CONCEPTUAL PRINCIPLES OF PUBLIC ADMINISTRATION
DIGITALIZATION AS A COMPONENT OF THE DIGITAL TRANSFORMATION FOR REGIONAL SYSTEMS

Abstract. The modern global space has long gone beyond the creation of the information society, as digital technologies absorb more and more spheres of social life, which fundamentally changes their forms and methods. As such, most countries around the world are focusing on creating a "digital economy", taking advantage of all the potential competitive advantages it can bring. Ukraine strives to be in the trend, developing information technologies in various areas, including public administration and public life. Despite the significant potential of domestic IT specialists, who are among the top five IT outsourcers in the world, systematic and synergistic impact on the country’s development has not been achieved. In our opinion, the digitization of public administration can become a significant impetus for digital transformations that can contribute to the development of a competitive economy of Ukraine.

In our opinion, the implementation of digitization in the sphere of public administration can be an important impetus for digital transformations that can
accelerate the development of a competitive economy in Ukraine. Therefore, it is necessary to carefully study the features of the digital transformation for public administration in Ukraine and propose ideas for its implementation.

The update of the work is represented by the deepening of the theoretical and methodological foundations of the formation for public administration digitalization as a component of the digital transformation for regional systems and the development of the state. The subject of the study is the theoretical-methodical and applied principles of the formation and practical application of the digitalization toolkit of public administration as a component of the state’s digital economy.

The purpose of the study is to systematize the conceptual foundations of modern trends in digital transformations in the sphere of public administration; determine the main advantages and disadvantages of the digitization process in the world and in Ukraine in particular; and explore further options for implementing IT technologies in management processes and administrative services to improve communication between the state and citizens; the study of the digital transformation experience for public administration models in other countries, in order to justify how appropriate it is to introduce a new model of public digital administration in Ukraine.

The study concerns the digital transformation of public administration in Ukraine. The research was based on domestic and international publications, press materials and legal acts at the national and international level.

The authors considered the main directions of digital reconstruction and development of Ukraine for 2023–2025 within the framework of the plan for the reconstruction of Ukraine until 2025. These directions include the development of the digital economy, the restoration of digital infrastructure, the restoration and development of the network for public health centres, the expansion of state information resources in cloud technologies, the development of public electronic registers, and much more. The expected volumes of funding for the areas of digital reconstruction and development in Ukraine for 2023–2025 are presented, as well as the largest planned activities and expenditure volumes for each of these areas for 2023–2025.

Keywords: digitization, public administration, digital development, digital transformations, digital communications, digital transformation of Ukraine, electronic government

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КОНЦЕПТУАЛЬНІ ЗАСАДИ ДІДЖИТАЛІЗАЦІЇ ПУБЛІЧНОГО УПРАВЛІННЯ ЯК СКЛАДОВОЇ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ РЕГІОНАЛЬНИХ СИСТЕМ

Анотація. Сучасний світовий простір вже давно вийшов за рамки створення інформаційного суспільства, оскільки цифрові технології поглинають усе більше сфер суспільного життя, що докорінно змінює їхні форми та методи. Таким чином, більшість країн по всьому світу зосереджуються на створенні «цифрової економіки», використовуючи всі потенційні конкурентні переваги, які це може принести. Україна прагне бути у тренді, розвиваючи інформаційні технології в різних сферах, включаючи державне управління та суспільне життя. Незважаючи на значний потенціал вітчизняних ІТ-фахівців, які входять до п’ятірки найкращих ІТ-аутсорсерів світу, системності та синергетичного впливу на розвиток країни так і не досягнуто. На нашу думку, діджиталізація публічного управління може стати значним поштовхом для цифрових трансформацій, які можуть сприяти розвитку конкурентоспроможної економіки України.

На нашу думку, впровадження діджиталізації в сфері публічного управління може бути важливим поштовхом для цифрових трансформацій, які можуть прискорити розвиток конкурентоспроможної економіки України. Отже, потрібно ретельно вивчити особливості цифрової трансформації публічного управління в Україні та запропонувати ідеї для її впровадження.

Актуалізація роботи представлена поглибленням теоретико-методичних засад формування діджиталізації публічного управління як складової цифрової трансформації регіональних систем та розвитку держави. Предметом дослідження є теоретико-методичні та прикладні засади формування та практичного застосування інструментарію діджиталізації публічного управління як складової цифрової економіки держави.

META дослідження полягає в тому, щоб систематизувати концептуальні основи щодо сучасних тенденцій цифрових трансформацій у сфері публічного управління; визначити основні переваги та недоліки процесу діджиталізації в світі та в Україні зокрема; і вивчити подальші варіанти впровадження ІТ-технологій в урядовські процеси та адміністративні послуги, щоб покращити комунікацію між державою та громадянами; дослідження досвіду цифрової
Problem setting. The latest information and communication technologies are significantly changing all social relations, so the new, informational, and now digital society is being formed. At the same time, distances are decreasing, globalization is deepening, and unprecedented opportunities are being created for the development of regions. One of the most important conditions for the effective reform of state institutions and public power in the conditions of digital transformations is electronic governance, which is moving into a digitized form, the purpose of which is to improve the efficiency of the work for authorities with citizens, enterprises and other institutions and reduce the joint costs of time and money. The word "digitalization" has entered our vocabulary so imperceptibly, but quite thoroughly, that in 2019 it was even recognized as the word of the year [1].

Most of the types for activities familiar to citizens are prone to digital transformations, because digital technologies have already become the basis for creating new products, values and, accordingly, the basis for obtaining competitive advantages in most markets, which leads to the emergence of new, unique systems and processes with a new value essence (Uber, Airbnb, digital banking, etc.) [2].

In our opinion, digitalization is a unique modern phenomenon, caused by the development of productive forces, and at the same time as a process of large-scale changes in relations between actors (government, business and society in the representation of its individuals), which covers all spheres of social activity and takes place under the influence of the digital technologies integration, data and the Internet. The era of digital governance (Digital Era Governance), which replaced the
New Public Management (NPM), envisaged a more modern "digital" management with an emphasis on "customer-oriented" integrity and digitalization. At the same time, scientists draw attention to the controversial use of English-language concepts related to digital transformations in the domestic scientific sphere, in particular, the words "digitalization", "digitization" and "digital transformation".

As a result of the analysis, scientists translate «digitization" as digitalization, which means the process of introducing digital technologies to improve the life of a person, society, and the state. As a result, digital governance will be perceived as a digital implementation of public authority (a digital form of public governance), which will become a stage in the evolutionary introduction of information and communication technologies into the activities of public authorities ("informatization of public administration" → "electronic governance" → "digitalization of public governance") . All this makes the topic of scientific research relevant.

**Literature review.** Modern issues of the digital transformation for the state administration system, the concept of the electronic governance development have been widely covered in scientific literature in the last ten years by foreign and domestic scientists, for example, O.G. Vasylieva, D.V. Kononenko, A.V. Keshelava, V.G. Budanov, V.U. Rumyantsev, T.S. Melnikova, K.V. Yakushenko, A.V. Szymanska and many others. However, research on digital transformations in public administration in the scientific literature needs constant improvement, as the newest tools of the digital area are used.

Many Ukrainian scientists have devoted their works to the development of e-government and the development of digital technologies in the area of public administration, in particular, U. Georgievskyi, V. Dreshpak, D. Luchenko, V. Myshchysyn, O. Solovyov, O. Chervyakov, S. Chukut, and others. However, a comprehensive study of the full implementation of digital transformations in the activities for public authorities, as a tool for global digitalization of the country and image support at the international level, is currently a relevant issue for research. In addition, the development of digital technologies in the area of public administration during the martial law became the relevant 7-th direction. At the same time, despite the long-term research interest in the problems of security studies and a significant number of studies devoted to the analysis and assessment of the components of economic security in the country, it is necessary to determine the current state of investment security, as well as existing and potential threats, as well as methods of minimizing these threats.

**Research goal.** The purpose of the study is to systematize the conceptual foundations of modern trends in digital transformations in the area of public administration; determine the main advantages and disadvantages of the digitization process in the world and in Ukraine in particular; and explore further options for implementing IT technologies in management processes and administrative services to improve communication between the state and citizens; the study of the digital
transformation experience for public administration models in other countries, in order to justify how appropriate it is to introduce a new model of public digital administration in Ukraine.

The subject of the study is the digital transformation of public administration in Ukraine. The information base of the research was served by domestic and foreign publications, press materials, and regulatory and legal acts of the national and international levels.

**Key research findings.** The development and improvement of modern economic processes leads to a change in the principles of competitive relations based on the use of the latest technologies, the creation of materials and information, the analysis of large data sets and the development of new management systems. Since the beginning of the processes of digital transformations, competitiveness has gone beyond the traditional concept of competition in existing markets. It began to be seen as an opportunity to create new markets for an increasing number of goods, services, technologies and management systems. Based on the new capabilities of digital platforms, it changes the perception and understanding of the development vectors of domestic digitalization [3].

During the process of implementing digital technologies into the state administration system and enshrining them in the main legislative acts of the country, in addition to directions and vectors of development, Ukraine faces a number of problems in the effective implementation of digitalization at all levels of administration. Thus, we can say that the main obstacles that need to be further investigated and to reduce the risks associated with the implementation of digital transformations are:

- the increase in cases of cybercrime, due to the increase in the number of information systems that require entering and saving personal data;
- the insufficient protection of systems for the exchange of identifiers for natural and legal entities processed in the information and communication systems of the Ministry of Education and Culture and in the share of private businesses, as well as lack of uniformity and a single database of identifiers, lack of confirmation of two-factor identification. There are the single portal of e-government, the using of blockchain in the information and communication networks of the Ministry of Education and Culture, the design code of the Ministry of Education and Culture websites and the development of their mobile versions Digital by Default in all acts of the CMU. The priority method of implementing the process described in the document will be determined by default to be the electronic method;
- the use of technologically incompatible mechanisms, algorithms and protocols of electronic identification and recognition in registration and access control systems in information systems [4].

The national legal framework of the system of digital transformation for administrative services is being built and provided as a fundamental legal basis, which is adapted and adjusted according to the conditions of the current situation...
and existing international legislative developments. The current direction of the development of legislation in this area is the standardization and detailing of electronic administrative services, which can be obtained thanks to the DIA project.

Military actions on the territory of Ukraine became a catalyst for the growth of the IT sector. This is evidenced by statistical data, according to which the export volume of computer services for the first half of 2022 amounted to 3.74 billion US dollars, which is 23% more compared to the same period in 2021. For the development of the IT sector in the first half in 2022, almost 350 million US dollars were attracted by Ukrainian start-ups and technology companies (NISD, 2022). The powerful Ukrainian wartime technology ecosystem, presented in November 2022 at the Web Summit technological conference, showed its effectiveness in the conditions of war in Ukraine [5].

Acceleration of digital development and restoration of economic development in the conditions of war in Ukraine will be facilitated by the United 24 reconstruction plan of Ukraine until 2025, developed by the National Council for the Reconstruction of Ukraine. Within the framework of this plan, the "Digitalization" working group has developed a document with a list of projects, goals, and amounts of funding, the implementation of which will cover three time stages: wartime tasks for 2022, restoration in 2023–2025, and modernization in 2026–2032 [6].

The planned volume of expenses for digital reconstruction and development until 2025 is UAH 72.9 billion, including expenses for the development of the digital economy, restoration of digital infrastructure, restoration and development of the network of public health centres, development of state information resources in cloud technologies, development of public electronic registers and others expenditure directions (see the Table 1).

<table>
<thead>
<tr>
<th>Directions of digitization</th>
<th>Volume of financing, UAH billion</th>
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<tbody>
<tr>
<td>Development of the digital economy</td>
<td>37.7</td>
</tr>
<tr>
<td>Restoration of digital infrastructure</td>
<td>17.8</td>
</tr>
<tr>
<td>Restoration and development of the network of Centres for Disease Control and Prevention</td>
<td>8.3</td>
</tr>
<tr>
<td>Development of public electronic resources</td>
<td>5.5</td>
</tr>
<tr>
<td>State information resources in cloud technologies</td>
<td>2.3</td>
</tr>
<tr>
<td>Other directions</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>72.9</td>
</tr>
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Sours: systematized by the authors on [6;7;8]
The concept of the digital economy development and society in Ukraine adopted for 2023-2025 and the approved plan of measures for its implementation [8] provided for the implementation of measures for the implementation of appropriate incentives for the digitalization of the economy, public and social spheres, responding to the existing challenges of the development of digital infrastructures, acquisition by citizens of digital competencies, and also identified critical areas and projects of digitization, stimulation of the internal market of production, use and consumption of digital technologies. The directions of digital development were defined as follows: overcoming the digital divide through the development of digital infrastructures; development of digital competences; implementation of the concept for digital workplaces; digitalization of the real sector of the economy (development of Industry 4.0); implementation of digital transformation projects; public security; education; the area of health care; tourism; electronic democracy; ecology and environmental protection; life activities of cities (building a smart city); non-cash payments; harmonization with European and global scientific initiatives; governance. With the support of such international partners as the USAID/UK aid project "Transparency and Accountability in Public Administration and Services" (TAPAS), the EGAP Program, financed by the Swiss Agency for Development and Cooperation and implemented by the Eastern Europe Fund and the Innova-bridge Fund, the OSCE Project Coordinator. In Ukraine and others, the e-Malyatko service, Bank-ID and Mobile-ID electronic identification was launched; work began on the e-health platform and the introduction of a single emergency number "112".

Digitization of public governance is the process of implementing digital transformations in the public sphere (in the context of a radical transformation of the activities of public authorities), which will lead to a leapfrog transition to digital governance through the use of digital technologies (digital workplace tools, artificial digital intelligence for making typical management decisions, blockchain, smart, portal, cloud, network services, etc.). That is, in a narrower sense, digitalization of public governance is a leap-like process of digital transformations in public governance into digital governance (digital governance).

Thus, we can define the digitization of public administration as a process of fundamental change of the public administration mechanisms in general and the activities of state institutions in particular, which is based on the implementation of digital technologies in all aspects of activity and leads to the progressive development of digital transformations in the country. European practice shows that the effectiveness of e-governance is ensured by the National Framework of Interoperability. It is the normative-legal document of an organizational and technical nature, which establishes and describes clear organizational and technical requirements for projects and systems of government institutions in the area of e-governance. The development of an appropriate set of new and harmonization with European standards of current legal and technical documents is the main prerequisite for the systematic development of electronic governance in Ukraine [9].
So, it is the legislative and technical norms that should be the basis of digitization as the next stage of digital changes in the state. In general, the functional types of e-government activities can be divided into four components:

- **G2G** ("government-to-government") ("government to government") - the sector of electronic interaction between government institutions;
- **G2B** ("government to business") – sector of electronic interaction between public authorities and business entities;
- **G2C** ("government to citizens") – sector of electronic interaction between public authorities and citizens;
- **G2E** ("government to employees") ("government to employees") - the sector of processes automation in cooperation of the government system with employees, officials, consultants on the ground.

The next step is to analyze digital communications as a basis for the development of e-government. Management using digital communications and new technological platforms raises the issue of using management models and tools in a new way. However, digitalization of public administration is within the general information and communication environment and its dynamics. The creation of new infrastructure facilities in the form of digital platforms, quantum computers, and the growth of broadband Internet should first of all create the conditions for a socio-economic breakthrough along the chain: innovations – productivity of production factors – income of the population – quality of life. Electronic government (E-Government) is becoming an important factor of sustainable development [10].

Digital government (also known as e-government) is the delivery of services within government and between government and the public using digital communication technologies. Common digital services range from filling out tax returns to renewing your driver’s license or applying for a pet permit. Almost any form or service of government can be offered digitally.

In a developed digital society, payments, applications and other types of communication with public administration must be processed electronically. The full digitization of the public sector should ensure the reduction of paper-based and manual control work processes, as well as duplication and unnecessary work processes. The goal is to reduce costs in the public sector, while improving the access of citizens and companies to public services [10].

The development of Internet resources and the potential to improve communication between different segments of the community, the provision of information and the payment of taxes make it an important resource for the achievement of any e-government initiative. E-government initiatives can be classified into three main areas:

1. Improvement of state processes (e-Administration)
2. Connection of citizens (e-Citizens)
3. Building external interactions (e-Society)

Electronic administration deals, in particular, with improving the internal work of the public sector. Some specific goals of this initiative include:
– reducing costs for the process, managing the execution of processes, establishing strategic connections in the government and creating new powers;
– transfer of power, authority and resources to processes from their existing place to new places [8].

Connecting citizens and authorities is an initiative that concerns, in particular, the relationship between authorities and citizens, and these may well include: talking to citizens, listening to citizens and improving public services. The e-society initiative is designed to improve communication between government and other institutions in society, such as private sector companies, non-profits and community organizations. There is a need to increase the level and depth of participation of all stakeholders in the decision-making process and in the process of implementing e-governance. This, together with international, national and individual cooperation, can help solve the problem of creating an inclusive information society. On the other hand, the heterogeneity of e-government models and the large gap between societies are the biggest obstacles to the implementation of digital communications.

Digital management, in the future, should be focused on the operational management of national projects and the reduction of bureaucratic costs in the provision of services to citizens. A fundamentally new thing for e-government in digital realities is the transition to project management. Reforming the state administration system, building its new model should adapt the state apparatus to the digital development of business and population.

The state invests in digital communications, often with high hopes and using significant resources, to achieve efficient public services. Public service employees are expected to provide efficient services by implementing e-government. Electronic government introduces the use of information and communication technologies for administration and provision of public services. Recognizing the possibilities of electronic organization, distribution and exchange of information, it is argued that such technologies can reduce the administrative burden, support bureaucratic coordination and facilitate interaction with citizens [8]. Both researchers and governments often believe that digital service delivery, that is, the use of digital technologies to deliver services, is more effective than traditional services.

In international practice, there is already experience in the development and implementation of stages and projects for creating an "e-government" architecture. Today, there is no single template that could meet all the conditions and solutions to the task of forming an electronic government. Analyzing the experience of implementing electronic governments in different regions and countries of the world, it is customary to distinguish three main architectural models that have been implemented in America, Europe and Asia. Conventionally, they can be called as follows: the American model, which reflects the specifics of its formation in the USA; European, within the framework of which the development for electronic government structures is carried out in most countries of Western, Central and Eastern Europe. And, finally, the Asian model is implemented with the greatest success in Singapore and South Korea [10].
Conclusions. Digitalization and globalization of society, digitalization of the main areas in state activity are required from the sphere of public administration, as a key means of interaction between citizens and the state, adherence to the course on improvement of interaction, integration of the national digitalization system with international practice, ensuring the appropriate level of digital literacy and skills to counter cyber threats, full-fledged, operative and high-quality information and open access to the main functional administrative services. Effective communication between relevant parts of government is crucial to overcoming barriers to successful e-government. The public sector must use digital technologies to improve services and increase their efficiency.

In a developed digital society, payments, applications and other types of communication with public administration must be processed electronically. The full digitization of the public sector should ensure the reduction of paper-based and manual control work processes, as well as duplication and unnecessary work processes. The goal is to reduce costs in the public sector while improving access to public services for citizens and companies.

Collaboration between relevant e-government stakeholders such as central governments, local public authorities, the private sector, academia, civil society and international organizations is a key factor. The use of digital communications and the implementation of e-government strategies, promoting the transparency of public administration and democratic processes, is an important part of the shared vision.

Digital management, in the future, should be focused on the operational management of national projects and the reduction of bureaucratic costs in the provision of services to citizens. A fundamentally new thing for e-government in digital realities is the transition to project management.

The introduction of digital communications to increase the effectiveness of communicative interaction in local self-government is an important and urgent task not only for authorities, but also for the community. After all, we focus on interaction. In this aspect, it is important to note that communities are also gradually developing electronic self-government, building a digital community to ensure publicity and transparency of local government activities. Public opinion is the foundation for the potential development of the community. If a local government institution is able to successfully establish a system of collecting and analyzing information about its own position, to ensure monitoring of the assessment for citizens` attitudes to the actions or decisions of the local government, it receives feedback that will significantly strengthen the effectiveness of the work for the government institution, and as a result, will form trust in community to her.

Important steps towards digital transformation and development, as well as increasing digital resilience in the post-war period, have been made as a result of the 2018-2022 legislative initiatives on the digital development of the country, including the creation of institutions such as the Committee on Digital Transformation (2018)
and the Ministry of digital transformation in Ukraine (2019). The increase in financing of the digital transformation sector in Ukraine for 2021-2022 was associated with an understanding of the needs for digital development and the strengthening of the influence of European and global trends. The United 24 Ukraine Recovery Plan until 2025 will promote digital reconstruction and development through a variety of projects and activities funded by Western partners through the state budget and public-private partnership mechanisms. Ukraine’s participation in digital global gateway projects will contribute to the creation of a single digital market with the EU, which will open up new digital and economic prospects for Ukraine.

References:

Література: