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FEATURES OF DIGITAL TRANSFORMATION OF THE BANKING SECTOR OF UKRAINE

ОСОБЛИВОСТІ ДІДЖИТАЛ-ТРАНСФОРМАЦІЇ БАНКІВСЬКОГО СЕКТОРУ УКРАЇНИ

Bondarenko LidiiaPhD in Economics, Associate Professor,
Lviv Polytechnic National University
ORCID: <https://orcid.org/0000-0002-3313-3569>**Podaryn Angelina**Student,
Lviv Polytechnic National University
ORCID: <https://orcid.org/0000-0002-9916-2645>**Бондаренко Лідія Петрівна**кандидат економічних наук, доцент,
Національний університет «Львівська політехніка»**Подарин Ангеліна Русланівна**студентка,
Національний університет «Львівська політехніка»

The rapid digitalization of all spheres of life is the main trend of recent years. The banking sector was one of the first to actively respond to changes in the global economic system and is now one of the leaders in the process of financial services digitalization. The article is devoted to the study of the digitalization processes of the banking sector of Ukraine at the present stage. Initially, the article highlights the main prerequisites for digital transformation of the domestic banking sector and the most dynamic trends in current process, which have become particularly active as a result of the COVID-19 pandemic. It is noted that Ukraine is actively developing digital instruments in banking according to world rankings, including the level of digital competitiveness and the level of contactless payments, and over the past five years there has been a steady improvement in Ukraine's position. First of all, the basic advantages and benefits of traditional banking institutions transition to digital sphere for both banks and their customers are summarized. Also, the number of banking branches in Ukraine during 2016–2021 is studied and the main patterns in their dynamics are identified. In addition, the issues of banking chatbots, in particular the efficiency of their activities and areas of use in banking, as well as the list of the most active chatbots in the banking market are also thoroughly studied. Attention is also drawn to online banking applications and their importance for providing quality banking services, the main focus is made on the five best banking applications in 2021. Besides, the article focuses on Ukrainian neo-banks, first on the important differences in their work, basic characteristics and competitive advantages, as well as existing barriers for digital domestic banks. At last, an opinion on the role of FinTech in stimulating innovation and digitalization of the banking sector has been formed. The final point of the article is to outline future potential or already existing, but not yet very active trends and tendencies in the process of further digital transformation of both the global banking sector and the Ukrainian one in particular.

Keywords: digital transformation, digital banking, chatbots, neobanks.

Стаття присвячена дослідженню процесів діджиталізації банківського сектору України на сучасному етапі. В статті виділено основні передумови діджитал-трансформації вітчизняної банківської сфери та найбільш динамічні тенденції цього процесу, які особливо активізувалися внаслідок пандемії COVID-19. Звернено увагу на те, що Україна активно освоює цифрові інструменти у банківництві за даними світових рейтингів, зокрема за рівнем цифрової конкурентоспроможності та рівнем безконтактних платежів, при чому за останні п'ять років спостерігається постійне покращення українських позицій. Перш за все, узагальнено базові переваги та вигоди переходу традиційних банківських установ в цифрову сферу як для самих банків, так і для їх клієнтів. Досліджено кількість банківських відділень в Україні впродовж 2016–2021 рр. та виявлено основні закономірності у їхній динаміці. Також ґрунтовно вивчено питання роботи банківських чат-ботів, зокрема ефективності

їх діяльності та сфер використання у банківництві, а також надано перелік найактивніших чат-ботів на банківському ринку. Додатково опрацьовано питання банківських онлайн додатків та їх значення для забезпечення надання якісних банківських послуг, основний акцент звернено на п'ятірку найкращих банківських додатків за підсумками 2021 р. Особлива увага в статті присвячена українським необанкам, в першу чергу, важливим відмінностям у їхній роботі, базовим характеристикам та конкурентним перевагам, а також існуючим перешкодам у діяльності цифрових вітчизняних банків. Сформовано думку про роль FinTech у стимулюванні інноваційності та діджиталізації банківського сектору. Кінцевим пунктом статті є окреслення майбутніх потенційних та уже наявних, але ще не надто активних трендів та тенденцій у процесі подальшої діджитал-трансформації як світового банківського сектору, так і українського зокрема.

Ключові слова: діджитал-трансформація, цифровий банкінг, чат-боти, необанки.

Problem definition and its relationship with important scientific and practical tasks. It is evident that the defining trend of the XXI century is the rapid transformation of both social and economic spheres into online. Until recently, traditional spheres of activity have been changed very drastically and quite naturally through digital technologies, and these trends will determine further development of the world economy in the future.

Apparently, the banking industry was one of the first to widely use online technologies. Banks quickly mastered the full potential of digital processes, and the global covid-19 pandemic only accelerated and stimulated them even more. Faced with long-term lockdowns and declining business activity in the market, in more favorable conditions were those banking institutions that were able to offer online services and communication for customers. So, studying this topic will provide a better understanding of global changes in modern banking, future prospects for its further transformation, identify market leaders, both current and potential, and outline the most important aspects of digital development of the Ukrainian banking market.

Analysis of recent research and publications. The problem of banking digitalization is not new, but it does not lose its relevance, as the transformation of the Ukrainian banking sector is currently in active stage. That is why the research in this direction is ongoing. However, it should be noted, that researchers focus mainly on the general benefits of digital banking or on individual digital tools. From recent scholars we can mention Andrushkiv I.P. and Nadiyevets L.V. [1], Bukhtiarov A.G. [2], Vladyka Yu. and Turov L. [3], Drobotya A.Ya. and Brazhnik L.V. [4], Kloba L.G. [5].

Setting objectives. The main task of the article is a thorough study of the basic directions of digital transformation of the Ukrainian banking sector at the present stage.

The main material researches. Obviously, the financial sector undoubtedly is one of the world leaders in digital innovations implementation and development. For example, the speed

of banks adaptation to the latest digital technologies allows to qualitatively increase not only the efficiency and profitability of banking activities, but also significantly improves the customer experience.

Under the digitalization of banking is considered a set of modern economic, organizational, managerial, institutional innovations in any field of banking. In conditions of growing competition, it allows to expand the customer base, increase the market share of banking services, reduce costs, increase financial stability and bank security [4].

The concept of digital banking in Ukraine has become widely used only in recent years. It should be said that before the covid-19 pandemic, only less than half of the current domestic banks digitized their basic banking services. However, in response to strict quarantine restrictions, banking institutions such as Kredobank, Credit Agricole, Piraeus Bank, Alfa-Bank of Ukraine, Ukrgasbank, Bank Pivdenny and some others have launched (or rebranded) online applications. This need has arisen due to the rapid deterioration of business activity in 2020, which has led banks to realize the importance of working online with customers.

In general, there are five main stages of banking digitalization [5]:

- the emergence of digital-channels (ATMs, Internet banking, POS-terminals);
- digital products creation and implementation (contactless payments, virtual payments);
- change of banks business models;
- use of artificial intelligence;
- "digital DNA" construction.

Looks like the Ukrainian banking system is currently in the third stage and is actively completing the transformation towards digital format. And although market leaders have already entered the next stage and are using more intelligent digital tools, most market participants are far behind in this process.

At this stage of digital economy development, the NBU and the Ministry of Digital Transformation are jointly implementing the idea of digital

innovations. The team of the Ministry of Digital Transformation has introduced a digital documents transfer service. Access to digital documents through the "Diya" application allows to confirm a person's identity and provide the necessary bank documents in electronic form. In this way, banks have the opportunity to significantly optimize and improve operational processes, simplify bureaucratic procedures and qualitatively increase their own competitiveness.

Banks digitalization opens up a number of advantages, among which the main ones are:

- availability of most services in real time 24/7/365;
- no geographical restrictions;
- a wide range of innovative products and services, not only banking;
- minimization of commission costs;
- prompt conduct and confirmation of transactions;
- increase in the number of clients;
- significant improvement of banking operations management.

According to McKinsey & Company research banking digitalization is an inevitable phenomenon. Thus, the study showed that the potential loss in the absence of digital tools for banks can be up to – 35%. This is primarily [20]:

- margin compression -16%;
- innovative offers from competitors -13%;
- increase in operational risk -6%

On the other hand, potential profits can grow up to + 45%:

- innovative offers and business model + 5%;
- automation + 30%;
- new products, unique digital tools for sales + 10%.

It should be noted that the process of digital transformation in Ukraine is very active and efficient. For example, in 2021, Ukraine ranked 54th (out of 64 possible) in the World Digital Competitiveness Ranking (IMD), which is the best indicator for the last 5 years. This index measures a country's ability to implement and research digital technologies (Table 1).

In addition, in 2021 Ukraine ranked 4th in the world in the level of contactless payments. There are more than 40 million active cards in Ukraine, 13.2 million of which are equipped with contactless technology, and Ukraine is among the top five countries for NFC payment transactions (more than 20 banks offer NFC services) [6].

Table 1

Ukraine's position in the IMD digital competitiveness rating for 2017–2021

Indicator	Years				
	2017	2018	2019	2020	2021
Overall	60	58	60	58	54
Knowledge	45	39	40	38	37
Technology	62	61	61	59	58
Future readiness	61	61	62	61	58

Source: compiled by the authors based on data [21]

The growth of the banking sector digitalization is also evidenced by the rapid decline in the number of bank branches (Figure 1). Thus, over the past 5 years, the number of actual bank branches has decreased by 3.4 thousand units. In fact, the need for them decreases every year. In 2021, the largest number of institutions was

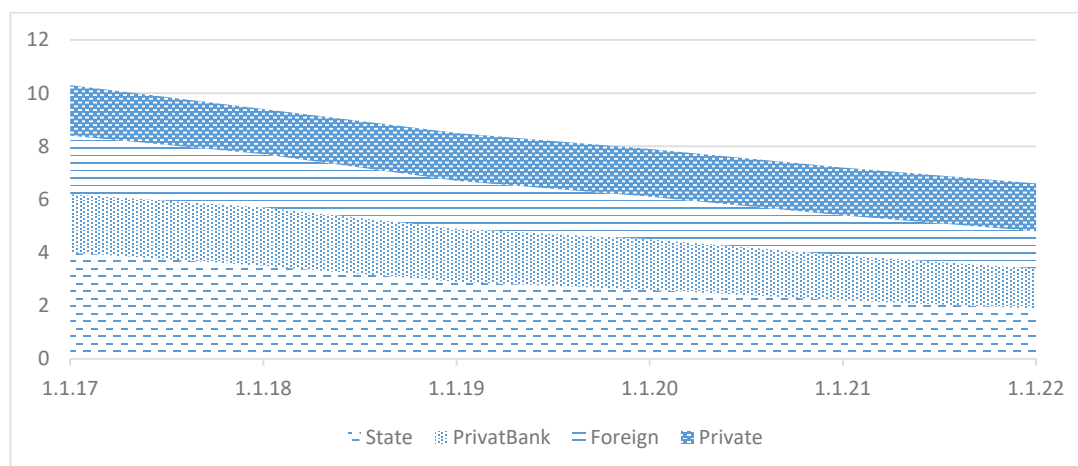


Figure 1. Number of structural branches of banks in Ukraine during 2016–2021, thousand units

Source: compiled by the authors based on data [6]

closed in PrivatBank and Oschadbank (110 and 54, respectively).

Chatbots, which are messaging services designed with a set of rules and artificial intelligence that can be interacted with via a chat interface, have become a new effective tool for online communication. The main task of chatbots in the banking environment is to reduce costs, because they actually do the work of living employees, but around the clock.

According to some estimates, chatbots in the field of digital banking will be able to save more than \$ 8 billion annually. In addition, robotic employees increase the speed and quality of

service by supporting 24/7 users and attract new customers. Due to the Grand View Research analysis, the global chatbot market will reach \$1.23 billion by 2025 [19]. The list of the main chatbots that carry out banking through messengers in Ukraine in 2022 is given in Table 2.

Eventually, mobile applications have become the most popular tool among digital innovations of domestic banks. However, according to the latest data, only half of the banks have them.

In connection with the constant introduction of new digital banking products and technologies at the annual FinAwards 21, the founders of which are popular online platforms of Ukraine

Table 2

The main chatbots of the Ukrainian banks in 2022

Bank	Messengers	Chat bot	Main directions of work
PrivatBank	Messenger from Meta, Telegram, Viber	@privatbank_help_bot	– money transfer; – communication with the operator; – exchange rate information;
		@privatbankbot	– funds transfer between PrivatBank cards.
		@mrpbbot	– cash loan on the card.
		@agentpb_bot	– application submission, – history checking of previously submitted applications.
		@bonusplusbot	– checking the bonus account balance; – information on “Bonus Plus” promotions; – registration in promotions with increased % of the bonus; – information on which promotions the user is registered in; – finding geodata points from “Bonus Plus” (only Telegram and Viber).
		@privatbank_acquiring_bot	– application submission for service of POS-terminals in 24/7 mode for acquiring companies.
Oschadbank	Messenger from Meta, Telegram	@oschadbot	– providing information to customers; – limits change; – card blocking.
Digital customers Wallet Masterpass	Messenger from Meta	@leobot	– mobile replenishment; – money transfers; – Internet payments.
Raiffeisen Bank Aval	Messenger from Meta, Telegram, Viber	@raiffeisenbusinessbankingbot	– information on current service packages; – opening a current account; – providing a list of documents required to open an account; – review of bank products, services and tariffs.

Source: compiled by the authors on the basis of data [8; 9; 10; 11]

on finance and investment Minfin.com.ua and Finance.ua, the top 5 banks mobile applications were elected among 18 existing [18]:

1. Monobank was chosen as the best mobile application. The decision of the expert jury and readers of the site was influenced by the following advantages: cats as a brand image, gamification in the application, the first fully autonomous bank in a smartphone, non-standard promotion methods and viral advertising.

2. Second place went to PrivatBank (it was recognized as the best mobile bank in 2019) due to its unique Internet banking, which combines more than 147 services.

3. In third place was A-Bank due to such features as: unique navigation with one-finger control and the ability to switch to the left side (for lefthander).

4. Fourth place went to Alfa-Bank and its no commission for utility bills and regular raffles.

5. PUMP took the fifth place, its strengths were: cooperation with messengers, the deposits designer, high interest rate on deposits and a favorable exchange rate.

As it can be seen, the success of modern digital banking lies not only in attractive and convenient banking products, but also in positive emotions that customers want to get. Traditional banking is beginning to use gaming techniques and entertainment, as it meets the needs of modern customers.

Furthermore, neobanks are becoming increasingly popular in Ukraine. Neobank is essentially the same bank, but it provides banking and payment services without physical branches and operates only through mobile applications, Internet applications and websites. One of the main features of neobanks is that in addition to traditional banking products, they also offer innovative financial services, including cryptocurrency settlements, crowdfunding and more.

In 2022, there are 6 neobanks in Ukraine: Monobank, Izibank, Sportbank, O.Bank, Neobank, BVR (Table 3). Unfortunately, Todobank ceased its activities due to the liquidation of Megabank.

Among the main features of domestic neobanks are the following:

- work on the basis of a banking license;
- no bank branches;
- services are provided through an online or mobile application;
- virtual payment card;
- convenient cashback system;
- modern biometric methods of transaction confirmation;

- the ability to track cash flows;
- digital receipts;
- fast and round-the-clock provision of banking services;
- provide traditional banking products: deposits, credit lines, accrual of interest on the funds balance, transfers, payment for services.

In general, digital transformation opens up many new opportunities and prospects for banks and their customers, but at the same time brings a number of problems and risks, the main of which are:

- significant costs for the digital tools creation, acquisition and implementation;
- lack of investment;
- the need for significant costs to ensure reliable protection against Internet fraud and cyber viruses;
- lack of digital strategy in many banks;
- lack of digital specialists in the market;
- insufficient coverage of broadband Internet access;
- insufficient level of population financial literacy;

Also, a considerable problem in Ukraine for neobanks is the lack of necessary legislation on licensing and regulation of virtual banks. Neobanks operations are only possible on the basis of a traditional banking institution, as opening and maintaining current accounts is exclusively a banking activity and requires a license from the NBU. The same applies to the payment cards, the issuer of which can only be a traditional bank that has an agreement with the payment organization. Thus, the lack of the necessary regulatory framework significantly limits the development of modern digital banking.

The digital transformation of Ukraine's banking sector continues. Rapid and irreversible changes in technology allow to predict the following trends in banking in the near future:

- widespread use of artificial intelligence (AI) to address risk management, fraud detection, cybersecurity, new product development, customer engagement and customer service;
- use of blockchain technology to create a digital register of transactions;
- use of biometrics for automated customer identification;
- ubiquitous transition to a cloud environment;
- dissemination of IoT (Internet of things), which allows customers to, for example, interact with banks through voice, facial recognition systems and wearable devices.

For its part, the NBU has approved the FinTech Development Strategy in Ukraine until

Table 3

Neobanks of Ukraine in 2022

№	Name of the neobank	Banking institution granting the license	Main characteristics
1.	Monobank	Universal Bank	<ul style="list-style-type: none"> – 4.3 million clients; – ranks third in the number of active payment cards and second in the portfolio of loans to individuals; – cashback up to 20%; – available referral program; – dynamic CVV2 code; – accumulation service, which has no analogues in terms of functionality; – plans to issue a card in bitcoins and provide an opportunity to buy shares on the US stock market; – \$ 2 million of investments.
2.	Izibank	Tascombank	<ul style="list-style-type: none"> – 100 thousand clients; – has a specially created support service for young professionals; – cashback applies to all transactions (1%), 2% Friday for entertainment and monthly increased % for selected categories; – \$ 2 million of investments.
3.	Sportbank	Oxy Bank and Tascombank	<ul style="list-style-type: none"> – 280 thousand clients; – cashback 10% for sport goods and services, up to 20% for other categories; – available referral program; – \$ 1 million of investments.
4.	O.Bank	Idea Bank	<ul style="list-style-type: none"> – cashback on basic transactions up to 5%, and for Google and Apple services – up to 30%; – available referral program; – free p2p transfers and ATM withdrawals without commission (within the first 4 months from the date of card activation); – integrated digital wallet Masterpass by Mastercard.
5.	Neobank	Concord Bank	<ul style="list-style-type: none"> – servicing primarily private individuals and legal entities; – cashback 1% for goods and services; – can connect a cash register in a smartphone; – tips and reminders for customers, for example, on the need to pay taxes or interest on the loan; – available referral program.
6.	BVR	Vostok Bank	<ul style="list-style-type: none"> – top-up with cash at Silpo, ringoo, Justin cash desks and terminals of PJSC Bank Vostok without commission; – available referral program; – integrated loyalty card "Own account".

Source: compiled by the authors on the basis of data [12; 13; 14; 15; 16; 17]

2025, the main objectives of which are the stable development of innovation, the formation of a cashless economy and improving the financial literacy of customers and businesses. And both banks and FinTech companies will play an important role in this process [7].

The results of this study and further research in this area. The NBU says that the normal functioning of the banking sector in wartime is largely due to its pre-digitalization and remains more important than ever when security

of customer data and access to banking services despite military action is one of the main tasks of banks today.

As a conclusion, it can be confirmed with high probability that the economy of the future is a digital economy, and therefore the banking of the future is banking, primarily digital. Researchers question what new technologies will define the banking sector and whether traditional banking will survive at all. It should be understood that the digital transformation of the banking sector is an

extremely dynamic and innovative process. That is why it needs constant monitoring, changes are extremely fast, as they are often produced by customer requests. Consequently, the bank-

ing market in 2022 will be radically different from 2032. So we can predict its appearance only to a certain extent, and therefore research in this direction will remain relevant in the future.

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