



e-ISSN 3041-248X

Philosophy and Governance

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



Digitalization of Public Administration: Innovative Tools, Challenges and Managerial Effects

Oleh Hyrenko ^{1*} • Serhii Dmytrenko ¹

¹ *Poltava State Agrarian University (Ukraine). Postgraduate Student at the Department of Economics and Public Management.*

* **Corresponding Author**, e-mail: oleh.hyrenko@pdau.edu.ua

ARTICLE INFO

Research Article

DOI:

[10.70651/3041-248X/2025.12.12](https://doi.org/10.70651/3041-248X/2025.12.12)

Received:

12 November 2025

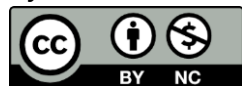
Accepted:

16 December 2025

Published online:

24 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)

ABSTRACT

The article examines aspects of the transformation of public administration under the influence of digitalization processes in the economy. The aim of the study is to analyze the role of digitalization as a systemic factor in reshaping public administration. The article identifies digitalization as a fundamental driver of profound changes in public administration, determining shifts in its substantive characteristics, functional logic, and socio-managerial role. It is argued that digitalization of public administration is complex and multidimensional, encompassing technological, institutional, organizational, cultural, and social transformations. Digitalization extends beyond the mere implementation of information and communication technologies, encompassing a reevaluation of the state's role in societal development. This involves transforming administrative functions, principles, methods, forms, and instruments, and transitioning toward data-driven, platform-based, and collaborative governance models. The study highlights that digital transformation in public administration has evolved the role of the state from a dominant regulator to a partner, coordinator, and facilitator of social processes, accompanied by enhanced openness, accountability, and institutionalization of citizen participation in decision-making. The implementation of electronic public services, digital platforms, electronic identification systems, big data analytics tools, cloud services, and artificial intelligence technologies creates conditions for enhancing the effectiveness of administrative decisions, improving the quality of public services, and increasing the level of public trust in authorities. At the same time, digitalization of public administration is associated with a set of interrelated challenges of institutional, managerial, human resources, social, and technological nature. These challenges include the fragmentation of digital initiatives, insufficient interagency coordination, misalignment of legal and regulatory frameworks with the pace of technological change, limited digital competencies of civil servants, digital inequality, increased cybersecurity risks, and potential erosion of public trust. It is argued that effective digital transformation of public administration requires the systemic synchronization of technological innovations with institutional reforms, the purposeful development of human capital, the strengthening of social inclusiveness, and the fostering of a culture of open and responsible governance.



KEYWORDS

public administration, digitalization, digital transformation, digital management tools, managerial innovations, institutional transformations.



Цифровізація публічного управління: інноваційні інструменти, виклики та управлінські ефекти

Олег В. Гиренко ¹* ● Сергій М. Дмитренко ¹

¹ Полтавський державний аграрний університет (Україна). Здобувач наукового ступеня доктор філософії кафедри економіки та публічного управління.

* Автор-кореспондент, e-mail: oleh.hyrenko@pdau.edu.ua

СТАТТЯ

АНОТАЦІЯ

Дослідницька

DOI:

[10.70651/3041-248X/2025.12.12](https://doi.org/10.70651/3041-248X/2025.12.12)

Отримана:

12.11.2025 р.

Прийнята:

16.12.2025 р.

Опублікована:

24.12.2025 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).

Статтю присвячено вивченню аспектів трансформації публічного управління під впливом процесів цифровізації економіки. Стаття має на меті проаналізувати, систематизувати та удосконалити наявні теоретико-методичних аспекти цифровізації публічного управління. В статті визначено, що цифровізація постає це системоутворюючий чинник глибоких перетворень публічного управління, який зумовлює зміну його змістовних характеристик, функціональної логіки та соціально-управлінської ролі. Обґрунтовано, що цифровізація публічного управління має комплексний, багатовимірний характер та охоплює технологічні, інституційні, організаційні, культурні та соціальні зрушення. Визначено, що цифровізація виходить за межі впровадження інформаційно-комунікаційних технологій та передбачає переосмислення ролі держави у суспільному розвитку, трансформацію управлінських функцій, принципів, методів, форм і інструментів, перехід до дата-орієнтованих, платформних і колаборативних моделей врядування. Окреслено, що цифрова трансформація публічного управління зумовила еволюцію ролі держави від домінуючого регулятора до партнера, координатора та підсилювача суспільних процесів, що супроводжується посиленням відкритості, підзвітності та інституціоналізацією участі громадян у прийнятті управлінських рішень. Впровадження електронних публічних сервісів, цифрових платформ, систем електронної ідентифікації, інструментів аналітики великих даних, хмарних сервісів та технологій штучного інтелекту створить передумови для підвищення результативності управлінських рішень, якості публічних послуг і рівня суспільної довіри до органів влади. Водночас цифровізація публічного управління супроводжується комплексом взаємопов'язаних викликів інституційного, управлінського, кадрового, соціального та технологічного характеру. До викликів віднесено: фрагментарність цифрових ініціатив, недостатній рівень міжвідомчої координації, невідповідність нормативно-правового регулювання динаміці технологічних змін, обмежені цифрові компетентності державних службовців, наявність цифрової нерівності, зростання ризиків кібербезпеки й потенційної втрати суспільної довіри. Обґрунтовано, що ефективна цифрова трансформація публічного управління повинна здійснюватися при системній синхронізації технологічних інновацій з інституційними реформами, цілеспрямованому розвитку людського капіталу, посиленні соціальної інклюзивності та формуванні культури врядування.



КЛЮЧОВІ СЛОВА

публічне управління, цифровізація, цифрова трансформація, цифрові інструменти управління, інноваційні технології, органи влади.

1. Introduction

At the present stage of development of society, which is characterized by the intensive spread of digital technologies, the mechanisms of functioning of the public administration system are significantly transformed. Digitalization, on the one hand, optimizes management processes, and on the other hand, forms the prerequisites for changes in management paradigms, forms of interaction between the state, business and civil society. The introduction of digital tools in the field of public administration is accompanied by a number of systemic problems, which manifest themselves in fragmented regulatory and legal support, institutional inconsistencies, uneven level of digital maturity of authorities, a deficit of digital competencies of managerial personnel, and threats to cybersecurity and personal data protection. Therefore, the relevance of the study is due to the growing role of digital technologies in the modernization of the public administration system and the need to adapt management practices to the conditions of the digital economy and knowledge society.

2. Literature Review

A large number of studies are devoted to the issues of digitalization and the development of public administration. In modern literature, public administration is considered as a form of socially significant activity implemented by state authorities and local self-government, focused on achieving public value through non-coercive, partnership and coordination mechanisms [1–3]. At the same time, the digitalization of public administration sees not only the introduction of information and communication technologies, but also the transformation of the content, functions and principles of managerial activity, the creation of platform and collaborative models of governance [4; 5].

Domestic scientists emphasize the multidimensional nature of digitalization, which includes the automation of processes, the integration of information resources and the formation of new channels of communication with citizens [6–8]. Particular attention is paid to the development of electronic services, digital interaction platforms, electronic identification systems, analytical tools for processing big data and the use of artificial intelligence technologies [4].

Foreign studies define the complexity of digital transformation, which involves not only technological changes, but also organizational, social and cultural transformations in government agencies, including the development of digital competencies of personnel and the integration of data into the decision-making process [9–11]. The issues of data interoperability and platform governance are singled out separately as key factors in improving the efficiency and transparency of public administration [12; 13].

In addition, the literature substantiates the presence of challenges and limitations of digitalization, including fragmentation of information systems, insufficient interagency coordination, low level of digital competencies of civil servants, regulatory gaps and digital divide in society [14; 15]. The above outlines the need to synchronize technological innovation with institutional reforms, human capital development, and social and governance practices of open, accountable, and citizen-centered governance.

3. Problem Statement

The purpose of this study is to analyze, systematize and improve the existing theoretical and methodological aspects of digitalization of public administration.

To achieve this goal, the study outlines the following tasks:

- to clarify the theoretical and methodological aspects of public administration and to reveal its differences from traditional public administration in the context of modern social transformations;
- to analyze the principles of digitalization of public administration and systematize approaches to the content of the process of digital transformation of the public sector;
- to justify the transformation of basic management categories under the influence of digitalization;
- to substantiate the tools of digital public administration and its effects;
- to identify the main challenges of digitalization of public administration in Ukraine that hinder the achievement of systemic results;

– to substantiate the directions for improving the efficiency of digital transformation of public administration.

4. Methods and Materials

The methodological basis of the study was a set of general scientific and special methods of scientific knowledge, the use of which ensured the complexity, consistency and logical integrity of the results obtained. In particular, the methods of analysis and synthesis were used to generalize theoretical approaches to public administration and digitalization, as well as to form the author's conclusions. The comparative method made it possible to compare traditional public administration and public administration in the context of digital transformation, as well as to analyze domestic and foreign scientific concepts in this area. A systematic approach is applied to consider the digitalization of public administration as a holistic, multidimensional process that integrates institutional, organizational, technological and social components. With the help of the structural-functional method, the transformation of managerial functions, principles, methods and forms in the digital environment has been studied. Classification and grouping methods are used to systematize digital tools of public administration, as well as to highlight the main managerial effects and challenges of digital transformation. The inductive and deductive methods provided the formation of generalized conclusions based on the analysis of individual theoretical provisions and practical examples, while the abstract-logical method made it possible to carry out a theoretical generalization of the research results and form conceptual provisions for the development of digital public administration. The cumulative application of these methods provided the scientific validity of the study, made it possible to comprehensively disclose the process of digitalization of public administration and determine its role in the formation of an effective, open and citizen-oriented system of governance.

5. Results and Discussion

In the twenty-first century, digitalization has transformed not only economic and social spheres, but also the very essence of public administration. We agree with the opinion of Al-Atti [1] that public administration can be characterized as a form of socially significant activity that is implemented by a set of authorized entities, in particular state authorities and local self-government bodies. In contrast to traditional public administration, which is mainly based on imperative and coercive instruments of influence, public administration is focused on the use of mainly non-coercive, partnership and coordination mechanisms (Table 1).

The implementation of public administration is manifested primarily in the system of external relations of executive authorities with other subjects of public power and with private individuals and civil society institutions. Such a defining feature contributes to the formation of an open management model based on interaction, coordination of interests and involvement of a wide range of stakeholders in the management decision-making process. As a result, public administration ensures an increase in the effectiveness of managerial activities due to the growth of the level of public trust, public support and consolidation of society around common strategic development goals.

The issues of digitalization of public administration are thoroughly developed in modern domestic scientific literature. Scientists consider them as a multidimensional process of transformation of the management system as a whole. The studies [2–5] emphasize that digitalization is not reduced to the mechanical introduction of information and communication technologies into the activities of public authorities, but involves deep structural transformations in the content of managerial activities, the logic of decision-making, the forms of organization of management processes and the mechanisms of interaction between public authorities and consumers of public services.

In the works of domestic scientists [4–6], digitalization is justified as a systematic and purposeful process that includes the automation of management procedures, the integration of information resources and the formation of new digital communication channels. In particular, Chornyi [4] specifies digitalization as a systematic method of modernization of management, based on the use of digital technologies in order to increase the efficiency of the functioning of public authorities, transparency of management decisions and accessibility of public services for the population. Therefore, digitalization

serves as a tool for improving the effectiveness of public administration and forming a focus on the needs of citizens.

Table 1. Differences between public administration and traditional public administration

Criterion	Public administration	Public administration
Managerial paradigm	Administrative-command, hierarchical	Partner, network-oriented
Main goal	Ensuring the implementation of government decisions and state policy	Achievement of socially significant goals and public value
Dominant nature of influence	Imperative, coercive	Coordination, consensus
Instruments of influence	Orders, orders, prohibitions, sanctions	Agreements, consultations, public contracts, incentives
Type of management mechanisms	Administrative and legal	Organizational, social, economic, communication
The role of coercion	Central, backbone	Limited, auxiliary
Level of openness	Closed or Restricted Open	Open, transparent
Management entities	Mainly public authorities	Authorities, local governments, public and private entities
Objects of management	Subordinate structures and populations	Social processes, communities, stakeholders
The nature of interaction with citizens	Vertical, subordinate	Horizontal, affiliate
Public participation	Minimal or formal	Active, institutionalized
Decision-making process	Centralized, Sole	Decentralized, collegial
Communication	One-sided (top to bottom)	Two-way, interactive
Management flexibility	Low	High
Adaptability to change	Limited	Significant
Result orientation	Compliance with procedures and regulations	Achieving results and social impact
Performance criteria	Execution of plans, orders, instructions	Quality of services, level of trust, social effect
The role of coordination	Secondary	Key
Using Network Forms	Virtually non-existent	Widely used
Social capital	Not considered as a managerial resource	It is considered as a strategic resource
Level of public trust	Often low	Potentially high
Innovation	Limited by regulations	Encouraged and supported
Digital tools	Auxiliaries	Integrated into the management model
Accountability	Formal, internal	Public, public
Alignment of interests	Not a priority	Key principle
The role of consensus	Minimum	Decisive

Source: Systematized by the authors according to the data given in [1–3].

It is worth highlighting the institutional aspects of understanding the digitalization process. In the work [6], digital technologies are considered from the standpoint of transformation of the institutional environment of public administration. Digitalization changes the rules of interaction between the state and society, contributes to the development of e-democracy, increasing the level of trust in public institutions and the formation of new management practices.

In addition, the digitalization of public administration is considered as a dialectical and dynamic process that leads to the transformation of basic management categories: functions, principles, methods, forms and tools of management [7]. It influences the rethinking of the role of the state, changes in the nature of power and the transition from hierarchical models to network and partner forms of management [8]. The social and managerial content of digitalization goes beyond purely technical solutions and is considered as a component of the modern methodology of effective governance, focused on openness, accountability, citizen participation and the joint creation of public value.

Foreign research significantly complements domestic approaches, and most of them focus on the study of the complex nature of digital transformation. Here, the digitalization of public administration is seen as a transformation of technological, organizational, cultural and social dimensions. The implementation of digital solutions will be effective only if there are simultaneous changes in management models, administrative culture, personnel training system and mechanisms for involving citizens in management processes.

Scientists Ciancarini et al. [9] note that the digital transformation of the public sector requires the integration of information and communication technologies with organizational innovations, the development of digital competencies of personnel and the formation of a culture of open management. Therefore, reducing digitalization exclusively to technical renewal will lead to limited management effects, while an integrated approach will achieve systemic changes in the effectiveness and quality of public administration.

In addition, in the foreign scientific literature [10–13], aspects of data-based management are widely developed, in particular, digitalization is interpreted as the basis for the transition to management based on data analysis and evidence-based decisions. In addition, the works [12; 13] consider platform governance, which involves the creation of digital platforms for interaction between the state, business and citizens.

Summarizing the outlined approaches, it is advisable to come to the conclusion that the digitalization of public administration appears as a complex, multifaceted process that combines technological, institutional, organizational and social changes and is a powerful prerequisite for the formation of an effective, open and citizen-oriented public governance system. In Table 2, we propose the author's vision of how public administration is transformed in the context of digitalization (Table 2).

Table 2. Transformation of public administration in the context of digitalization

Management categories	Traditional public administration	Public Administration in the Context of Digitalization	Socio-managerial effects
The role of the state	Dominant regulator and controller	Partner, coordinator, facilitator of social processes	Growing trust, increasing the legitimacy of the authorities
Managerial functions	Planning, organization, control within a tight framework	Analytical, coordination, service, communication	Improving performance and focusing on the needs of citizens
Management principles	Centralization, hierarchy, formalism	Openness, transparency, accountability, participation	Development of democratic practices
The nature of power	Imperative, administrative	Delegated, coordination, partnership	Reducing the conflict of managerial decisions
Management methods	Administrative, compulsory	Economic, informational, motivational, communicative	Increase the effectiveness of exposure
Forms of management	Orders, orders, regulations	Public consultations, electronic services, co-management	Enhancing citizen participation
Management tools	Regulations	Digital platforms, e-government, big data, AI	Acceleration and validity of decisions
Organizational structure	Vertically hierarchical	Network, hybrid	Flexibility and adaptability of the system
Interaction model	The state is a subordinate object	State – citizen – partner	Formation of social capital
Communication	One-sided	Two-way, interactive	Increased feedback
Decision-making	Closed, centralized	Open, collegial, data-driven	Quality and validity of decisions
Citizen participation	Limited	Institutionalized	Co-creation of public value
Accountability	Formal, internal	Public, public	Increased accountability
Digital culture	Underdeveloped	Focus on innovation and learning	Professional development of personnel
Management model	Hierarchical	Network, partner	Stability of the management system
The nature of the transformation	Static	Dynamic, dialectical	Continuous improvement
Ultimate managerial goal	Performing procedures	Creating public value	Improving the well-being of society

Source: Developed by the authors.

Digitalization facilitates the transition from hierarchical to network and partnership models, ensures openness, accountability and citizen involvement in management processes, which together forms a new paradigm of effective governance focused on the joint creation of public value.

The digitalization toolkit covers a wide range of technical and organizational solutions [4]. Among the main ones, we highlight the following: electronic public services, digital platforms for interaction with citizens, electronic identification, automated document management systems, analytical tools for

processing big data, cloud services and artificial intelligence technologies. A detailed description of the tools is given in Table 3.

Table 3. Public Administration Tools in the Context of Digitalization

Digital tools	Essence	Functions in public administration	Managerial effects	Application examples
Electronic public services	Online services for the provision of administrative and social services	Simplification of access to services, minimization of personal contacts	Increasing the availability and quality of services, reducing transaction costs	Business registration, social benefits, permitting procedures
Digital platforms for interaction with citizens	Unified digital communication environments between government and society	Citizen engagement, feedback, consultations	Increasing transparency and trust, developing e-democracy	Petitions, public discussions, participatory budgets
Electronic identification	Digital Identity Verification	Secure access to public services	Personal data protection, simplification of procedures	BankID, MobileID, digital documents
Automated document management systems	Digital Document and Process Management Systems	Optimization of internal management processes	Reducing decision-making time, reducing bureaucracy	E-document management, interdepartmental data exchange
Big Data Analytics Tools	Systems for collecting and analyzing large amounts of information	Support for data-driven management decisions	Increasing the validity and predictability of decisions	Socio-economic monitoring, forecasting
Cloud services	Remote computing resources and data storage	Scalability and flexibility of IT infrastructure	Reduce costs, increase system resilience	Government registers, cloud platforms
Artificial Intelligence Technologies	Machine Learning and Automated Analysis Algorithms	Intelligent decision support	Improving the efficiency and innovation of management	Chatbots, analytical systems
Interoperable Registries and Databases	Harmonized Digital Government Registers	Data exchange between authorities	Reducing duplication of information	Unified State Registers
Digital communication channels	Social networks, mobile applications	Operational interaction with citizens	Increased openness and responsiveness	Official portals, messengers
Cybersecurity tools	Technical and organizational means of protection	Protection of information resources	Stability and reliability of digital control	Data protection systems, encryption

Source: Systematized by the authors according to the data given in [3; 4; 9].

In Ukraine, the most striking and well-known examples of digital tools are national digital services, in particular Diia, e-procurement systems (ProZorro) and medical registers (Helsi), which automate a significant part of public processes. However, according to Solodovnik [14], the institutional implementation of these tools often faces the problem of fragmentation of information systems and insufficient interagency coordination. Scholar Surai [15] notes that the lack of regulatory and legal support capable of responding quickly to rapid technological changes and the existence of an imbalance between the needs of digital transformation and the existing legal framework, which hinders the scaling of digital solutions.

Having thoroughly studied the works [14–15], we came to the conclusion that the digitalization of public administration is accompanied by a complex of interrelated challenges of an institutional, managerial, social and technological nature.

First, digitalization is often implemented in the format of individual projects or platforms that are not integrated into the holistic architecture of public administration. And the lack of a coordinated digital strategy, uniform standards and interdepartmental interoperability duplicates functions, fragments information resources and reduces the effectiveness of management decisions.

Secondly, the introduction of modern digital tools is not accompanied by an adequate transformation of management processes, organizational structures and regulations of activity, as a

result, digital solutions are superimposed on outdated bureaucratic procedures without achieving qualitative changes.

Thirdly, the low level of digital competencies of civil servants, limited opportunities for professional training and resistance to organizational changes slow down the digital transformation of public administration.

Fourthly, the digital divide between regions, social groups and generations limits the inclusiveness of public administration and creates a risk of marginalization of certain categories of the population.

Fifth, the massive use of digital platforms and analytical tools increases the vulnerability of public information systems to cyberattacks and exacerbates the ethical use of data.

Sixth, focusing exclusively on technological solutions without taking into account social, cultural and managerial contexts will lead to the formalization of digital reforms and the loss of their social value.

We are unconditionally convinced that effective digital transformation in our country is possible only if technological innovations are systematically synchronized with institutional reforms, human capital development, strengthening social inclusiveness and building trust between the state and society. This is how we will turn digitalization into a factor in the sustainable development of public administration and the creation of public value.

6. Conclusions

Digitalization is now not just a technological trend, but a powerful prerequisite for the transformation of public administration, it changes its content, logic of functioning, and social and managerial purpose. The digitalization of public administration is multidimensional in nature and encompasses technological, institutional, organizational, cultural and social transformations. It is not reduced to the introduction of information and communication technologies, but provides for a rethinking of the role of the state, the transformation of management functions, principles, methods, forms and tools of management, as well as the transition to data-oriented, platform and collaborative models of governance.

In our opinion, the transformation of public administration in the context of digitalization involves changing the role of the state from a dominant regulator to a partner and coordinator of social processes, strengthening openness, accountability and participation of citizens, institutionalization of network forms of interaction, etc. The introduction of digital tools, in particular: electronic public services, digital platforms, electronic identification systems, big data analytics, cloud services and artificial intelligence technologies, and others, will ensure an increase in the effectiveness of management decisions, the quality of public services and the level of public trust in the authorities. However, the digitalization of public administration is accompanied by a complex of institutional, managerial, personnel, social and technological challenges. The main ones in the study include fragmentation of digital initiatives, insufficient interagency coordination, inconsistency of the regulatory framework with the pace of technological changes, low level of digital competencies of civil servants, digital inequality, and growing cybersecurity risks and loss of public trust. However, we are convinced that an effective digital transformation of public administration is possible under the condition of systematic synchronization of technological innovations with institutional reforms, human capital development, strengthening social inclusion and forming a culture of open and responsible governance.

References

1. Al-Atti, I. (2018). Publichne upravlinnia: sutnist i vyznachennia [Public administration: Essence and definition]. *Aspekty publichnoho upravlinnia – Aspects of Public Administration*, 6(8), 35–41. <https://doi.org/10.15421/151844> (in Ukrainian)
2. Volska, O. (2020). Publichne upravlinnia yak systemne yavyshe v suchasnomu suspilstvi [Public administration as a systemic phenomenon in modern society]. *Tavriiskyi naukovyi visnyk. Seriya: Ekonomika – Taurian Scientific Bulletin. Series: Economics*, (3), 15–20. <https://doi.org/10.32851/2708-0366/2020.3.2> (in Ukrainian)
3. Okseniuk, A. (2025). Poniattia, pryntsypy ta systema publichnoho upravlinnia v administratyvno-politychnii sferi [Concept, principles, and system of public administration in the administrative and political sphere]. *Visnyk Natsionalnoho universytetu "Lvivska politehnika" – Bulletin of Lviv Polytechnic National University*, 12(1(45)), 163–172. <https://doi.org/10.23939/law2025.45.163> (in Ukrainian)

4. Chornyi, S. (2022). Poniattia ta perspektyvy rozvytku tsyfrovizatsii u sferi publichnoho upravlinnia [Concept and prospects for the development of digitalization in public administration]. *Kyivskyi chasopys prava – Kyiv Law Journal*, (4), 224–229. <https://doi.org/10.32782/klj/2021.4.34> (in Ukrainian)
5. Kuibida, V., Karpenko, O., & Namestnik, V. (2018). Tsyfrovi vriaduvannia v Ukraini: bazovi definitsii poniatiino-katehorialnoho aparatu [Digital governance in Ukraine: Basic definitions of the conceptual framework]. *Visnyk Natsionalnoi akademii derzhavnoho upravlinnia pry Prezydentovi Ukrainy. Serii: Derzhavne upravlinnia – Bulletin of the National Academy for Public Administration under the President of Ukraine. Series: Public Administration*, (1), 5–10. (in Ukrainian) <https://surl.it/oeuwg>
6. Chernov, S., Voronkova, V., Banakh, V., Sosnin, O., Zhukauskas, P., Vvainhardt, J., & Andriukaitene, R. (2017). *Publichne upravlinnia ta administruvannia v umovakh informatsiinoho suspilstva: vitchyzniani i zarubizhnyi dosvid* [Public administration and management in the information society: Domestic and foreign experience]. Zaporizhzhia: RVV ZDIA. <https://dspace.znu.edu.ua/jspui/bitstream/12345/568/1/60347PYA.pdf> (in Ukrainian)
7. Karpenko, O., & Duda, A. (2017). Informatsiino-komunikatyvna diialnist vykonavchykh orhaniv mistsevykh rad v Ukraini [Information and communication activity of executive bodies of local councils in Ukraine]. *Efektivnist derzhavnoho upravlinnia – Efficiency of Public Administration*, (4), 133–140. http://nbuv.gov.ua/UJRN/efdu_2017_4_16 (in Ukrainian)
8. Poliovyi, P. (2021). Modernizatsiia publichnoho upravlinnia v umovakh rozvytku tsyfrovoho suspilstva [Modernization of public administration in the context of digital society development]. *Publichne upravlinnia ta mytne administruvannia – Public Administration and Customs Administration*, 2(29), 37–43. <https://doi.org/10.32836/2310-9653-2021-2.6> (in Ukrainian)
9. Ciancarini, P., Giancarlo, R., & Grimaudo, G. (2024). Digital transformation in the public administrations: A guided tour for computer scientists. *IEEE Access*, (11), 22841–22865. <https://doi.org/10.1109/ACCESS.2024.3363075>
10. Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4). <https://doi.org/10.1016/j.giq.2019.06.002>
11. Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). *Digital era governance: IT corporations, the state, and e-government*. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199296194.001.0001>
12. Janssen, M., Estevez, E., & Janowski, T. (2014). Interoperability in big, open, and linked data: Organizational maturity, capabilities, and data portfolios. *Computer*, 47(10), 44–49. <https://doi.org/10.1109/MC.2014.290>
13. Pardo, T. A., Nam, T., & Burke, G. B. (2012). E-government interoperability: Interaction of policy, management, and technology dimensions. *Social Science Computer Review*, 30(1), 7–23. <https://doi.org/10.1177/0894439310392184>
14. Solodovnik, D. (2025). Tsyfrovi vyklyky ta instytutsiini obmezhenia v systemi publichnoho upravlinnia Ukrainy [Digital challenges and institutional constraints in the public administration system of Ukraine]. *Publichno-upravlinski ta tsyfrovi praktyky – Public Administration and Digital Practices*, 2(5), 108–116. <https://doi.org/10.31673/2786-7412.2025.028587> (in Ukrainian)
15. Surai, A. (2024). Tsyfrovisatsiia publichnoho upravlinnia v Ukraini: orhanizatsiinyi aspekt [Digitalization of public administration in Ukraine: Organizational aspect]. *Publichne upravlinnia: kontseptsii, paradyhma, rozvytok, udoskonalennia – Public Administration: Concepts, Paradigm, Development, Improvement*, (7), 116–124. <https://doi.org/10.31470/2786-6246-2024-7-116-124> (in Ukrainian)