

DOI: <https://doi.org/10.32782/2524-0072/2026-84-81>

UDC 336.7:004.738.5

FINANCIAL INNOVATIONS AS A FACTOR IN TRANSFORMATION OF MONETARY AND CREDIT SYSTEMS OF COUNTRIES IN THE CONDITIONS OF DIGITIZATION OF THE FINANCIAL SECTOR

ФІНАНСОВІ ІННОВАЦІЇ ЯК ЧИННИК ТРАНСФОРМАЦІЇ ГРОШОВО-КРЕДИТНИХ СИСТЕМ КРАЇН В УМОВАХ ЦИФРОВІЗАЦІЇ ФІНАНСОВОГО СЕКТОРУ

Ishchuk Lesia

Candidate of Economic Sciences, Associate Professor,
Lutsk National Technical University
ORCID: <https://orcid.org/0000-0002-1724-0292>

Polishchuk Vadym

Candidate of Economic Sciences, Associate Professor,
Lutsk National Technical University
ORCID: <https://orcid.org/0000-0001-5479-1221>

Ищук Леся Іванівна, Поліщук Вадим Григорович
Луцький національний технічний університет

The article examines financial innovations as a key factor in the transformation of monetary systems in the context of the digitalization of the financial sector. It is established that the rapid development of digital technologies significantly affects the functioning of financial markets and monetary regulation mechanisms. The study analyzes the impact of FinTech technologies, digital payment systems, blockchain, artificial intelligence and big data on the modernization of financial intermediation and monetary policy instruments. Particular attention is paid to the role of central bank digital currencies in improving the payment infrastructure and strengthening financial stability. A correlation of modern financial innovations with traditional monetary policy instruments is also carried out. A comparison of the technological features of central bank digital currencies (CBDCs) is proposed and a new classification of CBDCs is provided. The study proves that financial innovations contribute to the formation of a new architecture of monetary systems based on digital technologies and innovative financial instruments.

Keywords: financial innovation, monetary and credit system, digitization of the financial sector, monetary policy, FinTech, digital currency, central bank, digital economy, transformation of the financial system.

У статті досліджено роль фінансових інновацій як ключового чинника трансформації грошово-кредитних систем країн в умовах цифровізації фінансового сектору. Встановлено, що сучасний етап розвитку світової економіки характеризується активним впровадженням цифрових технологій у фінансову сферу. Застосування сучасних цифрових технологій зумовлює суттєві зміни у функціонуванні фінансових ринків. Визначено, що розвиток фінансових технологій, зокрема FinTech-платформ та цифрових платіжних систем, сприяє формуванню нових моделей фінансового посередництва та трансформації традиційних інструментів грошово-кредитної політики. Запроновано порівняння технологічних особливостей CBDC та проведено новітню класифікацію CBDC. Також встановлено, що сучасні цифрові технології сприяють зниженню транзакційних витрат та розширюють можливості фінансової інклюзії населення. Значну увагу приділено аналізу впливу фінансових інновацій на діяльність центральних банків. Більше того, досліджено розвиток цифрових валют центральних банків, які розглядаються як перспективний інструмент модернізації платіжних систем. Було здійснено кореляцію сучасних фінансових інновацій з традиційними інструментами грошово-кредитної політики. Узагальнено міжнародний досвід цифровізації фінансових систем та визначено основні напрями розвитку цифрової економіки у країнах Європейського Союзу. Доведено, що подальший розвиток фінансових інновацій сприятиме формуванню нової архітектури грошово-кредитних систем. Нова побудова систем ґрунтуватиметься на інтеграції цифрових технологій та інноваційних фінансових інструментів. Зроблено висновок, що ефективна



адаптація монетарної політики до умов цифровізації фінансового сектору є важливою передумовою забезпечення фінансової стабільності та сталого економічного розвитку. Особливу увагу приділено інституційним передумовам формування цифрового фінансового середовища та ролі держави у забезпеченні збалансованого розвитку інноваційних фінансових інструментів, здатних підвищити адаптивність національних грошово-кредитних систем до глобальних технологічних змін.

Ключові слова: фінансові інновації, грошово-кредитна система, цифровізація фінансового сектору, монетарна політика, FinTech, цифрові валюти центральних банків, цифрова економіка, трансформація фінансових систем.

Statement of the problem. The current development of economic processes at the global level is accompanied by significant structural changes that are actively changing the functioning of financial systems. The rapid spread of digital technologies plays a decisive role in transformational processes. Modern economic development is accompanied by significant structural transformations that are closely to the rapid expansion of digital technologies and the emergence of innovative financial instruments. Particular attention should also be paid to the development of FinTech systems and the emergence of new digital currencies. In addition, we witness the development of platform financial services and new models of financial intermediation. The digitalization of economic processes causes significant changes in the functioning of the monetary systems of states, as traditional mechanisms of monetary regulation are gradually supplemented by instruments of the digital financial environment. According to the World Bank, the share of the digital economy in global GDP already exceeds 15% and continues to grow at a rate that is more than twice as fast as the global economy. At the same time, digital financial services are becoming one of the most dynamic segments of this transformation, as they significantly simplify access to financial resources and increase the efficiency of financial transactions. In particular, the development of the digital economy creates new opportunities for optimizing financial transactions, as well as increasing the availability of financial services. According to the Findex Global Data Base (World Bank), the proportion of adults worldwide with access to a financial account has increased from 51% in 2011 to 76% in 2021, largely due to the spread of digital financial services and mobile banking technologies.

Analysis of recent research and publications. A group of scientists investigated the issues of European strategy and institutional frameworks in the context of ensuring digitalization. That is, the authors focus on macroeconomic trends and European processes. Such scientists include Ivantsov S.

[5], Dzyurkevych K. [4], Bashlai S.V., Yaremko I.I. [1], Reznikova N.V., Karp V.S., Ivashchenko O.A. [11] and others. At the same time, the mentioned studies leave a number of issues insufficiently covered, in particular the coordination of strategic digital development guidelines with national policy priorities and the creation of sufficiently effective mechanisms for beneficial international cooperation to regulate the significant influence of powerful technological platforms.

A group of scientists conducted research on technological drivers and industrial transformation inherent in the EU. At the same time, we note that scientific activities were aimed at the direct implementation of digital technologies into the business processes of industry enterprises. Such issues were addressed by scientists Trokhymets O.I., Tomareva-Patlahova V.V., Semenov A.G. [14], Suntsova O. [13], Strilets V.Yu., Pozhar A.A., Fleganova A.L., Franko L.S., Yezheliy Yu.O., Zboryk D.S. [12], Mekhovych S.A., Kuzminsky K.M., Pererva O.P. [7]. Nevertheless, these studies only partially address the problems of developing innovative financing mechanisms, improving regulatory incentives and overcoming disparities in technological infrastructure between regions.

It should be emphasized that various researchers actively considered in their works the issues of modeling and measuring digital transformation. In particular, a number of scientists have studied various issues that can be combined into research on the use of quantitative methods for assessing the digital development of society. Such scientists who considered mathematical approaches to assessing digital transformation include researchers such as Ratushnyak T.V., Omelchuk A.A., Gorbovy A.Yu., Gladchenko O.V., Vyshemirskaya Ya.S. [10], as well as Shkurat M.E., Kukul G.S., Mazur V.G. [15]. Despite the correctness of the reflection of the impact of digitalization on economic indicators, scientists have not sufficiently addressed the following issues: increasing the informativeness and universality of metrics (taking into account the dominance of platforms, the quality of digital skills), integrating various models (in particular,

cluster analysis) for objective classification of digitalization levels and forecasting economic consequences.

We will also highlight such an approach in the research of scientists as human capital and social dimensions of digitalization. This group includes works that consider a person in society in the digital economy. Blyznyuk V.M. [2], Mostova A.D., Taranenکو I.V., Shchelokova G.V. [8], Karpyshe N., Grodsky S., Vilchynsky V. [6] and others. It should be noted that the mentioned authors do not sufficiently consider the issue of combining digital initiatives with education and retraining programs, overcoming the digital divide in access to skills, regulating the impact of "technoglobalism" on the labor market (developing mechanisms to counteract the dominance of large technological platforms in the formation of competency standards).

Highlighting previously unresolved parts of the overall problem. First of all, we note that in the works of domestic scientists, very little attention is paid to the structural analysis of the links between the impact of financial innovations on the architecture of monetary systems. In addition, it is worth investigating the effectiveness of traditional monetary policy instruments in the context of financial system stability. At the same time, the issue of the development of modern fintech platforms (especially those aimed at the spread of neobanks, the development of investment services in government bonds, and the provision of accounting systems for businesses) and the emergence of digital currencies of central banks (such as the digital euro or e-hryvnia) is particularly relevant. Along with this, there is an active process of integrating existing national monetary systems into the global financial environment (including countries experiencing severe social and economic upheavals). At the same time, the integration of national monetary systems into the global financial system raises the question of adapting monetary policy to the digital economy.

Formulation of the objectives of the article (task statement). The aim of the scientific article is to identify the role of financial innovations in the transformation of the monetary systems of countries in the context of the digitalization of the financial sector. The research task also includes determining the impact of financial innovations on the effectiveness of monetary policy. It should be noted that the key direction of the research is the analysis of the role of central bank digital currencies in modern financial systems. The task

will also be to generalize international experience in the digital transformation of financial markets. Special attention is paid to identifying promising areas for the development of monetary regulation mechanisms in the context of the formation of a digital economy.

Summary of the main research material. In the current global digitalization of economic processes, the monetary and credit systems of states are undergoing a complex stage of transformation, which is associated with the introduction of digital technologies into the financial sector. We should also emphasize the formation of new institutional mechanisms for the functioning of financial markets. The development of the digital economy necessitates the revision of traditional approaches to the organization of monetary policy, and also completely changes the vision of financial intermediation mechanisms.

The spread of digital technologies fundamentally changes the structure of financial relations and forms new models of interaction between financial market participants, which is manifested in the growing role of information technologies and platform business models. It has been established that the digitalization of economic processes contributes to increasing the efficiency of financial transactions and optimizing the use of economic resources. Moreover, this approach expands access to financial services for different categories of the population.

We should also note the Digital Europe program, which has been operating in the EU for the last 4 years and is aimed at expanding the impact of digital transformation. The program was quite aptly described by scientists Bashlai S.V. and Yaremko I.I., who noted in their work that "the program is aimed at developing advanced digital skills, implementing digital skills in business, developing digital infrastructure and providing digital services for citizens and authorities in the European Union (EU) and other countries that participated in the program" [1].

In the process of digitalization of the financial sector, a new architecture of monetary and credit systems is gradually being formed, which is characterized by the integration of digital payment instruments and the development of innovative financial platforms. In this case, it is also worth emphasizing the active use of artificial intelligence and blockchain technologies. According to the McKinsey Global Institute, the application of artificial intelligence in the financial sector could generate up to \$1 trillion in added

value annually, mainly through improved risk management, fraud detection, and automation of financial transactions. As a result of current changes, financial institutions are able to more effectively manage risks and optimize their financial flows. At the same time, such institutions are increasingly striving to ensure a higher level of transparency of financial flows.

This position is supported by the research of scholars such as Karpyshyn N., Grodsky S., Vilchynsky V., who describe in their studies that "the Digital Economy and Society Index (DESI) is an index that summarizes the digitalization indicators of the European Union member states and helps to assess the level of their technological development and the degree of introduction of innovative technologies" [6].

An important tool for assessing the level of digital transformation of economies is the Digital Economy and Society Index, which is used to analyze the level of digital development of European Union countries [3]. Studies show that a high level of digitalization of the economy contributes to increasing the competitiveness of states and creates the prerequisites for innovative development.

Digital transformation in the EU countries is determined not only by technological innovations, but also by large-scale institutional and socio-economic shifts. We note the studies of such scientists as Ratushnyak T.V., Omelchuk A.A., Gorbovy A.Yu., Gladchenko O.V., Vyshemirskaya Ya.S., who noted in their study that "the European Union has directed efforts to create by 2025 the so-called gigabit society, in which gigabit connectivity is provided for all major socio-economic objects, such as schools, transport hubs, public service providers and enterprises that intensively use digital technologies; the deployment of uninterrupted 5G coverage for all cities and major land transport routes; the expansion of free access to Wi-Fi for citizens; the further development of competition and protection of the rights of digital market entities based on the new Electronic Communications Code" [10].

Active transformation processes also affect the structure of financial markets, as traditional financial institutions gradually adapt to the conditions of the digital economy. In this context, the development of digital payment systems, mobile banking, and modern electronic financial platforms is of particular importance. Statistical estimates provided by Statista indicate that the global volume of digital payment transactions exceeded 9 trillion US dollars in 2023 and is

projected to exceed US\$15 trillion by 2027, highlighting the growing importance of digital payment infrastructure in today's financial system. Modern platforms have already formed new models of financial interaction between economic agents. In fact, the emergence of digital financial platforms is gradually changing the traditional architecture of financial intermediation, shifting it from institutional-centered models to technology-driven financial ecosystems that integrate banking services and digital financial solutions.

Thus, the evolution of monetary systems in the digital economy is characterized by the transition from traditional financial regulation mechanisms to a comprehensive system of digital monetary management based on the integration of innovative technologies and institutional mechanisms of financial development.

A special role in the transformation of monetary policy is played by digital technologies, which allow central banks to obtain more accurate information about financial flows and economic activity. The use of big data and modern analytical systems creates the opportunity to respond more quickly to changes in the economic situation and ensure more effective management of monetary processes.

In this context, it is worth noting that one of the most important directions of transformation of financial systems in modern conditions is the development of financial technologies and the spread of digital currencies of central banks. According to the Bank for International Settlements, over 90% of the world's central banks are currently exploring the possibility of implementing central bank digital currencies (CBDCs), and several countries have already launched pilot projects or fully implemented digital national currencies.

Having studied the features of the use of central bank digital currencies around the world, a comparison of the technological features of CBDCs as of 2025 was conducted (see Table 1).

So, based on the comparison of digital currencies in different countries, we came to the conclusion that there is currently no unified technological model for CBDCs. Of course, the digitalization of monetary circulation does not currently have a single standard, although it adapts to the institutional features of a particular country.

In addition, there is currently a significant differentiation of digital currency distribution models. The two-level model assumes the preservation of the role of commercial banks

Table 1

Comparison of technological features of CBDCs

Country / Project	Technology	Distribution Model	Key Innovation
China (e-CNY)	Centralized / Hybrid	Two-level	WeChat/Alipay Integration
Brazil (Drex)	DLT (Hyperledger Besu)	Wholesale	Smart Contracts for Assets
Ukraine (e-hryvnia)	DLT (Stellar)	Direct	Offline Payments, Trust Funds
Nigeria (eNaira)	DLT (Hyperledger Fabric)	Two-level	Cross-Border Transfers
Bahamas (Sand \$)	DLT (Blockchain)	Two-level	Multi-Level KYC Wallets

Source: compiled by the author

as intermediaries, which supports the evolution of the monetary system. Along with this, the direct model potentially reflects the state of the monetary system, in which the central bank strengthens its role in interacting with end users.

We also note that the functional purpose of CBDCs goes beyond traditional money. The new functional features of digital currencies indicate the formation of a new paradigm of money as a digital financial instrument with extended functionality.

We tried to find out and propose a modern classification of CBDCs. To do this, we studied the main trends in the use of digital currencies in the world and familiarized ourselves with the existing classifications of CBDCs. Based on the information received, we proposed a new classification of CBDCs, which is typical as of the beginning of 2026 (see Table 2).

So, based on the summarized information regarding classification features, we can state the following. The digitalization of monetary and credit systems occurs according to an adaptive scenario, in which technology is selected in

accordance with the strategic priorities of the state, as well as the level of development of the financial infrastructure. Moreover, the functional dimension of innovation concerns integration with digital ecosystems and the development of cross-border payments. That is, modern innovative money is characterized by programmability, which transforms traditional approaches to the monetary policy of states.

The rapid spread of FinTech solutions is shaping new models of financial service provision and transforming traditional financial intermediation. At the same time, the rapid development of financial technologies is significantly affecting the mechanisms of monetary transmission within national economies. The expansion of digital financial platforms and alternative payment systems is changing the structure of financial intermediation and modifying the channels through which monetary policy decisions affect economic activity. As a result, central banks are increasingly required to adapt traditional monetary policy instruments to the conditions of the digital financial environment. According

Table 2

Latest classification of CBDCs

Classification feature	Categories	Examples	Main challenge
Agent autonomy	H-CBDC, A-CBDC, M-CBDC	Gen AI, IoT, Edge Computing	Machine Identity
Computational physics	Atomic, sequential, offline	DLT, DTGS+, ZKP	Legacy Interoperability
Regulatory model	Programmed, multi-level, static	Smart contracts, Prolect Tamga	Legal Recognition of Code as Law
Geopolitical vector	Centrifugal, centripetal, enclave	mBrodge, Agora, e-CNY	Fragmentation of Global Standards
Ecological intensification	Green, traditional	PBFT, Proof-of-Authority	Costs of Transitioning to New Registries

Source: compiled by the author

to KPMG's FinTech report, global investment in FinTech reached US\$164 billion in 2022, demonstrating the rapid growth of digital financial services and their growing impact on the global financial system.

Financial innovations play a key role in the process of modernization of monetary and credit systems, as they create new opportunities for increasing the efficiency of monetary policy and optimizing financial regulation mechanisms. In modern conditions, the development of financial technologies contributes to the formation of new instruments of financial intermediation, which allow significantly increasing the efficiency of financial resource management.

We agree with the opinion of scientist Polishchuk V.G., who substantiated the digital transformation of business, the essence of which "is to implement new technologies in order to achieve specific business goals, optimize current operations, develop new products and opportunities for sustainable growth and competitive advantages in the market" [9].

It has been established that financial innovations encompass a wide range of technological and organizational changes, which include the development of digital payment systems and the introduction of automated financial services. Innovations significantly contribute to the formation of new approaches to managing financial flows, which allows to increase the efficiency of the functioning of financial systems.

We note the scientific research of scientist Suntsova O., who noted that "in addition to the mentioned digital business technologies that are actively transforming the global trends in the development of the economies of the world, recently invented ones should be separately highlighted, such as the "smart factory" (Smart Factory), "smart manufacturing" (Smart Manufacturing), "factory of the future" (Factory of the Future)" [13].

It should be emphasized that the development of FinTech contributes to increasing the efficiency of financial markets, since innovative financial technologies can significantly reduce transaction costs and increase the speed of financial transactions. In modern conditions, financial technologies are actively used in the field of payment systems, lending, and even in investment management.

In addition, as rightly noted by such scientists as Strylets V.Yu., Pozhar A.A., Fleganova A.L., Franko L.S., Yezheliy Yu.O., Zboryk D.S., "the process of digital transformation, which has been

ongoing in the global economy for some time, is closely related to the concept of Industry 4.0 and is caused by innovative digital technologies" [12].

International experience shows that the digitalization of financial systems is becoming one of the key directions of economic policy of many states. Developed countries of the world are actively introducing digital technologies into the financial sector, which contributes to increasing the efficiency of financial markets and the development of an innovative economy. In particular, EU countries are implementing a consistent comprehensive strategy for the development of the digital economy, which involves the formation of a single digital market and the creation of favorable conditions for the development of innovative technologies. As noted, according to the European Commission, the digital economy currently accounts for approximately 20% of the European Union's GDP, and digital transformation initiatives within the Digital Decade strategy are aimed at significantly increasing this share by 2030. Within the framework of the outlined strategy, significant attention is focused on the development of digital infrastructure and supporting innovative business structures. Moreover, we agree with the research of scientist Ivantsov S., who notes that "the EU is developing digital diplomacy, which includes: guaranteeing the protection of fundamental values and the predominance of an approach based on rules accepted and supported by all; expanding the digital capabilities of the population; preserving the geopolitical balance of power; promoting a new regulatory framework and technological solutions at the global level; etc." [5].

Of course, during the implementation of digital transformation, a document should be in place that defines the long-term vision of the country's transformational actions. As scientists Reznikova N.V., Karp V.S., Ivashchenko O.A. note, "a typical Strategy for the Digital Transformation of the Economy should contain a description of: regulatory ecosystems, financial support ecosystems to promote the digital transformation of the economy, RDI support ecosystems, and digital knowledge, skills, and competencies development ecosystems" [11].

Other key EU goals for the development of digital skills, as noted by scientists Mostova A.D., Taranenko I.V., Shchelokova G.V., are to provide all households in the European Union with powerful 5G connectivity and coverage of all settlements [8]. Moreover, the active deployment of several thousand climate-neutral, highly

secure edge nodes in the EU is planned. And the share of sustainable semiconductor production in Europe will increase to 20% of global production. It is also known that at least 30% of enterprises in the European Union are already actively using big data technologies, which indicates the rapid integration of digital technologies into business processes.

As noted by scientist V.M. Blyznyuk, “a high level of digital education combined with active support for private initiatives of enterprises for ICT training for their employees creates favorable conditions for innovative development and increasing the competitiveness of economies” [2].

We will also determine the correlation of modern financial innovations with traditional instruments of the monetary and credit system. The results of this study are summarized in Table 3.

Thus, our data indicate a significant acceleration of the transmission mechanism of monetary policy. Thanks to the development of digital financial platforms, the reaction of economic agents to changes in the discount rate and other monetary policy instruments becomes almost instantaneous. At the same time, such acceleration is accompanied by fragmentation of the financial market, which makes it difficult for the central bank to regulate financial processes.

Therefore, we interpret the digital transformation of the financial sector not simply as a technological shift, but as a systemic reorganization of monetary relations, which requires the adaptation of institutional mechanisms of monetary regulation. The active transformation of monetary systems in the context of the development of financial innovations is a powerful multifaceted process that encompasses the technological aspects of the development of the modern financial ecosystem.

Conclusions. The results of our study revealed that the strong development of FinTech platforms and the use of digital currencies by central banks contribute to the active updating of monetary regulation mechanisms in different countries. We compared the technological features of CBDCs and proposed a new classification of CBDCs. We also correlated modern financial innovations with traditional monetary policy instruments. It is proven that the digitalization of financial systems ensures increased efficiency of financial operations and reduced transaction costs. In addition, scientific results give reason to argue that the digital transformation of the financial sector significantly expands access to financial services, that is, guarantees compliance with the important principle of inclusion.

Table 3

Correlation of modern financial innovations with traditional monetary policy instruments

Traditional instrument	Impact of financial innovations	Nature of interaction	Implications for monetary policy
Reserve rate	Instant price adjustments in FinTech/ DeFi	Acceleration of pass-through, but gap between segments	Need for more aggressive and frequent rate adjustments
Open market operations	Tokenization of treasury bonds, smart contracts	Transition to real-time mode, automation of Repos	Reduced operational lag, improved precision of liquidity injection
Reserve ratios	Emergence of stablecoins with 100% coverage	Formation of a “narrow banking sector”	Stabilized demand for government debt, risk of bank disintermediation
Exchange rate operations	Instant cross-border payments via DLT	Intensification of international capital flows and connections	Higher exchange rate volatility, need for priority implementation of CBDC
Credit operations	Credit based on BigData and transaction flows	Weakening of the role of physical collateral and the balance sheet channel	Less sensitivity of credit supply to monetary tightening
Money supply targeting	Change in the velocity of money supply, dilution of aggregates (M1, M2)	Complications in forecasting the demand for money	Final shift to inflation targeting and expectations

Source: compiled by the author

REFERENCES:

1. Bashlai S., Yaremko I. (2023). Tsyfrovizatsiya ekonomiky ukrayiny v umovakh Yevrointehratsiynykh protsesiv [Digitalization of Ukraine's economy in the conditions of European integration processes]. *Ekonomika ta suspil'stvo – Economy and society*, 48. DOI: <https://doi.org/10.32782/2524-0072/2023-48-48> [in Ukrainian].
2. Blyzniuk V. (2024). Klasternyy analiz krayin Yevropeys'koyi zony za pokaznykamy vplyvu tsyfrovizatsiyi ekonomiky na rozvytok lyuds'koho kapitalu [Cluster analysis of European zone countries based on indicators of the impact of digitalization on human capital development]. *Visnyk Mariupol's'koho derzhavnoho universytetu. Seriya: Ekonomika – Bulletin of Mariupol State University. Series: Economics*, 27, 137-149. DOI: <https://doi.org/10.34079/2226-2822-2024-14-27-137-149> [in Ukrainian].
3. DESI dashboard for the Digital Decade. URL: <https://digital-decade-desi.digital-strategy.ec.europa.eu/data-sets/desi/charts>
4. Dziukevych K. (2023). Dyskurs rozvytku tsyvrovoho rynku YeS [Discourse on the EU digital market development]. *Ekonomika ta suspil'stvo – Economy and society*, 52. DOI: <https://doi.org/10.32782/2524-0072/2023-52-19> [in Ukrainian].
5. Ivantsov S. (2024). Stratehichni oriyentyry rozvytku tsyvrovoyi ekonomiky u YeS [Strategic guidelines for the development of the digital economy in the EU]. *Modeling the development of the economic systems*, 4 (14), 186-192. DOI: <https://doi.org/10.31891/mdes/2024-14-25> [in Ukrainian].
6. Karpysyn N., Hrodskyy S., Vilchynskyy V. (2023). Yevropeys'kyy Soyuz na shlyakhu do tsyfrovykh transformatsiy: dosvid dlya Ukrayiny [European Union on the path to digital transformation: experience for Ukraine]. *Heopolityka Ukrayiny: istoriya i suchasnist' – Geopolitics of Ukraine: history and modern times*, 2 (31), 76-86. DOI: [https://doi.org/10.24144/2078-1431.2023.2\(31\).76-86](https://doi.org/10.24144/2078-1431.2023.2(31).76-86) [in Ukrainian].
7. Mekhovych S., Kuzmyskyi K., Pererva O. (2024). Didzhytalizatsiya yak faktor konkurentospromozhnosti u yedynomu mizhnarodnomu tsyvrovomu rynku [Digitalization as a factor of competitiveness in the single international digital market]. *Enerhozberezhennya. Enerhetyka. Enerhoaudyt. – Energy saving. Energy. Energy audit*, 5(195), 54-75. DOI: <https://doi.org/10.20998/2313-8890.2024.05.05> [in Ukrainian].
8. Mostova A., Taranenko I., Shcholokova H. (2023). Tsyfrova transformatsiya biznesu i suspil'stva: rol' tsyfrovykh navychok [Digital transformation of business and society: the role of digital skills]. *Skhidna Yevropa: ekonomika, biznes ta upravlinnya – Eastern Europe: Economics, Business and Management*, 4 (41), 51-57. DOI: <https://doi.org/10.32782/easterneurope.41-8> [in Ukrainian].
9. Polishchuk V. (2024). Teoretyko-prykladni osoblyvosti vprovadzhennya SHI u sferi FinTech yak drayveru sotsio-ekoloho-ekonomichnoho rozvytku [Theoretical and applied aspects of AI implementation in fintech as a driver of socio-ecological-economic development]. *Ekonomichnyy chasopys Volyns'koho natsional'noho universytetu imeni Lesi Ukrayinky – Economic journal of Lesya Ukrainka Volyn National University*, 2, 13-20. DOI: <https://doi.org/10.29038/2786-4618-2024-02-13-20> [in Ukrainian].
10. Ratushnyak T.V., Omelchuk A.A., Horbovyi A.Yu., Hladchenko O.V., Vyshemirskaya Ya.S. (2024). Indeks DESI yak mira tsyvrovoyi transformatsiyi u krayinakh Yevropeys'koho Soyuzu [Index DESI as a measure of digital transformation in the countries of the European Union]. *Prykladni pytannya matematychnoho modelyuvannya – Applied issues of mathematical modeling*, 7, 2, 207-220. DOI: <https://doi.org/10.32782/mathematical-modelling/2024-7-2-18> [in Ukrainian].
11. Reznikova N., Karp V., Ivashchenko O. (2023). Mizhnarodnyy dosvid instytutsiynoho spryannya rozvytku tsyvrovoyi ekonomiky i protydyi zahrozam tekhnohlobalizmu v umovakh innovatsiynoho supernytstva [International experience of institutional support for the development of the digital economy and countering the threats of technological globalism in the conditions of innovative competition]. *Investytsiyi: praktyka ta dosvid – Investments: practice and experience*, 15-17, 6-12. DOI: <https://doi.org/10.32702/2306-6814.2023.17.5> [in Ukrainian].
12. Strilets V., Pozhar A., Franko L., Flehantova A., Yezheli Yu., Zboryk D. (2024). Tsyfrovizatsiya yak instrument pobudovy innovatsiynoyi stratehiyi rozvytku biznesu krayin YeS v umovakh adaptatsiyi do kryzovykh tendentsiy mizhnarodnoyi ekonomiky [Digitalization as a tool for building innovative business development strategies in EU countries in the context of adapting to the crisis trends of the international economy]. *Naukovyy visnyk Poltavskoho universytetu ekonomiky i torhivli – Scientific Bulletin of the Poltava University of Economics and Trade*, 3 (113), 80-88. DOI: <https://doi.org/10.37734/2409-6873-2024-3-11> [in Ukrainian].
13. Suntsova O. (2022). Ekonometrychnata tsyfrova transformatsiya biznesu kontseptsiyakh Industriya 4.0 ta 5.0 [Econometric and digital business transformation in Industry 4.0 and 5.0 concepts]. *Finansovo-kredytni systemy: perspektyvy rozvytku – Financial and credit systems: prospects for development*, 2(5), 36-47. DOI: <https://doi.org/10.26565/2786-4995-2022-2-04> [in Ukrainian].
14. Trokhymets O., Tomareva-Patlahova V., Semenov A. (2024). Tsyfrova ekonomika ta transformatsiya tradytsiynykh industriy: vyklyky ta mozhlyvosti instytutsionalizatsiyi tsyvrovoyi ekonomiky [Digital economy and transforma-

tion of traditional industries: challenges and opportunities for the institutionalization of the digital economy]. *Ekonomika ta suspil'stvo – Economy and society*, 59. DOI: <https://doi.org/10.32782/2524-0072/2024-59-168> [in Ukrainian].

15. Shkurat M., Kukel G., Mazur V. (2022). Naukovo-tehnolohichni determinanty ekonomichnoho rozvytku krayin YES – Scientific and technological determinants of economic development of EU countries. *Investytsiyi: praktyka ta dosvid – Investments: practice and experience*, 15-16, 45-52. DOI: <https://doi.org/10.32702/2306-6814.2022.15-16.45> [in Ukrainian].

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ:

1. Башлай С.В., Яремко І.І. Цифровізація економіки України в умовах євроінтеграційних процесів. *Економіка та суспільство*. 2023. Випуск 48. DOI: <https://doi.org/10.32782/2524-0072/2023-48-48>

2. Близнюк В.М. Кластерний аналіз країн Європейської зони за показниками впливу цифровізації економіки на розвиток людського капіталу. *Вісник Маріупольського державного університету. Серія: Економіка*. 2024. Випуск 27. С. 137-149. DOI: <https://doi.org/10.34079/2226-2822-2024-14-27-137-149>

3. DESI dashboard for the Digital Decade. URL: <https://digital-decade-desi.digital-strategy.ec.europa.eu/datasets/desi/charts>

4. Дзюркевич К. Дискурс розвитку цифрового ринку ЄС. *Економіка та суспільство*. 2023. Випуск 52. DOI: <https://doi.org/10.32782/2524-0072/2023-52-19>

5. Іванцов С. Стратегічні орієнтири розвитку цифрової економіки у ЄС. *Modeling the development of the economic systems*. 2024. № 4 (14). С. 186-192. DOI: <https://doi.org/10.31891/mdes/2024-14-25>

6. Карпишин Н., Гродський С., Вільчинський В. Європейський Союз на шляху до цифрових трансформацій: досвід для України. *Геополітика України: історія і сучасність*. 2023. Випуск 2 (31). С. 76-86. DOI: [https://doi.org/10.24144/2078-1431.2023.2\(31\).76-86](https://doi.org/10.24144/2078-1431.2023.2(31).76-86)

7. Мехович С.А., Кузьминський К.М., Перерва О.П. Діджиталізація як фактор конкурентоспроможності у єдиному міжнародному цифровому ринку. *Енергозбереження. Енергетика. Енергоаудит*. 2024. № 5(195). С. 54-75. DOI: <https://doi.org/10.20998/2313-8890.2024.05.05>

8. Мостова А.Д., Тараненко І.В., Щолокова Г.В. Цифрова трансформація бізнесу і суспільства: роль цифрових навичок. *Східна Європа: економіка, бізнес та управління*. 2023. Випуск 4 (41). С. 51-57. DOI: <https://doi.org/10.32782/easterneurope.41-8>

9. Поліщук В.Г. Теоретико-прикладні особливості впровадження ШІ у сфері FinTech як драйверу соціо-еколого-економічного розвитку. *Економічний часопис Волинського національного університету імені Лесі Українки*. 2024. №2. С. 13-20. DOI: <https://doi.org/10.29038/2786-4618-2024-02-13-20>

10. Ратушняк Т.В., Омельчук А.А., Горбовий А.Ю., Гладченко О.В., Вишемірська Я.С. Індекс DESI як міра цифрової трансформації у країнах Європейського союзу. *Прикладні питання математичного моделювання*. 2024. Т.7. № 2. С. 207-220. DOI: <https://doi.org/10.32782/mathematical-modelling/2024-7-2-18>

11. Резнікова Н.В., Карп В.С., Іващенко О.А. Міжнародний досвід інституційного сприяння розвитку цифрової економіки і протидії загрозам техноглобалізму в умовах інноваційного суперництва. *Інвестиції: практика та досвід*. 2023. № 15-17. С. 6-12. DOI: <https://doi.org/10.32702/2306-6814.2023.17.5>

12. Стрілець В.Ю., Пожар А.А., Флеганова А.Л., Франко Л.С., Єжелій Ю.О., Зборик Д.С. Цифровізація як інструмент побудови інноваційної стратегії розвитку бізнесу країн ЄС в умовах адаптації до кризових тенденцій міжнародної економіки. *Науковий вісник Полтавського університету економіки і торгівлі*. 2024. Випуск 3 (113). С. 80-88. DOI: <https://doi.org/10.37734/2409-6873-2024-3-11>

13. Сунцова О. Економетрична та цифрова трансформація бізнесу в концепціях Індустрія 4.0 та 5.0. *Фінансово-кредитні системи: перспективи розвитку*. 2022. № 2(5). С. 36-47. DOI: <https://doi.org/10.26565/2786-4995-2022-2-04>

14. Трохимець О.І., Томарева-Патлахова В.В., Семенов А.Г. Цифрова економіка та трансформація традиційних індустрій: виклики та можливості інституціоналізації цифрової економіки. *Економіка та суспільство*. 2024. Випуск 59. DOI: <https://doi.org/10.32782/2524-0072/2024-59-168>

15. Шкурат М.Є., Кукель Г.С., Мазур В.Г. Науково-технологічні детермінанти економічного розвитку країн ЄС. *Інвестиції: практика та досвід*. 2022. № 15-16. С. 45-52. DOI: <https://doi.org/10.32702/2306-6814.2022.15-16.45>

Дата надходження статті: 18.03.2026

Дата прийняття статті: 06.04.2026

Дата публікації статті: 09.04.2026