# Chapter I. THEORETICAL AND PEDAGOGICAL PROBLEMS OF MODERN EDUCATION

doi: 10.15330/msuc.2026.34.5-11

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**Bibliographic description of the article:** Bahriy M. (2026). Communication Management in Educational Institutions under Digital Transformation: Challenges and Prospects. *Mountain School of the Ukrainian Carpathians*. 34. 5-11.

**Бібліографічний опис статті:** Багрій М. (2026). Комунікаційний менеджмент у закладі освіти в умовах цифровізації: виклики та перспективи. *Гірська школа Українських Карпат*. 34. *5-11.*

**УДК 37.07:005.57:004.9**

## COMMUNICATION MANAGEMENT IN EDUCATIONAL INSTITUTIONS UNDER DIGITAL TRANSFORMATION: CHALLENGES AND PROSPECTS INTRODUCTION

**Abstract**. The article examines the theoretical foundations and current trends in the development of communication management in educational institutions under conditions of digital transformation. The relevance of the study is determined by the rapid integration of digital technologies, cloud services, learning management systems, corporate communication platforms, electronic document management systems, analytical tools, and generative artificial intelligence, which fundamentally transform managerial interaction and create new requirements for organizing internal and external communications. The aim of the study is to substantiate the theoretical foundations of communication management in the context of the digital transformation of education, identify the major challenges affecting its development, and outline promising directions for improving digital communication in educational institutions. The research employs a set of complementary methods, including analysis, synthesis, generalization, the systems approach, comparative analysis, and forecasting. The scientific novelty of the study lies in providing a comprehensive analysis of the transformation of communication management under the influence of digital technologies, highlighting the role of digital leadership, data-driven management, and evidence-based management, and substantiating the need to develop an integrated digital communication policy for educational institutions. The findings demonstrate that digital communication is evolving from an auxiliary information exchange tool into a strategic management resource that enhances interaction among all participants in the educational process, improves transparency, increases the efficiency of managerial decision-making, and supports institutional development. The study identifies the advantages of using digital platforms, cloud technologies, electronic document management, analytical services, and generative artificial intelligence in educational management. It also analyses the major challenges associated with information overload, cybersecurity, the digital divide, the ethical use of artificial intelligence, and the development of digital culture. The practical significance of the research lies in the possibility of applying its findings to improve communication management systems, develop digital transformation strategies, strengthen digital leadership, and enhance the effectiveness of managerial communication in educational institutions.

**Keywords**: communication management, educational institution, digital transformation, digital leadership, generative artificial intelligence, digital communication..

## КОМУНІКАЦІЙНИЙ МЕНЕДЖМЕНТ У ЗАКЛАДІ ОСВІТИ ЗА УМОВ ЦИФРОВІЗАЦІЇ: ВИКЛИКИ ТА ПЕРСПЕКТИВИ

**Анотація**. У статті досліджено теоретичні засади та сучасні тенденції розвитку комунікаційного менеджменту в закладах освіти за умов цифрової трансформації. Актуальність теми зумовлена активним упровадженням цифрових технологій, хмарних сервісів, систем управління навчанням, корпоративних платформ, електронного документообігу, аналітичних інструментів і генеративного штучного інтелекту, що суттєво змінюють характер управлінської взаємодії та висувають нові вимоги до організації внутрішніх і зовнішніх комунікацій. Метою дослідження є теоретичне

обґрунтування сутності комунікаційного менеджменту за умов цифровізації освіти, визначення сучасних викликів його розвитку та окреслення перспектив удосконалення цифрової комунікаційної діяльності закладів освіти. Для досягнення поставленої мети використано комплекс взаємопов'язаних методів дослідження: аналіз, синтез, узагальнення, системний, порівняльний і прогностичний методи. Наукова новизна полягає в комплексному висвітленні особливостей трансформації комунікаційного менеджменту під впливом цифрових технологій, визначенні ролі цифрового лідерства, моделей управління на основі даних та управління на основі доказів, а також обґрунтуванні необхідності формування цілісної політики цифрових комунікацій у закладах освіти.

Доведено, що цифрові комунікації поступово перетворюються із допоміжного інструменту інформаційного обміну на стратегічний чинник управління, який забезпечує ефективну взаємодію учасників освітнього процесу, підвищує прозорість управлінських процедур, оперативність ухвалення рішень і результативність діяльності закладу освіти. Визначено переваги використання цифрових платформ, хмарних технологій, електронного документообігу, аналітичних сервісів і генеративного штучного інтелекту в управлінській діяльності, а також виклики, пов'язані з інформаційним перевантаженням, кібербезпекою, цифровою нерівністю, етичними аспектами використання штучного інтелекту та розвитком цифрової культури. Практичне значення дослідження полягає в можливості використання його результатів для вдосконалення системи комунікаційного менеджменту, розроблення стратегій цифрового розвитку, підготовки керівників закладів освіти та формування ефективної політики цифрової взаємодії.

**Ключові слова**: комунікаційний менеджмент, заклад освіти, цифрова трансформація, цифрове лідерство, генеративний штучний інтелект, цифрові комунікації.

## INTRODUCTION

**Formulation of the problem**. The digital transformation of education significantly changes the content and mechanisms of educational institution management, highlighting the need to modernize communication management as one of the key factors of effective managerial activity. A modern educational institution functions as an open social system that ensures continuous interaction among administrators, teachers, students, parents, employers, public administration bodies, and local self-government authorities. Under these conditions, management effectiveness is largely determined not only by the quality of managerial decision-making but also by the speed, reliability, and effectiveness of internal and external communications. The rapid development of digital technologies, cloud services, learning management systems, corporate platforms, mobile applications, and generative artificial intelligence substantially expands the opportunities for organizing information interaction, contributing to greater openness, transparency, efficiency, and soundness of management processes (Fernбndez et al., 2023; Ivanchuk, 2025; McCarthy et al., 2023).

At the same time, the digitalization of the communication environment generates new managerial challenges associated with information overload among participants in the educational process, fragmentation of digital communication channels, cybersecurity, personal data protection, the development of digital culture and professional communication ethics, as well as the implementation of generative artificial intelligence in management practice. This necessitates a reconsideration of traditional approaches to communication management, the development of digital leadership among heads of educational institutions, and the design of effective models of digital communication management that combine technological innovation with human-centeredness, security, and strategic orientation (Kalinichenko, 2021; Kyzym & Yurchenko, 2025; Spirin et al., 2022). Therefore, the study of current trends, challenges, and prospects for the development of communication management under conditions of the digital transformation of education acquires important theoretical and practical significance for ensuring the sustainable development of educational institutions.

**Analysis of Recent Research and Publications**. Significant contributions to the development of the theoretical and practical foundations of the digital transformation of education, the advancement of the digital educational environment, the improvement of educational management, and the promotion of digital leadership have been made by A. Fernбndez, O. Kalinichenko, M. Kyzym, A. M. McCarthy, O. Poddenezhnyi, O. Shparyk, O. Spirin, W. Strielkowski, S. Tawil, Y. Zhao, and others. The development of digital competence among educational stakeholders, the use of cloud services, learning management systems, analytical platforms, as well as issues of information security and the responsible use of artificial intelligence technologies have been investigated by A. Fernбndez, A. M. McCarthy, O. Spirin, W. Strielkowski, S. Tawil, Y. Zhao, and others. However, the existing studies mainly address individual aspects of digital transformation, whereas the issues of the comprehensive organization of internal and external communication in educational institutions, the development of digital leadership, the establishment of a unified digital communication environment, the mitigation of information overload, the provision of cybersecurity, and the ethical use of generative artificial intelligence require further scientific substantiation.

## AIM AND TASKS RESEARCH

The aim of the research is to substantiate the theoretical foundations of communication management in educational institutions under digital transformation, to identify current challenges and prospects for the development of digital communications, and to outline strategic directions for improving the communication management system.

## RESEARCH METHODS

The study employed a set of interrelated research methods. Analysis, synthesis, and generalization were used to examine scholarly sources and identify the theoretical foundations of communication management. The systems approach was applied to determine the structure and specific features of communication processes in educational institutions. Comparative

analysis was used to characterize modern digital communication management tools, while the forecasting method served to substantiate prospects for the development of communication management under conditions of digital transformation.

**RESEARCH RESULTS**

In the contemporary theory of educational management, communication management is regarded as one of the fundamental components of the management system of an educational institution, ensuring the organization of information interaction among all participants in the educational process, the coordination of their activities, support for managerial decision-making, and the creation of a favourable educational environment. Whereas the traditional approach to communication management was primarily focused on information transmission, under conditions of digital transformation its content has expanded considerably. Priority is now given to managing information flows, organizing digital interaction, ensuring openness and transparency, facilitating prompt decision-making, and using analytical data and digital platforms to support the strategic development of educational institutions (Kalinichenko, 2021; McCarthy et al., 2023; Poddenezhnyi, 2021).

The concept of communication management is increasingly interpreted as a purposeful process of planning, organizing, coordinating, implementing, and evaluating internal and external communications aimed at achieving the strategic objectives of an organization. In the context of an educational institution, this involves creating a unified information and communication environment that ensures effective interaction among administrators, academic staff, students, parents, employers, the public, and educational authorities. At the same time, digital transformation changes not only the means of communication but also the very philosophy of management, orienting it towards partnership, horizontal interaction, openness of information, rapid response to change, and collaborative managerial decision-making (Fernбndez et al., 2023).

The concept of the digital transformation of education involves not merely the introduction of information and communication technologies but also a comprehensive rethinking of management processes, organizational culture, and models of interaction among all participants in educational activities. In this context, digital communications become a strategic resource for the development of educational institutions, while the effectiveness of their organization directly influences the quality of management, academic mobility, institutional transparency, and competitiveness. Therefore, international studies consider digital transformation as a continuous process of organizational change centred on people, with digital technologies serving as instruments for achieving strategic development goals (Fernбndez et al., 2023; UNESCO, 2023).

An important theoretical principle of modern communication management is the transition from an information management model to a model based on knowledge and digital data management. Whereas previously the principal function of a manager was to organize the transmission of information, today managers are expected to ensure the effective use of digital resources, integrate various communication channels, analyse information, forecast risks, and make evidence-based managerial decisions. In contemporary scholarly literature, this model is associated with the concepts of data-driven management, evidence-based management, and digital leadership, which are becoming increasingly widespread in educational management (Kyzym & Yurchenko, 2025; McCarthy et al., 2023).

One of the key characteristics of digital communication management is its systemic nature. Communications are no longer viewed as an auxiliary administrative function but are integrated into virtually all management processes, including strategic planning, organization of the educational process, human resource management, quality assurance, cooperation with external stakeholders, crisis management, and performance monitoring. Under such conditions, a unified digital communication ecosystem is formed, integrating information resources, software platforms, electronic document management systems, synchronous and asynchronous communication tools, analytical instruments, and generative artificial intelligence services (Spirin et al., 2022; UNESCO, 2023).

The analysis of the theoretical foundations and current practices of communication management makes it possible to systematize the main components of its transformation in the digital environment. These components reflect the transition from fragmented use of individual digital tools to an integrated communication management system that combines technological infrastructure, organizational processes, data-based decision-making, digital leadership, and responsible interaction among stakeholders. The key components of communication management under digital transformation are summarized in Table 1.

| Component | Main content | Digital tools and mechanisms | Expected management effect |
|---|---|---|---|
| **Digital communication infrastructure** | Integration of internal and external communication channels | LMS, corporate platforms, cloud services, videoconferencing tools | Faster information exchange and continuity of communication |
| **Digital document management** | Digitalization and automation of administrative information flows | Electronic document management systems, digital signatures, cloud storage | Reduced processing time, greater transparency and traceability |

| | | | |
|---|---|---|---|
| **Data-driven communication management** | Collection, integration, and analysis of institutional data | Dashboards, Business Intelligence tools, analytical platforms | Evidence-based decision-making and early identification of risks |
| **Digital leadership** | Strategic coordination of digital transformation and organizational change | Digital strategies, collaborative platforms, digital communication policies | Stronger organizational adaptability and stakeholder engagement |
| **Generative artificial intelligence** | Automation and support of information and analytical activities | GenAI tools for drafting, summarizing, analysis, and information support | Reduced routine workload and improved managerial efficiency |
| **Digital culture and competence** | Development of responsible and effective digital interaction | Professional development, digital literacy, communication standards | Improved quality of digital interaction and staff readiness for change |
| **Information security and ethics** | Protection of data and responsible use of digital technologies | Cybersecurity policies, access control, verification procedures, AI guidelines | Reduced security, privacy, ethical, and reputational risks |
| **Stakeholder communication** | Digital interaction with students, staff, parents, employers, authorities, and the public | Websites, social media, feedback services, online consultations | Greater openness, trust, participation, and institutional transparency |

***Source**: developed by the author based on the analysis of scholarly literature.*

As shown in Table 1, the transformation of communication management is multidimensional and cannot be limited to the introduction of new digital technologies. Technological components, including digital platforms, cloud services, electronic document management systems, analytical tools, and GenAI, provide the infrastructure for communication, while organizational and human components determine the effectiveness of their practical application. In this respect, digital leadership and digital culture perform an integrating function by linking technological innovation with institutional goals, staff competencies, and stakeholder needs.

Particular attention should be paid to the interrelationship between data-driven management, digital leadership, and information security. The growing volume of digital data expands opportunities for evidence-based managerial decision-making but simultaneously increases requirements for data protection, verification, ethical responsibility, and transparency. Consequently, an effective model of communication management should ensure not only the speed and accessibility of information exchange but also the reliability, security, and responsible use of digital communication channels.

At the same time, the digital transformation of communication management cannot be reduced solely to technological modernization. Its effectiveness largely depends on the development of digital culture, the digital competence of staff, the readiness of managers to lead organizational change, and the establishment of trust among all participants in the educational process. Therefore, contemporary researchers emphasize that the digital transformation strategy of an educational institution should integrate technological, organizational, social, and ethical dimensions of development, ensuring a balance between innovation, information security, academic integrity, and a human-centred approach to management (McCarthy et al., 2023; UNESCO, 2023).

The digital transformation of management has significantly expanded the range of tools used to organize communication in educational institutions. Whereas information interaction was previously based mainly on traditional document circulation, telephone communication, and face-to-face interaction, today the communication infrastructure is built upon integrated digital platforms that ensure rapid information exchange, collaborative interaction, joint decision-making, monitoring of educational processes, and accumulation of managerial data. In a modern educational institution, digital communication performs not only informational but also organizational, coordinating, analytical, and strategic functions, becoming one of the key instruments of effective management (Fernбndez et al., 2023; McCarthy et al., 2023).

The most widely used means of digital interaction remain learning management systems (LMS), which integrate administrative, educational, and communication processes within a unified digital environment. These platforms provide centralized management of learning materials, event calendars, assessment, timetables, announcements, and electronic interaction among all participants in the educational process. They also enable administrators to continuously monitor educational activities, analyse statistical indicators, and respond promptly to emerging changes.

Research indicates that the integration of LMS contributes to greater transparency of management, optimization of information flows, and improvement in the quality of managerial decision-making (Spirin et al., 2022).

Cloud technologies also occupy an important place in the digital communication ecosystem, ensuring secure information storage, collaborative document processing, prompt access to information resources regardless of users' location, and synchronization of managerial processes in real time. The use of Google Workspace for Education, Microsoft 365 Education, and other corporate platforms substantially enhances managerial mobility, reduces the time required for document preparation, minimizes information duplication, and promotes teamwork. Cloud services became the technological foundation for organizing distance interaction during the COVID-19 pandemic and have retained their status as essential tools of digital communication in education (McCarthy et al., 2023; Shparyk, 2023; UNESCO, 2023).

Another important component of the digital transformation of management is the implementation of electronic document management systems. The transition to digital processing of managerial documentation automates a considerable proportion of administrative procedures, reduces the time required for document approval, improves control over the implementation of managerial decisions, and minimizes the risks of information loss. Electronic document management also contributes to the establishment of a transparent management system in which every stage of document processing can be tracked and managerial decisions can be promptly communicated to those responsible for their implementation (Kyzym & Yurchenko, 2025).

A separate group of digital tools includes corporate communication platforms and synchronous communication services that support online meetings, videoconferences, group chats, webinars, collaborative planning, and the оперативе dissemination of information among staff. Their use considerably expands opportunities for horizontal communication between structural units, facilitates the rapid coordination of managerial decisions, and supports teamwork regardless of the geographical location of participants. Under present-day conditions, such tools ensure the continuity of management during crises, including martial law, remote work, and other emergency situations (Fernбndez et al., 2023).

Analytical digital platforms (dashboards) are becoming increasingly important because they enable the integration of data from different information systems, monitoring of key institutional performance indicators, identification of trends, and forecasting of potential risks. The use of Business Intelligence tools supports the transition from intuitive management to evidence-based management, where managerial decisions are based on objective data, statistical analysis, and predictive models. This enhances the quality of strategic planning, the efficiency of resource allocation, and the overall effectiveness of institutional management (McCarthy et al., 2023).

A new stage in the development of digital communication has been marked by the active implementation of generative artificial intelligence (GenAI) in educational management. GenAI tools are used for preparing information messages, drafting documents, analysing large volumes of textual data, summarizing monitoring results, processing citizens' requests, generating analytical reports, and providing information support for institutional leaders. At the same time, their application requires adherence to the principles of academic integrity, personal data protection, verification of the reliability of generated information, and transparency in the use of artificial intelligence algorithms (OECD, 2019; UNESCO, 2023).

The expansion of the digital communication environment is accompanied by a number of challenges. One of the most significant is information overload caused by the simultaneous use of e-mail, messengers, learning management systems (LMS), corporate platforms, social media, and electronic document management systems. A large number of messages, their duplication, and the lack of clear prioritization lead to distraction, delays in responding, digital fatigue, and the risk of professional burnout.

The problem is further aggravated by the fragmentation of communication channels, when different structural units use different digital services. This complicates document retrieval, the monitoring of task implementation, and the identification of the official version of information. Therefore, effective digital transformation requires not an increase in the number of platforms but their unification, the regulation of official communication channels, and the creation of a unified digital communication environment (Fernбndez et al., 2023; Kalinichenko, 2021).

Cybersecurity is becoming particularly important because the information systems of educational institutions contain personal data, personnel, financial, and administrative documentation. Phishing attacks, the theft of user accounts, the use of unsecured networks, or personal devices may result in technical, legal, and reputational losses. Therefore, cybersecurity should be regarded as an integral component of management culture, encompassing access policies, multi-factor authentication, data backup, regular software updates, and staff training.

Another important challenge is the digital divide, which is manifested in differences in access to digital devices, the quality of Internet connection, and the level of digital competence of staff, students, and parents. If digital services become the only channel of communication, some participants may find themselves excluded from the information environment. This requires maintaining alternative communication channels, providing technical support, and taking into account the capabilities of different target groups (McCarthy et al., 2023; Spirin et al., 2022).

Additional risks are associated with the use of GenAI. Despite its considerable potential for automating the preparation of documents and analytical materials, GenAI may generate inaccurate information, fabricated references, algorithmic bias, or create risks of confidentiality breaches. Therefore, the use of such tools should include human

verification of the generated results, a prohibition on entering sensitive data, and personal responsibility for the final content of documents (UNESCO, 2023).

The ethical dimension of digital communication encompasses issues of privacy, professional ethics, accessibility of information, and the prevention of discrimination. The use of digital services should ensure the minimization of personal data collection, the transparency of algorithmic decisions, the explainability of automated procedures, and the possibility of appealing such decisions.

The further development of communication management in educational institutions is associated with the transition from the digitalization of individual management processes to the establishment of an integrated digital management ecosystem. It should integrate information resources, communication platforms, electronic document management systems, analytical services, and decision-support tools into a unified digital environment. Such integration ensures the continuity of information flows, the unification of communication processes, the reduction of information duplication, and the improvement of management efficiency. Comprehensive digital platforms will increasingly combine the functions of communication, planning, monitoring, analytics, and the strategic development of educational institutions (Fernбndez et al., 2023; McCarthy et al., 2023).

One of the leading trends is the implementation of data-driven management models based on data analysis. The use of analytical dashboards, Business Intelligence tools, visualization, and predictive analytics makes it possible to carry out comprehensive monitoring of educational institution performance, identify risks in a timely manner, and make managerial decisions based on evidence. This ensures the transition from reactive to proactive management focused on forecasting and preventing problems (McCarthy et al., 2023).

The development of the digital leadership of the head of an educational institution is becoming a decisive factor in digital transformation. A modern leader should not only implement digital technologies but also develop a strategic vision for institutional development, manage organizational change, support an innovative culture, ensure the professional development of staff, and create conditions for open communication and partnership. Practice shows that the success of digital transformation is determined largely by the human factor rather than by the level of technological provision (UNESCO, 2023; Kondur et al., 2025; Kyzym & Yurchenko, 2025).

An equally important area is the development of the digital culture of all participants in the educational process. The effectiveness of digital communication depends on the level of digital competence, information literacy, compliance with the principles of digital etiquette, academic integrity, and the responsible use of generative artificial intelligence. Therefore, one of the priorities of management is the systematic professional development of staff, the enhancement of skills for safe work in the digital environment, and the critical use of modern digital services (Spirin et al., 2022).

A promising direction is the integration of GenAI into management activities. GenAI is capable of automating the preparation of documents, information analysis, the development of analytical materials, and support for managerial decision-making. At the same time, its use should be based on the principles of transparency, accountability, confidentiality, algorithmic explainability, and mandatory human oversight. In this regard, an important task is the development of institutional policies on the use of artificial intelligence, which will define the scope of its application, mechanisms for verifying generated results, and ethical standards for the use of digital services (UNESCO, 2023).

At the same time, digital transformation creates new opportunities for the interaction of educational institutions with external stakeholders, including employers, public authorities, non-governmental organizations, graduates, and international partners. The use of open digital platforms, electronic feedback services, online consultations, and public information resources enhances the transparency of management, strengthens trust in educational institutions, and broadens the participation of different stakeholder groups in managerial decision-making. Therefore, the further development of communication management will be determined by the integration of digital technologies with the principles of open, human-centered, and partnership-based management.

**CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH**

The findings of the study indicate that digital transformation substantially changes communication management in educational institutions by transforming its organizational foundations, instruments, and mechanisms of interaction among all participants in the educational process. It has been established that modern digital platforms, learning management systems, cloud services, electronic document management systems, analytical tools, and generative artificial intelligence contribute to improving the efficiency, transparency, and evidence base of managerial decision-making. At the same time, the effectiveness of their application depends on the level of digital competence of staff, the development of digital leadership, the provision of information security, adherence to ethical principles, and the establishment of a comprehensive policy for managing digital communications.

Prospects for further research are associated with the development of models of strategic digital communication management in educational institutions, the identification of criteria for evaluating the effectiveness of digital communication management, the investigation of the impact of generative artificial intelligence on managerial processes, and the substantiation of mechanisms for developing the digital culture and digital leadership of heads of educational institutions under conditions of the transformation of the educational environment.

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*Received:* *04.08.2026*
*Accepted:* *24.08.2026*
*Published:* *15.09.2026*