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TRANSFORMATION OF THE PAYMENT SEGMENT IN THE FINANCIAL TECHNOLOGY SECTOR

ТРАНСФОРМАЦІЯ ПЛАТІЖНОГО СЕГМЕНТУ В СЕКТОРІ ФІНАНСОВИХ ТЕХНОЛОГІЙ

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The article examines the transformation processes of the payment segment in the financial technology sector, which are accompanied by significant institutional changes related to the improvement of the regulatory environment, the development of digital identification of non-cash payments, the introduction of new data protection mechanisms and ensuring cybersecurity. It is proven that effective management of the payment segment in the financial technology sector provides the prerequisites for strengthening financial stability and sustainable economic development. Promising directions for the development of the payment segment in the financial technology sector are identified, including the integration of open banking into the financial services ecosystem to improve instant payment systems and the development of central bank digital currencies according to European standards.

Keywords: financial technologies, FinTech, payment segment, digitalization, cashless payments, open banking, digital economy, payment systems, innovation, financial inclusion.

У статті досліджено трансформаційні процеси платіжного сегменту в секторі фінансових технологій, що супроводжуються суттєвими інституційними перетвореннями, пов'язаними з удосконаленням регуляторного середовища, розвитком цифрової ідентифікації безготівкових розрахунків, впровадженням нових механізмів захисту даних та забезпеченням кібербезпеки. Особливу увагу приділено дослідженню впливу регуляторної політики держави на формування конкурентного середовища у сфері фінансових технологій та адаптацію національного платіжного ринку до вимог європейського законодавства. Встановлено, що подальша цифрова трансформація платіжного сегменту потребує гармонізації нормативно-правової бази, розвитку інноваційної інфраструктури, підвищення рівня довіри користувачів до цифрових фінансових сервісів і створення ефективних механізмів управління ризиками в умовах зростання кіберзагроз та глобалізації фінансових ринків. Доведено, що ефективне управління платіжним сегментом в секторі фінансових технологій забезпечує передумови зміцнення фінансової стабільності та сталого розвитку економіки країни. Проведено аналіз сучасного стану платіжного ринку України та світу у довоєнному та воєнному періоді. Визначено фактори зростання обсягів безготівкових платежів, розширення використання фінансових технологій та підвищення рівня цифрової фінансової інклюзії населення. Обґрунтовано, що платіжний сегмент в секторі фінансових технологій залежить від впровадження штучного інтелекту, хмарних обчислень, блокчейну, біометричної автентифікації та відкритих програмних інтерфейсів, які дозволяють підвищити рівень цифровізації фінансових послуг, мінімізувати появу нових кіберзагроз, шахрайства та забезпечити захист персональних даних користувачів платіжних карток. Визначено перспективні напрями розвитку платіжного сегменту в секторі фінансових технологій, серед яких є інтеграція відкритого банкінгу в екосистему фінансових сервісів задля удосконалення систем миттєвих платежів та розвиток цифрових валют центральних банків за європейськими стандартами.

Ключові слова: фінансові технології, FinTech, платіжний сегмент, цифровізація, безготівкові розрахунки, відкритий банкінг, цифрова економіка, платіжні системи, інновації, фінансова інклюзія.

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Statement of the problem. The current stage of the world economy is characterized by the active introduction of fundamentally new models of financial sector functioning into all spheres of public life. One of the most dynamic areas of such transformations is the development of the payment segment in the financial technology sector, which over the past decade has undergone significant structural changes under the influence of digitalization, globalization of financial markets and the growth of demand for fast, safe and accessible financial services. The development of mobile applications, electronic payment platforms, digital wallets, open banking technologies and artificial intelligence has contributed to the formation of new mechanisms for financial transactions, which are gradually replacing traditional payment instruments. As a result, the payment segment in the financial technology sector is becoming one of the factors in the development of the digital economy, ensuring the efficiency of financial flows and increasing the level of financial accessibility for the population and business.

This issue is of particular relevance in the context of the transformation of the financial system of Ukraine, which is taking place under the influence of the processes of European integration, modernization of the payment infrastructure and implementation of international standards for the regulation of financial services. The development of the concept of open banking, the spread of digital services of public administration and the implementation of projects to introduce a digital currency of the central bank create new opportunities for increasing the efficiency of the functioning of the payment market. At the same time, the dynamics of technological changes are accompanied by the emergence of new challenges related to cybersecurity, personal data protection, ensuring competition in the financial services market and adapting regulatory mechanisms to modern conditions of the digital environment. In this regard, the study of transformation processes in the system of development of the payment segment of financial technologies is of important theoretical and practical importance.

Analysis of recent research and publications. The issues of transformation of the payment segment in the financial technology sector are in the focus of attention of many foreign and domestic scientists. The research covers the issues of digital transformation of the financial sector, development of fintech ecosystems, modernization of banking business models, implementation of artificial intelligence, big data technologies, digital payment services and cybersecurity. One of the first comprehensive studies of the modern phenomenon of financial technologies was the work of P. Gomber, J. Koch and M. Ziering [7], who formed the conceptual foundations of the development of digital finance, systematized the main directions of Fintech research, identified the key drivers of digital transformation of the financial sector and outlined promising areas of further scientific exploration, and also proved that financial technologies act as a catalyst for structural changes in the payment infrastructure and banking activities.

A significant contribution to the study of Fintech ecosystems was made by I. Lee and Y. J. Shin [10]. The scientists developed the concept of the functioning of Fintech ecosystems, characterized the main business models of Fintech companies, investigated the mechanisms of investment in financial technologies, and identified the main challenges of the digital transformation of the financial sector.

A significant scientific contribution to the study of the interaction of the banking system and financial technologies was made by A. Thakor [14], who analyzed the impact of Fintech companies on the banking sector, identified areas of competition and cooperation between banks and Fintech platforms, and also substantiated the transformation of traditional payment services under the influence of digital innovations.

A comprehensive analysis of the development of financial technologies is presented in the work of K. Gai, M. Qiu and H. Song [6]. Scientists studied the architecture of Fintech systems, classified the main technological solutions and identified the prospects for using digital platforms in the field of payments, lending and financial management.

An important area of modern research is the use of artificial intelligence and data science in the financial sector. Thus, L. Cao, K. Yang and P. S. Yu [5] developed theoretical approaches to the application of artificial intelligence, machine learning and big data technologies in financial services. The authors proved that the use of intelligent algorithms significantly increases the efficiency of payment transactions, risk management and personalization of financial services.

The issues of digital transformation of the banking sector of Ukraine were studied by V. Kovalenko [9] and identified the factors of development of remote banking and electronic payment services, and also outlined the directions of modernization of the financial infrastructure.

The issues of digital transformation of the Ukrainian banking sector were also considered by L. Bondarenko and A. Podaryn [3]. Scientists studied the features of the implementation of digital technologies in the activities of banks, identified the advantages of digital channels of customer service and justified the need for further modernization of the payment infrastructure.

A significant contribution to the study of the risks of digital transformation was made by V. Sidenko [2]. The scientist analyzed the global and national challenges of digitalization, identified the risks of technological dependence, cyber threats and uneven digital development of the financial sector.

The transformation of business models in the digital economy was studied by I. Lomaczynska, I. Churkina, and A. Voytsekhovska [1] and proved that digitalization contributes to the emergence of new business models of financial intermediaries and the development of digital payment platforms.

Highlighting previously unresolved parts of the overall problem. The analysis of scientific works conducted indicates a significant interest of researchers in the problems of digital transformation of the financial sector, the development of Fintech ecosystems, digital payment services, artificial intelligence and cybersecurity. At the same time, the issues of a comprehensive assessment of transformation processes in the payment segment of financial technologies, their impact on the structure of the financial market, the mechanisms of functioning of digital payment platforms and the formation of new models of interaction between banks, Fintech companies and consumers of financial services remain insufficiently studied. This determines the relevance of further scientific research in this area.

The mechanisms of adaptation of the national payment market to the requirements of open banking and the European regulatory environment, the features of the integration of artificial intelligence, Blockchain technologies and cloud services into the payment infrastructure require further scientific substantiation. The issues of ensuring cybersecurity, protecting users' personal data, managing digital risks and increasing the level of financial inclusion in the context of the spread of innovative payment instruments remain insufficiently studied. In addition, the institutional principles of the development of the payment segment in the context of the introduction of digital currencies of central banks, instant payments and the formation of a competitive environment in the financial services market require in-depth study.

Formation of the objectives of the article (task statement). The purpose of the article is to deepen the study of the payment segment in the financial technology sector, assess the impact of digitalization on the development of payment instruments, and substantiate promising areas for improving the mechanisms for regulating and developing financial technologies in the digital economy.

To achieve this goal, the following research tasks have been identified: to reveal the economic essence of the payment segment of financial technologies; to investigate the features of the digital transformation of the payment infrastructure; to analyze current trends in the development of non-cash payments and digital payment services; to assess the impact of regulatory changes on the functioning of the payment market; to identify promising areas for the development of financial technologies and their integration into the modern digital economy.

Summary of the main research material. The transformation of the payment segment in the financial technology sector is a natural result of the digital modernization of the financial system and the development of information and communication technologies. In modern conditions, financial technologies have become one of the key factors of structural changes in the financial sector, ensuring the formation of new mechanisms of interaction between entities in the financial services market. These processes are characterized not only by the technological update of the payment infrastructure, but also by a change in the business models of financial institutions, the transformation of the behavior of financial services consumers and the development of new forms of competition between banking and non-banking institutions [3]. The payment segment in the financial technology sector encompasses a set of digital solutions aimed at ensuring the implementation of financial transactions in real time using electronic communication channels. It includes remote banking systems, mobile payments, electronic money, digital wallets, QR payments, instant payment systems, open banking technologies and innovative solutions based on artificial intelligence, Blockchain, Fintech. A feature of the current stage of development of the payment segment in the financial technology sector is ensuring a higher level of accessibility, speed, and convenience of financial services [7; 14].

A feature of the modern development of the payment segment is the gradual formation of an ecosystem approach to the provision of financial services. If earlier banks were the main participants in the payment market, now Fintech companies, technology corporations and specialized payment platforms are becoming increasingly important. Such changes contribute to an increase in the level of competition, stimulate innovative activity and ensure an expansion of the range of financial products. As a result, payment services are integrated into digital ecosystems that combine financial, trade, logistics and information services.

In the context of the transformation of the payment segment, the development of mobile payments is of particular importance. The use of smartphones as a universal financial instrument provides consumers with the ability to make payments regardless of their location and time of day. The spread of NFC technologies, QR codes, biometric identification and digital wallets has significantly simplified the process of making financial transactions and increased the level of financial inclusion of the population. In many countries of the world, mobile payments have already become the dominant payment instrument in the retail sector [13; 11].

In Ukraine, the development of the payment segment of financial technologies is under the influence of a complex of economic, technological and institutional factors. One of the factors of the transformation processes is the digitalization of public administration, which is accompanied by the introduction of electronic services, digital identification and integrated information platforms. A significant role in the modernization of the payment market is played by the NBU, which implements a consistent policy on the development of a cashless economy, improving the payment infrastructure and harmonizing national legislation with European standards [12].

The development of the payment segment of financial technologies over the past decade has been accompanied by unprecedented structural changes in the functioning of the financial system. One of the key trends in recent years has been the rapid growth of the share of non-cash transactions. The development of digital communication channels, the spread of mobile applications and an increase in the level of digital literacy of the population have contributed to the gradual abandonment of the use of cash. As a result, the payment market has undergone significant structural changes, which are reflected in the dynamics of the main indicators of the development of non-cash payments (Fig. 1).

The data provided indicate a stable trend towards an increase in the role of non-cash payments in the financial system of Ukraine. If in 2018 the share of non-cash transactions was 45.1%, then in 2025 it is expected to increase to 74.0%. Thus, over the period under study, the increase in the indicator is almost 29 percentage points. Particularly intensive growth was observed in 2020-2022, which is explained by the impact of the COVID-19 pandemic, the activation of remote financial services and changes in the payment behavior of the population [11; 12].

At the same time, after the start of a full-scale war, digital payment channels became critical for ensuring the continuity of financial transactions, which further stimulated the spread of non-cash payments.

An important feature of the modern development of the payment segment is the active growth of the number of Fintech companies. It is the Fintech sector that acts as a source of innovations that ensure the creation of new financial products, improvement of payment mechanisms and the formation of a competitive environment in the financial services market (Fig. 2).

These tables demonstrate that the number of Fintech companies in Ukraine has more than tripled over the period under review. While in 2018 there were about 80 companies operating on the market, in 2025 their number could reach 280. Such dynamics indicate a high level of innovative activity and significant potential for the development of financial technologies. At the same time, the expansion of the Fintech sector contributes to increased competition in the financial market, stimulates the digital transformation of banking institutions and creates new opportunities for the development of digital payment services.

The dynamic development of financial technologies and digital payment services necessitates the constant improvement of mechanisms for state regulation of the financial market. An important regulatory tool is the development of a system of electronic identification and digital verification of users of financial services. Modern mechanisms for remote identification allow ensuring a high level of security of financial transactions and simplifying citizens' access to digital services

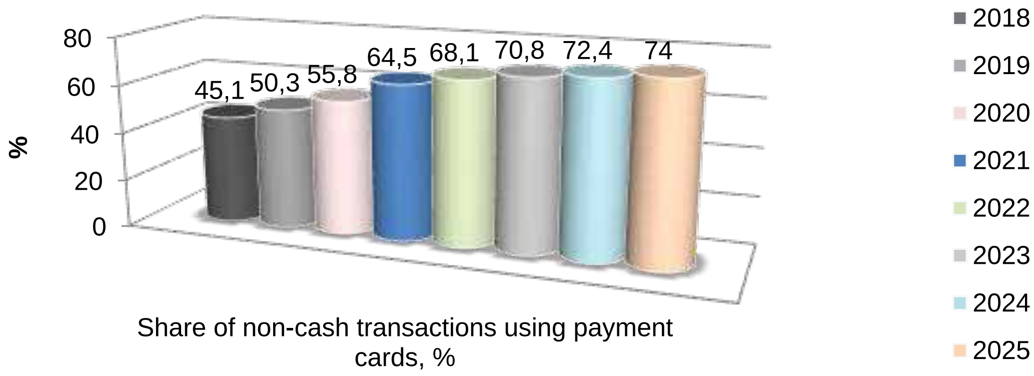

Fig. 1. Dynamics of the share of non-cash transactions using payment cards in Ukraine for 2018-2025

Source: compiled by the authors based on [11; 12]

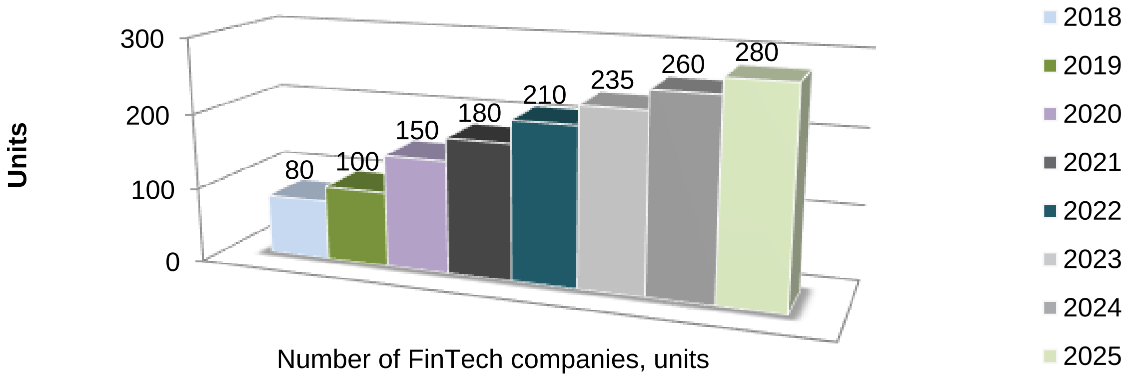

Fig. 2. Dynamics of development of FinTech companies in Ukraine for 2018-2025

Source: compiled by the authors based on [4; 13; 15; 8]

[13]. In Ukraine, digital tools for electronic interaction of the state, business and citizens play an important role in this process, which ensure the integration of financial services into the digital environment [11; 9].

One of the priority areas of regulatory activity is ensuring the cybersecurity of the payment infrastructure. The growth of digital payments is accompanied by an increase in the number of cyberattacks, attempts to unauthorized access to financial data and financial fraud. In this regard, the implementation of modern mechanisms for cyber protection, multi-factor authentication, biometric technologies and real-time financial transaction monitoring systems is of particular importance.

In the context of European integration processes, the implementation of the provisions of the European Union PSD2 and the promising PSD3 directives is of particular importance. These regulatory documents define modern standards for the functioning of the payment market, contribute to the development of open banking and ensure an increase in the level of protection of financial services consumers. Adaptation of Ukrainian legislation to European requirements creates the prerequisites for the integration of the national payment market into the single digital financial space of the EU [4].

Regulatory levers for the development of the payment segment in the financial technology sector include a set of legal, organizational, technological and institutional mechanisms aimed at ensuring the safe and effective functioning of the digital financial environment. Their implementation creates the necessary prerequisites for increasing the competitiveness of financial services and ensuring sustainable development of the economy in the conditions of digitalization. By 2030, digital payments will become the dominant form of financial transactions, and the use of cash will gradually decrease. Such changes will contribute to increasing the transparency of economic processes, reducing the level of shadow economy and expanding the possibilities of financial monitoring [11]. Therefore, the prospects for the development of the payment segment of Fintech will be determined by the complex interaction of technological innovations, regulatory reforms and changes in the behavior of financial services consumers. It is these factors that will shape a new model for the functioning of the financial sector in the digital economy.

Conclusions. Thus, the transformation of the payment segment in the financial technology sector is a natural result of the digitalization of the economy, the development of information and communication technologies and the modernization of the financial infrastructure. The modern payment segment goes beyond traditional banking payments and is transformed into a complex digital ecosystem that combines banking institutions, Fintech companies, technology platforms, state digital services and end consumers of financial services. At the same time, the factors of transformation are the development of mobile payments, the spread of cashless payments, the introduction of open banking, the use of artificial intelligence, blockchain and cloud services technologies. Current trends in the development of the payment market of Ukraine are demonstrated by a steady growth in the share of cashless transactions, an increase in the number of mobile banking users and the active development of Fintech companies, which confirms the high level of digital transformation of the financial sector. At the same time, the digitalization of payment processes is accompanied by the emergence of new challenges related to cybersecurity, personal data protection, digital risk management and the need to adapt regulatory mechanisms to dynamic technological changes.

The results of the study substantiate that the further development of the payment segment in the financial technology sector requires a comprehensive combination of technological innovations, effective state regulation and active integration of the national financial market into the European digital space. The implementation of open banking, scaling of instant payment systems, development of a central bank digital currency, expanding the use of artificial intelligence in financial services and improving payment infrastructure cyber protection mechanisms have been identified as promising areas of development. The implementation of these areas will contribute to increasing the level of financial inclusion of the population, strengthening the competitiveness of financial services and ensuring the sustainability of the national economy in the context of digital transformation. In the strategic perspective, the payment segment in the financial technology sector will be one of the main factors of economic growth, investment activity, and Ukraine's integration into the global financial space.

REFERENCES:

1. Lomacynska, I., Churkina, I., Voitsekhovska, A. (2021) Transformatsiia biznes-modelei pidpryiemnytskoi diialnosti v umovakh tsyfrovizatsii ekonomiky ta finansovoho sektoru [Transformation of business models of entrepreneurial activity in the context of digitalization of the economy and financial sector]. *Market economy: modern management theory and practice*, no. 20, 3(49), pp. 97-113.

2. Sidenko, V. (2021) Vyklyky i ryzyky tsyfrovoi transformatsii: svitovyi ta ukrainskyi konteksty [Challenges and risks of digital transformation: global and Ukrainian contexts]. *Ekonomika Ukrainy - Economy of Ukraine*, no. 64(5), pp. 40-58.

3. Bondarenko, L., Podaryn, A. (2022) Features of Digital Transformation of the Banking Sector of Ukraine. *Economy and society*, no. 41. Available at: doi: 10.32782/2524-0072/2022-41-28 (accessed June 19, 2026)

4. European Central Bank. (2024) Digital Euro: Progress on the Investigation Phase. Frankfurt am Main: ECB. Available at: https://www.ecb.europa.eu/euro/digital_euro/progress/html/ecb.deprp202412.en.html (accessed June 19, 2026)

5. Cao, L., Yang, Q., Yu, P. (2021) Data Science and AI in FinTech: An Overview. *International Journal of Data Science and Analytics*, no. 12(2), pp. 81-102.

6. Gai, K., Qiu, M., Sun, X. (2018) A Survey on FinTech. *Journal of Network and Computer Applications*, no. 103, pp. 262-273.

7. Gomber, P., Koch, J., Siering, M. (2017) Digital Finance and FinTech: Current Research and Future Research Directions. *Journal of Business Economics*, no. 87(5), pp. 537-580.

8. Horokhova, T. (2021) The Transformation of Business Processes in Conditions of Digitalization of Economic Systems. *Economic Journal of Lesya Ukrainka Volyn National University*, no. 27, pp. 14-21.

9. Kovalenko, V. (2021) Digital Transformation of the Banking Sector of the Economy of Ukraine. *Finance of Ukraine*, no. 3, pp. 84-98.

10. Lee, I., Shin, Y. (2018) Fintech: Ecosystem, Business Models, Investment Decisions, and Challenges. *Business Horizons*, no. 61(1), pp. 35-46.

11. National Bank of Ukraine. (2024) Cashless Payments Dominated Card Transactions. Available at: https://bank.gov.ua/en/news/all/bezgotivkovi-rozrahunki-u-2024-rotsi-suttyevo-perevajali-sered-operatsiy-z-platijnimi-kartkami (accessed June 19, 2026).

12. National Bank of Ukraine. (2024) Card Market in First Nine Months: Share of Cashless Card Transactions Keeps Rising. Available at: https://bank.gov.ua/en/news/all/kartkoviy-rinok-za-devyat-misyatsiv-2024-roku-chastka-bezgotivkovih-operatsiy-prodovjuye-zrostati (accessed June 19, 2026)

13. OECD. (2023) Digital Financial Services and Financial Inclusion. Paris: OECD Publishing. Available at: https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/12/oecd-infe-2023-international-survey-of-adult-financial-literacy_8ce94e2c/56003a32-en.pdf (accessed June 19, 2026)

14. Thakor, A. (2020) Fintech and Banking: What Do We Know? *Journal of Financial Intermediation*, no. 41, pp. 100833.

15. World Bank. (2024) The Global Findex Database: Digital Payments and Financial Inclusion. Washington: World Bank Group. Available at: https://microdata.worldbank.org/index.php/catalog/7990 (accessed June 19, 2026)

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ:

1. Ломачинська І., Чуркіна І., Войцеховська А. Трансформація бізнес-моделей підприємницької діяльності в умовах цифровізації економіки та фінансового сектору. *Market economy: modern management theory and practice*. 2021. Том 20. № 3(49). С. 97-113.

2. Сіденко В. Виклики і ризики цифрової трансформації: світовий та український контексти. *Економіка України*. 2021. № 64(5). С. 40-58.

3. Bondarenko L., Podaryn A. Features of Digital Transformation of the Banking Sector of Ukraine. *Economy and society*. 2022. № 41. URL: doi: 10.32782/2524-0072/2022-41-28 (дата звернення: 31.05.2026).

4. European Central Bank. Digital Euro: Progress on the Investigation Phase. Frankfurt am Main: ECB, 2024. URL: https://www.ecb.europa.eu/euro/digital_euro/progress/html/ecb.deprp202412.en.html (дата звернення: 31.05.2026)

5. Cao L., Yang Q., Yu P. Data Science and AI in FinTech: An Overview. *International Journal of Data Science and Analytics*. 2021. Vol. 12(2). P. 81-102.

6. Gai K., Qiu M., Sun X. A Survey on FinTech. *Journal of Network and Computer Applications*. 2018. Vol. 103. P. 262-273.

7. Gomber P., Koch J., Siering M. Digital Finance and FinTech: Current Research and Future Research Directions. *Journal of Business Economics*. 2017. Vol. 87(5). P. 537-580.

8. Horokhova T. The Transformation of Business Processes in Conditions of Digitalization of Economic Systems. *Economic Journal of Lesya Ukrainka Volyn National University*. 2021. Vol. 27. P. 14-21.

9. Kovalenko V. Digital Transformation of the Banking Sector of the Economy of Ukraine. *Finance of Ukraine.* 2021. Vol. 3. P. 84-98.

10. Lee I., Shin Y. Fintech: Ecosystem, Business Models, Investment Decisions, and Challenges. *Business Horizons*. 2018. Vol. 61(1). P. 35-46.

11. National Bank of Ukraine. Cashless Payments Dominated Card Transactions in 2024. URL: https://bank.gov.ua/en/news/all/bezgotivkovi-rozrahunki-u-2024-rotsi-suttyevo-perevajali-sered-operatsiy-z-platijnimi-kartkami (дата звернення: 31.05.2026).

12. National Bank of Ukraine. Card Market in First Nine Months of 2024: Share of Cashless Card Transactions Keeps Rising. URL: https://bank.gov.ua/en/news/all/kartkoviy-rinok-za-devyat-misyatsiv-2024-roku-chastka-bezgotivkovih-operatsiy-prodovjuye-zrostati (дата звернення: 31.05.2026).

13. OECD. Digital Financial Services and Financial Inclusion. Paris: OECD Publishing, 2023. https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/12/oecd-infe-2023-international-survey-of-adult-financial-literacy_8ce94e2c/56003a32-en.pdf (дата звернення: 31.05.2026)

14. Thakor A. Fintech and Banking: What Do We Know? *Journal of Financial Intermediation*. 2020. Vol. 41. URL: doi: 10.1016/j.jfi.2019.100833 (дата звернення: 31.05.2026).

15. World Bank. The Global Findex Database 2024: Digital Payments and Financial Inclusion. Washington: World Bank Group, 2024. URL: https://microdata.worldbank.org/index.php/catalog/7990 (дата звернення: 31.05.2026)

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