

DIGITAL BANKING IN THE FINANCIAL SERVICES MARKET OF UKRAINE**Alina Medvid^{1*}, Dmytro Dmitrishyn²**¹ Master student, Sumy State University, Ukraine² PhD student, Sumy State University, Ukraine.

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In the modern realities of digital transformation, the banking sector faces significant challenges that lead to changes in the methods of traditional banking operations and changes in the way banks interact with clients based on the use of digital technologies. One of the key trends in this area is the development of digital banking as a promising way of banking services. The study aims to study the theoretical and practical aspects of the development of digital banking in Ukraine's financial services market under conditions of digital transformation. The results of the analysis indicated an increase in the amount of attention paid by domestic and foreign scientists to the digital banking development issue. The article examines the theoretical foundations of the implementation of digital technologies in the banking sphere. The concept of digital banking is described. The SWOT analysis determined the main advantages, opportunities, disadvantages, and possible threats associated with using digital banking. The study distinguishes between the concepts of a purely digital bank and a traditional bank that uses digital technologies in its activities. The peculiarities of the activity of digital banks of Ukraine are characterized. The number of digital banking users in the world as a whole and separately in Ukraine was analyzed. The level of development of domestic digital banking was assessed, and the number of cashless transactions using payment cards from 2019 to 2023 was analyzed. The forecast of the number of bank branches and the volume of non-cash payments using payment cards made it possible to determine that in the future the number of bank branches will decrease, and the volume of non-cash transactions will increase. The digital banks of Ukraine are characterized, and the main innovative products of the leading traditional banks are highlighted. Based on the research of the company InMind, it was concluded that the share of digital banking users is growing and the most popular transactions in digital banking among Ukrainians were singled out. An analysis of the ease of use of mobile applications of domestic digital banks was also conducted, among which the most convenient and functional applications were found to be Monobank, Sense Bank, A-Bank, and the least - Raiffeisen Bank and Oschadbank.

Keywords: digitalization, digital banking, online services, digital banks, innovative products, banking sector.**ЦИФРОВИЙ БАНКІНГ НА РИНКУ ФІНАНСОВИХ ПОСЛУГ УКРАЇНИ****Аліна Медвідь^{1*}, Дмитро Дмитрішин²**¹ Магістрантка, Сумський державний університет, Україна² Аспірант, Сумський державний університет, Україна.

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У сучасних реаліях цифрової трансформації банківський сектор стикається зі значними викликами, які призводять до зміни методів здійснення традиційних банківських операцій та зміни способу взаємодії банків із клієнтами на основі використання цифрових технологій. Одним із ключових трендів у цій сфері є розвиток цифрового банкінгу як перспективного способу банківського обслуговування. Метою дослідження є вивчення теоретико-практичних аспектів становлення цифрового банкінгу на ринку фінансових послуг України в умовах цифрової трансформації. Результати аналізу засвідчили про збільшення обсягу приділеної уваги вітчизняними та закордонними науковцями питанням становлення цифрового банкінгу. У статті досліджено теоретичні основи впровадження цифрових технологій у банківську сферу. Описано концепцію цифрового банкінгу. Проведений SWOT-аналіз дав змогу визначити основні переваги, можливості, недоліки та можливі загрози, пов'язані з використанням цифрового банкінгу. У дослідженні проведено розмежування понять суто цифрового банку та традиційного банку, який використовує у своїй діяльності цифрові технології. Охарактеризовано особливості діяльності цифрових банків України. Проаналізовано кількість користувачів цифрового банкінгу у світі в цілому та окремо в Україні. Оцінено рівень розвитку вітчизняного цифрового банкінгу та проаналізовано кількість безготівкових операцій з використанням платіжних карток протягом 2019-2023 років. Прогноз кількості відділень банків та обсягів безготівкових розрахунків з використанням платіжних карток дав змогу визначити, що в майбутньому кількість відділень банків зменшуватиметься, а обсяги безготівкових операцій зростатимуть. Охарактеризовано цифрові банки України та виділено основні інноваційні продукти провідних традиційних банків. На основі дослідження компанії InMind було зроблено висновок про зростання частки користувачів цифровим банкінгом та виокремлено найпопулярніші серед українців операції у цифровому банкінгу. Також було проведено аналіз зручності використання мобільних додатків вітчизняних цифрових банків, серед яких найбільш зручними та функціональними застосунками виявилися Monobank, Sense Bank, «А-Банк», а найменш – «Райффайзен Банк» та «Ошадбанк».

Ключові слова: цифровізація, цифровий банкінг, онлайн-послуги, цифрові банки, інноваційні продукти, банківський сектор.**Cite as:** Medvid, A., Dmitrishyn D. (2024). Digital banking in the financial services market of Ukraine. *Visnyk of Sumy State University. Economy Series.* 2, 18-27. <https://doi.org/10.21272/1817-9215.2024.2-02>

INTRODUCTION

Over the past decade, the banking sector has undergone significant changes due to the impact of digitalization. The digital revolution has led to a change in the methods of performing banking operations and a change in the interaction of banks with their customers. If earlier, to solve financial problems, you had to visit bank branches and stand in long queues to get banking services, today digitalization has solved this problem, and all services can be done online. With the help of special programs or applications, you can get remote access to the bank, which allows you to open deposits, issue loans, make payments and much more without visiting bank branches. Such transformations provide an opportunity to significantly save time and resources for both clients and banking institutions. Today, the fundamental guidelines for banks to strengthen their competitive advantages are modernizing the back office infrastructure and changing traditional banking services to services using digital technologies.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

The impact of digitization on the banking sector does not leave aside many domestic and foreign scientists. Every year, more and more attention is paid to the use of digital technologies in banks' activities, particularly in the development of digital banking. The study results demonstrate the growth of interest in issues of scientific activity in this field during 2013-2023 (Figure 1).

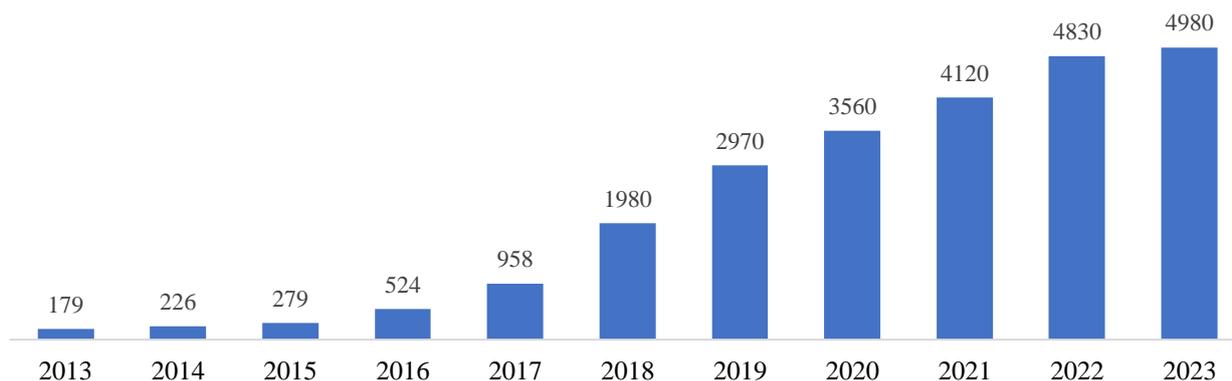


Fig. 1. The dynamics of scientific publications on the study of the use of digital banking around the world

Source: compiled by the authors based on data from Google Scholar

Many scientific works by domestic and foreign scientists were used to generalize the research results. Thus, in her research, V. Fedina [1] paid attention to the essence of the digital banking concept. The author considered the necessity of using digital banking in the domestic financial services market. In her work, V. Kornivska [2] analysed the threats associated with the digitalization of the banking sphere and also considered the main advantages of using digital banking as an effective method of banking services. O. Yesina [3], in her study, characterized the main trends in the development of digital financial technologies in the banking sector of the Ukrainian economy. The author also analyzed the key indicators characterizing the level of development of digital banking, namely the use of electronic channels to provide banking services contactless payments using contactless cards and, smartphones and other NFC devices. O. Erkes, O. Kalita, and T. Gordienko [4] paid attention to the formation of digital banks; the authors assessed the development potential of digital banks in Ukraine and characterized the key differences between digital (virtual) banks and banks that use digital technologies in their activities. Prospects for the development of neobanks for Ukraine were considered by S. Teslyuk, N. Matviychuk [5], who singled out key players in the financial services

market. Analytical materials of the companies Statista [6], KPMG Global [7] and data of the National Bank of Ukraine [8] also play an important role in the research.

RESEARCH RESULTS

Today, the banking sector is undergoing significant transformation due to the development and active implementation of digital technologies. The COVID-19 pandemic was an essential factor that significantly adjusted the banking sector. After introducing the quarantine, people began actively switching to digital banking, discovering all the advantages of using digital services to meet their needs. According to Capgemini's World Retail Banking Report 2020, due to the COVID-19 pandemic, consumers of financial services have begun to use digital banking channels more frequently [9]. As a result of the company's survey, it was determined that the number of digital banking users increased by 9%. Also, clients began to use mobile applications and chatbots more actively to interact with banks. Another factor was the full-scale invasion of Russia, as a result of which a large part of the population was forced to evacuate to safe areas and emigrate abroad, which reduced the possibility of direct visits to bank branches and caused an increase in the need for remote banking services. Digital technologies have enabled banks to offer their services through online platforms, mobile applications and other digital channels, targeting the changing needs of their customers.

The main attribute for the implementation of remote banking services has become digital banking, which characterizes itself as an online bank account management system and is a set of remote banking services that allow you to carry out all standard operations at any time and in any place using phone or computer via the global Internet network [1, p. 105].

Digital banking can be divided into the following types, as shown in Figure 2.

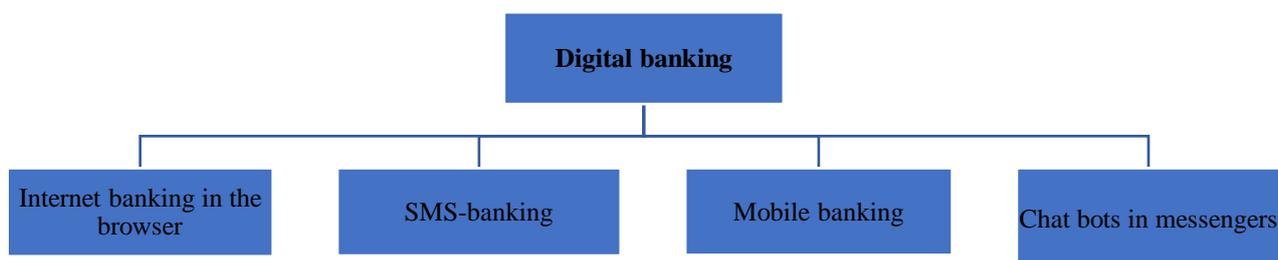


Fig. 2. Types of digital banking

Source: compiled by the authors based on [11]

The main advantages of digital banking are overcoming time and space barriers for economic activity, the possibility of online access to banking services and meeting customers' financial needs without physically visiting a bank branch through remote identification [11].

According to Statista data, 60-70% of respondents consider it expedient to use online channels or mobile applications to access financial services since physical identification in bank branches is less convenient and takes more time [6].

The SWOT analysis clearly demonstrates the possible disadvantages and threats associated with using digital banking (Figure 3).

Digital banking is a banking service using digital technologies, but it is worth distinguishing such concepts as a purely digital bank and a bank that uses digital technologies in its activities. The first concept is often equated with such categories as "neobank", "challenger bank", "virtual bank", and "mobile bank"; it is a financial and credit institution that carries out various banking operations while not having office branches, using only a virtual network and modern Internet platforms [4]. A vivid example of such a bank in Ukraine is Monobank, which operates based on Universal Bank's banking license. Monobank provides banking financial products through digital channels. Instead, a traditional bank that has accepted the challenges of digital transformation and uses innovative technologies in

its activities is understood by another concept. An example is a high-tech bank in Ukraine, such as PrivatBank, which actively implements new technological know-how for its customers [5].

Strengths	Weaknesses
1) round-the-clock access regardless of location; 2) ease of use and portability; 3) reduction of the cost of operations and expenses for the bank and the client; 4) the possibility of providing a wide range of services and constant control of accounts; 5) promptness of transactions	1) unavailability in case of technical problems in the system; 2) the need to obtain relevant knowledge; 3) impossibility of access if there is no Internet or mobile phone; 4) reducing the risk of illegal acquisition of the client's personal data by third parties; 5) insufficient security of transactions over the Internet
Opportunities	Threats
1) emergence of new, cheaper technological solutions; 2) development of financial inclusion of the population; 3) development of the "cashless economy"; 4) development of the state digital transformation program	1) the possibility of cyber attacks; 2) technological risks (malfunctions, interruptions or lack of access to the system); 3) operational risks (errors when performing operations); 4) reduction of jobs

Fig. 3. SWOT – analysis of digital banking
Source: compiled by the authors based on [2, p. 259]

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Digital banking is gaining more and more popularity every day, mainly due to a change in banks' competitive advantages. Internet banking has become most widespread in the countries of Western Europe, where every fifth resident uses the services of digital banks, and the growth rate is approximately 20% per year. According to the German statistical company Statista, the number of digital banking users has grown rapidly over the past four years, mainly by 24.4% [6]. The most significant number of mobile and Internet banking users is in the countries of the Far East and China, with more than 900 million users (Figure 4).

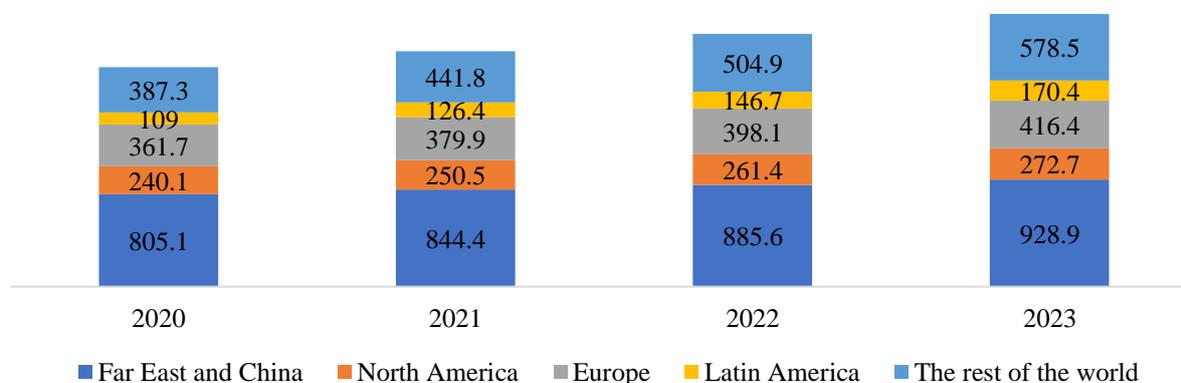


Fig. 4. The number of active users of digital banking in the world by region, million
Source: compiled by the authors based on [6]

KPMG predicts that by 2030, all banks will be completely digital and will be available exclusively electronically. According to the conclusions of the report "The Future of Digital Banking", developed by KPMG Global experts, the following changes will be implemented in the banking sector by 2030: personalization using artificial intelligence technologies, interaction with customers using voice assistants and biometrics, provision of third-party services through digital platforms [7].

Unlike developed countries, Ukraine is at the initial stage of introducing digital technologies into banking activities, but today it has already made significant achievements in digital transformation, as evidenced by the Digital Competitiveness Ranking. In 2021, Ukraine took 54th place out of 64 studied countries [12]. The dynamics of Ukraine's place in the world ranking of digitization is shown in Figure 5. It should be noted that information on the ranking of Ukraine in 2022 and 2023 is not available due to the state of war in the country.

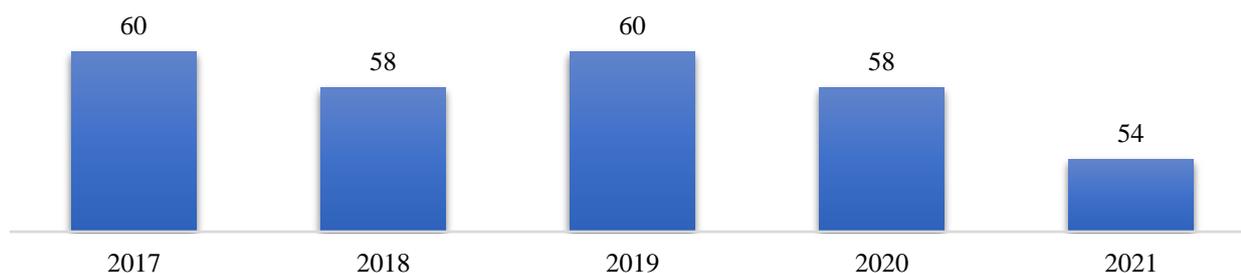


Fig. 5. Dynamics of Ukraine's place in the rating of digital competitiveness

Source: compiled by the authors based on [12]

Domestic banks are actively transitioning to a digital format, as evidenced by the rapid decrease in the number of bank branches. This trend can be followed in Figure 6.

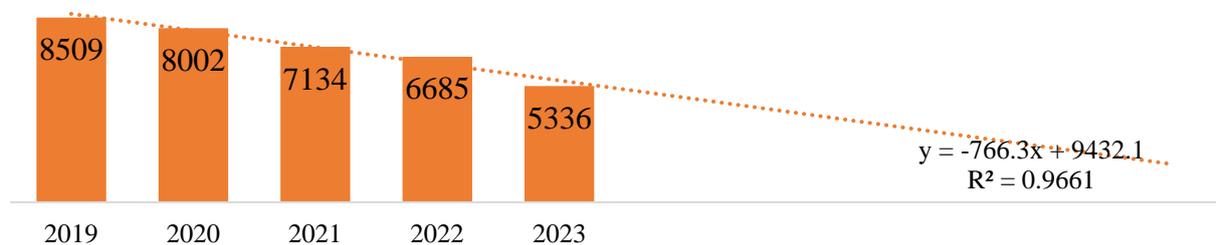


Fig. 6. Number of bank branches in Ukraine, thousands of units

Source: compiled by the authors based on [13]

According to the forecast, we can say that over the next five years, the number of bank branches will decrease and reach the level of 1,769 in 2028:

$$Y = -766.3 * 10 + 9432.1 = 1769 \text{ departments}$$

Ukrainians are active users of online services, so in 2020, 53% of the country's population used them; in 2021 – 60%; in 2022 – already 63%; and in 2023 - 66%. In particular, digital banking services are most often used by people aged 18-39, among whom 70% are active users. In the older age groups, the share of active users is smaller; in the age category 60+, it does not exceed 22%. At the same time, the share of digital banking users in the 40-60 age group is high and shows a constant upward trend, which indicates a significant potential for the development of digital banking in Ukraine [3].

Transactions using payment cards are becoming increasingly widespread; in particular, the largest share falls on non-cash payments, which make up about 90% of the total number of transactions performed (table 1).

Table 1. Dynamics of the number and volume of transactions using payment cards in Ukraine

Years	All operations		Receiving cash		Non-cash operations	
	Amount/Quantity		Amount/Quantity	%	Amount/Quantity	%
<i>Amount of transactions using payment cards, billion UAH</i>						
2019	3576,7	100,0	1778,4	49,7	1798,2	50,3
2020	3957,3	100,0	1748,6	44,2	2208,7	55,8
2021	5091,7	100,0	1992,6	39,1	3099,1	60,9
2022	5494,5	100,0	1774,3	32,3	3720,1	67,7
2023	5566,8	100,0	1939,3	34,8	3627,6	65,2
<i>The number of transactions using payment cards, million units</i>						
2019	5057,3	100,0	890,2	17,6	4167,1	82,4
2020	5997,2	100,0	786,0	13,1	5211,2	86,9
2021	7817,0	100,0	777,0	9,9	7040,0	90,1
2022	6259,0	100,0	463,0	7,4	5494,5	92,6
2023	7240,0	100,0	470,0	6,5	6771,0	93,5

Source: compiled by the authors based on [14]

As can be seen from Table 1, during 2019-2023, the number of transactions using payment cards actively increased, a growth rate of 43.2%; the trend towards an increase in the number of transactions using cards is also being followed in 2023 compared to 2019, the share monetary amounts increased by 54.6%. Among the performed transactions, the largest share is precisely non-cash; in particular, the average share of non-cash payments is 89.1% among the performed transactions. During 2019-2023, there was a clear trend towards an increase in the number of non-cash transactions by 11.1%, and the share of cash from non-cash transactions also increased by 14.9%.

Based on the analysis, we can predict that the volume of non-cash transactions will grow in the future; our forecast is shown in Figure 7.

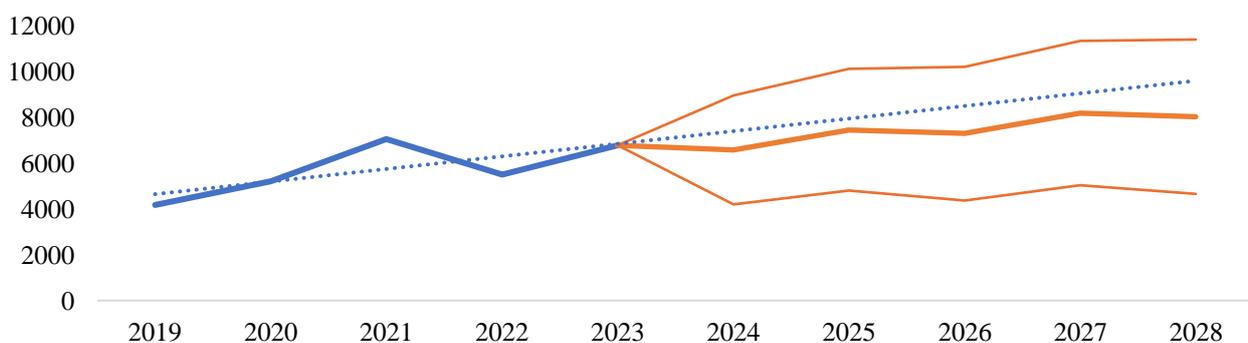


Fig. 7. Dynamics of the number of non-cash transactions with payment cards

Source: compiled by the authors based on [8]

With the growth of non-cash operations, there is a tendency to increase the number of active POS terminals in the trade and service network. By the end of 2023, their number was 469,000 units, which, compared to the beginning of 2023, increased by 27%. The number of ATMs has increased by 3% since the beginning of the year and amounted to 29,100. (Figure 8)

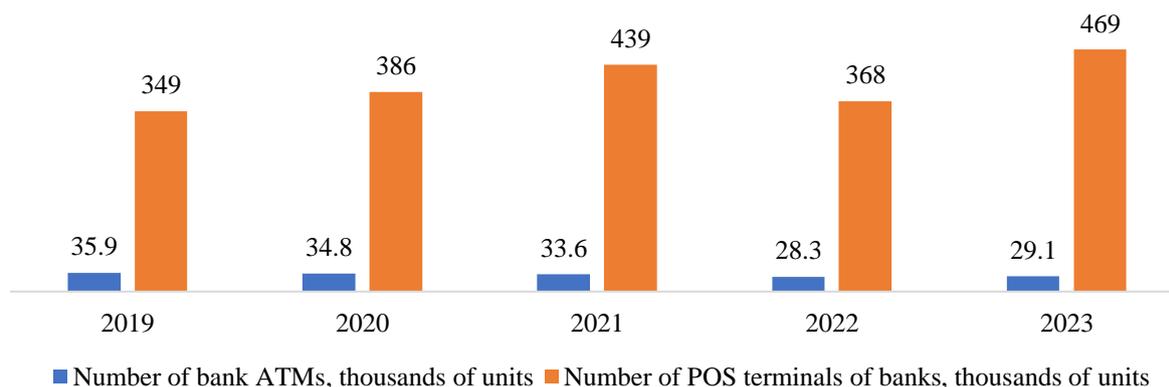


Fig. 8. Number of ATMs and POS terminals of banks, thousands of units

Source: compiled by the authors based on [8]

According to the results of a study by InMind, commissioned by Mastercard, 1,502 respondents aged 18 to 60 were interviewed and it was found that about 94% of bank card holders in Ukraine today use digital banking, of which 51% plan to fully switch to digital banking in 2024-2025. digital banking, avoiding visits to physical bank branches. Among the surveyed Ukrainians, 75% of citizens prefer to use banking mobile applications, 11% use online banking services exclusively, and 14% use both mobile applications and online banking [10]. The most popular operations in digital banking among Ukrainians are topping up a mobile account, transferring funds from card to card, and paying for utility services (Figure 9).

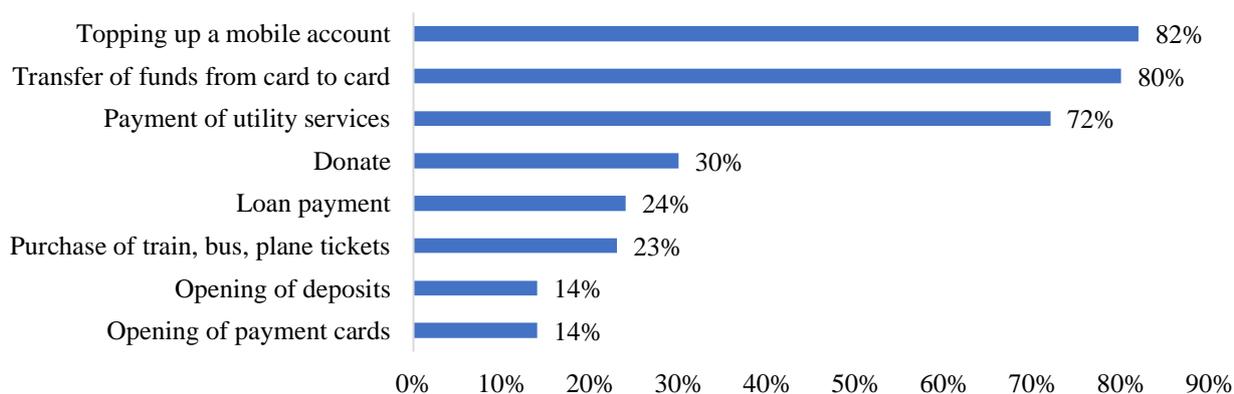


Fig. 9. The most popular operations in digital banking

Source: compiled by the authors based on [10]

Today, the domestic practice of functioning digital banking is represented by the development of seven digital banks, namely Monobank, Izibank, SportBank, O.Bank, Neobank, Todobank, and Bank Own Account (Table 2).

All active digital banks operate exclusively under the license of classic banks and offer their customers favorable offers, such as low service tariffs and loan products, high deposit rates and the use of their own mobile applications. New banking institutions mainly provide services to individuals using personalized mobile applications with a high level of data protection. An innovation of neobanks was the cash-back system, which is a loyalty program and involves paying for purchases using a plastic card with the possibility of returning part of the paid funds to the main customer account [15].

Monobank digital bank is gaining more and more favor among users. According to the results of the FinAwards 2023 competition, it took first place in the nominations "People's Bank" and "Best Mobile Bank" [16].

Table 2. Characteristics of Digital Banks of Ukraine

Name	Year of establishment	Banking license	Bank products
Monobank	2017	JSC "UNIVERSAL BANK"	Online payments, transfers, deposits, loans, cashback, issuance of cards in bitcoins, tracking of P2P payments through the POS terminal, the option of accumulation of "Bank" funds
IZIBank	2020	TASKOMBANK JSC	Online payments, transfers, deposits, loans, 5% cashback on all categories of payments
SportBank	2019	JSC "OXI BANK"	Online payments, transfers, deposits, loans, 10% cashback when buying sportswear and subscriptions to fitness clubs
O.Bank	2020	"Idea Bank" JSC	Online payments, deposits, loans, contactless P2P transfers, cash withdrawals from ATMs without fees in the first 4 months of card use
Neobank	2020	AKB "CONCORD" JSC	Online payments, transfers, deposits, loans, cash register in the phone, own acquiring, reminders about the payment of interest on the loan and taxes
Todobank	2019	JSC "MEGABANK"	Online payments, transfers, deposits, loans, payment of utility services without fees, the possibility to use a payment card issued by another bank in the mobile application
Bank Own account	2021	PJSC "BANK VOSTOK"	Online payments, transfers, deposits, loans, crediting of bonuses to a payment card when purchasing in the Fozzy network

Source: compiled by the authors based on [15]

Monobank's leading position is confirmed by our study of evaluation of mobile applications of the ten largest banks of Ukraine (Table 3). The most convenient and functional applications were Monobank, Sense Bank, A-Bank, and the least - Raiffeisen Bank and Oschadbank.

Table 3. Evaluation of mobile applications of the TOP 10 banks of Ukraine

Evaluation criteria	Monobank	Sense bank	A-bank	PrivatBank	Oschadbank	PUMB	OTP Bank	Raiffeisen Bank	Ukrsibbank	UkrGasbank
Applying for a loan in the application	+	+	+	+	-	+	-	-	-	-
Garner cards of other banks	+	+	+	+	-	+	+	-	+	+
Pay any bill from the app	-	-	-	+	-	-	-	-	-	-
Opening a currency deposit in the application	+	+	+	+	-	+	+	-	-	-
Changing the PIN in the application	+	+	+	+	-	+	+	+	+	+
3D Secure - the ability to enable enhanced authentication	+	-	+	-	+	-	-	-	+	-
Management of tokenized cards	+	+	-	-	-	-	-	-	-	-
Choosing your own CVV in the application	+	-	-	-	-	-	-	-	-	-
Manage resource subscriptions in the app	+	+	+	+	-	-	-	-	-	-
Confirmation of documents without a visit to the bank	+	+	+	-	-	+	-	-	-	+
Google Pay and Apple Pay in the app	+	+	+	-	-	+	-	-	-	+
In total	10	8	8	6	1	6	3	1	3	4

Source: developed by the author

Today, many traditional Ukrainian banks are implementing the achievements of digitalization in their activities. The most innovative banks are PJSC "PrivatBank", PJSC "Oschadbank", "Alfa-Bank", PUMB, and Taskombank, which for many years have actively distinguished themselves among other banks by providing innovative products, in particular, such as mobile banking and Internet banking (Table 4). Currently, the leading position is held by PJSC "PrivatBank", which is among the top 10 leading banks in Central and Eastern Europe. In 2023, the bank ranked first in the "Leading Technologies and Innovations" nomination in the annual FinAwards competition [16].

Table 4. Innovative products of Ukrainian banks

Name of the bank	Innovative products of the bank
PJSC "PrivatBank"	"Privat24" mobile application, FacePay24 facial payment technology, PrivatPay button, access to Internet banking via QR code and possibility of payments via mobile POS terminals using QR code, online collection, digitized payment cards, My Deposits application, SmartID (electronic digital signature), behavioural biometrics system is in the implementation stage
PJSC "Oschadbank"	Online service "Oschad 24/7", OshchadPAY service, which works on the new Visa Tap to Phone technology base, chatbot "Online assistant", "Virtual card", which provides for the independent opening and carrying out of calculations immediately after its release without applying to the bank, 3D Secure technology to protect card payments on the Internet
Alfa-Bank PJSC	Alfa-Mobile Ukraine mobile application, Alfa Digital online platform, Alfa-Pay technology, which allows you to use a watch for payments, a payment card without entering a number and other details
PUMB	Mobile application and PUM, improvement of the "PUMB Online for Entrepreneurs" functionality, electronic document flow with clients, adding documents from a mobile device via a QR code, using a qualified electronic signature, a new data protection platform - 3D Secure 2.0 from Visa International, Face ID and Touch technology ID for proof of identity when paying for a purchase.
TASKOMBANK JSC	izibank mobile bank, TAC Mobile application, implementation of the project on issuing and managing electronic money using blockchain technologies

Source: compiled by the authors based on [18-23]

CONCLUSIONS

The study's results proved that in the conditions of digital transformation, there are changes in the methods of traditional banking operations and the way banks interact with clients. One of the key trends in this area is the development of digital banking as a promising way of banking services. The emergence of digital banking is due to several factors, among which the development of digital technologies, changing consumer preferences, the COVID-19 pandemic and the full-scale invasion of Russia into the territory of Ukraine are key. Digital banking is a banking service using digital technologies, the main advantages of which are overcoming time and space barriers, the possibility of online access to banking services and meeting customers' financial needs without physically visiting a bank branch.

Currently, domestic banks are actively transitioning to a digital format, which is evidenced by the decrease in the number of bank branches, the increase in the volume of non-cash transactions using payment cards, and a set of surveys conducted on the number of digital banking users. These facts indicate a significant potential for developing digital banking in Ukraine.

The practice of functioning digital banking in Ukraine is represented by the development of seven digital banks, namely Monobank, Izibank, SportBank, O.Bank, Neobank, Todobank and Bank Own Account. In addition, traditional banks, such as "PrivatBank" PJSC, "Oschadbank" PJSC, "Alfa Bank" PJSC, PUMB and "Taskombank" JSC, have been actively introducing innovative products into their operations for several years to more conveniently meet the needs of their customers.

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