

# THE IMPACT OF INNOVATION AND FINTECH ON THE BANKING BUSINESS

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## ABSTRACT

**Object of study.** The study analyzes the impact of fintech innovations on the effectiveness of the functioning of the banking business and outlines the prospects for their further implementation in Ukraine, taking into account the EU experience.

**Investigated problem.** In the conditions of the spread of digitalization processes as a key factor of competitive advantages, the question of researching the introduction of fintech innovations into the banking sector of Ukraine, determining their impact on the effectiveness of the functioning of the banking business, and delineating further prospects for the digitalization of banking institutions' activities becomes relevant.

**The main scientific results.** The results of the study proved the existence of potential opportunities for expanding the innovative activity of the banking system of Ukraine. In recent years, there has been an intensification of the processes of digitalization of banking services. On the basis of a comparative analysis of the neobanks of Ukraine, their main advantages are outlined and prospective areas of activity expansion are substantiated. At the same time, problematic aspects in the implementation of digital technologies in the banking sector of Ukraine are identified, in particular, imperfect legislation in the field of digital technologies in neobanking and licensing of their activities, low level of financial literacy of the population, expensive initial investments. This requires further research into the possibilities of implementing the positive experience of the EU countries.

**The area of practical use of research results.** The results of the study can be used by banking institutions of Ukraine when justifying strategies for introducing fintech into their activities.

**Innovative technological product.** The results of the study made it possible to outline strategic directions for the introduction of digital technologies in the banking sector of Ukraine.

**Scope of the innovative technological product.** The results of the research concern the implementation of banking innovations.

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## 1. Introduction

### 1.1. The object of research

The study analyzes the impact of fintech innovations on the effectiveness of the functioning of the banking business and outlines the prospects for their further implementation in Ukraine, taking into account the EU experience.

### 1.2. Problem description

The information technology leap in the development of the world economy is changing the paradigm of the functioning of the banking sector [1]. Key innovations in fintech, including the introduction of open banking and hyper-personalization, are undeniably impacting the banking industry. The pandemic caused by the SARS-CoV-2 virus, which began in 2020, gave impetus to the development of the banking innovation market, because the introduced quarantine restrictions forced to minimize physical contacts for the provision of services. In this regard, the National Bank of Ukraine focused on the development of the FinTech 2025 development strategy. FinTech solutions make it possible to maximize the quality of remote financial services and minimize the costs of human resources for the provision of relevant services under quarantine restrictions [2]. In this aspect, the question of researching the introduction of fintech innovations into the banking

sector of Ukraine, determining their impact on the effectiveness of the functioning of the banking business, and outlining further prospects for the digitalization of banking institutions, taking into account the EU experience, becomes relevant.

### **1. 3. Suggested solutions to the problem**

The study evaluated the effectiveness of the innovative activity of Ukrainian banks, carried out a comparative analysis of the level of digitalization of banking services, which will allow to obtain a broader understanding of innovations and fintechologies that affect the banking business and their prospects.

## **2. Conceptualization, theoretical framework and literature review**

### **2. 1. Theoretical framework**

The theoretical and methodological basis of the analysis is the research of scientists in the field of implementation of digital technologies in the banking sector and digitalization of the economy in general, EU regulations on open banking, reports and analytical materials of leading analytical centers, financial reporting of banking institutions of Ukraine.

### **2. 2. Literature review**

The work [3] considered the influence of Fintech on the efficiency, structure of the banking market, strategies of existing and new participants, as well as financial stability. Fintech has been identified as having disruptive potential to improve well-being, but regulation must be such that new technologies deliver benefits without jeopardizing financial stability. It was noted that the profitability and efficiency of fintechologies differ significantly in different countries and organizations. The author highlights the critical role that technology will play in determining the future course of the banking sector, promoting innovation, customer loyalty and financial success. In this paper, the author assessed the growth parameters of European banks using ROA, ROE and NIM to understand the impact of fintech on the UK and European banking sector through various aspects.

Based on the questionnaire method, the author [4] studied the rapid development of fintech and assessed its impact on the Greek banking system. Security has been identified as a top concern for consumers when using financial services from fintech companies, and a survey of bank employees shows that education level is a critical factor in their readiness and response to new technologies.

It is proved in [5] that fintech innovations significantly increase the efficiency of banks, namely their profits, costs, interest and non-interest income. Fintech innovations are also found to improve banks' risk metrics, including total risk (Z-score), capital asset ratio, liquidity ratio and non-performing loan ratio.

The aim of the article is to study the impact of innovations and fintech on the banking business in Ukraine and development prospects taking into account the experience of the EU.

## **3. Materials and Methods**

The study was based on the materials of information and analytical reports of the National Bank of Ukraine, EU regulations, annual independent research of the banking sector of Ukraine – Banksrating, expert reviews on the Ukrainian business portal Delo.UA, scientific works of domestic and foreign scientists in the field of banking innovations and fintech, the results of their own authors' calculations.

## **4. Results and Discussions**

Internet banking in Ukraine is developing quite actively. However, the vast majority of banks offer a minimum number of services, mainly receiving information about the current state of the account, receiving a statement of payments made, the ability to make a transfer from card to card, and the ability to block a card. Qualitative development of Internet banking in Ukraine is ensured mainly by large banks.

So, as of 2022, the leaders among users were monobank, PrivatBank, Sens-bank, PUMB, IZI-Bank. They are included in the Top-5 banks with the best online and mobile banking services

according to Delo.ua and the magazine “Top-100. Ratings of the largest” [6]. The rating is based on the analysis of the number of downloads of banking applications in PlayMarket and their evaluation.

Chatbots have become extremely popular in the field of banking services. Based on AI, they are able to quickly determine the customer’s needs, even if the request was not precisely formulated or printed with errors. Chatbots are a great tool for improving customer service in the banking industry. Ukrainian banks launch chatbots in such messengers as Viber, Telegram, FB Messenger. With their help, bank clients can transfer funds, find out exchange rates, check the state of debt, order cards, etc. The use of this type of innovation in banks makes it possible to reduce operational costs.

In recent years, virtual banks or non-banks have been actively developing. They provide their services exclusively on the Internet and do not have branches traditional for banks. Today, there are already 6 startups belonging to neobanks in Ukraine: monobank, izibank, sportbank, O.Bank, Neo-bank, BVR. These neobanks operate on the basis of licenses of traditional banks, offer customers low service and lending rates, high deposit rates and their own mobile applications [7]. Clients of these banks can open an account remotely and undergo verification within 10-15 minutes.

To evaluate the effectiveness of innovative activity of Ukrainian banks, let’s suggest using separate banking activity coefficients. The implementation of financial innovations in the activity of banks affects the dynamics of indicators, therefore, to reflect changes in the efficiency of innovative activities of banks, the following indicators must be calculated [8].

1. ROA (Return on Assets) is an indicator of the profitability of using the bank’s assets. The profitability of the bank’s activity depends on attracting capital for financial innovations and, as a result, multiplying profits.

2. CIR, the efficiency of operating costs (interest and commissions), the growth of this indicator indicates the reduction of costs and indicates the growth of automation of banking activities through the introduction of innovations in activities, which is accompanied by the growth of the client base.

3. ROE (Return on Equity) is an indicator of the profitability of using the authorized capital of the bank. The profitability of the bank’s activity depends on attracting capital for financial innovations and, as a result, the growth of profits.

4. Kfi (commission income), directly related to the introduction of innovative services in the bank’s activities, as they represent income from RKO of banks and customers, commission income from credit services, commission income from transactions with securities, commission income from trust services of banks and customers, etc.

5. R (reliability index). An assessment of independence based on competitiveness, and therefore stability in conditions of cyclical market changes, is not possible today without the use of financial innovations.

Let’s calculate these indicators in order to determine a multidimensional assessment of the effectiveness of the innovative activity of banking institutions of Ukraine (**Table 1**).

**Table 1**

Calculation of indicators of the multidimensional assessment of the effectiveness of innovative activity of the banking system of Ukraine in 2019–2022

Indicator	Designation	2019	2020	2021	2022
Ratio of operating costs to operating income, %	CIR	46.27	37.93	35.21	37.49
Return on capital, %	ROE	33.45	19.22	35.08	10.06
Return on assets, %	ROA	4.26	2.44	4.09	1.08
Reliability, %	Kfi	15.46	12.98	14.21	10.21
Commission income, billion UAH	Kkd	5.44	6.01	7.94	8.31

Note: Calculated according to NBU data.

The indicator of the ratio of operating expenses to operating income during the analyzed period had a tendency to decrease in the period from 2019 to 2021, however, this indicator increased in 2022, which indicates a slight increase in expenses and is not a very positive trend, because the CIR indicator should go down.

The indicators of profitability of capital and assets during the analyzed period fluctuated within the limits of a positive value, however, as of 2022, let’s observe a significant decrease in indicators by 71.32 % and 73.59.

This trend is connected with the beginning of the full-scale invasion of the Russian Federation in Ukraine and the economic crisis. The reliability coefficient should cover liabilities by 25–30 %, but during the analyzed period, the highest value of the indicator was reached in 2019 – 15.46 %. The commission income of the banking system during the studied period is gradually increasing. The highest indicator according to the results of 2022 is UAH 8.31 billion.

During the analyzed period from 2019 to 2021, positive dynamics of most indicators are observed, which indicates the effectiveness of innovative activities in the banking system of Ukraine. However, in 2022, the situation changed, all indicators, except commission income, have negative dynamics. Let’s predict that with the gradual adaptation of the economy in the subsequent period and after the victory of Ukraine, the indicators will change for the better. Thus, the need to improve the efficiency of the innovative activity of Ukrainian banks in modern conditions has been proven.

In recent years, due to the rapid technological development, the appearance of the Ukrainian banking sector has changed significantly, and with it the range of services provided by banks to their clients, as well as the technologies used in this area.

As of April 2023, according to MasterIndex research conducted on behalf of Mastercard, it was found that 94 % of Ukrainians with cards use Internet banking and 51 % of respondents are ready to completely abandon physical bank branches and switch to virtual banking in the next two years.

75 % of respondents prefer mobile applications, 31 % of surveyed citizens reported that they access a mobile application or online banking every day. The most popular transactions in digital banking are shown in Fig. 1.

The interviewees also note that among additional services they would like to see the possibility of issuing a payment card online, purchasing cryptocurrency, purchasing transport tickets, receiving financial advice, and the ability to buy securities [9].

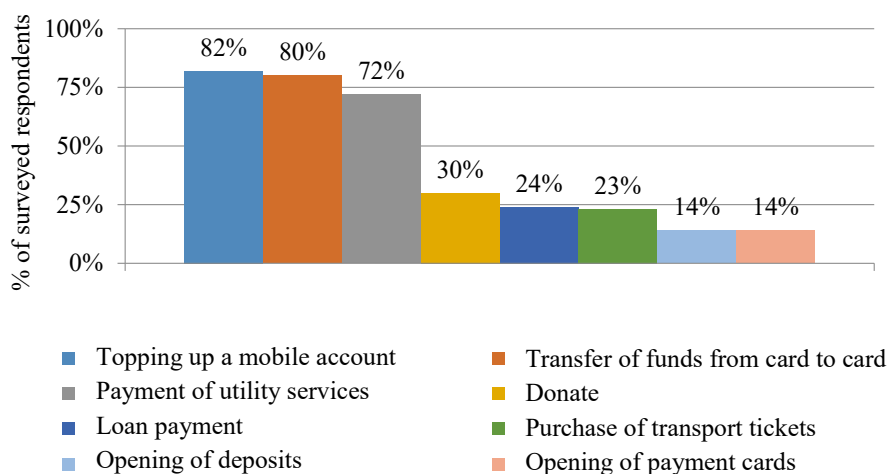


Fig. 1. The most popular Internet banking services in Ukraine / Compiled according to data [9]

The majority of banking institutions are trying to use remote banking to attract customers. An example of remote banking is banking in the messenger. In Ukraine, the nascent stage of messenger banking falls on 2017–2018. At first, banks only informed their customers using messengers, but now with the help of chatbots it is possible to open accounts, transfer funds, make payments, etc.

The data in Table 2 indicate that JSC CB “PrivatBank” is a leader in the implementation of chatbots in its activities. Chatbots are present in such messengers as Facebook Messenger, Telegram and Viber. Telegram currently has 5 bots that help customers solve various types of issues. It is worth noting the possibility of 24-hour submission of applications for the maintenance of POS terminals for acquiring enterprises. JSC “Oschadbank”, JSC “PUMB” and JSC “TASCOMBANK” also satisfy the needs of their customers using chatbots. The range of services provided is quite wide: from providing information about new services to the ability to make scheduled payments, etc. Among the banks listed in Table 2, it is worth noting the Raiffeisen Bank JSC chatbot, which is available only to businesses. The Raiffeisen Business chatbot is a whole infrastructure for entrepreneurs, which allows to get help in conducting business and optimize daily processes.

**Table 2**  
Characteristics of chatbots of Ukrainian banks

Bank	Messenger	Chatbot	Main areas of work
PrivatBank	Messenger, Telegram, Viber	@privatbank_help_bot	Money transfer, communication with the operator, exchange rates, etc.
		@privatbankbot	Transfer of funds from a PrivatBank card to a PrivatBank card
		@AgentPB_bot	Submitting applications, checking the history of previously submitted applications
		@privatbank_acquiring_bot	Submission of applications for 24/7 POS terminal service for acquiring enterprises
Oshchadbank	Messenger, Telegram, Viber	@Privat_Invoice_bot	Sale of goods and services by «Payment in installments» or «Instant installments» online
		@Oschadbot	Providing information to customers, changing limits, blocking the card
Raiffeisen Bank Aval	Telegram, Viber	@raiffeisenbusinessbankingbot *only for business	Consultations, verification of counterparties, submission of online reporting of the FOP, the opportunity to make a request and receive an answer from a bank representative, etc.
PUMB	Telegram, Viber	@pumb_bank_bot	Information about the amount of full repayment of the loan, the amount of the last payment, the ability to make scheduled payments from cards of other banks without a fee, mobile top-up, exchange rates, receiving notifications on accounts, etc.
TAScombank	Telegram	@tascombot	Card-to-card transfers, exchange rates, order a callback, the latest bank news, information on the bank's products, the nearest ATMs and branches, etc.

The development of digitalization of banks is possible due to technological development of Ukraine and improvement of access to the Internet. By 2022, 93 % of domestic banks had mobile applications that allow online transactions. In addition, 96 % of banks had Internet banking services and 99 % of banks allowed electronic transfers. In 2022, banks continued to improve their digital services: new mobile applications were introduced and their functionality was improved.

According to the study “25 leading banks of Ukraine during the war” conducted by the company “Financial Club” [10], the Top 5 banks of Ukraine with the best mobile banking as of 2022 were determined. For the first time, non-banks participated in this rating. The following were the criteria for calculating the rating: the number of customers who installed mobile applications for iOS and Android and the functionality of mobile applications.

So, according to the data in **Table 3**, it is possible to say that monobank has the best mobile bank in Ukraine. As of May 2023, the bank's mobile application has been downloaded more than 10 million times in PlayMarket. Currently, the bank offers six categories of cashback, from which it is possible to choose only two: food, books, medicine, entertainment, restaurants and pet expenses. Cashback from the bank's partners is also available. Cashback money can be withdrawn or donated to charity. The application offers the possibility of credit through installments on the card and purchase in installments. The “savings” section offers customers to receive a deposit by specifying the currency and term, and it is also possible to “open a bank” for savings and buy government securities. The application offers the purchase of currency under the conditions of placing it on deposit for 3 months.

**Table 3**  
Characteristics of mobile applications of Ukrainian banks

Application name	monobank	Privat24	Sence SuperApp	Raiffeisen Online UA	Neobank
Place in the research rating	1	2	3	4	5
Ability to create a virtual card	iOS	+	+	+	+
	Android	+	+	+	+
Ability of investing in government securities	iOS	+	+	+	–
	Android	+	+	+	–
Ability to connect the card to Apple Pay	+	+	+	+	+
Ability to connect the card to Android Pay	+	+	+	+	+
Rating in the App Store	4.9	4.8	3.2	4.7	4.6
Rating in the Play Market	4.9	4.8	4.2	4.2	4.5

Privat24 ranks second in the mobile banking rating. The number of downloads in PlayMarket also exceeds 10 million. The bank does not have cashback in the classical sense, but the “Bonus-plus” loyalty program is available. When buying goods from the bank’s partners, customers receive bonuses, which can then be used for payment at the partner network’s retail outlets. The “payments” section provides an opportunity to pay taxes and fees, utilities, Internet and TV, fines, and transfer funds to charity. It is also possible to buy government securities at Privat24.

Sence SuperApp mobile bank from Sence Bank ranks third in the rating, with more than 1 million downloads in PlayMarket. This app offers the Cash’U CLUB rewards program, which includes up to 7 categories with cashback for all Apple Pay or Google Pay transactions. These bonuses can be spent on support of the Armed Forces or raffles from the bank’s partners. Just like the previous banks, Sens Bank provides the opportunity to buy government securities in a mobile phone for a relationship. As for deposits, the application provides an opportunity to control deposit rates, term, date of opening and repayment, interest payment, history, contract. There is also a “piggy bank” with the possibility of accumulating money and receiving interest on the already collected amount.

Raiffeisen Online UA, which occupies the fourth place in the rating, has more than 1 million downloads in PlayMarket. The application offers 1 % cashback on purchases in the categories of cafes and restaurants, clothes and shoes, household appliances. Cashback is accrued under the condition of connecting the program “ІЦЕ”. Clients are offered deposits with an increased rate, investments in government securities and the ability to make various types of payments.

The last place in the rating is occupied by the virtual bank Neobank. It was created on the basis of the Concord Fintech Solutions fintech ecosystem and operates under the license of AKB “Concord”. The application allows to use the credit limit, choose the terms of the deposit, transfer purchases to installments, pay utility bills, etc. Compared to other banks of this rating, Neobank does not allow its clients to invest in government securities.

It is worth noting that in 2022, most banks improved their mobile for relationships and provided new services with their help. Banks offer clients the issue of virtual cards that can be linked to Google Pay or Apple Pay. Also, more and more banking institutions provide the possibility of remote identification. It makes it possible to attract new customers with the help of authorization in “Dіша”, this opportunity is relevant for those citizens who were forced to go abroad [10].

JSC CB “PrivatBank” is the domestic leader in the provision of Internet banking services and the introduction of innovations. Over the years of its activity, the bank has held leading positions in Ukrainian and world ratings. In 2019, JSC CB “PrivatBank” took the first position in the rating of Ukrainian banks and was the only one represented in the TOP-500 world banks.

In 2014, the PrivatBank team won the FinovateSpring 2014 banking innovation forum in San Jose, presenting the world’s first contactless Android ATM. This ATM makes it possible to withdraw money using a smartphone instead of a regular keyboard. Today, other Ukrainian banks have started implementing this technology. In 2020, Pivdenny Bank began equipping its ATMs with NFC technology, which makes it possible to withdraw cash using a smartphone or smart watch.

Also, among the innovations introduced by the bank for the first time, it is possible to highlight an ATM with a face recognition function, a unique design of cards through the application, biometric payment using FacePay24 facial recognition, a mini payment terminal, entering Internet banking through a QR code, digitized payment cards, etc. [11].

Global changes in the banking system of Ukraine are caused by the growth of public interest in social networks, online stores and mobile applications. Modern banks are no longer traditional financial and credit institutions, but go beyond the usual financial industry. The interaction between customers and banks has changed under the influence of innovation and led to the emergence of neobanks. Neobanks work on the latest platforms, different from traditional ones, offer their customers high interest rates, minimal fees and a higher level of service.

Therefore, analyzing **Table 4**, it can be stated that all non-banks in Ukraine function exclusively on the basis of licenses of classic banks, offering their clients the use of their own applications.

**Table 4**  
Characteristics of neobanks of Ukraine

Name	License	Characteristic
Monobank	Universal Bank	Retail product of JSC «Universal Bank», which arose as part of cooperation with the Fintech Band team. The first and most popular neobank in Ukraine
Izibank	Taskombank	Mobile bank, fintech project, created on the basis of JSC «Taskombank». It is possible to carry out all transactions and receive izibank services using a smartphone
Sportbank	Oxi bank	Mobile bank with convenient banking functionality without branches for people who are fond of sports and lead an active lifestyle. This is a joint project of the IT company Dyvotech and the first specialized fintech fund N1
O.Bank	Idea Bank	New digital bank on the Ukrainian market of banking services. Developed by JSC “Idea Bank” (100 % of shares – Getin Holding S.A. Poland)
Neobank	Concord Bank	Operates on the basis of Concord Fintech Solutions, the first open fintech ecosystem in Ukraine. The first bank in Ukraine that launched separate chatbots for issuing cards in 30 seconds in Viber and Telegram without visiting the bank
BVR	Bank Vostok	The first retail digital bank in Ukraine, launched by Fozzy Group together with Bank Vostok and Mastercard. For payments with a bank payment card, customers will receive points, which can then be used in supermarkets of the «Silpo» and «Le Silpo» chains

Monobank was the first neobank in Ukraine, which continues to develop and demonstrate excellent performance. This bank has no branches or branch offices, all services are provided using a mobile application. Communication with clients is carried out using messengers Messenger, Viber and Telegram.

In 2019, Sportbank began operating under the license of PJSC “Oxi Bank”. With a similar interface to Monobank, Sportbank failed to attract the same number of customers. At the time of its opening, neobank offered its customers 10 % cashback on sports goods and services and in the first half of 2020 attracted 30,000 customers. However, in comparison, Monobank was able to attract so many customers in its first month of operation.

O.Bank started its activities in 2020, under the license of Idea Bank. This was another attempt to repeat Monobank’s breakthrough, however, in the first half of 2020, it was able to attract only 14,000 customers, offering them a grace period with card overdrafts of up to 120 days.

Neobank, under the license of AKB Concord PJSC, Izibank, under the license of TASKOMBANK JSC, and Bank Vlasnyi Rakhunok, under the license of BANK VOSTOK PJSC, began functioning in 2021. These neobanks serve exclusively individuals, except for Neobank. It was the first to serve legal entities. Currently, only Neobank and Monobank cooperate with FOP, so they have similar terms of financial services.

Of all the presented neobanks of Ukraine, Monobank is the fastest growing profitable business of Universal Bank. As of 2023, it has expanded its customer base to 7.2 million customers, who made 4.8 billion purchases, spending 3.2 trillion UAH and having received 4.3 billion cashback. These indicators exceed the capabilities of domestic traditional banks.

According to its indicators, Monobank is on a par with global non-banks such as Revolut, Monzo and N26. The success of Monobank can be attributed to their developer, Fintech Band. The fintech developers of this banking product, as stated in the NBU, were former shareholders and top managers of Ukrainian banks, who at the same time have excellent work experience in the field of financial services and are limited in holding management positions in traditional banks due to recognition of insolvency [12].

In the conditions of economic instability, the main advantages of neobanking are minimal costs for document management, since all documentation is stored online, and minimal costs for the maintenance of the head office and branches, since neobanks are created on the basis of a digital platform on the Internet [13].

Customers prefer neobanks because they allow to conduct and manage operations using a smartphone at any time and from any digital medium, with them there is no need to wait in line at a branch. It is possible to issue a card within 10–15 minutes without leaving your home. Consultations of virtual bank operators are also held around the clock in messengers. A comparative analysis of services provided by Ukrainian non-banks is given in **Table 5**.

**Table 5**

Comparison of services of Ukrainian neobanks

Name of bank	Monobank	Izibank	Sportbank	O.Bank	Neobank	BVR
Virtual card	+	+	–	–	+	+
Account in foreign currency	+	+	–	–	+	–
Credit line	+	+	+	+	+	+
Deposit	+	+	+	+	+	+
Cost analysis	+	+	–	–	–	+
Non-personalized cashback	–	+	+	+	+	+
Personalized cashback	+	+	+	–	–	–
Possibility to add a card of another bank	–	–	–	–	+	–
Additional non-banking services	+	–	–	–	–	+
Support service in the application	+	+	–	–	–	+

However, despite the advantages of introducing neobanking into the banking system of Ukraine, there are a number of obstacles that hold back the development of virtual banks. These include imperfect legislation in the field of digital technologies in neobanking and licensing of their activities, a low level of financial literacy of the population, expensive initial investments (from 1 million USD), significant costs for the creation and implementation of applications and programs, for development and implementation reliable protection against cyber fraud and virus programs [14–16].

A positive step towards improving the current legislation was the approval by the National Bank of Ukraine in August 2023 of the Concept of Open Banking [17], which outlines directions for further development, key requirements and a roadmap for the implementation of open banking in Ukraine, which brings the Ukrainian payment market closer to the European one.

It is worth noting that the beginning of the introduction of open banking in the EU is considered to be the moment when the online banking pilot scheme was launched by the German Federal Post (Deutsche Bundespost) in 1980. The further development of open banking was accompanied by the adoption of a number of regulatory acts: the Payment Services Directive (PSD1) in 2007 and the Payment Services Directive (PSD2) in 2015, which required the use of an application programming interface (API) and the provision of reliable customer authentication (SCA) [18, 19].

Given that, according to experts' forecasts, the use of open banking in the EU will double between 2022 and 2027, there is a need to improve the legislative regulation of this process. EU banking institutions should be guided by the same legal framework and technical standards in their innovative activities. This aspect is extremely important for Ukraine, taking into account the European integration processes.

In accordance with the Open Bank Concept, the National Bank of Ukraine will develop and approve a number of normative legal acts harmonized with EU legislation. In particular, according to the roadmap, the first version of technical specifications developed in accordance with EU practices should be presented at the beginning of 2024.

Thus, emphasizing the importance of the conducted research, it should be noted the insufficient access of banking institutions of Ukraine to the latest global tools for the protection of personal data of customers, which is important taking into account the dynamic changes in cyber security risks and threats. Therefore, the prospects for further research consist in a thorough analysis of the current information protection systems in EU banking institutions.

## 5. Conclusions

So, the Ukrainian banking system is gradually introducing innovative products into its activities. The National Bank is the initiator of many projects that stimulate the innovative development of Ukrainian banks [20]. Innovations allow banks to improve the quality and speed of service provision, reduce operational costs. The development of Ukrainian banks directly depends on the willingness of the banks themselves to change and introduce modern products and services into their operations.

Ukrainian banks do not stand aside from technological progress and introduce innovative banking products into their operations. The most popular of them are mobile banks and non-banks.



Banking institutions are improving their relationships, introducing more and more new opportunities into their functionality, turning into financial supermarkets. Neobanks, which are becoming more and more popular among the population, are not standing aside, attracting users with convenience and accessibility. It is also worth noting that one of the popular products at the moment are chat bots, which are not inferior to real contact center operators in terms of their functionality.

#### **Conflict of interest**

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining and using its results, as well as any non-financial personal relationships.

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#### **Data availability**

Data will be made available on reasonable request.

#### **Use of artificial intelligence**

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#### **References**

- [1] Onyshchenko, S., Yanko, A., Hlushko, A., Sivitska, S. (2021). Increasing Information Protection in the Information Security Management System of the Enterprise. Proceedings of the 3rd International Conference on Building Innovations. Cham: Springer International Publishing, 725–738. doi: [https://doi.org/10.1007/978-3-030-85043-2\\_67](https://doi.org/10.1007/978-3-030-85043-2_67)
- [2] Volokhata, V. Y. (2021). The Current State and Prospects of Banking Innovations in the Context of Improving the Quality of Customer Service. *Business Inform*, 4 (519), 204–209. doi: <https://doi.org/10.32983/2222-4459-2021-4-204-209>
- [3] Vives, X. (2017). The Impact of Fintech on Banking – European Economy. *European Economy*. Available at: <https://european-economy.eu/2017-2/the-impact-of-fintech-on-banking/>
- [4] Basdekis, C., Christopoulos, A., Katsampoxakis, I., Vlachou, A. (2022). FinTech's rapid growth and its effect on the banking sector. *Journal of Banking and Financial Technology*, 6 (2), 159–176. doi: <https://doi.org/10.1007/s42786-022-00045-w>
- [5] Fang, L., Li, X., Subrahmanyam, A., Zhang, K. (2023). Does FinTech Innovation Improve Traditional Banks' Efficiency and Risk Measures? A New Methodology and New Machine-Learning-Based Evidence from Patent Filings. *SSRN Electronic Journal*. doi: <https://doi.org/10.2139/ssrn.4350734>
- [6] Naikrashchi banku Ukrainy 2022 za versiieiu Delo.ua ta zhurnalu «Top-100. Reitynyh naibilshykh». Holovnyi dilovyi portal Delo.ua. Available at: <https://delo.ua/banks/obirajemo-naikrashhi-banki-ukrayini-golosuvannya-410045/>
- [7] Bukreieva, D., Borodina, A., Fastova, P. (2021). Neobanking in Ukraine: current state and development prospects. *Economy and Society*, 34. doi: <https://doi.org/10.32782/2524-0072/2021-34-1>
- [8] Hlushko, A., Sapsai, B. (2023). Value paradigm as a methodological basis for business valuation. *Economics and Region*, 2 (89), 96–102.
- [9] Molodan, V. (2023). Bilshе polovyny ukraintsiv hotovi vidmovytsia vid bankivskykh viddilen na koryst tsyfrovyykh – doslidzhennia Delo.ua. Holovnyi dilovyi portal Delo.ua. Available at: <https://delo.ua/banks/bilse-polovini-ukrayinciv-gotovi-vidmovytsia-vid-bankivskix-viddilen-na-korist-cifrovix-doslidzennya-414367/>
- [10] 25 providnykh bankiv Ukrainy pid chas viiny 2022 (2023). Available at: <https://banksrating.com.ua/news/25-providnyh-bankiv-ukrayiny-pid-chas-vijny-2022/>
- [11] Matviichuk, N., Tesliuk, S. (2021). Main trends in the development of banking innovations in Ukraine. *Economic Journal of Lesya Ukrainka Volyn National University*, 1 (25), 79–87. doi: <https://doi.org/10.29038/2786-4618-2021-01-79-87>
- [12] Irshak, O., Tvorydlo, O. (2022). Development of non-banks in ukraine. *Economy and Society*, 36. doi: <https://doi.org/10.32782/2524-0072/2022-36-10>

- [13] Skryl, V. V., Hlushko, A. D. (2023). Transformation of institutions of the EU banking system: opportunities for Ukraine. *Naukovyi visnyk KhDU*, 48, 43–52. Available at: <http://ekhsuir.kspu.edu/123456789/18300>
- [14] Bukreieva, D., Borodina, A., Fastova, P. (2021). Neobanking in Ukraine: current state and development prospects. *Economy and Society*, 34. doi: <https://doi.org/10.32782/2524-0072/2021-34-1>
- [15] Khudolii, Yu., Svystun, L. (2021). Modern FinTech trends and their impact on the safety of banking institutions. *Ekonomika i rehion*, 3 (82), 115–123.
- [16] Onyshchenko, S., Hlushko, A., Yanko, A. (2020). Role and importance of information security in a pandemic environment. *Economics and Region*, 2 (77), 103–108.
- [17] Kontsepsiia vidkrytoho bankinhu v Ukraini. Available at: <https://bank.gov.ua/ua/news/all/kontsepsiya-vidkrytoho-bankingu-v-ukrayini>
- [18] Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC. Official Journal of the European Union. Special edition in Croatian: Chapter 10, 2, 172–207. Available at: <http://data.europa.eu/eli/dir/2007/64/oj>
- [19] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC. URL: <http://data.europa.eu/eli/dir/2015/2366/2015-12-23>
- [20] Khudolii, Y. S., Khalievina, M. O. (2021). Financial Technology in Banking Business: Realities and Prospects. *The problems of economy*, 1 (47), 134–142. doi: <https://doi.org/10.32983/2222-0712-2021-1-134-142>