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Innovative Directions for Improving Mechanisms for Public Management of Educational Institutions in the Context of Digital Transformation

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ABSTRACT

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The article examines the current problems of public management of general secondary education institutions in the context of digital transformation. The purpose of the study is to identify and substantiate innovative directions for improving the mechanisms of public management of general secondary education institutions. The study uses such methods as analysis and generalization, comparative analysis, system and structural-functional approaches and the method of expert assessments. The impact of digitalization on the optimization of management processes in general secondary education institutions and on increasing the efficiency of decision-making is important. The article reveals the theoretical principles of public management in the field of general secondary education, clarifies its essence, functions, mechanisms and main approaches to the modernization of management processes. The regulatory and legal support for the functioning of public management mechanisms of general secondary education in Ukraine is analyzed. The current state of digitalization of general secondary education institutions is assessed, including infrastructure, the level of digital competencies of personnel and the use of digital management tools. The current challenges and problems of managing general secondary education institutions in the context of digitalization are considered. The features of management processes in general secondary education institutions are identified. Modern digital tools and technologies used to optimize management processes in general secondary education institutions have been studied. Innovative directions for improving public management mechanisms in general secondary education institutions have been systematized. In particular, the development of a strategy for the digital transformation of general secondary education institutions has been proposed. A model of an innovative digital management mechanism for a general secondary education institution has been substantiated and developed, including principles, tools, implementation stages and efficiency criteria. The conclusions establish that the implementation of innovative directions for improving public management mechanisms in general secondary education institutions increases the efficiency of management processes, contributes to improving the quality of education, and optimizes document flow and monitoring. Future research should be aimed at developing and implementing comprehensive models of digital management of secondary education institutions.

KEYWORDS

public management, public management in the field of education, general secondary education institution, modernization of education, improvement of public management mechanisms, innovative directions, management processes, digital transformation, digitalization, quality of education.



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Філософія та управління

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Інноваційні напрями вдосконалення механізмів публічного управління закладами освіти в умовах цифрової трансформації

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СТАТТЯ	АНОТАЦІЯ
Дослідницька DOI: 10.70651/3041-248X/2025.11.05 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 актуальні проблеми публічного управління закладами загальної середньої освіти в умовах цифрової трансформації. Метою дослідження є визначення та обґрунтування інноваційних напрямів вдосконалення механізмів публічного управління закладами загальної середньої освіти. У дослідженні використано такі методи як аналіз та узагальнення, порівняльний аналіз, системний та структурно-функціональний підходи та метод експертних оцінок. Важливим є вплив цифровізації на оптимізацію управлінських процесів у закладах загальної середньої освіти, підвищення оперативності прийняття рішень. У статті розкрито теоретичні засади публічного управління у сфері загальної середньої освіти, з'ясовано його сутність, функції, механізми та основні підходи до модернізації управлінських процесів. Проаналізовано нормативно-правове забезпечення функціонування механізмів публічного управління ЗЗСО в Україні. Оцінено сучасний стан цифровізації закладів загальної середньої освіти, включно з інфраструктурою, рівнем цифрових компетентностей кадрів та використанням цифрових управлінських інструментів. Розглянуто сучасні виклики та проблеми управління закладами загальної середньої освіти в умовах цифровізації. Визначено особливості управлінських процесів у закладах загальної середньої освіти. Досліджено сучасні цифрові інструменти та технології, які застосовуються для оптимізації управлінських процесів у закладах загальної середньої освіти. Систематизовано інноваційні напрями вдосконалення механізмів публічного управління у закладах загальної середньої освіти, зокрема, запропонована розробка стратегії цифрової трансформації закладів загальної середньої освіти. Обґрунтовано та розроблено модель інноваційного цифрового механізму управління закладом загальної середньої освіти, включаючи принципи, інструменти, етапи впровадження та критерії ефективності. У висновках встановлено, що впровадження інноваційних напрямів вдосконалення механізмів публічного управління закладами загальної середньої освіти підвищує ефективність управлінських процесів, сприяє поліпшенню якості освіти, оптимізує документообіг та моніторинг. Майбутні дослідження мають бути спрямовані на розробку та впровадження комплексних моделей цифрового управління закладами середньої освіти.

КЛЮЧОВІ СЛОВА

публічне управління, публічне управління у сфері освіти, заклад загальної середньої освіти, модернізація освіти, вдосконалення механізмів публічного управління, інноваційні напрями, управлінські процеси, цифрова трансформація, цифровізація, якість освіти.

1. Introduction

In the current conditions of digital transformation, the educational sector is undergoing significant changes that require a rethinking of the role of public administration in ensuring the effective functioning of general secondary education institutions. Digitalization significantly transforms the public management of general secondary education institutions, creating conditions for the effectiveness of management processes and the development of educational services. The introduction of digital technologies makes it possible to automate office work, ensure the rapid collection and analysis of data on the educational work of schoolchildren and teachers, increase the clarity of decision-making and supervision of the implementation of educational plans. In addition, digitalization contributes to the development of distance and blended learning, improves communication between the directorate of general secondary education institutions, educators, students and parents, and also pushes the growth of the digital capacity of managers and employees. In the circumstances of the modern information field, digitalization is becoming not only a means of improving management, but also the main driver of innovative growth of general secondary education institutions.

The daily life of an educational institution is increasingly dependent on digital services that can simplify communication between all participants in the educational process – administration, teachers, children and their families. Interactive cabinets, electronic journals, progress monitoring systems, and quick feedback services are turning into infrastructure, without which it is already difficult to imagine an effective organization of work.

In the modern system of management of general secondary education institutions, it is the innovative approach that determines how quickly and efficiently the institution works. New technologies – from digital control tools to analytical services for processing large amounts of data – are gradually becoming the foundation of management decisions. They allow you to see the real picture of the educational process not after the fact, but in dynamics, respond to changes without delay and build interaction between all participants in the educational environment without unnecessary barriers.

2. Literature Review

A review of scientific papers on public administration in education and digital transformation of secondary education institutions found that current research focuses on the implementation of information and communication technologies in management processes, increasing transparency and efficiency of decision-making, building digital skills of principals and teachers, as well as using data analysis to observe and determine educational achievements. In particular, I. Verbovskyi and D. Makhnevych [1, p. 85], A. Hrytsai [2, p. 37] investigated the current state of digital transformation of managerial processes in the system of general secondary education of Ukraine and substantiated the strategic vectors of development of digital educational management. V. Bykov et al. [3, p. 1] highlighted the current state of application of digital tools for the organization of distance learning of students in general secondary education institutions in Ukraine. A. Akhanova [4, p. 42] revealed the problems and prospects of the digital educational environment. I. Bekhta and T. Kovalevska [5, p. 109] outlined the main areas of digital competence, which are focused on various aspects of the professional activity of teachers and the main tasks that educators face in the context of the formation of digital competence. I. Chervinska et al. [6, p. 64] considered innovative approaches to the socio-cultural modernization of the educational space of an educational institution, which are analyzed through the prism of educational reforms and social changes.

O. Akhmedova et al. [7], V. Yakobchuk et al. [8, p. 104] substantiated the need to use innovative technologies to modernize the system of public administration of the educational sphere and the quality of educational services in the context of social transformations. L. Pshenychna and N. Usenko [9, p. 53] highlighted the content of innovative technologies and the scope of their implementation in the management activities of the head of a comprehensive educational institution, to guarantee effective management and a significant increase in competitiveness in the market of educational services. V. Suprun [10, p. 277] outlined the relevant vectors of improving public management of innovative development of the educational sector of Ukraine as a means of strengthening the potential of territorial communities and streamlining the system of public administration bodies in the field of education in modern realities.

Despite a significant number of developments, there is a lack of systematic research on innovative

areas for improving the mechanisms of public management of educational institutions in the context of digital transformation.

3. Problem Statement

The purpose of this study is to identify and argue the latest ways to improve the systems of public management of general secondary education institutions in the context of digital transformations to increase the effectiveness of management procedures, improve educational services and increase the digital knowledge of managers and teachers.

4. Methods and Materials

The study uses a set of scientific methods that provides a comprehensive analysis of the problem of public management of general secondary education institutions in the context of digital transformation: analysis and generalization of scientific literature – to study the theoretical foundations of public administration, digitalization of education and modern management practices in general secondary education institutions; comparative analysis – to identify trends in the development of management mechanisms and integration of digital technologies in various institutions of general secondary education; observation and questionnaires – to assess the effectiveness of existing management processes, digital tools and competencies of managers and teachers; systemic and structural-functional approaches – to model innovative management mechanisms and predict their impact on the quality of education; method of expert assessments – to form practical recommendations for the introduction of digital technologies into the management system of general secondary education institutions.

5. Results and Discussion

The rapid digital transformation, which covers all areas of social progress, puts forward new requirements for the system of public governance, particularly in the field of general secondary education. Education, as a basic social institution, not only reproduces human capital but also forms the ability of the state to adapt to global technological and socio-economic changes. Therefore, updating the management mechanisms of general secondary education institutions (HHSS) is the main condition for guaranteeing the competitiveness of the national educational system and improving the quality of educational services.

Modern challenges – uneven access to digital resources, the growth of educational data, the need for openness and accountability, and requirements for the efficient use of resources – require a rethinking of traditional management practices and a transition to innovative models. The innovativeness of digital technologies opens up new opportunities for the formation of an effective managerial model of the education sector, as well as for the future development of democratic institutions of society [11, p. 727]. Of particular importance is the transition to data-based management, the expansion of digital services for participants in the educational process, and the development of information and analytical infrastructure, which makes it possible to ensure objectivity, efficiency and transparency of management decisions.

The regulatory changes of recent years – the introduction of institutional audit, the autonomy of educational institutions, the modernization of standards, the digitalization of state registers – create the basis for the formation of a new model of public administration of the ZZSO. However, the implementation of digital innovations faces a number of problems: an insufficient level of digital competencies of managerial personnel, limited financial capabilities of communities, uneven material and technical support, and fragmentation of digital platforms and services.

The effective functioning of the mechanisms of public management of general secondary education institutions in Ukraine directly depends on the quality and integrity of regulatory and legal support, which determines the legal framework for the organization of the educational process, the powers of management entities, the autonomy of general secondary education institutions, financial instruments and the use of digital technologies. In the context of modern digital transformation of society, the role of the regulatory framework is growing significantly, since it is the legislation that should provide conditions for the transition from traditional management models to innovative open

data, automated management processes and digital services based on electronic systems, automated management processes and digital services for all participants in the educational process.

In recent years, Ukraine has implemented several reforms in the field of general secondary education, including the adoption of the Laws "On Education" [12] and the Law of Ukraine "On Complete General Secondary Education" [13], the introduction of autonomy of secondary schools, the creation of the Unified State Electronic Database on Education [14], and the strengthening of requirements for cybersecurity and digital infrastructure. At the same time, the updating of regulatory and legal support continues, as there is a need to harmonize legislative provisions with new challenges of digitalization – the introduction of electronic document management, management information systems, analytical tools, education quality management systems, platforms for distance learning, and data protection of students and employees.

The peculiarities of management processes in general secondary education institutions are due to the specifics of educational activities and multi-level interaction between participants in the educational process. Key characteristics include:

1. Complexity of management functions – the institution simultaneously performs educational, administrative, social and communication tasks.
2. Multi-level interaction – effective management requires coordination of actions between management, teachers, students, parents and local governments.
3. Regulation of processes – the activities of general secondary education institutions are subject to regulatory legal acts, education standards and state programs.
4. Dynamism and adaptability – management processes must quickly respond to changes in educational policy.
5. The relationship between managerial decisions and the quality of education – the effectiveness of management directly affects the level of educational achievements of students and the development of the teaching staff.
6. The function of information systems and digital technologies.

The educational sector is going through a period of deep transformation: digital solutions are increasingly penetrating both the management of general secondary education institutions and the daily pedagogical practice. Instead of traditional models of organizing training, formats based on flexible technological tools are coming. They change not only the way the material is presented, but also the very logic of interaction between students, teachers and administration.

The digitalization of the educational system includes the introduction of electronic document management, automated monitoring of educational activities. In this context, the personalization of the educational process allows for the adaptation of educational materials according to the individual needs of students. This is possible thanks to the increased use of digital platforms and specialized resources. At the same time, attention is growing to the development of digital competencies of pedagogical and administrative workers, which are necessary for the effective implementation of modern technologies in education and care [15].

At the same time, the format of education is changing. After the emergence of developed platforms that support distance and combined approaches, the teacher received more space for flexible lesson design, and the student received more space to choose an individual trajectory. Curricula are becoming more variable, better adapted to the level of training and the pace of work of different groups.

Let's describe the current state of digitalization of secondary schools in Ukraine.

1. Infrastructure and Internet Access:

– According to the International Telecommunication Union (ITU), about 60% of Ukrainian general secondary education institutions have an Internet connection through fiber-optic technologies, but approximately 40% of secondary education institutions (especially in rural areas) still have significant problems with Internet infrastructure [16].

– Some general secondary education institutions do not have a stable high-speed connection, which limits the opportunities for the full use of digital educational platforms and video lessons [17].

– At the same time, the government and the Ministry of Education and Science are taking steps to strengthen ICT services in schools: for example, the 2024 report of the Ministry of Education and Science indicates the introduction of full-time positions of "system administrator" in secondary schools to support ICT and digitalization [18].

2. Digital Learning Resources and Distance Learning:

– The All-Ukrainian Online School was created, a platform that provides video lessons, test tasks,

and support for students in grades 5–11 in many subjects [16].

– The “Can’t Wait to Learn” platform (for primary school students) allows you to use gamified approaches to teach reading and mathematics according to the school curriculum [19].

– At the same time, there are challenges: not all general secondary education institutions and teachers have sufficient experience or resources to fully integrate distance/blended learning.

3. Digital educational environment in general secondary education institutions:

– According to the research of Y. Hrytsai [2, p.37], many secondary schools already have a digital educational environment, which includes electronic journals, diaries, ICT tools for learning. But the level of its development varies depending on the general secondary education institution and the region.

– During the All-Ukrainian Online Conference of the Institute for Modernization of the Content of Education (IMZO), the implementation of the “Unified School” – an information system that supports testing, test creation, management of educational materials and the work of school administrators was discussed [20].

4. Digital competencies of teaching staff:

– According to the Ministry of Education and Science and conference participants, a significant number of teachers are trained in digital tools, artificial intelligence and ICT solutions, especially in the context of the “Unified School” [20].

– The operational plan of the Ministry of Education and Science 2024 states that general secondary education institutions select “ICT responsables” – persons who should be engaged in the digital development of the institution, the security of the digital educational space and transformation [18].

– However, scientific publications recognize that not all teachers have a sufficient level of digital literacy for the full integration of ICT into the educational process [21, p. 40].

Modern challenges and problems of managing general secondary education institutions in the context of digitalization are associated with rapid changes in the technological and social environment, which create new requirements for the efficiency of management processes. The main problems include [22]:

1. Low level of digital competence among managers and teachers.

2. Insufficient use of digital tools in management procedures.

3. Lack of integrated electronic document management and analytics systems.

4. Cooperation with students, parents and local authorities is complicated by the lack of transparent feedback mechanisms.

5. Discrepancy between the priorities of digital transformation between the educational institution and local governments.

In order to improve the efficiency of management of general secondary education institutions in the context of digitalization, various digital tools and technologies are persistently used. They make it possible to automate administrative processes, ensure reliable collection and processing of information, improve communication with students, parents and teachers, as well as increase transparency and supervision of educational achievements. The main groups of modern digital tools, examples of their use and the results for administrative processes in general secondary education institutions are presented in Table 1.

Table 1. Modern Digital Tools and Technologies for Optimizing Management Processes in General Secondary Education Institutions

Tool category	Examples	Main functions and effects for management
Electronic document management and school management systems (LMS, ERP, School Management Systems)	Moodle, Google Classroom, ClassDojo, iDoceo	Automation of planning and accounting, optimization of administrative processes
Analytical platforms and BI systems	Power BI, Tableau, Google Data Studio	Collection and processing of data on student performance, teacher effectiveness, resources; Informed decision-making
Distance and blended learning platforms	Microsoft Teams, Zoom, Edmodo	Promoting distance and blended learning, connecting with students and teachers

Tool category	Examples	Main functions and effects for management
Digital Communication and Feedback Tools	Viber, Telegram, Google Forms, Mentimeter	Organization of operational interaction with students, parents and local authorities; surveys, questionnaires, receiving feedback
Tools for monitoring and evaluating the quality of education	Electronic journals, testing systems (Kahoot, Quizizz)	Control over educational activities, evaluation of results, and identification of problem areas in learning
Innovative technologies	Artificial intelligence, big data analytics, cloud services	Predicting learning outcomes, automating tasks

Source: Developed by the author according to the data given in [23, p. 56; 25–26].

The digitalization of public administration shows that digital tools and platforms have a significant impact on governance practices and service delivery. Digital transformation promotes openness and accountability in management systems, in particular education [24, p. 219]. Digital transformation in education involves the comprehensive implementation of information and communication technologies in all areas of educational activities and management of educational institutions in order to increase the efficiency, accessibility and quality of the educational process. It covers the automation of management processes, electronic document management, the use of data analytics for monitoring and decision-making, the introduction of distance and blended learning, the integration of innovative educational platforms and resources, as well as the development of digital competencies of teachers and leaders.

Modern digital transformation requires educational institutions to introduce innovative approaches to public administration. The key areas of such transformations are e-governance, data analysis, integration of distance and blended learning, as well as the development of digital skills of managers and teachers. presented in Table 2.

Table 2. Innovative Directions for Improving the Mechanisms of Public Management of General Secondary Education Institutions

Innovation direction	Content	Expected effect for management
E-Governance Models	Application of electronic platforms for planning educational activities	Increasing the transparency of management processes, optimizing resources
Data analytics and digital platforms	Processing of data on student performance, effectiveness of pedagogical activity	Informed decision-making, forecasting results, improving the quality of monitoring and control
Integration of distance and blended learning	Engaging digital platforms to streamline remote and combined learning	Increasing the flexibility of educational programs, the accessibility of training, the effectiveness of planning educational events
Development of competencies of managers and teachers in the field of digital governance	Mastering work with information platforms	Effective use of digital technologies
Digital Partnership Models	Interaction of the ZZSO with authorities, the IT sector, and the public	Attracting additional resources, improving management efficiency
Cybersecurity and Personal Data Protection Tools in ZZSO	Implementation of security policies, systems for protecting personal data of students and employees	Ensuring data confidentiality, reducing the risks of information leakage

Source: developed by the author according to the data given in [6, p. 64; 10, p. 277].

The introduction of modern digital platforms, analytical systems and distance and blended learning technologies allows not only to increase the efficiency of management processes, but also to make decision-making more efficient and transparent. The creation of a digital transformation plan is an important stage in updating the management processes in general secondary education institutions. It provides for an integrated approach to the introduction of information and communication technologies in the educational process and administrative work, determining tasks, priorities and stages of implementation of digital solutions.

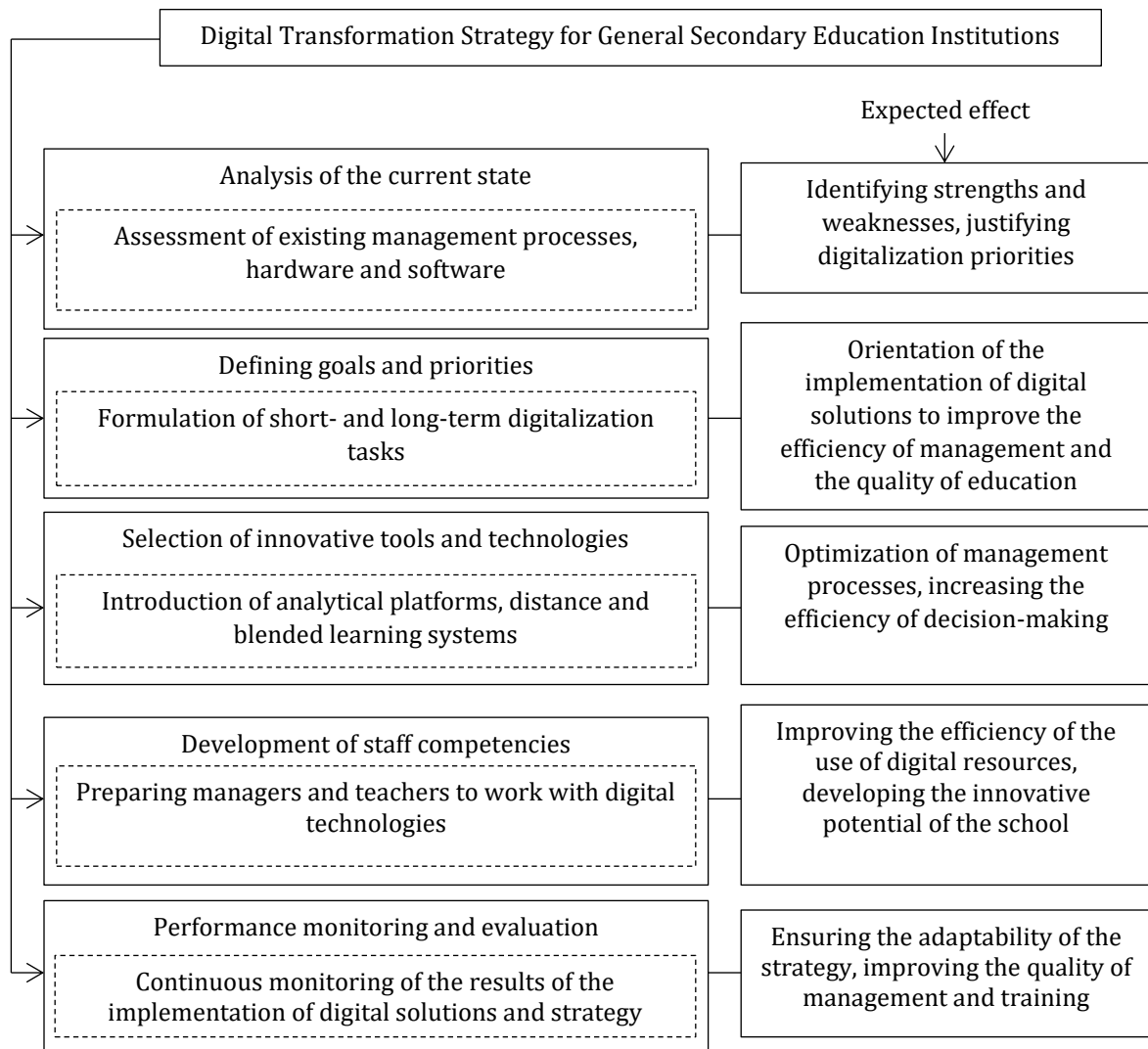


Figure 1. Development of a Strategy for the Digital Transformation of General Secondary Education Institutions

Source: Developed by the author according to the data given in [27, p. 73; 28, p. 5].

Effective interaction between the educational institution, parent assets in general, students and local executive bodies is a significant component of modern public administration in the field of general secondary education. Digital tools pave the way for systematic information, response, and partnership building. The main methods include: the use of electronic communication platforms (chatbots, mobile applications, individual accounts), periodic online surveys to find out the educational needs and the degree of satisfaction of the participants in the process, the involvement of community participation mechanisms in the intentions of the institution's development. Transparency of management work through the publication of reports, performance indicators and development projects is of great importance. This method contributes to strengthening trust, prompt resolution of issues and the formation of joint responsibility for the level of education.

Determining the effectiveness of innovative management practices makes it possible to find out the degree of their effectiveness and impact on the quality of the educational process. The basis for such an assessment is the creation of a system of indicators that cover both managerial and educational consequences: the degree of digitalization of procedures, the efficiency of decision-making, the reduction of administrative burden, the improvement of students' academic achievements, and the increase in satisfaction of educational entities. Monitoring intelligence, analytical reports, comparative analysis and revision of digitalization serve as significant tools. Regular assessment makes it possible to adjust management methods, improve digital tools and guarantee the stability of introduced innovations.

To identify the optimal innovative directions for the digitalization of management processes, it is

necessary to develop a model of the public administration mechanism and assess its effectiveness to ensure high standards of modern education (Fig. 2).

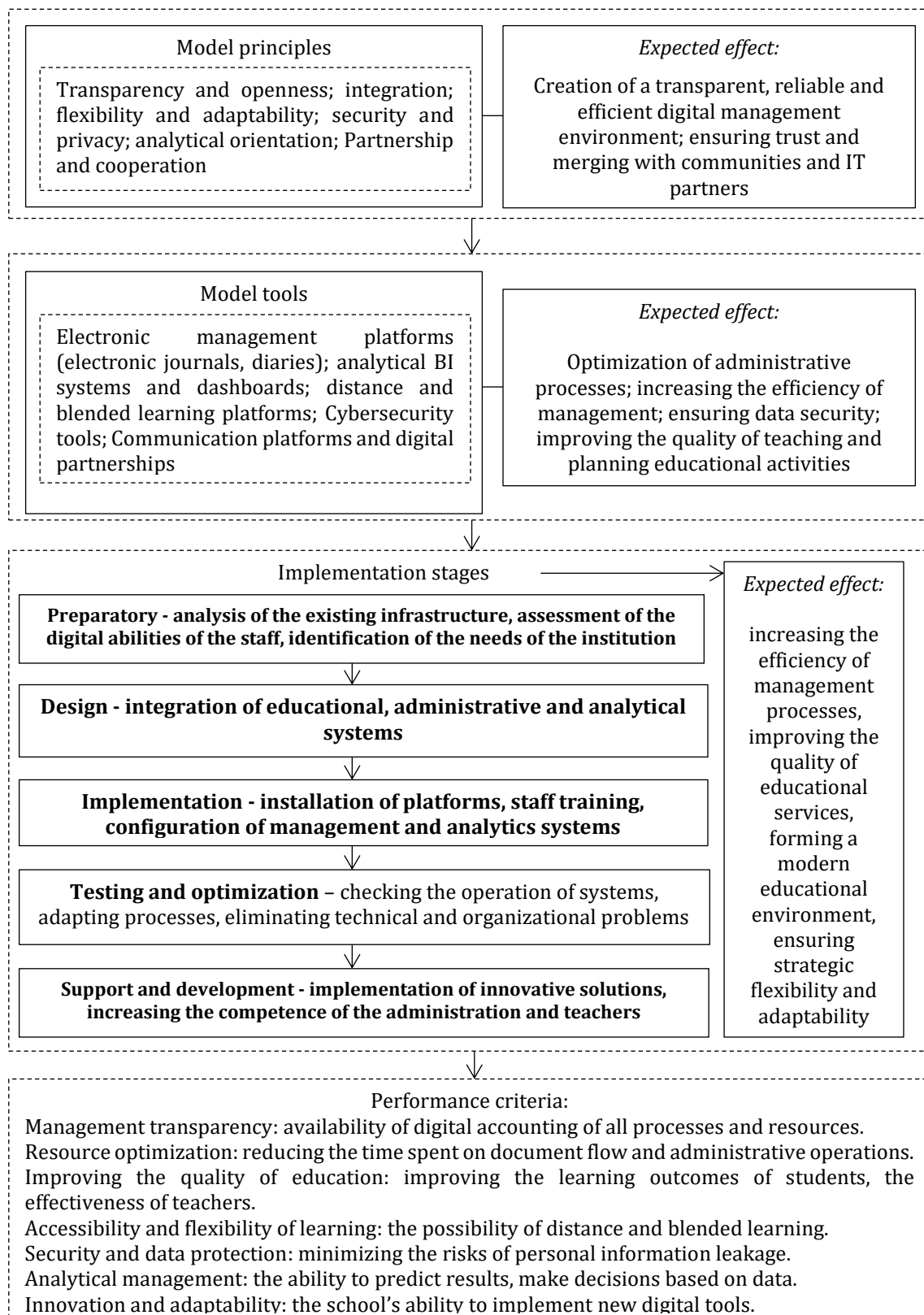


Figure 2. Model of an Innovative Digital Mechanism for Managing General Secondary Education Institutions

Source: Developed by the authors.

The model shown in Fig. 2 reflects an integral management system, within which strategic, organizational and technological components are combined to ensure the quality functioning of general

secondary education institutions. Its structure is built in such a way as to create a closed management cycle – from data generation to management decision-making and evaluation of results.

Thus, the presented model creates the basis for the introduction of innovative directions of management processes in the context of digital transformation, contributes to improving the quality of management and meets modern standards for the development of education in modern conditions.

6. Conclusions

The analysis of innovative areas for improving the mechanisms of public management of general secondary education institutions showed that digital transformation is a key factor in improving the efficiency of management and the quality of educational services. Innovative approaches allow you to create an integrated environment for the interaction of all participants in the educational process – administration, teachers, students and parents. This contributes to the personalization of learning, increasing digital competencies and adapting educational institutions to dynamic changes in the technological and social environment.

The introduction of innovative mechanisms of public administration forms a closed cycle of managerial activity – from data collection and analytics to decision-making and evaluation of their effectiveness – which ensures continuous improvement of educational processes and compliance with modern standards of education development. The development of a strategy for the digital transformation of general secondary education institutions is a key factor in modernizing management processes and improving the quality of educational services. The strategy provides for the systematic introduction of digital technologies, the integration of analytical platforms, automated monitoring systems and electronic services for the interaction of all participants in the educational process.

The introduction of the model of an innovative digital mechanism for managing general secondary education institutions creates the basis for an effective digital transformation of educational processes. The model provides integration of analytical systems, electronic communication platforms and automated monitoring, which helps to increase the efficiency of management decisions, transparency of the institution's activities and optimization of resources.

Thus, the digital transformation of management processes in educational institutions is an innovative factor in the modernization of the educational system, which contributes to its competitiveness and compliance with modern standards.

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