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THE IMPACT OF DIGITAL TRANSFORMATIONS ON THE TRANSPARENCY OF FINANCIAL- ECONOMIC RELATIONS AND FINANCIAL SECURITY OF UKRAINE

ABSTRACT

The spread of digital information technologies can significantly increase the opportunities for publicity and growth of financial relations, reduce abuse and corruption, which in turn will contribute to financial security at all levels of the economic system. The aim of the article is to create a methodological basis and methodological basis for the formation of a fundamentally digital model of transparency of financial and economic relations at the level of public finance, which minimizes threats to financial security and maximizes development opportunities due to the digitalization of economy and society. The statement of basic materials. The article analyzes the current scientific approaches to determining the impact of digital transformations on ensuring the transparency of financial relations and identifies the most relevant areas of research on this topic. Bibliographic analysis was carried out with the help of modern software VOSviewer, which revealed cluster relationships between the categories of "digital transformations", "national security" and other economic categories, which once again showed significant global scientific interest in this topic and its interdisciplinary nature. Given that the key role in shaping the financial security of the state belongs to the provision of budget security indicators, considerable attention was paid to considering the specifics of the Open Budget Index, which is formed by calculating indicators that comprehensively characterize the transparency of the budget process. The rating positions of Ukraine according to this index are compared with the positions of other countries. The possibilities of the Transparent Budget system, which is part of the open government of Ukraine, are considered. The peculiarities of the Open Budget and Open Spending web portals, which provide informational support to the budget process and provide citizens with access to information on public funds at all stages of planning and use, are analyzed. Existing technologies and information opportunities to ensure the transparency of public debt policy, foreign exchange, and monetary market are considered. Conclusions. The study shows that the synergistic combination of digitalization and integrated development of financial transparency is an effective means of improving financial security, and reducing information barriers and will be a catalyst for positive changes in the economy.

Keywords: financial security, digitalization, financial transparency, budget process, public debt, monetary policy

JEL Classification: F52, G20, G28, L86

INTRODUCTION

The rapid development of information technology in the last decade has contributed to the spread of digitalization of all spheres of society, including the implementation of financial relations at the public, corporate and personal levels. This primarily concerns new opportunities in the field of public financial services, fiscal policy, budget process, public debt management, and more. One of the manifestations of digital transformations in financial relations is the increase of their transparency, publicity, and transparency, which on the one hand makes it possible to fully implement the principles of financial control, and on the other creates additional challenges related to the need to

maintain financial information there is a need for this. All this directly affects the level of financial security of individual economic entities and the state as a whole.

Thus, it can be noted that there is a need for additional research to find effective mechanisms and tools to combine modern digital capabilities to ensure the necessary level of financial transparency while maintaining the appropriate level of financial security.

LITERATURE REVIEW

The issue of ensuring financial security in the context of digital transformations and increasing the level of transparency of financial relations is increasingly the focus of attention of many worlds and Ukrainian scholars. For example, N. Pen-teleeva [1] in his work reveals the characteristics of digital technologies and financial innovations based on them from the standpoint of expectations and impacts on the financial security of the state. The issue of improving the effectiveness of the information policy of Ukraine in terms of ensuring its financial security is raised in the work of A. Glushko, V. Pantas, and S. Babenko [2]. In their study, the authors cite the system of information policy, taking into account the factors of digital transformation, and justify its importance in the mechanism of financial security of Ukraine. The work of S. Onyshko and V. Chubenko [3] is devoted to the establishment of the main indicators that have an impact on financial security, determining their role and interaction in the digital economy. Considering the interaction of financial security with modern digital technologies, the authors emphasize the possibility of obtaining valuable information through access to the Internet - a network whose data is open, which allows for transparency in business processes, public life, and the state. These are authors such as S. Yesimov and V. Bondarenko [4], A. Cannizzaro and R. Weiner [5], O. Ali, M. Ally, Y. Dwivedi [6], J. Chod, N. Trichakis, G. Tsoukalas, H. Aspegren, and M. Weber [7], F. Brunetti, D. Matt, A. Bonfanti, A. De Longhi, G. Pedrini, & G. Orzes [8], P. Gomber, R.J. Kauffman, C. Parker, & B.W. Weber [9], T. Niemand, J.P.C. Rigtering, A. Kallmün-zer, S. Kraus, & A. Maalaoui [10], H. Mishchuk, S. Bilan, H. Yurchyk, L. Akimova, M. Navickas [11]. This list is far from complete, with the development of financial and economic relations, new publications and research results are constantly appearing to find effective ways to ensure business security in these conditions.

METHODS

The theoretical and methodological basis of the work is the basic provisions of the concept of financial security of the state, one of the factors of formation of which is the level of digital transformations taking place in the economy and society. The consequence of such transformations is an increase in publicity and transparency of financial relations at all levels of the economic system. One of the effective safeguards against new security threats is, first of all, the transparency of financial and economic relations at the public level, which requires intensified research in this area. Methods of economic, systematic, and comparative analysis and synthesis were used in the research process. Computational-analytical, statisti-cal, graphical, and rating assessment methods and bibliometric analysis methods were used in the data processing.

RESULTS

Among the many definitions of financial security, the most complete can be considered definition given by O. Baranovsky. According to him, financial security is: "... the level of security of the citizen, household, population, enterprise, organiza-tion, institution, region, industry, sector, market, state, society, intergovernmental organizations, the world community with financial resources sufficient to meet their needs and fulfill existing obligations" [12]. Thus, financial security is seen as a multilevel system that functions as a single organism whose activities are aimed at creating conditions for the sus-tainable development of households, enterprises, and the state as a whole.

In order to determine the categorical relationships of this concept, it is advisable to use the method of bibliometric analysis, which reveals the importance of digital transformation on financial security by analyzing the level of publishing activity of scientists, reflected in the clustering of key research concepts. The basic tool for bibliometric analysis is VOSviewer. The key terms used in the Scopus scientometric database to search for and select 118 documents are digital transformations and national security. In the VOSviewer application, based on the type of co-occurrence analysis and the all keywords tool with a minimum of 2 words, 146 out of 1,135 terms were selected that were filtered from synonymous words. The results of the analysis can be seen in Figure 1.

- increasing the investment potential of public law education and increasing the competitiveness of territories.

Assessment of the level of budget transparency at the international level is carried out by the specialized international non-governmental coalition International Budget Partnership (IBP), which aims to calculate and publish the Open Budget Index, which is formed by calculating indicators:

1. Transparency Index (Transparency (Open Budget Index));
2. Public Participation Index;
3. index of control over the budget process by the legislature and the supreme audit institution (Oversight by Legislature).

According to the IBP report for 2019, Ukraine ranks average in the world in terms of budget transparency (Open Budget Index) (Fig. 2). As can be seen from the figure, in recent years the level of budget transparency has improved somewhat, primarily due to the increase in information saturation of the budget process at the executive level.

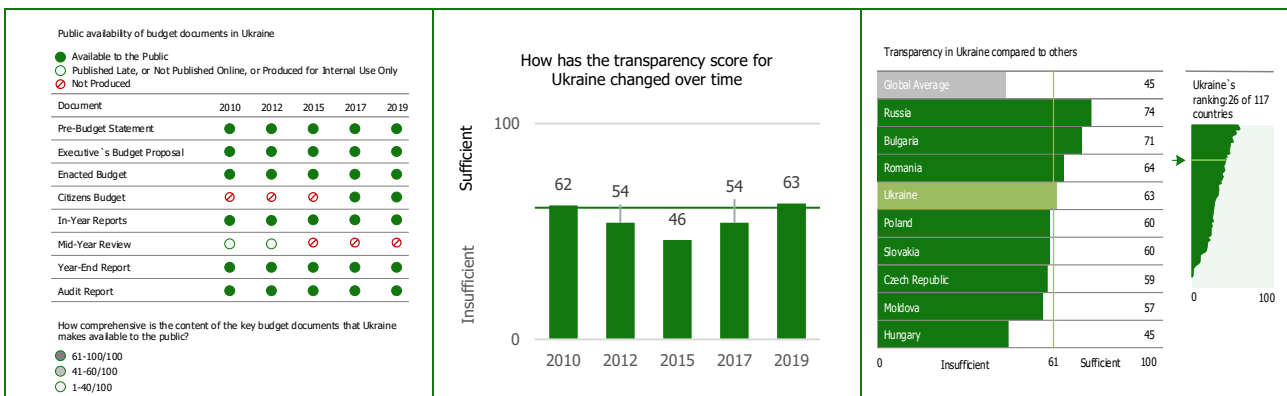


Figure 2. Positions of Ukraine on indicators of budget transparency (Open Budget Index). (Source: based on [13])

In addition to the budget transparency indicator, public participation in its formation and control over implementation is important. In determining the public participation index, the IBP assesses the formal opportunities provided by the government to NGOs to participate fully in the various stages of the budget process. The Public Participation Index includes 18 indicators that take into account the experience and best practices of such participation. According to the latest estimates, Ukraine has 33 points out of 100 possible (Fig. 3).

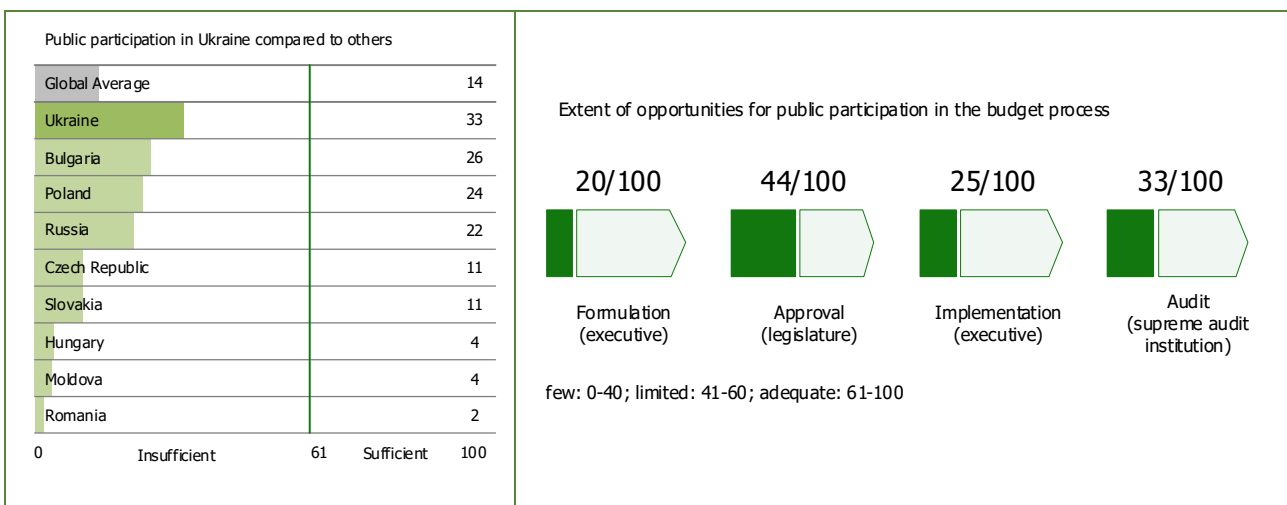


Figure 3. Positions of Ukraine on the index of public participation in the budget process ("Public Participation"). (Source: based on [13])

The IBP also assesses the role of the legislature and audit bodies (the State Audit Office of Ukraine) in their ability to control the budget process by calculating 18 relevant indicators. For Ukraine, this figure is 87 out of 100 possible (Fig. 4).

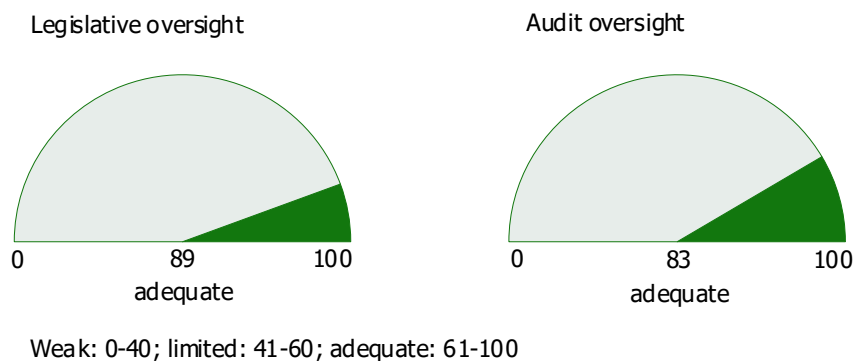


Figure 4. Positions of Ukraine on the index of control over the budget process by the legislature and the supreme audit institution ("Oversight by Legislature"). (Source: based on [13])

In recent years, the Transparent Budget system has been actively implemented in Ukraine. One of the main tasks of the Transparent Budget system is to automate the budget process and eradicate the corruption component in this process. The Transparent Budget Information and Analytical System ensures the transparency of budget processes and procedures at the state and local levels and allows citizens to control the use of funds by managers, budget recipients, state-owned enterprises, the Pension Fund, and the Social Insurance Fund.

The Transparent Budget system is part of the open government of Ukraine, responds to civil society's demand for transparency in the use of public funds, and takes into account the recommendations of the World Bank, the International Monetary Fund, and the International Budget Partnership on international standards of transparency costs (Open Spending), Open Contracting, and Citizen Participation.

The Transparent Budget system provides citizens with access to information on public funds at all stages of planning and use, helps increase the country's investment attractiveness through more open government policies, and reduces the likelihood of abuse and corruption at all stages of the budget process. The Law of Ukraine "On Openness in the Use of Public Funds" requires information on the use of public funds at the state and local levels. For this purpose, information portals were created: "Single web portal for the use of public funds (<https://spending.gov.ua>)" and "State web portal of the budget for citizens (<https://openbudget.gov.ua/>)". The starting pages of these portals are shown in Fig. 5.

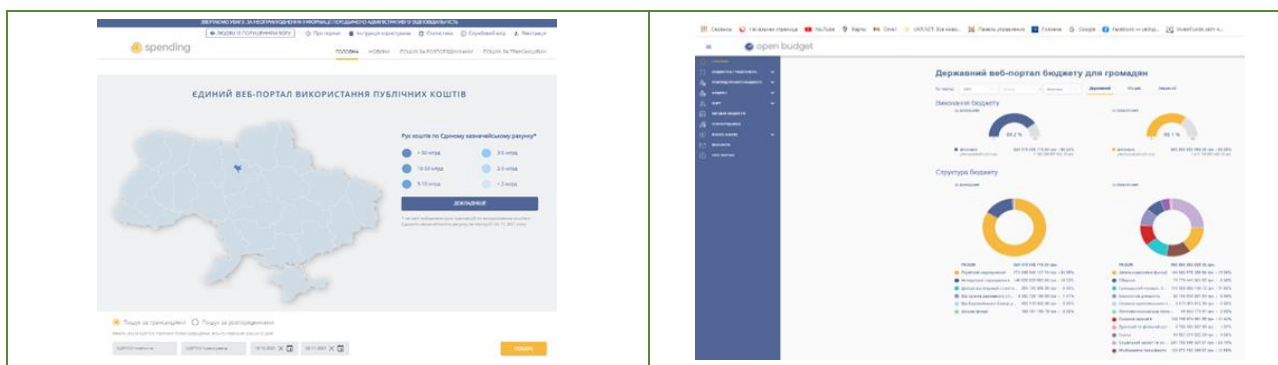


Figure 5. Web resources for information support transparency of the budget process. (Source: based on [14])

The web portal "spending.gov.ua" started its work on September 15, 2015, with the support of volunteers. The web portal provides public access to information on the use of public funds by managers and recipients of state and local budgets, economic and state-owned entities, the Pension Fund of Ukraine, and the funds of compulsory state social insurance. The web portal promotes the transparency of the public finance system and budgeting procedures, satisfies the interests and the right of the public to receive reliable information promptly, and increases the responsibility of managers and recipients of budget funds at the state and local levels.

The web portal "openbudget.gov.ua" is an official state portal with open data on public finances: state and local budgets. The portal presents key budget terms and deadlines of the budget process, indicators of state and all local budgets

(revenues, expenditures, lending, and financing), data on public debt, and budget managers. The portal contains a unique analytical tool BOOST, which allows you to analyze budget indicators at all levels.

These information resources help to increase the transparency of the budget process and increase the responsibility of managers and recipients of budget funds of both state and local budgets to society. The information posted on these portals can be used in the process of monitoring the use of public funds by government agencies (the Accounting Chamber of Ukraine and the State Audit Office of Ukraine), as well as the media and NGOs.

The components of debt security are the relative indicators of the state of domestic and foreign debt, the yield of IGLBs, the value of the EMVI + Ukraine index, and the volume of international reserves. Considering various aspects of public debt management, most authors draw attention to the problems of lack of openness and transparency of public debt policy.

Maintaining the regulatory level of public debt, as well as its most efficient spending are the main tasks of the authorities. Based on this, it is necessary to constantly monitor public debt, because a significant excess of public debt will negatively affect the stability of the country's economy, as well as the cost of servicing public debt can have a strong impact on the state budget.

Transparency of public debt policy is ensured by the Ministry of Finance of Ukraine, whose website contains information on public debt statistics, rates, and auctions for the sale of IGLBs, etc. (Fig. 6).

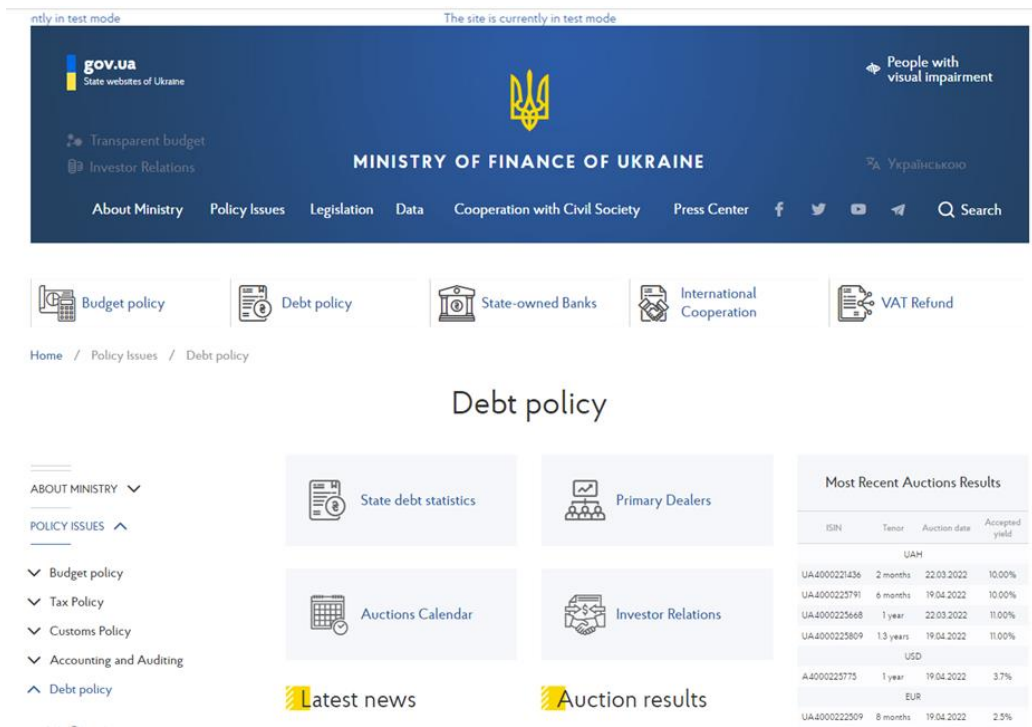


Figure 6. Page of the website of the Ministry of Finance of Ukraine on debt policy. (Source: based on [15])

An important component of financial security is currency security, ensuring publicity and transparency, which is part of the functions of the NBU. In the current context of globalization and informatization of society in order to reduce undesirable synergies in the monetary system, one of the ways to improve the monetary policy of the National Bank should be to increase the transparency of foreign exchange transactions, which increases financial security.

In order to ensure publicity and transparency of the foreign exchange market, the NBU publishes on its website the dynamics of the official exchange rate of Hryvnia to foreign currencies, information on foreign exchange auctions, and indicators of foreign exchange transactions, foreign exchange transactions, results of foreign exchange interventions. (Fig. 7). A separate page on the NBU website is devoted to the issues of currency liberalization, i.e., the creation of preconditions, the onset of which is necessary for the transition to the regime of free movement of capital - the ultimate goal of currency liberalization.

The NBU website and other web resources also contain information on currency security indicators, such as gross international reserves of Ukraine, months of imports; the share of loans in foreign currency in the total amount of loans, interest;

the level of dollarization of the money supply, etc. Measures are taken to increase the transparency of currency regulation are aimed at stopping the export of capital, money laundering illegally under the guise of foreign investment, and the functioning of the shadow sector in foreign trade and the financial market.

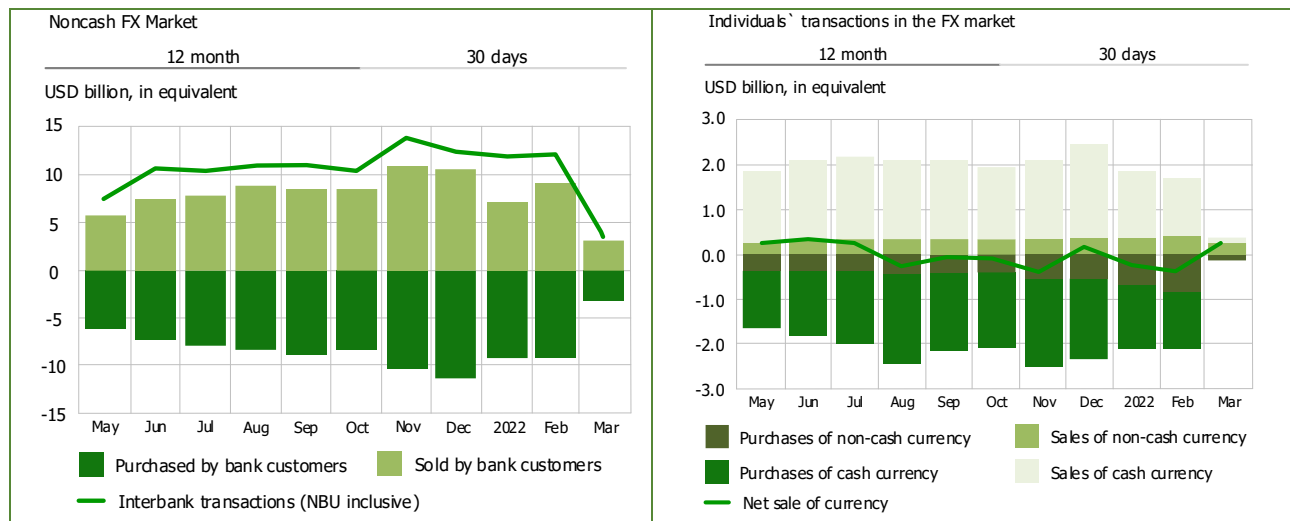


Figure 7. Information support of the NBU monetary policy (fragment of the site). (Source: based on [16])

The monetary security indicator includes indicators of the share of cash in the non-banking system, i.e., the ratio of monetary aggregates M0 / M3, interest, the difference between interest rates on loans and deposits, and the share of consumer loans to households in households. Funds are withdrawn abroad. Statistical data published by the NBU contain information on the dynamics of changes in monetary aggregates, interest rates on active and passive operations of the NBU, the volume of credit and deposit resources, etc.

CONCLUSIONS

The study allows us to conclude that today digital technology is a powerful driver of the principles of transparency of financial relations, which is especially evident at the level of public finance. It is transparency that allows to reduce abuses in the financial sphere, reduce the level of corruption and shadow the economy, which ultimately allows increasing the level of financial security of the state. In Ukraine, in the field of public finance, digitalization has become most widespread in the budget process, where, thanks to the introduction of the "Transparent Budget" system, the web portals "spending.gov" and "openbudget.gov.ua" managed to significantly increase the transparency of public and local levels. The transparency of the state debt policy has significantly increased due to the implementation of the principles of information openness through the website of the Ministry of Finance of Ukraine. An important component of ensuring the financial security of the state is banking security, where the main institution of publicity and transparency is the National Bank of Ukraine. It is through the NBU website that you can find the latest information on the state of the foreign exchange market, monetary policy, etc. Thus, the digital transformations that have taken place in Ukraine in recent years have significantly increased the transparency of financial relations, especially at the public level.

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ВПЛИВ ЦИФРОВИХ ТРАНСФОРМАЦІЙ НА ТРАНСПАРЕНТНІСТЬ ФІНАНСОВО-ЕКОНОМІЧНИХ ВІДНОСИН ТА ФІНАНСОВУ БЕЗПЕКУ УКРАЇНИ

Поширення цифрових інформаційних технологій дозволяє значно підвищити можливості забезпечення публічності та прозорості фінансових відносин, зменшити зловживання та прояви корупції, що в свою чергу сприятиме забезпеченню фінансової безпеки на всіх рівнях економічного устрою. Метою статті є створення методологічного підґрунтя та методичних засад формування принципово цифрової моделі транспарентності фінансово-економічних відносин на рівні публічних фінансів, за якої мінімізуються загрози фінансовій безпеці та максимізуються можливості розвитку, обумовлені цифровізацією економіки та суспільства.

У статті проаналізовано існуючі на сьогодні наукові підходи до визначення впливу цифрових трансформацій на забезпечення транспарентності фінансових відносин та визначено найбільш релевантні напрями досліджень за цією тематикою. Проведено бібліографічний аналіз за допомогою сучасного програмного продукту VOSviewer, який дозволив виявити існування кластерних взаємозв'язків між категоріями «digital transformations», «national security» та іншими економічними категоріями, що ще раз показало наявність значного світового наукового інтересу до цієї тематики та її міждисциплінарний характер. Ураховуючи, що ключова роль у формуванні фінансової безпеки держави належить забезпеченню показників бюджетної безпеки, значна увага була приділена розгляду особливостей визначення Індексу відкритості бюджету (Open Budget Index), який формується шляхом розрахунку показників, що різнобічно характеризують транспарентність бюджетного процесу. Здійснено порівняння рейтингових позицій України за цим Індексом із позиціями інших країн. Розглянуто можливості системи «Прозорий бюджет», яка є частиною

відкритого уряду України. Проаналізовано особливості діяльності вебпорталів «Open Budget» та «Open Spending», які здійснюють інформаційну підтримку бюджетного процесу та надають громадянам доступ до інформації про публічні кошти на всіх стадіях планування й використання. Розглянуто існуючі технології та інформаційні можливості забезпечення транспарентності державної боргової політики, валютного та грошово-кредитного ринку.

Дослідження показує, що синергетичне поєднання процесів цифровізації та комплексної розбудови системи транспарентності фінансів є дієвим засобом підвищення фінансової безпеки, зменшення інформаційних бар'єрів та стане каталізатором позитивних зрушень в економіці.

Ключові слова: фінансова безпека, цифровізація, транспарентність фінансів, бюджетний процес, державний борг, валютна політика

JEL Класифікація: F52, G20, G28, L86