodchenkov [18], concentrates on the prospects for the application of artificial intelligence, cloud technologies and data analytics systems in the educational field. The researchers argue that digital innovations create qualitatively new opportunities for forecasting, monitoring and strategic planning, while at the same time requiring coordinated institutional decisions and modernization of the regulatory framework. Thus, the review of the scientific achievements of the study confirms the relevance of the problem of institutional modernization and outlines the priority vectors of further scientific research.

3. Problem Statement

The purpose of the article is to substantiate institutional, organizational, managerial and regulatory measures aimed at the development of public administration of education in Ukraine in the environment of its digital support.

4. Methods and Materials

The methodological basis of the study was formed by: integration of systemic, institutional and structural-functional approaches, for a comprehensive analysis of the process of digital modernization of public management of the educational sphere as a multi-level interaction of regulatory, organizational and technological components. The method of content analysis of strategic documents, regulations and analytical materials of the Ministry of Education and Science of Ukraine was applied, which made it possible to identify key regulatory provisions and dominant trends in digital transformation. Comparative analysis is used to identify asymmetries of digital maturity between the state, regional and institutional levels of education management. The method of structural modeling is used to develop a conceptual scheme for institutional modernization of the educational system. The critical analysis toolkit has created the basis for assessing the strengths and weaknesses of digital reforms, as well as for identifying potential opportunities and risks for further development. The generalization of the results obtained was carried out through a logical and analytical synthesis in order to formulate strategic conclusions and outline the prospects for digital modernization of the educational sector.

5. Results and Discussion

The regulatory framework for public administration for the education sector in Ukraine forms a multi-level and dynamic system of regulatory tools that are aimed at transforming the education sector in accordance with the challenges of the digital age. Since the digitalization of education has already covered legal regulation, organizational support, technical infrastructure and institutional coordination mechanisms, it is the regulatory array of Ukraine that already needs comprehensive modernization. The Law of Ukraine "On Amendments to Certain Laws of Ukraine on the Functioning of Integrated Information Systems in the Field of Education" has become a regulatory basis for determining the basics of the functioning of digital educational platforms, data collection and processing systems, mechanisms of information interaction between participants in the educational process, and also created the basis for the formation of a unified digital architecture of education, which provides for a widespread transition to electronic services, digital documents, unified registers and data verification standards [19]. The Order of the Cabinet of Ministers of Ukraine No. 735-r "Some Issues of Digital Transformation" also plays a special role, which defines the strategic guidelines for digital changes in the public sector, in particular, the requirement for the transition of state institutions to electronic services, the introduction of integrated information solutions, the development of digital competencies of officials, as well as the optimization of administrative processes through automation and the use of analytical tools [4]. In parallel with these documents, the Ministry of Education and Science of Ukraine is forming its own regulatory framework, with a focus on the digitalization of the educational process and the modernization of management. In particular, this applies to the concept of digital transformation of education and science, industry standards for digital competencies of teachers and managers, regulations for the integration of state registers, requirements for electronic document management and the use of digital educational platforms.

Attention should be paid to the analysis of integrated information systems, which are becoming the central link in the modernization of education management. The Unified State Electronic Database on Education (EDEBO) is the core of the digital institutional infrastructure that accumulates information about participants in the educational process, documents on education, licensing, accreditation, admission campaign, statistical data, and also provides communication with other state registers. The systematic use of the EDEBO is the transparency of educational services, minimization of corruption risks, automation of management procedures and the basis for state bodies to quickly receive analytics for making management decisions, which is important in the context of the growing complexity of educational policy. In addition to the EDEBO, the digitalization of public access has spread through sectoral digital classrooms (pupil, student, teacher, supervisor), which provide personalized access to services, electronic documents, educational materials, communications, and administrative functions, which forms a new model of interaction between educational entities and significantly reduces the burden on the administrative apparatus. Analytical platforms that integrate with EDEBO create opportunities for forecasting, modeling, evaluating educational outcomes, early detection of problems, and improving policy effectiveness through the use of big data [15].

One of the challenges of digital transformation is to determine the optimal balance between centralization and decentralization of management processes, because centralized digital tools ensure the unification of standards, integration of registers, data compatibility and transparency of statistical reporting, while decentralization allows educational institutions to maintain flexibility, implement their own digital solutions and promptly respond to the needs of participants in the educational process. In Ukraine, a mixed management model is gradually being formed, within which key digital platforms, such as state educational registers, integrated information systems, centralized databases, remain the responsibility of the state, while specific tools for the implementation of digital services in the institution are implemented autonomously, in accordance with the resources and strategic priorities of each institution (Fig. 1) [13].

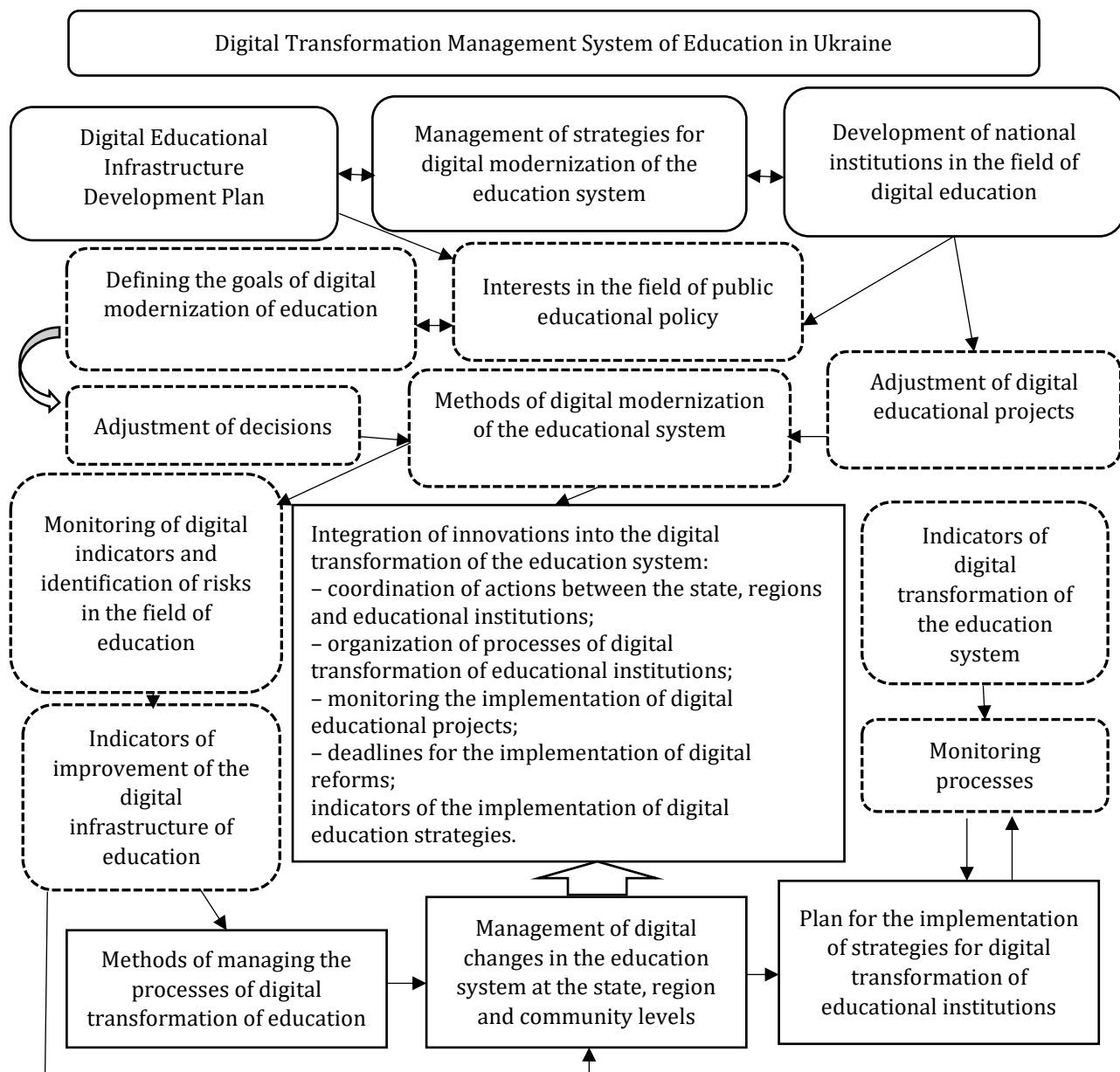


Fig. 1. The system of digital transformation of public education management in Ukraine

Source: Developed by the author.

With such justifications, the latest management concepts become relevant, which form the basis of the digital organization of the education system, in particular, the approaches “adaptivity, agility” and “data-driven management”. They are aimed at building flexible management structures that can adapt to changes in the external environment, use data as a key resource for decision-making and ensure prompt response to management challenges. Approaches are increasingly being implemented in Ukrainian public education management, as they allow to abandon the strictly regulated model based on paper procedures and move to an interactive structure of digital services, where key management

functions are performed automatically, and the role of management is not so much in the technical support of document flow as in strategic data analysis, forecasting and coordination (Table 1).

Table 1. Organizational and managerial measures of digital support of public administration for the educational sector

No	Steps	Performers	Form of implementation	Expected effect
1	Creation of a single interdepartmental working group on digital transformation of education	Ministry of Education and Science, Ministry of Digital Transformation, representatives of RMA and educational institutions	Permanent Coordinating Body under the Cabinet of Ministers	Accelerating regulatory harmonization and removing interagency barriers
2	Introduction of mandatory electronic document management in all educational institutions	Heads of institutions, IT departments of the Ministry of Education and Science	Order of the Ministry of Education and Science + technical integration with EDEBO	Reducing the paper load by 80–90% by 2027
3	Development and approval of regional plans for digital maturity of educational institutions	Regional military administrations, departments of education	Annual plans with KPIs	Bridging the digital divide between town and country
4	Organization of quarterly monitoring of the use of state digital platforms (EDEBO, electronic cabinets)	The Ministry of Education and Science together with the State Statistics Service and the Ministry of Digital Transformation	Automated dashboards + reports	Identification and prompt elimination of technical and organizational problems
5	Mandatory certification of digital administrators of educational institutions	National Qualifications Agency, Advanced Training Centers	Digital Education Manager Certificate	Increase in the competence of managerial personnel by 40–50%

Source: Systematized by the author according to the data given in [8, 12].

The shift from paper-based administration to digital services has also fundamentally changed the management culture, as digital solutions eliminate reliance on manual operations, reduce the burden on managerial staff, minimize the risk of errors, and ensure system-wide standardization of processes. Digital administration includes electronic applications, automated admission campaign procedures, online registration of participants in the educational process, electronic document management, digital services for the issuance of educational documents, and automated assessment tools, which significantly change the entire architecture of educational management. The gradual disappearance of paper journals, orders and reports creates conditions for the reorientation of management resources to strategic analysis and planning, and not to the mechanical implementation of regulatory procedures.

The development of managerial innovations in the field of education in Ukraine demonstrates the formation of a sustainable trend towards process automation, which includes the creation of electronic document management, the use of digital communication platforms, automatic quality control modules, learning management systems (LMS), electronic journals and registers. These tools help to really reduce the number of administrative operations and at the same time, increase the accuracy and completeness of data on which management activities are based. The use of electronic journals forms operational monitoring of educational results, which allows school and university administrations to anticipate problems, take corrective measures and provide more accurate management of educational trajectories. LMS systems, which are increasingly used by both higher education and institutions of pre-higher and general secondary education, provide not only e-learning, but also storage of educational data, automation of testing, and individualization of the educational process, which significantly expands the possibilities of managing the educational environment [17, p. 93–94].

The use of data analytics in the education system is becoming a new element of management decisions, because modern digital platforms make it possible to analyze attendance, academic performance, pedagogical workload, effectiveness of educational programs, demographic trends, regional disproportions and other parameters, which expands the implementation of strategic planning based on accurate and verified data for public authorities. Analytical systems integrated with state

registers create prerequisites for forecasting personnel needs, determining optimal funding models, forming a network of educational institutions, optimizing the teaching load and increasing the effectiveness of educational policies, which is indispensable in the context of reforming the Ukrainian education system in the context of war and post-war challenges. Cloud services provide the possibility of centralized data storage, quick access to educational platforms, scalability of digital infrastructure and continuity of the educational process, which has become especially important during the period of distance and blended learning.

One of the most acute challenges remains unequal access to digital resources, which is reflected both in the territorial and social dimensions, because a significant part of pupils, students, teachers and managers work in conditions of insufficient technical support, limited Internet infrastructure, low quality of digital services or their absence, which creates deep disproportions between large cities and small settlements, between developed educational institutions and those functioning in territorial communities that do not have sufficient resources to modernize the educational environment. In this regard, inequality generates educational inequality, because participants in the educational process receive different levels of learning opportunities, using electronic platforms, participating in blended or distance learning, as well as different levels of access to digital interaction tools, which limits the potential for digital modernization [9, p. 40].

The low digital maturity of regions and educational institutions is another systemic barrier, as many institutions do not have developed digital strategies, internal regulations for working with data, technical standards for interoperability, cyber defense procedures or tools for automating management processes, which significantly complicates the integration of unified government decisions at the local level. The lack of digital infrastructure, combined with the lack of a proper analytical culture, leads to the fact that teachers and managers continue to work mainly in the mode of paper bureaucracy or use digital platforms in fragments, without using their full functionality. This, in turn, limits the ability of public authorities to carry out high-quality monitoring, analysis of educational trends and policy-making based on data, because digital maturity is a key condition for the transition to a systemically integrated digital model of governance [2].

The lack of qualified digital managers is one of the most critical problems that hinders the modernization of the sector no less than technical limitations, since even the availability of infrastructure and digital platforms does not provide the expected effect in the absence of professional personnel capable of using digital tools as an institutional management resource. In Ukraine, there is a significant shortage of specialists who combine competencies in the field of education, public administration, data analytics, cybersecurity and digital technologies, which leads to a slowdown in the implementation of digital services, misuse of existing platforms, difficulties in integrating state and local systems, as well as a low level of digital management culture. In many communities and educational institutions, the functions of digital administrators are performed by persons who do not have special training, which makes the process of digital transformation fragmented and dependent on the individual abilities of specific employees, and not on a stable system [14, p. 375].

Threats related to cybersecurity, personal data protection and compliance with digital ethics require a separate analysis, since the digitalization of education is inevitably accompanied by an increase in the volume of processed data, an increase in access points to information systems and the emergence of new risks to the safety of participants in the educational process. Educational institutions store large amounts of personal data – from passport data to medical documents, information on academic performance, special educational needs, social status, etc., and any leakage or unauthorized access to such data can have serious consequences for both individuals and the state. At the same time, many educational institutions do not have data encryption systems, modern protections, backups, or incident response algorithms, which creates vulnerabilities that can potentially be exploited by both vulnerable groups and organized cyber threats. Digital ethics is also gaining weight, since the use of monitoring systems, assessment algorithms and behavior analytics should be regulated in such a way as not to violate academic freedom, privacy and the right to non-discrimination [5, p. 90–91].

One of the most underestimated but influential barriers is institutional resistance to change, which is manifested in the reluctance of some managers, teachers and administrative staff to switch to digital work models, since the introduction of digital technologies involves changing established procedures, redistributing responsibilities, the need for advanced training and constant adaptation to new tools. Part of the workforce perceives digitalization as a threat to their own functions or as an additional workload that increases passive or active resistance to innovations. This resistance can

manifest itself both in the formal adherence to digital procedures without actually taking advantage of their benefits, and in attempts to return to paper work formats when digital solutions cause difficulties or technical failures. Institutional resistance slows down digital transformation, because the modernization of the public education management system requires the active participation of all actors, readiness for change, flexibility and openness to innovation.

Prospects and strategic directions for the institutional modernization of the education system of Ukraine in the context of digital transformation are formed as a multi-level and long-term process that encompasses the transformation of the public administration architecture, strengthening analytical capacities, building institutional resilience and integrating the education sector into the European digital space, and the central to this transformation is the creation of a holistic, interconnected and standardized model of digital governance, which ensures effective coordination between government agencies, regional structures and educational institutions, as well as the full use of digital technologies to improve the quality of governance, transparency of policies and the sustainability of educational institutions. In modern conditions, when Ukraine is simultaneously undergoing post-conflict recovery, decentralization and digitalization, it is institutional changes in the field of education that determine the ability of the state to form competitive human capital and integrate into the global educational and technological space.

The formation of a new architecture of digital public education management involves not just the implementation of individual digital services, but the construction of a system in which institutional roles, competencies, digital flows, analytical tools and regulatory decisions function as a coherent ecosystem focused on data and transparency of management processes. The presented architecture should be based on the principles of integration, interoperability, scalability and cyber resilience, while ensuring simultaneous standardization at the national level and maintaining the autonomy of educational institutions in choosing specific digital models, platforms and methods of organizing internal management processes. The strategic task is to gradually replace the fragmented digital infrastructure, which historically developed as a set of separate projects and local systems, with a holistic institutional environment, where all decisions are based on open standards, and data circulates between system actors in real time. In the future, such an architecture should provide not only digital document management or an electronic register, but also automated models for coordinating educational programs, allocating resources, monitoring results, forecasting labor market needs, and shaping educational trajectories (Fig. 2).

The modernization is also supported by the development of think tanks and monitoring systems, which should become an integral part of digital governance and education, because the effectiveness of management decisions in the digital age depends on the ability of the state to work with large amounts of data, carry out constant analysis of trends, identify problems and predict results based on complex decision-making models. Today, the analytical capabilities of Ukrainian education remain insufficiently developed, since a significant part of the data is either not digitized, or is stored in incompatible formats, or is used exclusively for reporting, and not for strategic planning [3, p. 174].

It is promising to create a network of regional and national think tanks, integrated with state registers and educational platforms, which would provide a comprehensive analysis of educational processes, tracking the dynamics of education quality, forecasting demographic changes, assessing the effectiveness of educational programs and modeling alternative development scenarios (Table 2).

Monitoring systems integrated with AI, machine learning, and cloud technologies are able to provide early detection of risks, for example: a drop in the quality of education in individual communities, a shortage of teaching staff, uneven digital infrastructure, low resource efficiency, or problems with the implementation of government programs. The development of these types is critical for the institutional sustainability of education, as it allows for a shift from reactive management to a proactive model, where decisions are made based on forecasts and not only on the basis of retrospective reports. The strategic direction is also the development of open education data, which will contribute to increasing transparency, public participation, research initiatives, and the emergence of new digital services created by the private sector and public organizations based on state data [6, p. 125–126].

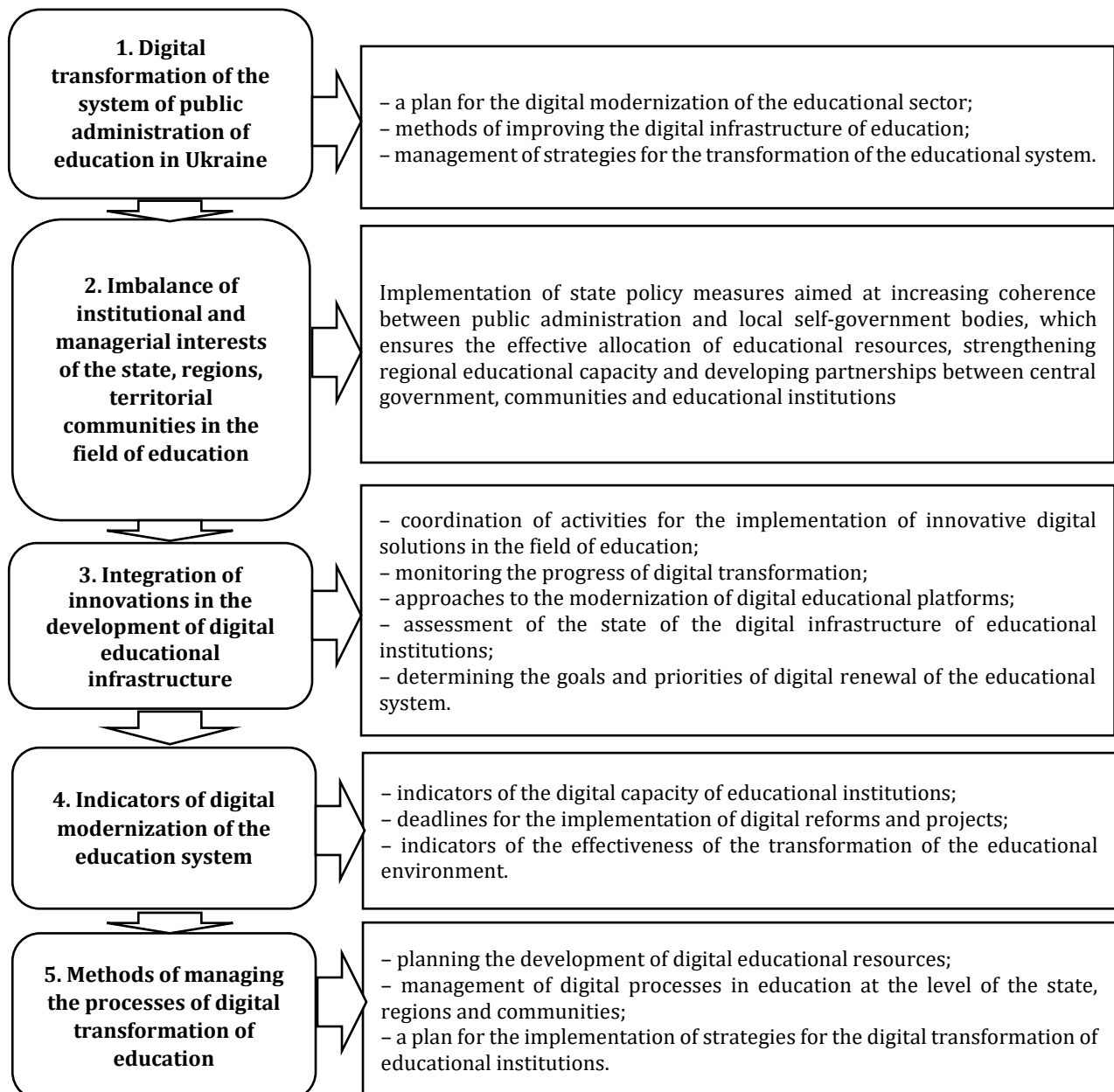


Fig. 2. Model of institutional and digital modernization of the system of public administration of education in Ukraine

Source: Developed by the author.

A separate vector of institutional modernization should be the integration of the education system of Ukraine into the European digital space, which provides for the harmonization of technological standards, approximation of legal regulation to European legislation, integration of Ukrainian digital registers with European platforms, participation in international digital education programs, as well as the creation of conditions for the mobility of students, teachers and researchers in the digital environment. For Ukraine, this integration is not only a technical, but also a political and strategic task, as EU digital education is built on the principles of openness, personal data protection, interoperability of registers, transparency of educational documents, digital competences of the population and resilience of institutions. The introduction of tools such as the European Digital Student ID, digital diplomas, automatic mutual recognition of qualifications, European cloud educational hubs, as well as the cooperation of Ukrainian universities with the EDIC, European Digital Education Hub platforms and European open science infrastructures [10] is promising.

The integration of Ukrainian education into the EU digital space should also involve the active use of European digital competence frameworks – DigComp, DigCompEdu, DigCompOrg, which define the standards of digital maturity of citizens, teachers and educational organizations.

Table 2. Strategic Directions of Institutional Modernization of Public Administration of Education in the Digital System

No	Strategic direction	Key institutional changes	Basic tools	Achievement indicators (until 2030)	Perspective of European integration
1	Formation of a holistic digital architecture of education	Moving from fragmented systems to a single national platform	Interoperability of registers, API gateways, cloud solutions	100% of establishments are connected to a single platform	Full compatibility with the European Digital Education Hub
2	Development of data-driven management	Creation of the National Analytical Center for Education	BI systems, AI forecasting modules, open data hub	Annual forecast of labor market needs with an accuracy $\geq 85\%$	Using DigCompOrg as a Baseline Evaluation Standard
3	Strengthening decentralized digital self-government	Giving communities the right to independently choose LMS and local services, subject to compatibility	State Interoperability Standards	$\geq 70\%$ of municipalities have their own digital strategies	Participation in European EDIC consortia
4	Ensuring cyber resilience and data protection	Creation of a separate unit of cybersecurity of education at the Ministry of Education and Science	National SOC of education, mandatory encryption, redundancy	0 Critical Personal Data Breach Incidents	GDPR and NIS2 Directive Compliance
5	Building a system for continuous improvement of managers' digital competencies	Institutional audit of digital maturity every 2 years	National Online Academy of Digital Management of Education	$\geq 90\%$ of managers are certified (C1-C2 level)	Full harmonization with the European DigComp 2.2+ framework

Source: Developed by the author

The introduction of such standards will make it possible to form uniform criteria for assessing the digital readiness of educational institutions, determine the areas of teacher training, strengthen institutional management and ensure the compliance of Ukrainian education with European requirements for the modern digital environment. At the same time, Ukraine's participation in European programs on digital science and innovation is mandatory, as they provide not only access to advanced technologies but also the possibility of forming joint research projects and creating institutions capable of implementing innovative educational policies.

6. Conclusions

Based on the results of the study, it was found that the regulatory and legal support for the digital transformation of educational management in Ukraine is characterized by fragmentation and requires systematic modernization, since the current legislative acts regulate only certain aspects of the functioning of digital platforms, but do not create an integral architecture of digital governance, which makes it impossible to achieve full interoperability of state registers, unification of management procedures and the formation of consolidated information space necessary for effective data analysis, forecasting and strategic planning of educational policies; At the same time, it is found that the integration of regulatory solutions with technological standards will make it possible to ensure consistency between the state, regional and local levels of government, which increases the sustainability and transparency of the education system.

The analysis confirmed that a critical factor in the successful digital transformation of public administration in the education sector is the development of think tanks and monitoring systems capable of ensuring the continuous collection, processing and interpretation of large amounts of data,

which forms the basis for the transformation from traditional administrative procedures to a data-driven governance model, which allows not only a prompt response to identified problems, but also the development of long-term forecasts development of the educational network, staffing, financial resources and quality of the educational environment; At the same time, it is substantiated that the creation of such centers at the national and regional levels will significantly strengthen the state's ability to implement innovative management tools and ensure the integration of the Ukrainian educational system into the European digital ecosystem space.

In the course of the study, it is argued that the strategic vectors of institutional modernization of education should be based on the formation of an updated digital management architecture, the development of decentralized digital models, the strengthening of cybersecurity, the standardization of digital competencies of managerial personnel and the harmonization of the Ukrainian educational space with European digital standards, since it is these areas that determine the ability of the educational system to function as an integrated, sustainable and an innovative institution that meets the requirements of the digital age; At the same time, it has been proven that an exceptionally comprehensive combination of institutional reforms, technological solutions and human resources development will ensure the sustainable digital development of education and its competitiveness in a global context.

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