

ORIGINAL

Innovative Approaches to Transformation of Business Processes in Digital Economy: Ensuring Financial Security and Inclusion

Enfoques innovadores para la transformación de los procesos empresariales en la economía digital: Garantizar la seguridad y la inclusión financieras

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Citar como: Desyatnyuk O, Krysovatty A, Ptashchenko O, Kyrylenko O. Innovative Approaches to Transformation of Business Processes in Digital Economy: Ensuring Financial Security and Inclusion. Salud, Ciencia y Tecnología - Serie de Conferencias. 2025; 4:1498. <https://doi.org/10.56294/sctconf20251498>

Submitted: 05-08-2024

Revised: 11-12-2024

Accepted: 25-02-2025

Published: 26-02-2025

Editor: Prof. Dr. William Castillo-González 

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ABSTRACT

Introduction: in light of global business development trends, ensuring financial security and inclusion is currently gaining particular relevance. Specifically, financial inclusion has been identified as a factor in achieving nearly half of the United Nations' Sustainable Development Goals. The study aims to analyse innovative approaches to the digitalisation of business processes in the context of ensuring financial security and inclusion. The article analyses the essence of modern business transformations in digitalisation.

Method: the specificity of inclusivity and financial security phenomena is explored, modern approaches to functionality and component structure are identified, and their basic principles (quality, access, well-being, and usage) and aspects (usage, coverage, and quality) are highlighted.

Development: the study examines prospective directions for the digitalisation of business processes, including using artificial intelligence for user experience analysis, personalisation, mobile applications, and the creation of digital archival systems. The necessity for transforming the corporate culture of modern business players towards critical thinking, creativity, and the implementation of Agile/Scrum principles (team interaction, adaptability, and mobility) is substantiated. The dynamics of business process digitalisation in Ukraine are analysed, and the indicators of financial inclusion based on digital technologies in the Ukrainian financial environment are compared with those in the developed international community.

Conclusions: directions for developing financial security and inclusion through innovative financial technologies are formulated. It is demonstrated that the digitalisation of the business environment serves as a driver of socio-economic development, ensuring financial security and full access to financial services can reduce social inequality, stimulate entrepreneurship, and promote investment activity.

Keywords: Digital Economy; Digital Technologies; Financial Security; Business Process Transformation; Inclusion and Innovation; Financial Inclusion.

RESUMEN

Introducción: a la luz de las tendencias mundiales de desarrollo empresarial, garantizar la seguridad y la inclusión financieras está cobrando especial relevancia en la actualidad. En concreto, la inclusión financiera se ha identificado como un factor para alcanzar casi la mitad de los Objetivos de Desarrollo Sostenible de las Naciones Unidas. El estudio pretende analizar enfoques innovadores para la digitalización de los procesos empresariales en el contexto de garantizar la seguridad y la inclusión financieras. El artículo analiza la

esencia de las transformaciones empresariales modernas en la digitalización.

Método: se explora la especificidad de los fenómenos de inclusividad y seguridad financiera, se identifican los enfoques modernos de funcionalidad y estructura de componentes y se destacan sus principios básicos (calidad, acceso, bienestar y uso) y aspectos (uso, cobertura y calidad).

Desarrollo: el estudio examina las direcciones prospectivas para la digitalización de los procesos empresariales, incluido el uso de la inteligencia artificial para el análisis de la experiencia del usuario, la personalización, las aplicaciones móviles y la creación de sistemas de archivos digitales. Se corrobora la necesidad de transformar la cultura corporativa de los agentes empresariales modernos hacia el pensamiento crítico, la creatividad y la aplicación de los principios Agile/Scrum (interacción en equipo, adaptabilidad y movilidad). Se analiza la dinámica de la digitalización de los procesos empresariales en Ucrania y se comparan los indicadores de inclusión financiera basados en tecnologías digitales en el entorno financiero ucraniano con los de la comunidad internacional desarrollada.

Conclusiones: se formulan orientaciones para desarrollar la seguridad y la inclusión financieras mediante tecnologías financieras innovadoras. Se demuestra que la digitalización del entorno empresarial sirve como motor del desarrollo socioeconómico, garantizando la seguridad financiera y el pleno acceso a los servicios financieros puede reducir la desigualdad social, estimular el espíritu empresarial y promover la actividad inversora.

Palabras clave: Economía Digital; Tecnologías Digitales; Seguridad Financiera; Transformación de Procesos Empresariales; Inclusión e Innovación; Inclusión Financiera.

INTRODUCTION

Innovative approaches to business transformation in the digital economy involve forming a new or modernising a traditional business model. The process aims to strategically reduce costs, increase economic impact, and maximise business potential. Implementing innovations requires improving the corporate interaction system, optimising communication strategies, and streamlining integration processes.

The concept of financial security should contribute to the resilience of financial institutions, stimulate investment and technological innovation, and minimise information and operational costs. At the same time, the level of access to essential financial services (inclusion) indicates the economic system's development.

Today, the question arises of the complementarity of the trends of business process digitalisation, financial security, inclusion, and innovative reformatting of the economic environment. Rapid digitalisation adds dynamism to the business environment and requires new approaches to both studied concepts—financial security and inclusion.

The scientific work of several contemporary scholars, including Skryl and Bura⁽¹⁾, examines the issues of financial security and inclusivity in the context of digitalising the economy. Some authors analyse the institutional framework and conceptual foundations of financial inclusion digitalisation, identify the basis of financial security, outline problem areas, and suggest prospects for improving the situation.^(1,2,3,4,5)

Researchers Desyatnyuk et al.^(6,7) and Krysovaty et al.^(8,9) focus on the specifics of digital innovations in the business environment. Ozili⁽¹⁰⁾ analyses the factors influencing the development of financial inclusion in a digitalised economic environment. The impact of financial security on economic development some authors studied focusing on the institutional foundations of inclusive development.^(11,12,13,14) Meanwhile, Balytska and Brovenko⁽¹⁵⁾ emphasise that the digital competence of society contributes to ensuring equal access to financial services, optimising internal and external investment processes, and ultimately to the financial security of the national economic system.

The study aims to analyse innovative approaches to digitalising business processes in the context of financial security and inclusion.

METHOD

Data collection. The primary data sources included publications and results of scientific research, institutional reports from national and international bodies. Publications indexed in leading scientific databases such as Scopus and Web of Science were utilised. Keywords used for the search included “digital economy, digital technologies, financial security, business process transformation, inclusion and innovation, financial inclusion.” The inclusion and exclusion criteria for publications were based on spatial-temporal indicators and the level of information reliability. Methods used to assess bias risk in the included studies included brainstorming and cause-effect analysis.

Sampling methodology. The research procedure consisted of two main stages: data collection and data analysis. In the first stage, primary data sources were used. These were obtained through the analysis of industry-specific statistical information, regulatory documents, and publications. This sample size was justified

in light of practical realities that needed to be considered.

Research tools. The integration of analysis and synthesis contributed to an objective and adequate study, reflecting the unity of opposites regarding the interrelation between specific and general elements. Analytical segmentation of the system within a global concept into separate components made it possible to identify the structure of the studied object, its specificity, and to distinguish significant elements from insignificant ones, enabling the classification of priority technologies. The method of scientific abstraction was used to develop theoretical generalisations, identify key concepts and categories, and formulate research conclusions. Here, abstraction of potential feasibility was employed as a cognitive detachment from standard features of management technologies, concepts, and tools while simultaneously emphasising their core properties.

Data analysis. Data analysis was conducted using quantitative and qualitative statistical methods. Key factors were identified, and an optimisation algorithm was developed. The results obtained were used to draw conclusions and propose recommendations aimed at optimising the resilience and adaptability of the sector, particularly in the context of contemporary challenges and global trends.

DEVELOPMENT

Digital business optimisation in the current environment is closely linked with financial inclusion and security concepts. Financial inclusion is defined as free access to a wide range of financial services and products, which are provided consistently and responsibly, capable of meeting the needs of society and business, and are both valuable and accessible. Inclusion is generally based on quality, well-being, utilisation, and accessibility. In the context of digitalisation, the essence of these principles lies in the maximum alignment of the developed product with consumer requirements, including through the personalisation of the user experience.⁽¹⁻³⁾ At the same time, the range of services must be physically accessible, and their use should have an active impact on the productivity of the business sector.

A comprehensive understanding of the concept of financial inclusion, as proposed by the specialised institution Center for Financial Inclusion, defines it as a guarantee of the availability of the necessary range of quality financial services for all potential consumers, ensuring accessibility and protection of rights.⁽¹⁶⁾ In contrast, financial security represents a level of financial condition that determines the balance of fundamental financial interests and their protection from various risks, through which the necessary conditions for financial support are formed both in the current period and for the future.^(4;5)

The current stage of financial sector digitalisation should be evaluated in terms of the digitalisation of payment transactions, the number of bank accounts and the range of payment cards, and the increase in the volume of international transfers. As official statistics indicate in 2023, most payment card transactions within Ukraine were cashless despite the challenging conditions of the prolonged full-scale war.⁽¹⁷⁾ Additionally, the total number of payment cards issued by Ukrainian banks and financial institutions showed an increasing trend (115,1 million by the end of 2023, which is 5 % more than the end of 2022). Overall, as statistical data show, the trend of growing card transactions is characterised by steady progress (figure 1).

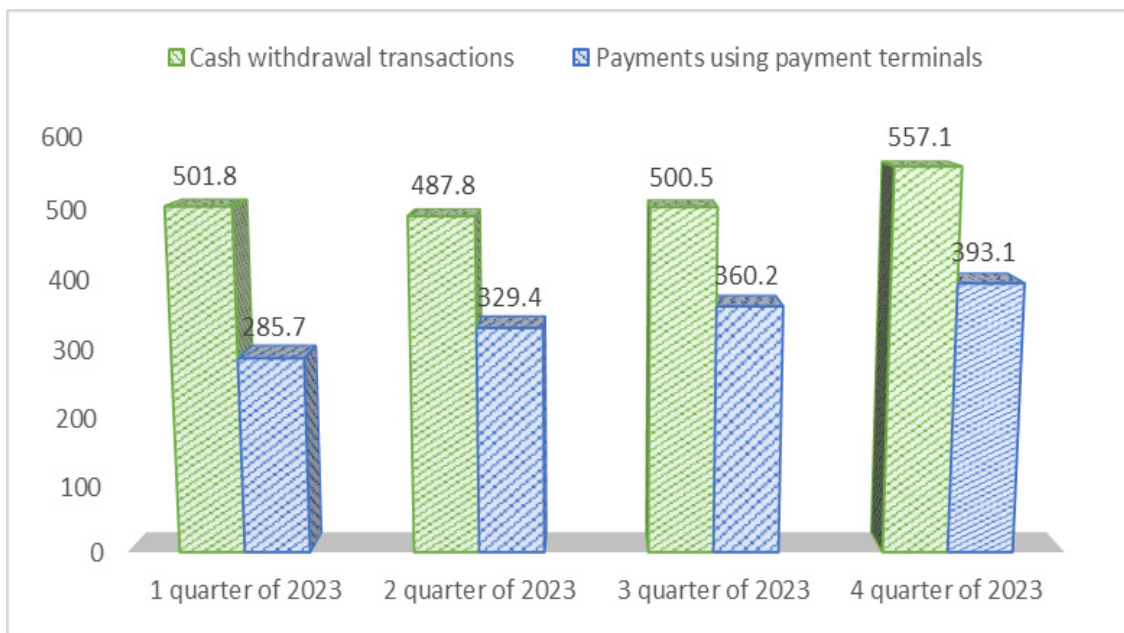


Figure 1. Infographic on Card Transactions within Ukraine in 2023

Source: compiled by the author based on ⁽¹⁷⁾

Throughout 2023, the trend from previous years regarding the increase in contactless active payment cards has continued with a sustained and prolonged nature. In the fourth quarter of 2023, their number increased by 17,1 % compared to the first quarter, reaching 30,6 million. NFC technology, specifically tokenised payment cards, also remained popular: by the end of 2023, their number had risen by 57 % compared to the beginning of the year, reaching 12,4 million. Thus, 25 % of active payment cards were tokenised (compared to only 15 % at the end of the pre-war 2021), and 90 % of cashless transactions in the retail network in 2023 were made using NFC technology and contactless payment.

The digital development of businesses involves improving financial technologies, rapidly growing online platforms, and enhancing the population's digital competence.^(1,2,3) The indicators of financial inclusion progress based on digital technologies in Ukraine are significantly lower than in developed OECD countries (figure 2).

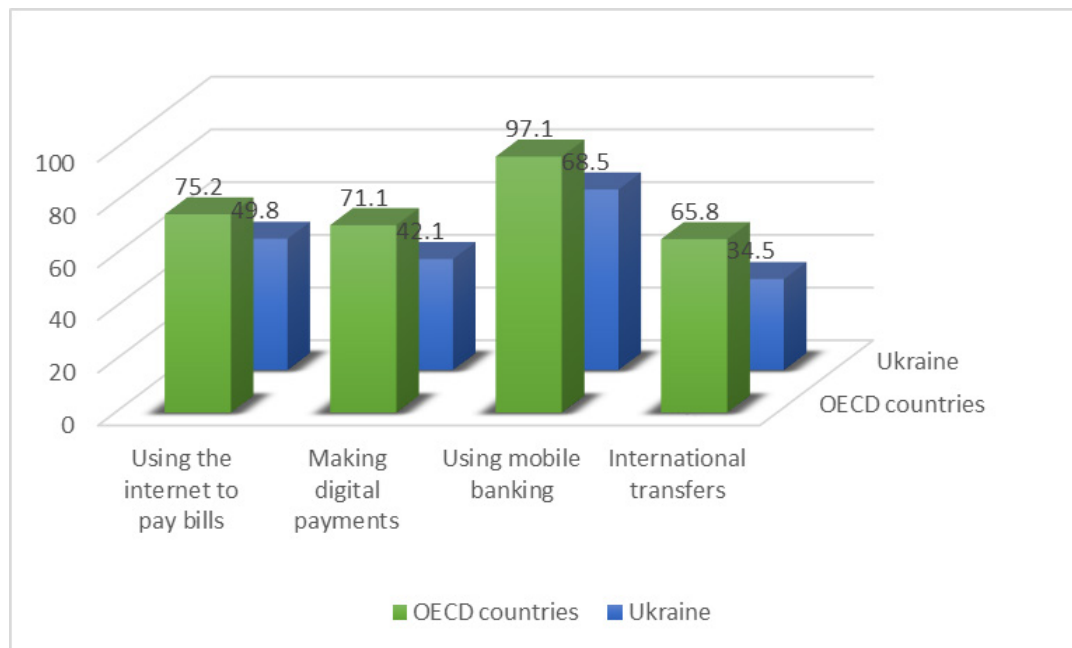


Figure 2. Digital Financial Inclusion Indicators of Population in 2023, %

Source: compiled by the author based on⁽¹⁸⁾

The transformation of business processes in the digital economy allows businesses to seamlessly change the priority of banking services in minimal time, fostering a healthy competitive environment among banking institutions. Additionally, digital inclusion in the financial sector reduces the volume of circulating physical cash, lowering the overall inflation rate.⁽¹⁵⁾

Digital business optimisation significantly impacts financial security, as it allows the automation of most routine processes, thereby enhancing risk management efficiency and minimising the risk of errors and the influence of human factors.⁽¹⁻³⁾ For example, algorithmic approaches in machine learning create a foundation for analysing interconnections and patterns in financial data, enabling the identification of anomalies, analysis of potential scenarios, and modelling and assessing their potential impact.

Digital technologies within the concept of Industry 4.0 today are practically reflected in artificial intelligence, cloud and fog computing, the Internet of Things, robotics, cyber systems, mobile technologies, biometric and quantum technologies, identification, and blockchain. With the increasing integration of digital technologies into business processes and the practice of storing data on digital platforms, cybersecurity has become a priority issue. Innovative solutions in this field currently offer reliable solutions in the context of encryption and threat identification systems based on artificial intelligence, which prevent data leaks and securely protect personalised and confidential information. Automating traditional risk management processes supports real-time operations, ensuring efficiency and prompt action.^(6,7,8,9)

Cloud technologies have made a breakthrough in the aspects of accessibility and interaction in financial risk management systems, significantly simplifying the process of information exchange without being limited by spatial determinants. This approach ensures reliable and coordinated cooperation between the functional components of the security system, creating a foundation for information accumulation and emergency recovery and minimising the risk of data loss due to crisis events and the influence of exogenous and endogenous factors. Another innovative solution is blockchain technology, which guarantees unprecedented accessibility, openness, and transparent accountability of financial transactions.⁽¹⁵⁾ This type of digital technology in the business

environment significantly strengthens the level of trust and minimises the risks of financial fraud.

Also noteworthy is the integration of modern methods of financial regulation to effectively implement security tasks - FINTEX tools, whose principal feature is the use of modern digital technologies in financial circulation. This includes, among other things, cryptocurrency, which operates fully autonomously without integration into a central payment system and serves as a hub for start-ups, exchanges, investment platforms, and exchanges. FinTech is closely linked with the popularisation of mobile devices, the development of electronic and digital payment methods, the creation of new national and international payment systems, the introduction of personal consultants and AI-based chatbots, digital identification, and biometric verification of financial services customers.⁽¹⁰⁾ The technologies of FinTech companies in Ukraine are mainly focused on API, cloud services, and chatbots (figure 3).

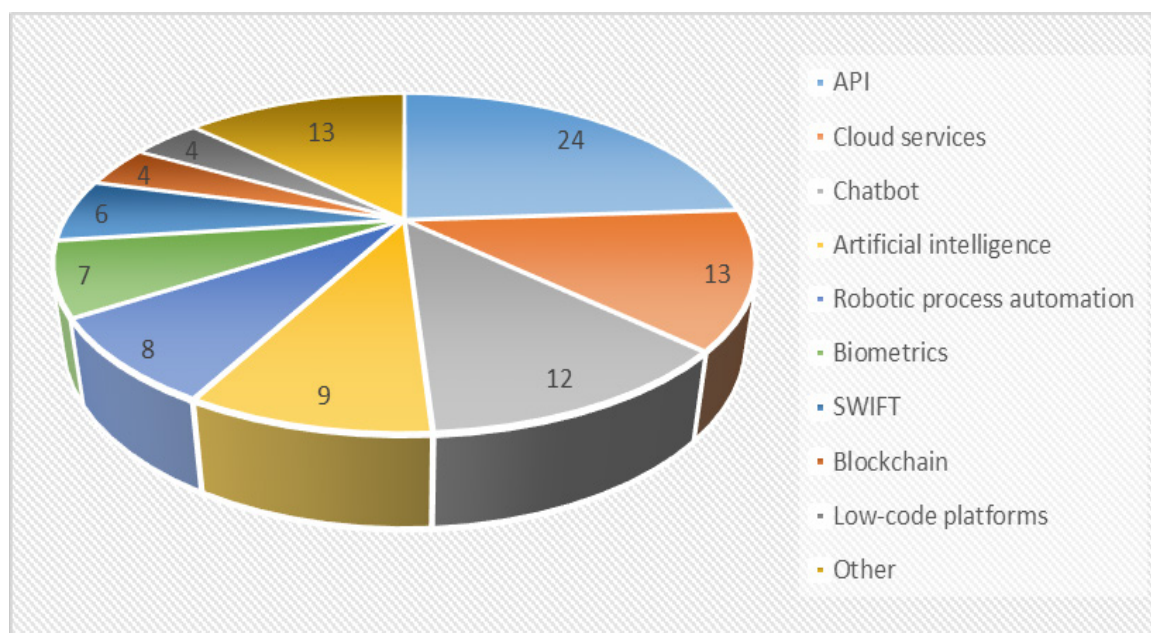


Figure 3. FinTech Technologies in Ukraine in 2023, %

Source: compiled by the author based on ⁽¹⁹⁾

FinTech companies are often more flexible and technologically advanced than traditional banking institutions. Additionally, integrating new participants into the market environment fosters price competition and enhances the quality of services. Ensuring financial security as a component of national security requires, among other things, the renewal of legislative and legal frameworks in the sector and the integration of optimal monitoring, controlling, and accountability tools.^(13;14) Implementing digital technologies provides businesses with greater confidence in the financial underpinning of strategic planning activities, allows the prediction of potential risks, and helps formulate strategies to prevent them. The intensification of digital technology usage significantly increases the transparency and openness of financial relations and minimises corruption, thereby contributing to financial security at all levels of the economic system.^(11;12) However, among the primary digital threats to the innovative transformation of businesses are hacking, industrial espionage, and corporate data leakage. Therefore, innovative approaches to business transformation in the digital economy, in the context of ensuring financial security and inclusion, should include:

- Expanding grant programmes for the development of entrepreneurial initiatives (for example, the “Diia Business” information service operates in Ukraine);
- Developing digital inclusion, particularly digital payment systems and mobile applications, increasing the population’s level of financial literacy;
- Stimulating the development of the crypto market and blockchain to increase the accessibility of financial services when access to banking infrastructure is complicated;
- Ensuring a high level of cybersecurity in the digital financial environment, reliable protection of personal and confidential data;
- Encouraging the development of innovative start-ups and FinTech companies, which introduce new solutions and services to the financial market;
- Developing targeted digital products to address specific issues;
- Integrating artificial intelligence and cloud computing technologies;
- Optimising the management paradigm within the company and its corporate culture to develop

creativity and critical thinking, increase mobility and adaptability, and implement Agile/Scrum principles.

Attention should be paid to the potential of modern software solutions such as Datawrapper or Zoho Analytics. These products enable the presentation of large volumes of information in a visually comfortable format, accelerating the information processing process and minimising the risks of misinterpretation. Moreover, innovative B2B and HR software versions are promising, significantly enhancing the effectiveness of information and economic interaction in the business environment. The variety of modern digital solutions allows for improving aspects of ensuring inclusiveness and financial security.

Among the expected results of active digitalisation of business processes are the rational use of material and intangible resources, accessibility and openness of financial systems and investment sources, minimisation of the human factor in information and analytical processes, integration of innovative projects, optimal satisfaction of customer demand and needs, and increased economic efficiency of operations.

DISCUSSION

Several contemporary authors have explored the impact of business digitalisation on financial security and inclusion, particularly concerning income equality, poverty indicators in various countries, the development of innovative financial technologies, and society's digital competence. Specifically, Demir et al.⁽²⁰⁾ position the interdependence between the pace of digital economy development and inclusive growth as promising. The researchers in this context analyse the potential of cloud technologies and artificial intelligence.

Researchers Xun et al.⁽²¹⁾, Koomson et al.⁽²²⁾ study the impact of digitalisation on financial development and emphasise the priority of cybersecurity requirements. Following this, Van et al.⁽²³⁾ focus on the methodology for assessing the quality of financial services in terms of credit risk, the speed and accessibility of financial services, and the level of implementation of innovative financial instruments, including FinTech.

Certain authors dedicate special attention to studying communication business models. Amid global digitalisation, these models acquire new features, with a strategic focus on optimising the utilisation of resource potential, upgrading informational support and basic action algorithms, and integrating innovative capabilities.^(24,25) Furthermore, researchers such as Yue et al.⁽²⁶⁾ highlight the necessity of implementing new approaches to communication in the business environment, where priorities include accuracy, speed, and ensuring feedback based on the principles of accessibility and openness.

As evidenced by the works of Shaikh et al.⁽²⁷⁾ and Mhlanga⁽²⁸⁾, the effectiveness of digital optimisation is determined by the success of management within business interactions. In this context, informational modelling should be considered an effective tool for analysis and forecasting.

Most scholars agree that a pressing issue today is the need for synergy between the digitalisation of business processes, financial security, inclusion, and the innovative reformatting of the economic environment. Rapid digitalisation adds dynamism to the business environment and necessitates new approaches to the two investigated concepts—financial security and inclusion. Corresponding strategies should be developed within the framework of the educational process, professional training, and inclusive education.

Despite significant achievements by scientists, increasing the accessibility of financial services for all population segments and the level of financial security remains an active area of scientific exploration for solutions.

CONCLUSION

The aim of the study was to analyse innovative approaches to the digitalisation of business processes in the context of ensuring financial security and inclusivity. The analysis of the essence of modern business transformations in the context of digitalisation identifies digitalisation as a key driver of socio-economic development. Ensuring financial security and full access to financial services has the potential to reduce social inequality, stimulate entrepreneurship, and foster investment activities.

Innovative approaches to business transformation in the digital economy in the context of ensuring financial security and inclusivity should include expanding grant programmes to support entrepreneurial initiatives; developing digital payment systems and mobile applications; enhancing financial literacy among the population; promoting the development of the crypto market and blockchain; fostering the growth of innovative startups and fintech companies; and integrating artificial intelligence and cloud computing technologies.

Modern business players must transform corporate culture to incorporate critical thinking, teamwork, adaptability, creativity, and mobility. Increasing competition in the market environment demands greater attention to ensuring high levels of cybersecurity in the digital financial space and reliable protection of personal and confidential data, forming the direction for further research on this issue.

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FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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