



e-ISSN 3041-2498

Public Management and Policy

<https://www.eu-scientists.com/index.php/pmap>


Digital Transformation of Educational Institutions: Strategic Approaches to the Development of Public Governance Mechanisms

Halyna Belya ¹ • Nataliia Hoi ^{2*}¹ Mizhhirsk Lyceum No. 1 of the Mizhhirsk Village Council (Ukraine). Director, Master.² Vasyl Stefanyk Carpathian National University (Ukraine). Associate Professor at the Department of Public Management and Administration, Candidate of Economic Sciences, Associate Professor.* **Corresponding Author**, e-mail: nataliya.hoy@pnu.edu.ua

ARTICLE INFO

ABSTRACT

Research Article

DOI:

[10.70651/3041-2498/2025.12.01](https://doi.org/10.70651/3041-2498/2025.12.01)

Received:

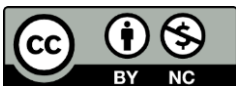
18 October 2025

Accepted:

25 November 2025

Published online:

8 December 2025

Copyright © 2025
by authors

This is an open access journal and all published articles are licensed under a Creative Commons Attribution—NonCommercial 4.0 International (CC BY-NC 4.0)

The article examines the features of the digital transformation of general secondary education institutions. The relevance of the study is due to the rapid development of information and communication technologies and the need for secondary education institutions to adapt to new management conditions. The goal is to determine effective strategic approaches to the digital transformation of secondary education institutions and the development of public management mechanisms. The study uses such methods as the analysis of scientific and methodological literature and regulatory legal acts, modeling and forecasting methods, and a systemic and structural approach. Modern theoretical approaches to the digital transformation of general secondary education institutions are analyzed. Key strategic guidelines and models for the digitalization of general secondary education institutions in the context of public management have been identified. The concept of “digital school” is considered, in particular, the main characteristics and strategic guidelines. The main models of digitalization of secondary education institutions in the context of public management are presented. The main attention is focused on the role of state educational policy in the formation of digital strategies for secondary education institutions. The mechanisms of public management in secondary education institutions in the digital environment are characterized. The relationship between the level of digitalization of secondary education institutions and indicators of the quality of educational services is identified. Strategic approaches to the development of digitalization of secondary education institutions are systematized. The prospects for the development of digital management in secondary education at the regional and national levels are determined. The conclusions establish that the digital transformation of secondary education institutions has a positive effect on the efficiency of management and educational processes, increases the quality of education, promotes the professional development of teachers and improves communication between participants in the educational process, while its success is determined by the level of technical equipment, digital competencies of personnel and the presence of a strategic development plan for the institution. Future research should be aimed at assessing the effectiveness of new digital tools in secondary education institutions, studying their impact on educational outcomes and management processes, as well as developing methodological recommendations for the integration of digital technologies, taking into account the human resource potential, resource provision and specifics of secondary education institutions.



KEYWORDS

public management, public management in the field of education, general secondary education institution, modernization of education, development of public management mechanisms, strategic approaches, management processes, digital transformation, digitalization, quality of education.



Цифрова трансформація закладів освіти: стратегічні підходи до розвитку механізмів публічного управління

Галина В. Бея ¹ • Наталія В. Гой ² *

¹ Міжгірський ліцей № 1 Міжгірської селищної ради (Україна). Директор, магістр.

² Карпатський національний університет імені Василя Стефаника (Україна). Доцент кафедри публічного управління та адміністрування, канд. екон. наук, доцент.

* Автор-кореспондент, e-mail: nataliya.hoy@pnu.edu.ua

СТАТТЯ

АНОТАЦІЯ

Дослідницька

DOI:

[10.70651/3041-2498/2025.12.01](https://doi.org/10.70651/3041-2498/2025.12.01)

Отримана:

18.10.2025 р.

Прийнята:

25.11.2025 р.

Опублікована:

08.12.2025 р.

Авторське право

© 2025 авторів



Цей твір

ліцензовано на умовах Ліцензії Creative Commons «Із Зазначенням Авторства – Некомерційна 4.0 Міжнародна» (CC BY-NC 4.0).

У статті досліджено особливості цифрової трансформації закладів загальної середньої освіти. Актуальність дослідження зумовлена стрімким розвитком інформаційно-комунікаційних технологій та потребою закладів загальної середньої освіти адаптуватися до нових умов управління. Метою є визначення ефективних стратегічних підходів до цифрової трансформації закладів загальної середньої освіти та розвитку механізмів публічного управління. У дослідженні використано такі методи як аналіз науково-методичної літератури та нормативно-правових актів, методи моделювання та прогнозування, системний і структурний підхід. Визначено ключові стратегічні орієнтири та моделі цифровізації закладів загальної середньої освіти у контексті публічного управління. Розглянуто концепт “цифрової школи”, зокрема, основні характеристики та стратегічні орієнтири. Представлено основні моделі цифровізації закладів загальної середньої освіти у контексті публічного управління. Основну увагу зосереджено на ролі державної освітньої політики у формуванні цифрових стратегій для закладів загальної середньої освіти. Охарактеризовано механізми публічного управління в закладах загальної середньої освіти у цифровому середовищі. Виявлено зв'язок між рівнем цифровізації закладів загальної середньої освіти та показниками якості освітніх послуг. Систематизовано стратегічні підходи до розвитку цифровізації закладів загальної середньої освіти. Визначено перспективи розвитку цифрового управління у загальній середній освіті на регіональному та національному рівнях. У висновках встановлено, що цифрова трансформація закладів загальної середньої освіти позитивно впливає на ефективність управлінських і навчальних процесів, підвищує якість освіти, сприяє професійному розвитку педагогів та покращує комунікацію між учасниками освітнього процесу, при цьому її успішність визначається рівнем технічної оснащеності, цифрових компетентностей персоналу та наявністю стратегічного плану розвитку закладу. Майбутні дослідження мають бути спрямовані на оцінку ефективності нових цифрових інструментів у закладах загальної середньої освіти, вивчення їхнього впливу на навчальні результати та управлінські процеси, а також на розробку методичних рекомендацій щодо інтеграції цифрових технологій із урахуванням кадрового потенціалу, ресурсного забезпечення та специфіки закладів загальної середньої освіти.



КЛЮЧОВІ СЛОВА

публічне управління, публічне управління у сфері освіти, заклад загальної середньої освіти, модернізація освіти, розвиток механізмів публічного управління, стратегічні підходи, управлінські процеси, цифрова трансформація, цифровізація, якість освіти.

1. Introduction

Global digitalization sets new requirements for education and the mechanisms of its state regulation. General secondary education institutions are at the forefront of change: the ability of future specialists to work in a high-tech environment will depend on how well they form basic digital skills. In such a situation, the traditional administration model, built on paper flows, extended decision-making cycles, and constant data gaps, is increasingly failing.

In a number of countries where the introduction of digital tools in education has already become the norm, you can see a different logic: management works in a constant data update mode, and dashboards allow you to read changes almost instantly. Ukrainian general secondary education institutions are also entering this phase, but the speed of movement is still significantly behind the pace of the technology sector. As a result, a gap arises between the real needs of students and the capabilities of the system, which increases every year.

Therefore, the modern educational environment requires profound changes in the development of public administration. It is not only about replacing paper forms with electronic ones, it is about rethinking the very logic of management, where data becomes the main resource, and the speed of decision-making is a critical condition for development. In this approach, general secondary education institutions appear as a dynamic structure that can quickly adapt to digital challenges.

Digitalization in the field of general secondary education goes beyond technical support or the introduction of individual information services. We are talking about a systematic restructuring of management mechanisms, which includes the modernization of public administration, the formation of a digital ecosystem of interaction, the acquisition of new competencies among teachers and managers, as well as guaranteeing transparency and openness of educational policy. In this context, strategic approaches to the development of public administration mechanisms capable of directing digital shifts in a constructive and long-term direction are of paramount importance.

Ukraine is currently at a point where educational reforms are closely intertwined with a large-scale renewal of public administration. Joining the European educational space pushes the country to develop strategies. The transition to a new model of management of general secondary education institutions cannot be reduced to the installation of digital platforms or the introduction of modern artificial intelligence tools. A complex synthesis is important here: technological innovations must be supported by a well-thought-out legal architecture, the development of competent personnel, and the creation of conditions in which directors of general secondary education institutions, teachers, and parents can influence change. In a number of cases, it is observed that it is the lack of inclusive participation of all parties involved that becomes a brake on even the most convincing technological solutions. In practice, this is manifested in the fact that digital transformation begins to work effectively only when management systems adapt to the new decision-making logic – faster, more transparent, based on reliable data.

In this context, determining the leading guidelines for building a digitally capable system of public education management becomes a task with tangible theoretical and practical weight. It is about the formation of a holistic strategy that helps the country maintain the pace of change and at the same time build a sustainable, predictable infrastructure for future generations. The educational system today is going through a period of intensive restructuring: digital technologies are updated faster than regulatory mechanisms have time to adapt, and global learning standards form new guidelines for public policy.

In such a reality, electronic modernization of general secondary education institutions ceases to be an optional experiment. It turns into the main channel for updating everyday processes, from internal management to the structure of interaction between teachers, parents and students. In practice, this is manifested in the fact that digital tools allow reducing the time for administrative procedures by almost a third, and access to operational data allows the teacher to adjust learning trajectories for a specific class or even an individual child. In a number of cases, it is observed that the transparency of management significantly increases trust in general secondary education institutions.

This creates an environment in which it is easier to implement new learning models, respond faster to educational trends, and build a flexible, modern pedagogical culture. The introduction of state digital renewal programs significantly strengthens this process. Strategic planning ceases to be a formal requirement and gradually turns into a managerial need. General secondary education institutions have

to rethink their approaches to development, taking into account both technological challenges and community expectations. When an institution works with digital tools systematically – not sporadically – it is able to provide a higher level of openness, equal access to resources, and relevance of educational content.

2. Literature Review

The analysis of scientific papers on the digital transformation of educational institutions demonstrates their strategic approaches to the development of public administration mechanisms. This is especially important in the context of modern challenges, such as war, decentralization, and economic instability. Thus, O. S. Dushchenko [1, p. 40] in his study highlighted the current state of digital transformation of education. V. O. Gorbaneva [2, p. 21] provided a model aimed at improving the quality and competitiveness of the school, consistent with the development of STEM and European guidelines. A. Drokina [3, p. 20], K. V. Yurchenko, O. V. Semenikhina [4, p. 282] devoted their works to the development of STEM education as a driver of digital shifts. A. Guralyuk [5, p. 15] outlined the socio-cultural and organizational-pedagogical foundations of digitalization of education.

M. Maryenko, A. Sukhikh [6, p. 31] outlined and highlighted the features of the arrangement of the educational process in the Secondary School, its psychological and pedagogical distinctive features during martial law. O. Shparyk [7, p. 33] outlined important vectors of digitalization of general secondary education, common to the United States and the EU countries; indicated typical directions of digital change in education in the mentioned countries. T. M. Bereda [8, p. 12], based on research and regulations, identified the main areas of public administration and administration that will help the formation of high-quality distance general secondary education, identified key strategic goals and tasks that will contribute to their achievement. O. M. Ivaniy, V. V. Ganzha [9, p. 170] considered the current state and future directions of research on digital change management in the educational space in the context of globalization.

O. V. Postupna and M. Y. Torpan [10, p. 44] investigated the potential and dangers of digital transformation in the state management of education. K. I. Pozychanyuk [11, p. 136] considered digital technologies as a tool for public management of education in the context of the formation of the principles of sustainable development. The key stages of digitalization of educational and managerial processes in educational institutions of various types were analyzed in his work by V. Umanets [12, p. 321]. I. A. Verbovsky [13] focused on the importance of the digital sector in the management and progress of the educational process to determine the tasks and style of the educational process.

Despite the diversity of approaches, some aspects remain insufficiently researched.

3. Problem Statement

The purpose of the study is to scientifically substantiate and develop strategic approaches to improving the mechanisms of public management of digital transformation of general secondary education institutions. The study is aimed at identifying key management tools, models and organizational decisions that ensure the systematic transition of educational institutions to the digital environment, increase the efficiency of management processes and create prerequisites for the sustainable development of the educational sector in the digital economy.

4. Methods and Materials

The study was based on a comprehensive review of scientific works related to the digital transformation and digitalization of general secondary education institutions, strategic views on management in education. The study applies a set of methods that provides a comprehensive analysis of the digital transformation of general secondary education institutions. Among them: analysis of scientific and methodological literature and regulatory documents, which makes it possible to identify modern trends in digitalization and theoretical approaches to public administration in general secondary education institutions; modeling and forecasting methods that allow you to form scenarios for the development of digital infrastructure and assess its impact on educational and management processes; a systematic and structural approach that provides a comprehensive analysis of the relationships between technological, organizational and managerial aspects; expert methods for

prioritizing digitalization and evaluating its effectiveness; as well as monitoring and data analytics that allow you to track the results of the implementation of digital solutions and make informed management decisions.

5. Results and Discussion

Modern transformation processes put forward new requirements for the organization of managerial decisions in the system of general secondary education. Digitalization, decentralization, building an inclusive environment and focusing on a competency-based approach create a complex context in which the established mechanisms for managing educational institutions are no longer valid. That is why public administration plays a decisive role in the modernization of educational institutions as a tool for strategic direction, coordination of resources and ensuring sustainable development.

State authorities and local governments form regulatory frameworks, determine long-term priorities of educational policy, create conditions for the introduction of innovations and ensure that the activities of educational institutions meet public needs. Through a system of regulatory, financial, informational and organizational mechanisms, public administration contributes to the integration of modern educational technologies, infrastructure renewal and improvement of the quality of educational services.

The renewal of educational institutions within the framework of digital transformation is becoming one of the main priorities of state policy. Public administration plays a system-forming role in this process. It outlines strategic directions, creates a regulatory framework, provides resource assistance, and coordinates interaction between public services, educational institutions, the community, and the private sector. The effectiveness of modernization changes depends on how successfully the state is able to develop a development policy, encourage innovations and create conditions for the implementation of modern managerial, organizational and technological solutions in general secondary education institutions.

Public administration provides strategic direction, institutional basis and coherence of development processes. Within the framework of digital transformation, this function acquires special importance. Updating the educational environment requires complex solutions, agreed principles and effective guidance [10, p. 44]:

1. Formation of state educational policy. Public administration bodies are responsible for the development and implementation of the regulatory framework that regulates transformation processes.

2. Provision of resources and funding. One of the most important tasks of public administration is to provide general secondary education institutions with the necessary resources: financial, logistical and personnel.

3. Development of institutional mechanisms. Public administration creates and supports institutions responsible for the development of digital competence in education: methodological services, centers for professional development of teachers, bodies for monitoring the quality of education. It is these institutions that contribute to the dissemination of modern managerial and pedagogical practices.

4. Coordination of participants in the educational process. The state acts as a coordinator between various stakeholders – general secondary education institutions, local communities, parent associations, and private partners. Such interaction allows for the creation of partnership management models in which educational institutions receive wider support and access to innovative solutions.

5. Management of changes and transformation processes. Public administration provides change management – from diagnosing the needs of general secondary education institutions to evaluating results.

6. Monitoring and quality assurance of educational services. Control over the quality of education and monitoring the results of digitalization is an integral function of the state.

7. Stimulation of innovation and professional development of teachers. The state creates conditions for the introduction of innovations, both technological and managerial. It supports the professional training of teachers, develops digital platforms for professional development, and encourages innovative activities through grants, competitions, and pilot projects.

The above vectors show that public administration has a multidimensional and complex impact on the renewal of general secondary education institutions. It guarantees not only the formation of a regulatory and structural base, but also creates prerequisites for the actual re-equipment of the material

and technical base, the growth of human potential and the use of the latest electronic means. Thus, the effectiveness of the state strategy and the level of managerial decisions are the main drivers of successful transformation institutions of general secondary education and raising the competitiveness of the educational space.

The digital renewal of general secondary education institutions is increasingly reminiscent of a deep restructuring, rather than individual technical improvements. It covers everything from the ways of organizing lessons to internal logistics, interaction between participants in the educational process and management methods. Several directions have been formed in the scientific discourse that explain the nature and results of digital modernization. Some authors focus on the management component, believing that electronic platforms significantly increase the accuracy of decision-making and avoid data fragmentation.

The concept of "digital school" in modern scientific and educational literature is perceived as an institution of general secondary education that implements information and communication technologies in all aspects of its activities – from streamlining the educational process to administering resources and communicating with participants in the educational space. The main feature of a digital school is a high degree of technological support, which includes the availability of up-to-date computer and network tools, interactive learning platforms, electronic diaries and information analysis mechanisms.

The key features of digitalization of general secondary education institutions are [8, p. 12]:

- Introduction of digital technologies into the educational process.
- Improving the effectiveness of management and administration through the introduction of electronic document management, monitoring systems to track student progress.
- Improving the digital competencies of all participants in the educational process.
- Ensuring equal access to digital.
- Formation of an innovative culture in an educational institution based on the introduction of advanced digital solutions.

Over the past five years, the number of general secondary education institutions that are switching to such comprehensive models of digital organization has increased by at least 40% in many European countries. National digital education strategies set the general vector of movement, but the real content of the transformation is formed under the influence of global programs – from OECD recommendations to European Digital Education Action Plan. that help general secondary education institutions form their own development path: from the introduction of e-management systems to the construction of intelligent learning platforms that adapt to the individual progress of students.

At the international level, the following documents play a key role:

1. EU Digital Education Action Plan (2021–2027) is a strategic plan of the European Union that defines the directions for the development of digital education in general secondary education institutions [14]. The main priorities include improving the digital competencies of students and teachers of general secondary education institutions, integrating digital technologies into curricula, ensuring equal access to educational resources, and supporting innovative distance learning platforms.

2. UNESCO Digital Education Frameworks – UNESCO frameworks define standards for the development of digital education for general secondary education institutions at the global level [15]. They include:

- equal access of students and teachers to digital resources;
- development of digital competencies and critical thinking skills;
- integration of digital technologies into the educational process and administrative mechanisms of management of general secondary education institutions;
- formation of a safe, inclusive and innovative educational environment.

At the level of state educational policy, the digital modernization of general secondary education institutions is taking on very specific forms: from a massive transition to electronic journals to the launch of national platforms that support distance and blended learning. This significantly changes the daily work of teachers: the teacher gets access to analytics tools, can quickly adjust educational materials, and the administration can build management decisions based on real data, not paper reports.

In this process, the development of digital literacy of teachers plays an important role. The quality of digital transformation directly depends on how confidently the teacher works with information technology. In Ukraine, the course for advanced training of teachers has become one of the key priorities: according to the Ministry of Education, in the last three years alone, the number of teachers

who have been trained in digital competencies has almost doubled.

It can be seen that state initiatives also have a more strategic dimension. In practice, this is manifested in the desire to bring Ukrainian general secondary education institutions closer to European benchmarks, in particular, to the models described in the Digital Competence Framework and UNESCO recommendations. It is not only about access to technology, but about creating an environment where students, regardless of their place of residence, have equal opportunities to work with digital resources, take online courses, and participate in international educational projects.

Political decisions shape not only the funding structure or legal requirements, but also the rhythm of the reform itself. When the state infrastructure is updated and clear standards appear, the school environment reacts quickly: teachers are more actively involved in programs to improve digital competence, administrations are restructuring management, and general secondary education institutions themselves are more confident in integrating technological practices into their daily work.

In practice, state policy is implemented through [11]:

1. Strategic documents and state programs that determine the priorities of digitalization of general secondary education institutions, directions for the development of the infrastructure of general secondary education institutions, the introduction of electronic learning platforms and management systems of secondary education institutions.

2. Financial support and resource provision, including the allocation of funds for the technical equipment of general secondary education institutions, Internet connection, purchase of computer and multimedia equipment, which is the basis for creating a digital educational environment.

3. Developing the abilities of educators, in particular through skills improvement programs.

4. Legal regulation that ensures the standardization of the use of digital technologies in general secondary education institutions.

5. Observation and evaluation of the effectiveness of digital strategies.

Key strategic guidelines for the digitalization of general secondary education institutions:

1. Modernization of management processes – introduction of electronic document management, systems for monitoring student performance, platforms for planning and monitoring the activities of general secondary education institutions.

2. Improving the quality of the educational process.

3. Development of digital competencies of teachers and students – systematic professional development of teachers, teaching students to work with digital resources, data analytics and decision-making.

4. Ensuring equal access to digital resources.

5. Integration of general secondary education institutions into national and global digital educational ecosystems.

The main models of digitalization of general secondary education institutions in the context of public administration are presented in Table 1.

Table 1. Main models of digitalization of general secondary education institutions in the context of public administration

Model	Main idea	Key Features	Application examples
Technological	Focus on technical equipment	Computer labs, interactive whiteboards, Wi-Fi, distance learning platforms	Creation of digital cabinets, implementation of LMS and electronic journals
Process management	Optimization of management processes	Electronic document management, analytical systems, monitoring of student performance	Use of digital school management systems, integration of data into national databases
Competence	Development of digital competencies	Advanced training of teachers, teaching students to work with IT	Digital literacy courses, implementation of project-based learning using technology
Innovative and pedagogical	Integration of digital technologies into the educational process	Interactive platforms, personalized learning, distance courses	Use of educational platforms, adaptive learning, blended learning
Socio-technological	Combination of technology and socio-pedagogical environment	Inclusivity, interaction of all participants in the educational process, formation of an innovative culture	Creation of digital communities, platforms for communication between teachers, students and parents

Source: Developed by the authors based on the data given in [16–20].

The integration of these strategic guidelines and models allows general secondary education institutions to create a holistic system of digitalization, where technological solutions are combined with management processes and pedagogical practices. Conditions for optimizing the system of strategic planning of educational institutions is the target orientation to achieve maximum economic efficiency.

An equally significant aspect is the integration of the system of incentives for teaching staff into the process of digital transformation. The incentive system can include both material incentives – rewards for the successful introduction of innovations, grants for improving skills, and intangible ones – recognition of achievements, career growth, participation in work teams of digital endeavors. An effective strategy combines digital management platforms with incentive mechanisms. In the work of researchers [21, p. 56] it is noted that the professional activity of teachers will be effective and effective in the case when the head of an educational institution contributes to the formation of a high-quality motivation system. Thus, digital transformation, combined with the system of motivation of teachers, becomes not only a tool for the modernization of an educational institution, but also a key mechanism for the development of a sustainable and effective model of public administration in education.

In order to effectively introduce digital technologies in general secondary education institutions, systematic strategic planning is needed, which covers all aspects of the educational process and management of the institution. The main steps in planning the digital growth of general secondary institutions are presented in Table 2. This method allows you to clearly structure the digitalization process, guarantee the consistency of technological, managerial and pedagogical decisions, as well as lay the foundation for assessing the effectiveness of the implementation of digital strategies.

Table 2. Strategic planning of the digital development of general secondary education institutions

Strategic planning stage	Main tasks	Practical measures	Expected results
Analysis of the current state of digitalization	Assessment of the technical and methodological readiness of the school	Accounting for computer classes, network connection, remote learning platforms; analysis of competencies of teachers and students	Identifying the strengths and weaknesses of the school's digital infrastructure
Defining strategic goals and priorities	Formation of the main directions of digital development	Setting goals for the quality of training, development of competencies, optimization of management processes	Clearly defined priorities and expected results of digitalization
Development of measures and implementation models	Digital integration planning	Selection of distance learning platforms, interactive tools, monitoring systems; Arrangement of training for educators	Specific action plan to improve training and management performance
Resource allocation and infrastructure	Provision of technical and human resources	Acquisition of tools to provide access to the network, training of educators, integration with national platforms	Optimal provision of educational institutions with technological and human resources
Monitoring, evaluating and adjusting the strategy	Control and improvement of the digitalization process	Tracking results, performance analytics, making changes to the plan	Improving the effectiveness of digital learning, adapting the strategy to changing conditions

Source: Developed by the authors according to the data given in [22–23; 24, p. 172].

At the same time, a strategy cannot exist without an understanding of resources. It's not just about machinery or licenses, it's about investing in people. Teachers who undergo regular professional development are on average twice as fast as adapting new digital tools. Digital development is no longer a fashion declaration. This is a long but fully manageable process that allows general secondary education institutions to respond in unison to the challenges of the digital society and design an environment in which both teachers and students can develop the competencies necessary to live in a world where technology is becoming the basis of professional and social reality.

It can be seen that new technologies create not so much additional tools for managers as new rules of the game. If earlier management was built on periodic paper reports, now it is more and more reminiscent of working with a "living" information fabric, where each indicator is updated in real time.

In practice, this is manifested in the fact that the principal and the pedagogical council get access to statistics of attendance, academic performance or participation in remote formats literally in a matter of seconds.

In the period of digital transformation, management tools take on a new meaning. The management of general secondary education institutions is increasingly required not just to follow procedures, but to build an open and controlled system, where every step – from budget planning to evaluation of results – can be traced in an electronic environment. Electronic platforms for data collection and interpretation are also gaining special importance. They form the basis for objective management: the system itself suggests risk areas, suggests where resources are used unevenly, and where intervention is needed [16].

Digital technologies are changing the way public administration works. It makes it more flexible, energy-efficient and transparent, as well as improves the quality of information, the speed of response and the fairness of procedures. Digitalization is changing the way technical things work, but it's also changing the way people are managed. This makes public administration more important for improving the quality of secondary education.

In times of digital transformation of general secondary education institutions, the key task is the introduction of effective mechanisms of public administration. In Table. 3 summarizes the main mechanisms, their purpose, practical means and consequences, which makes it possible to figuratively assess how digitalization affects management processes, communication and openness in educational institutions. The presented structure guarantees a holistic approach to digital growth, combining technological, organizational and educational aspects.

Table 3. Mechanisms of public administration in general secondary education institutions in the digital environment

Public Administration Mechanism	Main goal	Practical tools and tools	Expected results
Electronic document and resource management	Automation of administrative processes and availability of information	Electronic journals, orders, reports, management systems for educational materials	Increased administrative efficiency, quick access to information
Data monitoring and analytics	Evaluation of training and management results	Analytical systems, platforms for collecting data on student performance, attendance, resources	Reasonable management decisions, timely correction of the educational process
Digital platforms for communication	Ensuring the interaction of all participants in the educational process	Online platforms for teachers, students and parents, remote meetings, consultations	Improving communication, involving participants, prompt resolution of issues
Transparency and openness of management decisions	Increase trust and control	Publication of reports, development plans, online access to school statistics	Increased transparency, the possibility of public control, feedback
Integration with national and international digital systems	Compliance with state and global standards	National educational platforms, EU and UNESCO standards, exchange of best practices	Compliance with international standards, improving the quality of management and training

Source: Developed by the authors according to the data given in [24, p. 73; 25; 26, p. 220].

The introduction of modern mechanisms of public administration in general education institutions contributes to increasing the efficiency of administrative work, optimizing management procedures, as well as ensuring transparency and openness of the functioning of educational institutions. The use of the latest public governance mechanisms allows educational institutions of general secondary education to flexibly respond to digital transformations and improve the level of educational services.

Digital technologies contribute to the optimization of organizational and administrative processes. The introduction of electronic document management (orders, schedules, protocols,

statements) reduces the load on the management apparatus, minimizes errors, speeds up communication between departments and provides a transparent control mechanism. The use of educational institution management platforms (for example, AICOM, automated school CRM systems) allows digitizing key management functions – planning, coordination, control, evaluation and reporting [27].

Digital transformation also significantly affects the management results of secondary education institutions. Information and analytical systems, electronic document management, electronic journals, automated accounting and planning tools provide an increase in the accuracy of management decisions, optimization of work processes and reduction of administrative burden [28, p. 555]. Managers get the opportunity to carry out operational monitoring of key indicators of the institution's activities, which allows them to respond to problem situations promptly, predict risks and develop reasonable development strategies.

In general, digital transformation is becoming a powerful catalyst for the development of general secondary education institutions, forming a new type of educational process and increasing the efficiency of managerial decisions. Thanks to the introduction of digital tools, general secondary education institutions are becoming more agile, innovative and focused on the needs of the modern student, and management is acquiring a strategic, proactive direction. All this ensures not only an increase in the quality of secondary education, but also the formation of a competitive and modernized educational system capable of effectively responding to the challenges of the digital age.

Digital transformation radically changes the logic of management of general secondary education institutions, translating the traditional administrative model into a modern, data-centric and flexible system. In such conditions, management processes cease to be linear and mainly paper-based; instead, they become integrated, transparent, automated, and result-oriented. This affects all levels of organization of the work of general secondary education institutions: strategic, operational and pedagogical.

The director and deputy principals are increasingly acting as strategists, process coordinators and data managers, not just administrators. They manage digital resources, develop a culture of data use, organize digital security and are responsible for the development of teachers' digital competence. digital tools create an information basis for managerial decision-making [13].

The main components of digitalization of general secondary education institutions and demonstration of their impact on the effectiveness of management processes and the quality of educational services are given in Table 4. It allows you to visually see how various digital tools – from infrastructure and electronic platforms to analytical systems and distance learning – transform the logic of the administration, increase the transparency and correctness of management decisions, and stimulate the improvement of learning outcomes for schoolchildren.

Table 4. The relationship between the level of digitalization of general secondary education institutions and indicators of the quality of educational services

Components of digitalization	Management Performance Indicators	Indicators of the quality of educational services	Direct impact on the quality of education
Availability of digital infrastructure (computers, interactive whiteboards, fast Internet)	Optimization of document flow and administrative processes	Increasing the efficiency of educational services	Access to resources, interactive learning
Use of electronic school management platforms (electronic journals, monitoring systems)	Improving the accuracy and transparency of management decisions	Real-time monitoring of student performance	Personalization of learning, timely support of students
Digital services for communication (instant messengers, online portals, parents' accounts)	Improving the interaction of administration, teachers and parents	Improving the interaction of administration, teachers and parents	Increase student engagement and motivation
Improving the digital competencies of teachers	Expansion of methodological and managerial potential	Improving the organization of lessons and the control of learning	Improving the effectiveness of training
Use of analytical tools and data	Strategic planning and forecasting	Transparent assessment of educational outcomes	Increasing the objectivity and quality of the educational process
Distance and blended forms of learning	Distance and blended forms of learning	Continuity of learning in crisis conditions	Maintaining the quality of education in any conditions

Source: Developed by the authors according to the data given in [29; 30, p. 14].

The process of digitalization of general secondary education institutions should be systematic and strategic, based on the internal needs of educational institutions and external factors of educational policy. Table 5 summarizes the main strategic vectors for the development of digitalization of general secondary education institutions, outlining the priority steps, projected consequences and correlations between these vectors. It shows how the formation of long-term plans, the acquisition of digital skills by teachers and leaders, hazard management and cooperation with territorial communities and the state are interconnected and guarantee a holistic approach to updating school administration. Such a structure makes it possible to consistently plan digital transformations, measure their effectiveness and coordinate the introduction of innovations at all levels of functioning of general secondary education institutions.

Table 5. Strategic approaches to the development of digitalization of general secondary education institutions

Strategic direction	Recommended actions	Expected results	Relationship with other areas
Developing long-term digital strategies and roadmaps	Prioritizing digitalization; sequence of technology implementation; Determination of evaluation criteria	Consistent and systematic implementation of innovations; predictability of school development	Creates the basis for the development of competencies of educators and managers, risk management
Formation of digital competencies of managerial personnel and teachers	Training courses and trainings; implementation of electronic platforms; Improving digital literacy	Improving management efficiency and quality of training; adaptation of personnel to digital technologies	Ensures effective use of strategies, minimizes risks, and promotes partnership models
Digital Transformation Risk Management	Development of security policies; monitoring of technical systems; Protection of personal data	Reducing the likelihood of failures and incidents; safe and stable functioning of the school	Promotes the implementation of strategies, guarantees the consistency of partnership projects
School Interaction with Local Communities and the State: Partnership Development Models	Joint financing of projects; exchange of experience; Organization of joint training programs	Provision of resource support, introduction of innovations; Integration of the school into the educational ecosystem	Contributes to the implementation of strategies, increases staff efficiency and maintains a secure digital infrastructure

Source: Author's development.

Strategic pathways to the digitalization of general secondary education institutions are interconnected and complementary. The development of long-term strategies and plans (roadmaps) ensures the consistency and continuity of innovations, the formation of skills of teachers and management allows the effective use of digital tools, and risk management guarantees the safe functioning of the system. Cooperation with communities and the state provides resource support and integration of general secondary education institutions into the wider educational ecosystem. Thus, the comprehensive application of these strategic paths contributes to the growth of management efficiency, the improvement of the quality of educational services and the sustainable development of general secondary education institutions in the context of digital transformation.

Digitalization of educational institutions of general secondary education is a key factor in updating the system of public education management. Prospective digitalization involves the development of partnership models, within which communities participate in the provision of resources, and state bodies participate in the creation of regulatory and financial support for innovative projects into the system of public administration and forms effective coordination between all levels of education management [31, p. 55].

At the national level, the digital transformation of public administration opens up opportunities for the creation of uniform standards of management practice, the integration of general secondary education institutions into state electronic services, the introduction of analytical platforms for strategic planning and increasing the transparency of state policy in the field of education. Digital technologies make it possible to ensure effective coordination of the national educational system, support for

innovations, and the development of digital competencies of managers and teachers and sustainable development of general secondary education institutions (Table 6).

Table 6. Prospects for the Development of Public Administration of General Secondary Education Institutions at the Regional and National Levels in the Context of Digital Transformation

Criterion	Recommended actions
Development of Public Administration of General Secondary Education Institutions at the Regional Level	
Unification and integration of digital management platforms	Development of regional unified systems for automation of management processes. Ensuring the interaction of general secondary education institutions with education departments.
Monitoring and analytics of management processes	The use of digital tools to assess the effectiveness of general secondary education institutions. Introduction of mechanisms for anticipating the needs of educational institutions in terms of personnel, funds and material and technical base.
Supporting staff competence and innovation	Implementation of training programs and trainings for managers and educators on digital governance and ICT. Establishment of regional centers of support for general education institutions.
Improving transparency and accountability	Implementation of electronic reporting systems. Use of digital communication tools with parents, students and the community.
Development of public management of general secondary education institutions at the national level	
Standardization and Regulatory Support	Development of uniform national standards of management practice. Introduction of electronic document management and reporting for all general secondary education institutions.
Integration with government electronic services	Ensuring the interaction of school systems with national educational portals. The use of digital platforms to monitor the implementation of state policy in the field of education.
Analytics and strategic planning	Application of big data and analytical tools for strategic management of education development at the national level. Monitoring the implementation of national educational strategies and assessing the effectiveness of the implemented reforms.
Development of digital competencies and innovations	Introduction of training programs for heads of general secondary education institutions in the field of digital governance. Creating a digital culture for the integration of educational institutions into the modern digital learning environment.
Improving transparency and accountability at the national level	Providing open access to analytical data and reporting on the activities of general secondary education institutions. Increasing public trust in management decisions through transparent digital control mechanisms.

Source: developed by the authors according to the data given in [32; 33, p. 65; 34, p. 5]

The digital transformation of public management of general education institutions contributes to streamlining administrative processes, increasing transparency and accountability, building the competence of staff and uniting general secondary education institutions into a common digital environment. At the regional level, this makes it possible to unify management methods and skillfully coordinate the work of general secondary education institutions, and at the state level, it guarantees a strategic vision, entry into domestic systems and the constant development of the educational sphere in general. The systematic introduction of electronic means into the mechanisms of public administration is becoming the main lever for improving the quality of education and updating administrative procedures in general secondary education institutions.

6. Conclusions

Thus, the digital renewal of general secondary education institutions becomes obvious: the emergence of modern electronic services not only adds convenience, but restarts the very logic of education management. In daily work, this is felt by all parties – leaders, teachers, students and their families. Digital platforms make communication between them fast and predictable: requests are not lost, decisions are not delayed, responsibility for actions becomes clearer. Thanks to this, managerial

steps acquire a distinct logic, and the decision-making process acquires internal discipline and pace, which were previously difficult to maintain in a traditional paper model.

The introduction of digital technologies in general secondary education institutions significantly strengthens the ability of administrations to transparent and effective management. Digital platforms allow standardizing decision-making processes, increasing control over the implementation of management procedures, and creating a basis for accountability to local communities and government agencies.

As a result, digitalization appears not as a technical “interface update”, but as a real tool for strengthening school governance: it adds consistency where dispersion previously prevailed, and provides dynamics for which modern educational institutions have long lacked resources.

Special attention should be paid to the professional training of the team. Even the most modern tools remain decorative if teachers and administration do not have digital competencies at the proper level. When employees feel confident in working with technical solutions, electronic platforms reveal their full potential: the learning process becomes more transparent, rhythmic, and productive, and each invested life hour brings more tangible results.

Active digital renewal of general secondary education institutions opens up opportunities for public administration that simply did not exist before in the educational sphere. When educational institutions switch to modern information solutions, not only the technical side of their work changes, but the arsenal of management tools that can work both at the community and state levels expands.

Electronic services give administrations of general secondary education institutions a new quality of management: administrative procedures lose unnecessary slowness, become logical and predictable; Methods of organizing work cease to be a motley set of local practices and are gradually aligned to common standards. The transparency of decisions is growing, the responsibility of management is becoming more tangible for all participants in the educational environment, and financial resources are being attracted and used more rationally. As a result, digital infrastructure works as a catalyst – it not only modernizes the internal processes of general secondary education institutions, but also makes education management more open, collected, and effective at all levels.

At the regional level, digital tools work as a coordination system that allows general secondary education institutions to act in concert and focus on common quality benchmarks. They provide an opportunity to quickly track real learning outcomes, support teachers in professional challenges, help administrations build clearer processes, and generally strengthen the educational dynamics of each individual institution. Thanks to this, the regional educational network becomes not a set of dispersed institutions, but a more coherent system capable of responding to the needs of students and teachers.

On a national scale, digital governance provides general secondary education institutions with the opportunity to fully use electronic public services and be included in nationwide educational projects. Shared digital platforms are shaping a new management culture – with uniform operating principles, clear procedures, and well-established planning mechanisms. Analytical systems, which become the basis of strategic decisions, allow you to see the development of education not in fragments, but in a holistic picture.

Further digital transformation should focus on integrating strategic planning with e-public governance tools, improving performance assessment systems, and developing recommendations on the optimal use of digital resources to improve the quality of management processes at all levels.

References

1. Dushchenko, O. S. (2021). Suchasnyi stan tsyfrovoy transformatsii osvity [The current state of digital transformation of education]. *Fizyko-matematychna osvita – Physics and Mathematics Education*, 2(28), 40–45. <https://doi.org/10.31110/2413-1571-2021-028-2-007> (in Ukrainian).
2. Horbanova, V. O. (2025). Tsyfrova transformatsiia zakladiv osvity: stratehichni pidkhody do upravlinnia rozvytkom [Digital transformation of educational institutions: strategic approaches to development management]. *Naukovyi visnyk Mizhnarodnoho humanitarnoho universytetu. Seriya: “Ekonomika i menedzhment”*, (64), 21–27. <https://doi.org/10.32782/2413-2675/2025-64-3> (in Ukrainian).
3. Drokina, A. (2024). STEM-osvita yak efektyvnyi napriam realizatsii kliuchovykh polozhen kontseptsii novoi ukrainskoi shkoly [STEM education as an effective direction for implementing the key provisions of the concept of a new Ukrainian school]. *Osvita. Innovatyka. Praktyka – Education. Innovation. Practice*, 12(3), 20–25. <https://doi.org/10.31110/2616-650X-vol12i3-003> (in Ukrainian).

4. Yurchenko, K. V., Semenikhina, O. V. Yurchenko, K. V., & Semenikhina, O. V. (2022). STEM-osvita na vidkrytykh osvitnikh platformakh [STEM education on open educational platforms]. *Naukovi zapysky. Seriya: Pedahohichni nauky*, (208), 282–287. <https://doi.org/10.36550/2415-7988-2023-1-208-282-287> (in Ukrainian).
5. Huraliuk, A. (2022). Sotsialno-kulturni ta orhanizatsiino-pedahohichni peredumovy tsyfrovoy transformatsii osvity [Socio-cultural and organizational-pedagogical prerequisites for the digital transformation of education]. *Visnyk Natsionalnoho universytetu "Chernihivskiy kolehium" imeni T. H. Shevchenka. Seriya: Pedahohichni nauky*, (18), 15–20. http://nbuv.gov.ua/UJRN/vnuchkpn_2022_18_5 (in Ukrainian).
6. Marienko, M., & Sukhikh, A. (2022). Orhanizatsiia navchalnoho protsesu u ZZSO zasobamy tsyfrovyykh tekhnolohii pid chas voiennoho stanu [Organization of the educational process in the ZZSO using digital technologies during martial law]. *Ukrainskyi Pedahohichnyi zhurnal – Ukrainian Pedagogical Journal*, (2), 31–37. <https://doi.org/10.32405/2411-1317-2022-2-31-37> (in Ukrainian).
7. Shparyk, O. (2022). Tsyfrova transformatsiia serednoi osvity: spilni stratehichni vektory SShA ta krain YeS [Digital transformation of secondary education: common strategic vectors of the USA and EU countries]. *Ukrainskyi pedahohichnyi zhurnal – Ukrainian Pedagogical Journal*, (3), 33–43. <https://doi.org/10.32405/2411-1317-2022-3-33-43> (in Ukrainian).
8. Bereda, T.M. (2022). Tsyfrovizatsiia yak faktor rozvytku ta vdoskonalennia dystantsiinoi serednoi osvity [Digitalization as a factor in the development and improvement of distance secondary education]. *Vcheni zapysky TNU imeni V. I. Vernadskoho*, 33(72)5, 12–18. <https://doi.org/10.32782/TNU-2663-6468/2022.5/03> (in Ukrainian).
9. Ivani, O. M., & Hanzha, V. V. (2024). Tsyfrova transformatsiia osvity yak ob'ekt derzhavnoho upravlinnia v umovakh hlobalizatsii [Digital transformation of education as an object of public administration in the context of globalization]. *Pravo ta derzhavne upravlinnia – Law and public administration*, (1), 170–176. <https://doi.org/10.32782/pdu.2024.1.23> (in Ukrainian).
10. Postupna, O. V., & Torpan, M. Yu. (2023). Tsyfrova transformatsiia v publichnomu upravlinni osvitoiu: mozhlyvosti ta zahrozy [Digital transformation in public education management: Opportunities and threats]. In S. M. Dombrovska (Ed.), *Publichne upravlinnia u sferi tsyvilnoho zakhystu: osvita, nauka, praktyka – Public administration in the field of civil protection: Education, science, practice: Zbirnyk materialiv mizhnarodnoi naukovo-praktychnoi internet-konferentsii* (Kharkiv, March 16) (pp. 44–47). NUTsZU. [https://nuczu.edu.ua/images/topmenu/science/konferentsii/2023/Publichne upravlinnya.pdf](https://nuczu.edu.ua/images/topmenu/science/konferentsii/2023/Publichne_upravlinnya.pdf) (in Ukrainian).
11. Pozychaniuk, K. I. (2024). Tsyfrovi tekhnolohii yak mekhanizm publichnogo upravlinnia osvitoiu v umovakh formuvannia zasad staloho rozvytku [Digital technologies as a mechanism for public education management in the context of forming the foundations of sustainable development]. In *Elektronni informatsiini resursy: stvorennia, vykorystannia, dostup ta upravlinnia – Electronic information resources: Creation, use, access and management: Zbirnyk materialiv Mizhnarodnoi naukovo-praktychnoi Internet-konferentsii* (Sumy/Vinnitsia, November 20–21) (pp. 136–137). NIKO / KZVO "Vinnitska akademiia bezperervnoi osvity". <https://docs.academia.vn.ua/bitstream/handle/> (in Ukrainian).
12. Umanets, V. O. (2023). Tsyfrovizatsiia osvitnikh ta upravlinskykh protsesiv u zakladakh profesiinoi (profesiino-tekhnichnoi) osvity [Digitalization of educational and management processes in vocational (vocational and technical) education institutions]. *Nauka i tekhnika sohodni – Science and technology today*, 2(16), 321–336. <http://perspectives.pp.ua/index.php/nts/article/download/3822/3843/3844>
13. Verbovskiy, I. A. (2024). Efektyvnist tsyfrovizatsii v upravlinni osvitnimy resursamy: analiz ta stratehii optymizatsii [The effectiveness of digitalization in educational resource management: analysis and optimization strategies]. *Akademichni vizii – Academic visions*, (27). <http://dx.doi.org/10.5281/zenodo.10471716> (in Ukrainian).
14. European Commission. (2021). *Digital Education Action Plan 2021–2027*. <https://education.ec.europa.eu/focus-topics/digital-education/actions>
15. Kovalenko, O., & Kutelmakh, I. (2025). Tsyfrova transformatsiia profesiinoho rozvytku vchyteliv u politytsi YuNESKO: mizhnarodni oriientyry ta ukrainskyi kontekst [Digital Transformation of Teacher Professional Development in UNESCO Policy: International References and Ukrainian Context]. *Visnyk Kafedry YuNESKO "Neperervna profesiina osvita KhKhI stolittia" – Bulletin of the UNESCO Chair "Continuing Professional Education for the 21st Century"*, (11), 7–21. [https://doi.org/10.35387/ucj.1\(11\).2025.0001](https://doi.org/10.35387/ucj.1(11).2025.0001) (in Ukrainian).
16. Vozniuk, Ya. (2025). Orhanizatsiino-tekhnohichni pidkhody ta modeli tsyfrovizatsii osvitnoi diialnosti zakladiv vyshchoi osvity [Organizational and technological approaches and models of digitalization of educational activities of higher education institutions]. *Ekonomika ta suspilstvo – Economy and society*, (71). <https://doi.org/10.32782/2524-0072/2025-71-72> (in Ukrainian).
17. Liashenko, O., Spirin, O., Lytvynova, S., Pinchuk, O., Ovcharuk, O., & Sukhikh, A. (2024). Kontseptualni zasady tsyfrovizatsii osvitnoho seredovyscha zakladu zahalnoi serednoi osvity [Conceptual principles of digitalization of the educational environment of a general secondary school]

- digitalization of the educational environment of a general secondary education institution]. *Informatsiini tekhnologii i zasoby navchannia – Information technology and learning tools*, 102(4), 1–25. <https://doi.org/10.33407/itlt.v102i4.5829> (in Ukrainian).
18. Vseosvita. (2024). *Naipopuliarnishi osvitni platformy dlia orhanizatsii dystantsiinoho navchannia* [The most popular educational platforms for organizing distance learning]. <https://vseosvita.ua/blogs/naipopuliarnishi-osvitni-platformy-dlia-orhanizatsii-dystantsiinoho-navchannia-102669.html> (in Ukrainian).
 19. Kanishchev, O. I., Berehova, M. I., & Dementiev, I. O. (2025). Vplyv pedahohichnykh pidkhodiv ta tekhnologii u dystantsiinomu navchanni [The impact of pedagogical approaches and technologies in distance learning]. *Akademichni vizii – Academic visions*, (43). <https://doi.org/10.5281/zenodo.15620373> (in Ukrainian).
 20. Hoi, N. V., Nesterenko, S. V., & Drahan, O. B. (2021). Stratehichne planuvannia yak osnova rozvytku zakladu fakhovoi peredvyshchoi osvity [Strategic planning as the basis for the development of a professional pre-higher education institution]. *Perspektyvy ta innovatsii nauky – Prospects and innovations of science*, 5(5), 172–184. <https://doi.org/10.52058/2786-4952> (in Ukrainian).
 21. Hoi, N., Zhuk, O., & Basarab, V. (2021). Model upravlinnia systemoiu motyvatsii personalu v zakladykh osvity [Model of management of the personnel motivation system in educational institutions]. *Osvitni obrii – Educational horizons*, 53(2), 56–61. <https://doi.org/10.15330/obrii.53.2.56-61> (in Ukrainian).
 22. Institute of Educational Analytics of Ukraine. (2025). *Ukraina: tsyfrova transformatsiia osvity yak stratehichni shliakh do stiikosti ta innovatsii* [Ukraine: Digital transformation of education as a strategic path to sustainability and innovation]. <https://euridice.iea.gov.ua/news/ukraine-digital-transformation-of-education-as-a-strategic-path-to-resilience-and-innovation/>
 23. Ministry of Education and Science of Ukraine. (2021). *Strategic action plan of the Ministry of Education and Science of Ukraine by 2027*. https://mon.gov.ua/static-objects/mon/sites/1/docs%20osvita/zagalna%20serednia/Strategy.MON%202027.12.03_compressed.ENG.pdf
 24. Sokolova, E. T. (2022). Systema innovatsiinykh form menedzhmentu yak mekhanizm rehuliuвання publicnogo upravlinnia osvitoiu [The system of innovative forms of management as a mechanism for regulating public education management]. *Tavriiskyi naukovyi visnyk – Tavria Scientific Bulletin*, (1), 73–79. <https://doi.org/10.32851/tnv-pub.2022.1.10> (in Ukrainian).
 25. Chubinska, N. (2022). Kliuchovi aspekty publicnogo upravlinnia osvitoiu v suchasnykh umovakh rozvytku [Key aspects of public education management in modern development conditions]. *InterConf*, (103). <https://ojs.ukrlogos.in.ua/index.php/interconf/article/view/18870> (in Ukrainian).
 26. Shvardak, M. (2025). Informatsiini systemy efektyvnogo upravlinnia zakladom osvity [Information systems for effective management of an educational institution]. *Humanitarni studii: istoriia ta pedahohika – Humanities: History and Pedagogy*, (1), 220–232. <https://doi.org/10.35774/gsip2025.01.220> (in Ukrainian).
 27. Institute of Educational Analytics of Ukraine. (2025). *Prohramno aparatnyi kompleks «Avtomatyzovanyi informatsiinyi kompleks osvitnoho menedzhmentu» (PAK «AIKOM»)* [Hardware and software complex “Automated information complex of educational management” (PAK “AICOM”)]. <https://iea.gov.ua/diynalist/administruvannya-naczionalnyh-informaczijnyh-system-ta-osvitnih-platform/prohramno-aparatnyj-kompleks-avtomatyzovanyj-informaczijnyj-kompleks-osvitnogo-menedzhmentu-pak-aikom/> (in Ukrainian).
 28. Verbovskiy, I. A., & Makhnevych, D. S. (2024). Teoretychni aspekty tsyfrovizatsii upravlinnia planuvanniam osvitnoho protsesu v zakladykh zahalnoi serednoi osvity [Theoretical aspects of digitalization of educational process planning management in secondary education institutions]. *Nauka i tekhnika sohodni – Science and technology today*, 8(36), 555–566. [https://doi.org/10.52058/2786-6025-2024-8\(36\)](https://doi.org/10.52058/2786-6025-2024-8(36)) (in Ukrainian).
 29. Zvarych, H. V. (2023). Kryterii, pokaznyky ta indykatory monitorynhu, ekspertyzy ta otsiniuvannia yakosti osvitnikh posluh u zakladykh zahalnoi serednoi osvity [Criteria, indicators and metrics for monitoring, expertise and evaluation of the quality of educational services in general secondary education institutions]. *Imidzh suchasnoho pedahoha – The image of a modern teacher*, 5(194), 14–20. [https://doi.org/10.33272/2522-9729-2020-5\(194\)-14-20](https://doi.org/10.33272/2522-9729-2020-5(194)-14-20) (in Ukrainian).
 30. Kolomiets, L. V., Kyselova, O. I., Hrabovskiy, O. V., & Haber, A. A. (2024). Protseсна model vymiriuvannia i otsinky yakosti nadannia navchalnykh posluh [Process model for measuring and assessing the quality of educational services]. *Zbirnyk naukovykh prats Odeskoi derzhavnoi akademii tekhnichnoho rehuliuвання ta yakosti – Collection of scientific papers of the Odessa State Academy of Technical Regulation and Quality*, 2(25), 14–22. <https://doi.org/10.32684/2412-5288-2024-2-25-14-22> (in Ukrainian).
 31. Onats, O., & Chyzhevskiy, B. (2022). Orhanizatsiino-pravovi umovy derzhavno-hromadskoho upravlinnia zakladamy osvity na zasadakh partnerskoi vzaiemodii: zakonodavche zabezpechennia [Organizational and legal conditions of state and public management of educational institutions on the basis of partnership:

- legislative support]. *Pedahohichni innovatsii: idei, realii, perspektyvy – Pedagogical Innovations: Ideas, Realities, Prospects*, (2). 55–66. [https://doi.org/10.32405/2413-4139-2020-2\(29\)-55-66](https://doi.org/10.32405/2413-4139-2020-2(29)-55-66) (in Ukrainian).
32. Lukina, T. O. (2020). *Upravlinnia yakistiu zahalnoi serednoi osvity: navchalno-metodychnyi posibnyk* [Quality management of general secondary education: a teaching and methodological manual]. Kyiv: Pedahohichna dumka. <https://library.megu.edu.ua:9443/jspui/handle/123456789/3621> (in Ukrainian).
33. Anisimov, V. (2025). Problemy ta perspektyvy vprovadzhennia mekhanizmiv monitorynhu yakosti osvity na rivni zakladu zahalnoi serednoi osvity v Ukraini [Problems and prospects of implementing mechanisms for monitoring the quality of education at the level of general secondary education institutions in Ukraine]. *Pidpriumnytstvo ta innovatsii – Entrepreneurship and Innovation*, (36), 65–70. <https://doi.org/10.32782/2415-3583/36.10> (in Ukrainian).
34. Chyzhevskiy, B. H. (2021). Metodolohichni zasady demokratychnoho upravlinnia zakladom osvity [Methodological principles of democratic governance of an educational institution]. *Osvitnia analityka Ukrainy – Educational analytics of Ukraine*, 1(12), 5–20. <https://doi.org/10.32987/2617-8532-2021-1-5-20> (in Ukrainian).