УДК: 336.1:005.5:004.9

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DIGITALIZATION OF PUBLIC FINANCE MANAGEMENT IN UKRAINE

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ЦИФРОВІЗАЦІЯ В УПРАВЛІННІ ПУБЛІЧНИМИ ФІНАНСАМИ В УКРАЇНІ

Анотація. *Поява концептуально нових інформаційних технологій, їх природна абсорбція суб'єктами реальної економіки та адаптація до різноманітних сфер спричиняє невідворотні зміни в тих сферах, які багато століть мали традиційну бізнес-модель.*

Сучасний світ розвивається дуже швидкими темпами і публічні фінанси наразі зазнають глобальної трансформації під впливом НТП і розвитку ІТ-технологій, які впливають на життя суспільства. Феномен блокчейн-технології став точкою відліку для трансформації світової економіки і діючої системи державного регулювання

в умовах глобальної цифровізації. Світова пандемія COVID-19 продемонструвала важливість дистанційної взаємодії публічної адміністрації та приватних осіб. В Україні в умовах широкомасштабної війни та запровадження воєнного стану питання цифровізації у сфері публічних фінансів, як передумови досягнення цілей сталого розвиту, є надзвичайно актуальними, оскільки суспільство переходить на інший рівень комунікацій та оцифрування операцій. Розвиток цифрових публічних фінансів є також детермінантою розбудови цифрового ринку України та його подальшої інтеграції до єдиного цифрового ринку ЄС. У статті розкрито економічну сутність поняття цифровізація та охарактеризовано сучасні тенденції її розвитку в управлінні публічними фінансами в Україні; обґрунтовано, що цифровізація є найважливішим інструментом підвищення якості управління публічними фінансами і дозволяє автоматизувати бюджетний процес, забезпечувати взаємодію державних органів як між собою, так і з бізнесом, і населенням у режимі реального часу, робити прогнози; з'ясовано основні переваги та недоліки цифровізації; окреслено проблеми та напрямки вдосконалення управління публічними фінансами за допомогою цифровізації. Отримані в процесі даного дослідження наукові результати свідчать, що розвиток цифрових технологій, таких як блокчейн, штучний інтелект, великі дані, мобільні платформи, електронні платежі та автоматизація значно посилить контроль та аудит публічних фінансів, зменшить можливості для фінансових зловживань та оптимізує процеси прийняття рішень на всіх рівнях влади. Такі нововведення дозволяють вийти на новий рівень взаємодії держави та громадян, забезпечуючи високий ступінь транспарентності фінансових операцій.

***Ключові слова**: цифровізація, блокчейн технологія, Digital Economy and Society Index (DESI), Electronic Health Record (EHR), E-SOCIAL, e-customs, «GovTech» (Government Technology), смарт-сіті, cashlesseconomy, Prozorro, Дія, відкритий бюджет, публічні фінанси.*

***Abstract.** Modern world is developing very fast and public finance is currently undergoing global transformation under the influence of science and technology and development of IT technologies affecting society. The global COVID-19 pandemic has demonstrated the importance of remote interaction between public administration and individuals. In Ukraine, in the context of a large-scale war and the introduction of martial law, the issues of digitalization in public finance as a prerequisite for achieving sustainable development goals are extremely relevant. The paper reveals the economic essence of the concept of digitization and describes the current trends of its development in the management of public finances in Ukraine. It proves that digitization is the most important tool for improving the quality of the management of public finances and allows to automate the budget process, to ensure the interaction of public authorities among themselves, with business and the population in real time, and to make predictions. The scientific findings of the research show that the development of digital technologies - blockchain, artificial intelligence, big data, mobile platforms, electronic payments and automation - will significantly strengthen public financial control and audit, reduce opportunities for financial abuse and optimize decision-making processes at all levels of government. Such innovations will enable new levels of interaction between the state and the people, and ensure that financial operations are highly transparent.*

***Key words**: digitization, blockchain technology, Digital Economy and Society Index (DESI), Electronic Health Record (EHR), E-SOCIAL, e-customs, «GovTech» (Government Technology), smart city, cashless economy, Prozorro, Diia, open budget, public finance.*

Introduction. In today's environment, we're seeing a proliferation of innovations in digital technologies. These are already changing the future of finance and business. Key trends in development of digital technologies are their rapid extention and boost (AI, ML, IoT, etc.), quantitative growth of data and its management needs. Digital technologies will become one of the key drivers of sustainable development, assuming the widespread availability of the Internet as a basic service, as well as the use of other digital capabilities. The 21st century is an era of innovation, the knowledge economy, the spread of the results of the Fourth Industrial Revolution (Industry 4.0) and digitalization, where such advanced technologies (cloud computing, development of big data collection and analysis tools, paperless technologies, Internet of Things, robotics and cyber systems, crowdsourcing, biotechnology, unmanned and mobile technologies, biometrics, quantum technologies, identification technologies, 3D printing, bitcoin and blockchain, identification technologies, 3D printing, bitcoin and blockchain technologies, artificial intelligence, etc.) are radically transforming entire sectors of the economy and society at large. Singapore, the United Kingdom, New Zealand, the United Arab Emirates, Estonia, Japan, and Israel are leading countries in the development of the digital economy and have set a course for digital development in public administration, transportation, education, electronic means, and advanced technologies. [5].

In the new realities, public finance is not an exception. It is also undergoing significant changes due to the development of digitalization processes, which allow for faster and more efficient management of many processes in the field of public finance, including control over the accumulation and spending of public funds.

The purpose of the study is the identification of areas of digitalization on the basis of a study of theoretical foundations and current practice of their implementation in public finance management, the verification of positive and problematic aspects of the study, the formulation of the main conceptual approaches and vectors of their development in the context of Ukraine's economic integration into the EU.

Literature review. According to Western scholars, the term «digitization» was used for the first time in 1995 by the American scientist N. Negroponte, who understood digitization as «the process of converting information into a digital format» in order to reduce the number of errors in data transmission [18].

In 2000, the Okinawa Charter on the Global Information Society endorsed the basic principles and approaches for creating an information society. In global practice, digitalization has become integrated into managing public finances.

Digitalization is the introduction of digital technologies into all areas of life: from human interaction to industrial production, the transition of biological and physical systems to cyberbiological and cyberphysical systems (combining physical and computer components), and the transformation of activities from the real world to the virtual world in online mode.

The Gartner IT Glossary defines digitization as «the use of digital technologies to change a business model and create new opportunities for profit and value creation; the process of transition to a digital business [12].

The European Commission has developed a regulation – GBER (General Block Exemption Regulation), which defines «digitization» as the use of electronic devices and systems to improve product functionality, develop online services, modernize processes, and transform business models [11].

The concept of digitalization has also been reflected in the legislation of Ukraine, namely in the Concept of Development of the Digital Economy and Society of Ukraine 2018 - 2020, where digitalization has been defined as the saturation of the physical world with electronic and digital devices, means and systems, and the establishment of electronic communication exchange between these, allowing the integration of virtual and physical interaction, i.e. the creation of cyber-physical spaces [23].

We believe that digitization is the process of integrating digital technologies into various aspects of economic and social life, including public finance, to make financial transactions faster, easier, accessible and transparent.

Public Finance Management (PFM) is a comprehensive system for regulating, allocating, spending and controlling public financial resources with the aim of achieving efficiency, accountability, transparency and overall fiscal sustainability.

Innovation systems connect government stakeholders, organizations, and financial processes in the context of digital public finance management. Currently, there is great hope that digitalization will improve public finance management and make it more responsive to modern challenges and expectations [14].

It will also contribute to the development of an open information society, which will be one of the keys to the development of democracy, economic stability and transparency, job creation and productivity, and the improvement of the quality of life of the population.

S. Krynytsia believes that there are 3 different approaches to conceptualizing digitization: technological, organizational, and social. In the field of public finance, the social approach is crucial, since Deloitte's research shows that public policy and public administration are far behind the changes brought about by new technologies. Moreover, they lag behind the development of individuals and companies, becoming a kind of brake that slows down the digital transformation of the economy and society. This gap can be explained by a number of factors:

1) Technology dynamics - the rapid development of modern technology, while the processes of public policy development and implementation tend to be slower because of the complexity of bureaucratic processes, the instability of the political environment, etc.

2) Institutional constraints - the existence of conservative processes and structures that make it difficult to quickly adopt and implement new strategies and approaches that would keep pace with the rapidly changing technology landscape.

3) Financial constraints - the public sector's efforts to implement technological innovations and improve government processes may be hampered by budgetary constraints and inadequate financial support.

4) Low technological competence - Government agencies may not be adequately prepared to use new technologies due to a lack of qualified personnel or expertise in the field.

5) Political factors - The adoption and implementation of effective technology strategies can also be slowed by political instability, changing governments, and political priorities.

Thus, the social approach should focus not only on the introduction of modern technologies, but primarily on investing in the development of the skills of public sector

employees and ensuring the necessary skills for the successful implementation of technological innovations; creating a favorable environment for leadership and innovation. Finally, it should focus on meeting the needs and expectations of society, which means actively taking into account the voice of citizens in the process of strategy development and decision-making [16].

The problems of digitalization in the field of public finance are the subject of the works of domestic scholars, namely: Berezhna A. and Filonych O. [2], Belikova M. [3], Karpenko O., Denysiuk J., Namestnik V. [15], Krynytsia S. [16]. Among foreign researchers, it is worth mentioning the works of Cangiano M. and Gelb A. [4], Sorin B., Ciobanu G. [26], Gupta S., Keen M., Shah A., Verdier G. [14]. Their studies address key aspects of digitization in the context of public finance management. International organizations such as the World Bank Group, the International Monetary Fund, the Organization for Economic Cooperation and Development (OECD), the Global Initiative for Financial Transparency (GIFT), the International Budget Partnership (IBP), and others are also conducting studies on the implementation of modern digital technologies in public finance management.

Materials and Methods of Study. A variety of empirical, complex and theoretical methods and approaches were used to achieve the goal of considering digitalization in the field of public finance. In particular, the following methods were used: the abstract and logical method for the study of scientific sources and drawing of conclusions; historical, analytical methods for the analysis of digital solutions for public finance management in Ukraine. In addition, systemic and structural methods were used to study digitization trends, the method of comparison - to study digitization in the EU and Ukraine in different countries of the world, and the method of logical generalization - to identify the tasks and directions of implementation of digital transformation strategies in public finance, to study the challenges and achievements of digitization in public finance management. The information base consists of legislative and regulatory acts related to digitalization in the management of public finances, analytical materials of the European Commission, the United Nations, the Cabinet of Ministers, and the Ministry of Digital Transformation of Ukraine.

Public Finance Management Digital Solutions. The transition from analog to digital technologies has a revolutionary impact on a variety of fields, such as international relations, public administration, public finance, health care, education, business, etc. It is assumed that future changes in socio-economic processes will be inevitable. However, humanity is currently uncertain about the consequences of global digitalization, which can also lead to misinformation.

The digitalization of public finance management is an integral part of the modern development of public institutions, the aim of which is the optimization of financial processes, the increase of efficiency and transparency, and the provision of information to citizens. Digital transformation addresses the issues of minimization of human influence, avoidance of corruption risks, and rational use of public resources. Digital transformation requires flexibility in adapting existing financial practices, combining elements of the information economy with finance management. This requires flexibility to adapt existing financial practices, including new capabilities related to digital finance management and

data protection, new approaches to budget planning using analytical systems to forecast budget needs based on economic data and trends, and a need for new skills among financial staff, including digital asset management and e-budgeting.

Digitizing public services, businesses and access to technology offers many opportunities, and in the EU, the Digital Economy and Society Index (DESI), a composite index, provides a tool to measure and compare the progress of EU countries in the digital economy and society, based on a wider ecosystem, including relevant legislation, coordination between government bodies, methodology and data. It is used by the European Commission since 2014 to measure Member States' digital progress and monitor Europe's overall digital performance, and remains the most widely used index of digital performance in EU Member States to achieve the goals of the EU's 2030 Digital Agenda [8]. The indexes are based on five key dimensions: communications, human capital, connectedness, integration of digital technology, and digitization of public services.

The analysis of the DESI ranking shows that Denmark is the leader in terms of connectivity; Finland has the highest level of digital development of human capital and growth of the number of online users; Ireland is the leader in terms of digital integration. Estonia is the leader among the other countries of the EU in terms of the digitization of the public services.

The fourth group of indicators, digitization of public services, describes eGovernment and eHealth supply and demand and consists of the following indicators:

– e-government users (people who have used the Internet to interact with public administrations on websites or mobile applications in the last 12 months, %);

– digital public services for citizens (share of administrative actions that can be completed online for major life events, such as having a child, changing residence, etc.);

– digital public services to enterprises (share of public services required to set up and run an enterprise which can be accessed online by national and international users);

– pre-filled forms (the proportion of data that is pre-filled in online public service forms);

– transparency of service provision, design and personal data (the extent to which service processes are transparent, services are designed involving users who can manage their personal data);

– user support (degree of availability of online support, help and feedback mechanisms, including cross-border);

– mobile accessibility (proportion of services with a mobile-friendly interface);

– electronic health record access (ubiquity of online services for citizens to access their electronic health records) [8].

In 2021, the EU launched the first Digital Europe Program (DIGITAL), which runs until 2027 and aims to accelerate economic recovery and create a single European digital market benefiting small and medium-sized enterprises. This requires the digitization of businesses, public administrations and citizens. The program funds projects in five areas: supercomputers, artificial intelligence, cybersecurity, advanced digital skills, and ensuring widespread economic and social use of digital technologies. The total budget is €7.5 billion, but four areas are available for Ukraine, with €6 billion allocated. A strengthened network of European Digital Innovation Hubs (EDIH) – universal hubs that help businesses and the public sector respond to digital challenges and improve their competitiveness - will be deployed [25].

The institutional and legal framework for digitalization development in Ukraine began in 2013 with the CMU Resolution «On Approval of the Strategy for Information Society Development in Ukraine» [21]. Over time, digitalization has become a priority of state policy according to the Concept for the Development of the Digital Economy and Society of Ukraine for 2018 - 2020 [23]. The primary goal of the plan is to realize a scenario of accelerating digital development as the most relevant for Ukraine in terms of cost, need and opportunity, to stimulate the economy, to attract investors, to overcome digital inequalities, to intensify cooperation with the EU in the digital field, to build the national innovation infrastructure, and to realize digital transformations.

By September 2019, a specialized Department of Digital Transformation will be established by transforming Ukraine's State Office for Electronic Government to formulate and implement state policy on digitization, open data, national electronic information resources and interoperability, launch electronic and administrative services, electronic trust services, and develop citizens' digital skills. The positions of deputy heads of the Digital Development, Transformation and Digitization Agency (CDTO) have been created in ministries and other central executive authorities.

The next step was the adoption of the National Economic Strategy for the period up to 2030, which defines the development of an efficient digital service state and compact state institutions (development of the digital economy as one of the drivers of economic growth in Ukraine). The strategy states that the level of digitalization of the financial and trade spheres ranks among the lowest in Europe, in spite of its dynamic growth rate. The Ukrainian e-commerce market is significantly smaller than in other European countries (19 times smaller than in Poland and nearly 150 times smaller than in Germany). The share of e-commerce in the retail market is only 3-4%. Compared to EU member states, Ukraine's cashless infrastructure is significantly inferior. The number of POS terminals per capita is three times less than in Poland. The percentage of population using cashless payments is almost twice lower than in Germany. There are only eight cities (regional centers) that have cashless payment systems for public transportation. Compared to its EU neighbors, Ukraine invests three to four times less in research and development (R&D). The share of R&D expenditures in the GDP amounted to 0.4 % in 2019 and to 0.47 % in 2018. At the same time, the National Economic Strategy also notes that the national society is currently undergoing an active revision and reconsideration of digitalization in such areas as education, medicine, transportation, and social protection [17].

Accessibility, targeting, economic growth, freedom of information, openness and cooperation, standardization, trust and security, focus and comprehensiveness are the main principles of digitalization of the Ukrainian economy.

One of the qualitative steps taken by the Ministry of Finance to consolidate IT in public finance management was the approval of the Strategy for Digital Development, Digital Transformation and digitalization of the Public Finance Management System for the period up to 2025 and the approval of the Action Plan for its implementation by the CMU (hereinafter referred to as the IT Strategic Plan of the Ministry of Finance) [24].

By incorporating digital technologies like automation, artificial intelligence, blockchain, and big data, government agencies can conduct budgetary operations faster, more accurately, and at minimal cost. The digitization of public services, known as GovTech (government technology), is an area of the IT industry where private or public companies are building software for government and is an opportunity for transformation in the public sector.

GovTech uses innovative technologies to improve access to public services and streamline government operations by implementing information systems, electronic services, analytical tools, and other technological solutions that make it easier for government to interact with its constituents. There are examples of successful applications of GovTech in action. In Estonia, for example, technologies are being used to organize electronic voting, which reduces the amount of time spent on electoral processes and makes it more convenient for citizens to participate. In Singapore, the implementation of electronic medical records has given doctors access to a patient's medical history and has facilitated coordination of medical care.

Ukrainian GovTech today consists of:

– The Ministry of Digital Transformation of Ukraine, which is the trendsetter for GovTech in the country;

– central authorities that carry out digitization policy;

– donors, who have expertise and are the financial backers of a large number of projects;

– municipalities implementing digitizing projects (Kyiv Digital stands out among them);

– GovTech companies – consultants and contractors in different areas including business analysis, development, cybersecurity, etc.

The main digitalization platforms in public finance management are based on the collection and processing of large amounts of data to improve the quality of life of the population (Table 1):

Table 1

Public Finance Management Digital Solutions

Platform	Application
1	2
Smart cities	Effective integration of physical, digital, and human systems in an artificial environment for a sustainable, prosperous, and inclusive future for citizens. The first comprehensive implementation of this system in Ukraine was the city of Drohobych. In one form or another, the Smart City system operates in Kyiv, Ivano-Frankivsk, Lviv, Mukachevo, Drohobych, Zaporizhzhya, Poltava, Ternopil, and Kharkiv, and was also used in Mariupol;
Digital medicine – creation of national electronic health record (EHR)	Computerized Medical Record - systematic work on digitization of medical record data, introduction of archive and backup functions; Electronic Medical Record – medical records of patients in electronic form; Electronic Patient Record - unified database of patients from different medical institutions; Electronic Identifiers - identification of users of the eHealth system; ePrescription - electronic prescription, which includes: eCapture - creation of an electronic prescription by a doctor of a medical institution; eTransfer - confidential transfer of an electronic prescription to a pharmacy; eDispensation - transfer of data from a pharmacy back to a medical institution, confirmation;
Social sphere (Unified information and analytical system for management of social support of the population of Ukraine (ESOCIAL))	Creation of an ecosystem of interaction between citizens and social programs, services and information necessary for the choice of services, interaction between social services and agencies, and creation of a social program management platform to meet the unique requirements of social organizations, individual needs and specifics of their consumers and to assess the effectiveness of the provided services;
Electronic customs (e-customs)	The aim of the project is not only to solve local logistic and other problems, but also to integrate Ukraine into the Digital Single Market. (The Digital Single Market is an EU initiative to develop cross-border trade and cooperation). The key is the project of automated, round-the-clock customs clearance based on the principle of «Single Window»;
Portal of electronic services of the Pension Fund of Ukraine	The portal is available 24 hours a day and can be used to obtain almost all services provided by specialists in service centers. It is a unique opportunity for Ukrainians to control their salary and future pension without leaving their computer. The user has access to a complete list of insured persons who have submitted information about themselves to the personalized accounting system, information on the amount of earnings from which insurance premiums were paid, and the number of days of service for each month since 2000;

Continuation of the table. 1

1	2
Electronic office of the taxpayer	This is an information and telecommunication system created to ensure that taxpayers and government bodies exercise their rights and obligations under the Tax Code of Ukraine in electronic form;
Cashless Economy	It is a tool to combat the shadow circulation of funds to improve the economy;
Edata	Open Data Portal. Electronic data used to collect, analyze, report and monitor financial information of the public sector. This is an official state information resource that presents information in the format of open data in the field of public finance, is an accessible tool for public control over the planning and use of public funds. The following information is available on the portal: transactions, reports, contracts, supporting documents from managers, state trust funds, state and municipal enterprises;
Open budget	The official state portal of the state budget for citizens, designed to inform the public about the main goals, tasks and priority directions of the budget policy of Ukraine. The portal presents data on the state budget and all local budgets, the planned and achieved results of the use of budget funds in a clear form;
Prozorro	Electronic public procurement system to ensure the transparency and efficiency of the public procurement process;
Diia	A service allowing you to view important documents in electronic format and receive various services from government agencies via the Internet;
Portal for the Assessment of the Growth and Financial Sustainability of the State-Owned Enterprises of Ukraine	A system that provides an opportunity to analyze the financial condition of these enterprises, their activities and efficiency, which helps to make management decisions and expand development strategies;
The Portal of the Register of Projects of the International Financial Organizations	An online resource providing information on projects funded by international financial organizations.

Source: Compiled by the authors on the basis of [3, 5, 6, 7,9, 29].

Ukraine has great potential for developing with the main concentration in major cities such as Kyiv, Kharkiv, Lviv, Dnipro and Odesa. There are already 18 clusters graduating 130000 engineering professionals per year. In 2019, the Verkhovna Rada Committee on Digital Transformation was established to improve legislation formation in the field of digitization and digital society formation, work on programs, create a single digital market [6].

The institutional and technological capacity of the public sector should be strengthened in order to implement fintech in the field of public finance management. In some countries, public finance management IT systems have structural weaknesses that may hinder the implementation of fintech applications [6].

However, it is worth paying attention to the challenges of digitalization in the management of public finances:

• lack of a single integrated database with up-to-date information available to bodies involved in public finance management processes;

• obsolescence of some platforms;

• lack of unified and automated information exchange with key state institutions;

• low level of automation of internal document circulation processes, use of a significant volume of paper media;

• technical imperfection of electronic systems predisposes to the preservation of corruption risks;

• the low efficiency of state financial control causes the loss of investment resources, and also does not contribute to greater savings of public finances;

Table 2

Main weaknesses of digital technology implementation

№	Area	Weaknesses
1	Accounting and tax reporting	Problems with generating accurate and timely reports
		Violations of integration of the chart of accounts and budget classification
		The absence of a data archive of detailed budget or accounting reporting
2	Cash Flow Tracking	Complex tracking of payments and bank reconciliations with financial institutions
3	Budget Execution and Internal Control	Weak support for management and control of costs and revenues throughout the budget cycle
4	Treasury and Cash Management	Insufficient support for state banking functions and cash management
5	Technology Platform	Limited hardware capacity and inadequate database maintenance
		Poor or no connectivity in regional or remote locations
6	Interoperability and Data Exchange	Lack of shared information with other public finance management systems
		Weaknesses of information exchange with financial institutions
7	Institutional Coverage	Incomplete coverage of central government ministries

Source: summarized by authors on the basis of [26].

• insufficient staffing due to the lack of digitization specialists in the structures of state bodies due to the low level of wages, which inhibits digitization processes, etc.

The obvious achievements of digitalization in the management of public finances include:

• increased efficiency and value: using innovative practices and technologies, governments can streamline financial processes, reduce manual interventions and increase operational efficiency;

• better decision-making: Intelligence systems mean that government leaders have access to real-time data and advanced analytics at their fingertips;

• increased transparency and accountability: by digitally transforming financial processes, governments can more effectively track and control financial transactions, reducing the likelihood of fraud and corruption;

• involvement and satisfaction of citizens: increased trust increases citizen satisfaction. In addition, innovation systems improve citizen engagement through convenient digital platforms for accessing and providing feedback on public financial services;

• economic value added: reducing the cost of doing business with government for citizens and businesses by providing intuitive access to important information, supporting the goal of «government as a platform» [27];

• access by society members to digital infrastructure and a significant number of public services;

• the state annually receives significant savings in public finances;

• noticeable deregulation of permit procedures, registration procedures, licensing, etc;

• public monitoring of the public finance system (execution of budgets at different levels, functioning of public registers, etc.), which contributes to their transparency.

Digitization of public financial management in Ukraine does not stop its development even under martial law. New digital capabilities and tools are being created to improve the interaction between the public administration and the private sector. An example is the new tools in Diia:

1) to acquire the status of an internally displaced person by submitting an application on the Diia portal and to receive the corresponding payments;

2) to report damage to property as a result of the armed aggression of russia;

3) to obtain digital identity documents in the Diia application, even if they are not biometric, even if they are not biometric, title documents for vehicles, insurance policies, COVID vehicles, insurance policies, COVID certificates;

4) to register the compensation for work, asylum for IDPs [3].

By improving efficiency and economic security, digitalization has a significant impact on public finance management. Ukraine actively develops digital transformation of public institutions, especially through the EU-funded EU4PFM program. It contributes to strengthening public finance management capacities and preparing them for the digital age. Innovations can also improve public debt management, optimize cash flows, and engage citizens in budgeting.

Conclusions. Global social problems, such as long-term imbalances in public finances after the global financial crisis of 2008, changes in employment patterns as a result of the COVID-19 pandemic, an increase in the level of chronic diseases, an aging population, a decrease in the number of people of working age, cause, on the one hand, an increase in public expenditures, and on the other hand, financial restrictions on budget funds. This forces the public sector to look for new ways to provide public services that would reduce costs. The formation of a digital social state is stimulated by the multiplier positive economic effects of digitalization both in the provision of public services and in the private sector, which ensures transparency and publicity of management decisions and the use of budget funds.

According to the IMF's research, the use of digital technologies can contribute to the implementation of the government's goals of achieving a high level of economic development and sustainable economic growth of countries. The IMF estimates that $418 billion in (public and private) investment is needed to connect unconnected households worldwide. On average, this equals 3.5 percent of GDP in low-income developing countries and 0.7 percent of GDP in emerging market economies [1].

Digitalization is an integral part of the process of reconstruction, modernization of the Ukrainian economy and building a high-quality European infrastructure with the aim of joining the state to the European community. The Ukrainian state is being modernized using new management models that have become widespread in the EU, and the experience of EU countries with digitalization shows that the use of digital technologies allows state bodies to qualitatively solve professional tasks. Ukraine has significant prerequisites for further development and effective transformation of public administration to a higher technological level. However, the spectrum of such development and measures for the implementation of new digital products should be evidence of the effectiveness of public administration and the sustainability of public finances. State financial support for digitization is possible with available funding sources, and its justification is the level of citizens' trust in electronic governance. The activation of the use of digital technologies in the field of public finance management can provide a number of advantages for both the state and business structures and citizens. It ensures the interaction of state bodies both among themselves and with business and the population in real time, allows for more efficient performance of management functions, finding fundamentally new ways of solving state problems, automating the budget process, increasing the efficiency of state revenue mobilization and

ensuring transparency and accountability of state spending, making forecasts, which is a serious step forward towards the financial stability and stability of the state. Digitalization in public finance management provides great advantages for business structures and citizens, improves the quality and accessibility of public services, etc. However, the development of digitalization is also accompanied by a number of social and ethical challenges, such as digital inequality and inequality of access to financial services, personal data protection and confidentiality, ethical issues related to algorithms and artificial intelligence, financial exclusion and dependence on technology, fraud and cybercrime, transparency and control.

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