



DIGITALIZATION AND INFORMATION SOCIETY. SELECTED ISSUES

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DIGITALIZATION AND INFORMATION SOCIETY. SELECTED ISSUES

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and Tetyana Nestorenko

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3.8. MANAGEMENT OF BANKS IN TERMS OF DIGITALIZATION OF BANKING

In the era of digitalization, digital technologies are actively penetrating politics, economics, everyday life, public administration, society, and the sphere of public relations. The digital economy is being formed, where the main resource is information and intellectual capital. The introduction of digital technologies in all spheres of public life has intensified the emergence of new types of financial intermediaries, such as FinTech companies, which is accompanied by increased competition within the financial sector both internationally and domestically. And this, first of all, affected traditional institutions, first of all, banks.

The dynamic development of information systems requires financial market participants to use innovative management methods and technologies aimed at determining the prospects and justification of development strategy in a digital economy. The intensification of these processes is accompanied by an increase in risk factors, which increases the social requirements for the activities of financial intermediaries, their reliability and stability.

Global changes in the external environment encourage banks to strengthen their position in the financial market through the introduction of innovative banking services, raising standards of corporate social responsibility and business ethics, changing strategic priorities, goals and models of banking development. New technologies together with changes in the economy cause changes in the principles and rules of banking. The activity of banks is being transformed, the system of supranational regulation is being improved, the banking sector is being restructured, as a result of which banks' own business models are being reformed, new forms of banking associations and financial ecosystems are emerging.

The level of digital industrialization in the management of the main banking processes in interaction with the client is constantly growing. To work effectively in the digital space, banks need to implement adequate business models for banking

The digital economy opens up new opportunities for banks to put the customer at the center of the information development process. The main banking services include: settlement and cash operations, credit, currency, investment, deposit, trust and information. The rapid development of information systems allows banking institutions to automate their activities and develop remote banking mechanism via the Internet. These services are free for customers and can occur with any which point of the world, and their versatility allows it to be accessible to both physical, and for legal entities. It is determined that with the increase of types of banking operations the limits of distribution Digital banking is expanding, and as a result, new horizons are constantly opening up. Nowadays, using Internet_banking systems, it is possible to buy and sell non-cash currency, make non-cash payments, pay utility bills and track all banking transactions in your accounts.

Both domestic and foreign scholars have dealt with the digitalization of banking. Special attention deserve the work of the following foreign scientists: D. Zimmerman, S. Carbo Valverde, D. Cliff, D. Rose and others. Among domestic scientists of special scientific value represent the works of the following scientists: Sheludko S. A., Bratkevich P. P., Semenog A. Yu., Tsiuryk S. V., Sokolova G. B., Veretyuk S. M., Pilinsky V. V., Kolyadenko S. V. and others.

Significant problems with the vision of the concept of digitalization economy and directions of its development remain insufficiently disclosed. Available scientific achievements are incompletely found reflecting the modern views of scientists on the digital economy.

Today, changes in the external environment of banks are influenced by the rapid development of technology and innovation. The Internet has become an integral part of society, the number of social networks has increased, innovative products and services have been invented, which have influenced the formation of new standards of quality and convenience for the consumer. In recent years, digitalization has become a current trend in the world economy. The result is economic growth in all countries of the world. Today, digital technology is a major factor in helping organizations grow and grow. The beginning of the pandemic led to new realities in which the entire banking sector found itself, as well as business, private customers and ordinary citizens. Everyone understood that working online is simple, fast and convenient. Therefore, last year

the process of remote customer service has been accelerated, thanks to which online services have become more active.

However, some aspects of this problem are not fully understood. Among other things, issues related to the management of banks in the context of digitalization of banking activities need more detailed research.

The aim is to study the management of banks in the context of digitalization of banking.

Object of study – there is a banking activity carried out in the conditions of functioning of digital economy.

Subject of study – theoretical and methodological principles of management of a banking institution in conditions of digitalization of the economy.

The banking sector is an important component of the financial market and plays a significant role in the country's economic activity. Digitalization of banking contributes to the introduction of economic, organizational, managerial, institutional innovations in banking institutions, thereby forming the preconditions and prospects for further development of the banking system in modern conditions, namely: creates opportunities to expand customer base, grow banking services and, accordingly, increase the profitability, financial stability and security of the banking institution.

The banking system of any country consists of banks, institutions, complex relationships between them, complemented by relationships with the global financial market and the world economy. As intermediaries in the redistribution of financial resources through the transformation of temporarily free funds into investments, banks significantly increase the overall efficiency of production, contribute to the mobilization of sufficient financial resources, income, etc.⁵⁹⁸.

Today, the need to use digital technologies in banking is due to the following factors:

1. Improving customer service, providing a wide range of banking services, as well as attracting new customers.

2. Reducing the bank's operating costs and speeding up banking operations.

3. Improving the competitiveness of the bank and improving the management of the bank.

4. Increasing the banking market segment and expanding the bank.

Digital banking, overcoming the spatio-temporal barriers to economic activity, provides online access to financial services and the realization of the growing financial needs of the client without actual physical access to the banking institution through remote identification.

Currently, the spread of digital technologies is in all aspects of the banking business, which provides:

- clearing operations;
- trade and marketing operations;
- cash management;
- credit and deposit operations;
- currency transactions;
- use of ATMs and electronic money;
- home service and banking by phone;
- use of e-mail;
- paperless document circulation within the bank;
- securities transactions and the stock market;
- analysis of the financial market and investments;
- international interbank telecommunication systems.

The network of commercial banks of Ukraine emerged and began its intensive development in the early 90's. The emergence of a large number of banking institutions and the transition to market relations have led to the problem of using modern information technology in the activities of banks.

It is impossible to solve all these problems without the use of computer technology, modern software products and communications.

⁵⁹⁸ Vladika Yu. P., Bezugla L. S., Turova L. L. (2020) Achievements and new challenges in the activities of systemically important banks in Ukraine.

Therefore, today there is no bank that would not use modern information technology in its activities. To maximize the profits of the banking institution requires sound management of bank expenditures, aimed at reducing them.

Thanks to modern digital technologies, each bank has real reserves to reduce administrative and other operating costs. These include: personnel costs, as well as related costs of taxes, fees and charges, costs of maintaining intangible assets, telecommunications and other operating services, as well as related costs of amortization of intangible assets, Other expenses. The largest share in administrative costs is occupied by staff costs. The main measures to optimize the cost of staff of a financial institution can be considered automation and optimization of business processes, which will restructure the organizational structure of the bank taking into account the priority goals and objectives of the business with a corresponding reduction of its redundant staff.

To increase the speed of operations, each bank must develop Internet technologies. The development of such technologies will help the bank to attract new customers, speed up operations, as well as improve the quality of customer service.

Modern technology has taken over almost the entire world space, which has led to the transformation of many social, economic, political and financial change.

Digital technologies in the form of personal computers and the Internet already transformed work, education, management, entertainment, leisure, gave rise to new markets opportunities, leading to significant economic consequences in a wide range of sectors. The concept of "digital economy" belongs to business analyst Don Tapscott. In numerous examples, he demonstrates how the pair of " technology and business" will progress into technology business. Note the definition given by Tapscott:

The digital economy is an economic activity that, unlike the traditional economy, is determined by network consciousness (networked intelligence) and dependence on virtual technologies⁵⁹⁹.

Effective functioning of the banking system is the key to stable development of any state. Improving the development of the banking system leads to the rational use of resources, which makes the state competitive benefits for participation in the global financial process.

Today, modern technology has spread to every sphere of society: social, medical, economic, political and financial. Countries that have managed to introduce and to adapt their basic institutions to the conditions of the digital economy, to function successfully on the world market and show high results in world rankings.

According to the Law of Ukraine "On Banks and Banking", banking activity – attraction of deposits of individuals and legal entities and placement of these funds on its own behalf, on its own terms and at its own risk, opening and maintaining bank accounts of individuals and legal entities⁶⁰⁰.

Banking system, when the customer needs to sit in line with a large number documentation to make a payment or register a business loses its relevance as new financial technologies emerge that make data easier processes and create conditions for reliable and rapid solution of these problems. IN Under such conditions, banks face increased competition from new financial institutions projects that involve modern digital technologies in their activities Modern banks operate in a situation of rapid and irreversible changes in technology, competition for market of banking services with increasing number of non-banking organizations, changes in customer behavior and regulation.

The concept of digital economy is complex and multifaceted in understanding the essence, so in the scientific and professional environment there is no consensus on the definition of this concept.

⁵⁹⁹ Savchenko M., Negolyuk Y. (2021) Democratization of the banking system in the development of digital technologies.

⁶⁰⁰ Karcheva I. Ya. (2015) Modern tendencies of innovative development of banks of Ukraine in the context of the concept of bank 3.0.

The International Organization for Economic Cooperation and Development (OECD) focuses on three key components of the digital economy:

- 1) supporting infrastructure (hardware and software, telecommunications, networks, etc.);
- 2) e-business (doing business and other business processes through computer networks);
- 3) e-commerce (distribution of goods via the Internet).

In the "Concept of development of the digital economy and society of Ukraine for 2018-2020", approved by the Cabinet of Ministers of Ukraine on January 17, 2018 № 67-r, the digital economy means "activities in which the key factors of production are digital (electronic, virtual) data – both numerical and text. The digital economy is based on information and communication and digital technologies, the rapid development and spread of which affect the traditional economy, transforming it from an economy that consumes resources to an economy that creates them"⁶⁰¹.

Global and domestic experience shows that new digital technologies are the fastest to adopt and implement in the financial and banking sectors, which are leaders in digital transformation in the country. The digital transformation of the financial sector is based on two key priorities:

- expanding financial inclusion and maintaining financial stability, which essentially characterize the potential opportunities and benefits of the introduction of new financial technologies;
- expanding the relevant risks to cybersecurity, data preservation.

Expanding financial inclusion brings greater availability of financial services to all categories of consumers due to increased competition in the financial services market, remote access, lower costs and faster transactions, additional services, etc. At the same time, the risks of data retention increase significantly.

Today's banks, which intend to be competitive, are making great efforts to introduce new digital transformation technologies to become more dynamic, efficient and effective in meeting customer needs. The most important areas of digital transformation of banking institutions are:

- digital banking – the implementation of financial services through mobile and online platforms, which improves the quality of the bank's work with the client, saves time and costs, increases the security of personal data, increases the speed and quality of services;
- electronic payment systems that have a percentage or commission from the seller of the goods (borrower), who used the platform of this payment system;
- instant online lending with loans to customers for the period before receiving cash payments;
- peer-to-peer lending or P2P lending – a method of lending money to unrelated persons or "equal parties" without the involvement of a traditional financial intermediary (bank, other credit institution);
- crowdsourcing – technology of mobilization of resources by means of information technologies for the purpose of the decision of the problems concerning business, the state, a society as a whole. Crowdsourcing as a financing instrument includes three areas: crowdfunding – mobilization of funds for projects without further participation in equity; crowdfunding – lending by individuals to other individuals or legal entities through special Internet sites; crowdfunding – mobilization of funds for the implementation of projects with subsequent participation in share capital;
- the use of artificial intelligence and robo-advising – an automatic service with the help of robot advisors who select investment assets and manage the portfolio.

Digitalization in banking is a set of modern economic, organizational, managerial, institutional innovations in various branches of the bank, which are related to the development of digital technologies. In conditions of growing and high competition, it helps to expand the customer base, increase market share in banking services, reduce costs, increase financial

⁶⁰¹ On approval of the Concept of development of the digital economy and society of Ukraine for 2018-2020 and approval of the action plan for its implementation.

stability and security of the bank⁶⁰². That is why in the XXI century modern banks offer a wide range of services, united by a common term – remote banking services. The advantage of such services is the provision of services to the client by means of telecommunications without his direct visit to the bank. Implementing and by developing remote banking services, the bank increases its efficiency activities and receives additional benefits for business through the sale of banking products and attracting new customers, and the customer receives banking services instantly and efficiently.

The main attribute for the implementation of remote banking has become digital banking (or internet banking). The concept of digital banking should be understood as providing customers with a certain bank digital system through which they can perform various financial transactions.

Digital banking, in turn, is divided into four types (Fig. 1). Its main advantage and, namely, why create online banking services, save time. Most banks allow it pay online for utilities, fines, tuition, transportation tickets, and top up mobile, make card transfers, including to your own deposit account. On-line such operations take a few minutes, while to address these issues in the offices would take several hours for both the client and the bank's managers.

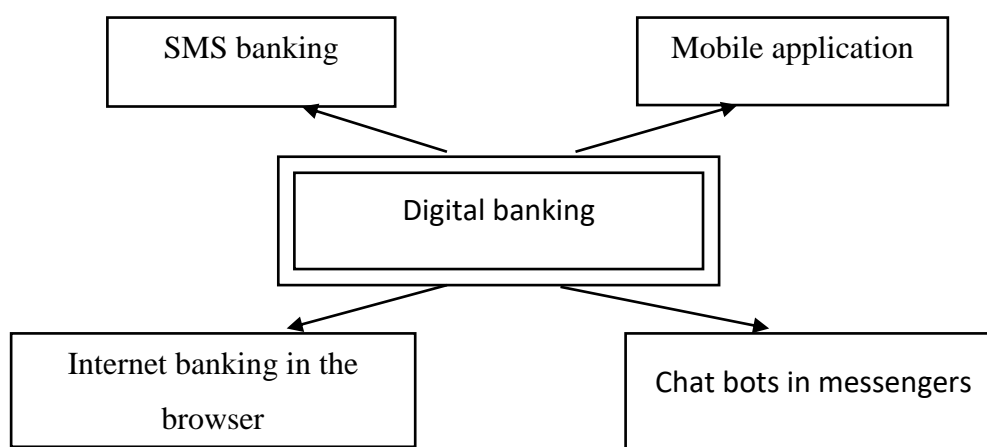


Fig. 1. Types of digital banking

Digital innovations have been spreading around the world since the 1960s. The beginning of digital integration can be considered the automation of production and business processes. Further development of digitalization was in the mid-90's of XX century., Its characteristic feature then was the global penetration of the World Wide Web and mobile communications in society, which created the conditions for the development of the digital economy. Despite the large number of interpretations of the concept of "digital economy", researchers do not have a single opinion about its content.

Modern domestic researchers in their works analyze the processes of development of the digital economy, for example, Yu. Onishchenko in his work identifies and characterizes the three stages of development of the digital economy⁶⁰³.

In the banking sector, the features of digital transformation are analyzed by L. Kuznetsova, who identifies five main stages of development: the emergence of digital channels; creation and implementation of digital products; change of business models of banks; creation of artificial intelligence; construction of digital DNA. He notes that today the principles of the fifth stage of digital transformation of the banking business are only being formed by researchers from different sectors of the economy⁶⁰⁴.

Modern banks operate in a situation of rapid and irreversible changes in technology, competition in the banking market with an increase in the number of non-banking organizations,

⁶⁰² Kloba L. Mr. (2018) Digitalization is an innovative direction of banks' development.

⁶⁰³ Onishchenko Y. I. Evolution of theoretical approaches to defining the essence of the definition of "digital economy".

⁶⁰⁴ Kuznetsova L. V. (2018) Digital transformation of the banking business.

changes in customer behavior and regulation. As a result, banks and their current operating models will not be able to remain unchanged in the future, which is relevant to the proposed study.

It should be noted that for a long time, before the introduction of digital technologies, banks used expensive unique hardware and software systems for their operations, which reduced competition from other financial intermediaries. With the advent of software solutions that give users access to mobile banking and the ability to use their own devices ("bring-your-own-device") and cloud platforms, expensive banking software is transformed – from an asset to a liability in the form of non-current outdated infrastructure, cost base and technological platform, which creates difficulties for innovative customer service and as a result – to the development of disintermediation processes.

The term "disintermediation" (negative prefix "dis" and "intermediation" – mediation) is quite new in economics. It was first used in the mid-1960s in the United States and first emerged to determine the outflow of funds from the deposits of financial intermediaries to invest in higher-yield investments.

In recent decades, foreign authors have conducted research to study disintermediation in different countries and determine its impact on the economy, but in the context of digitalization, the active use of non-financial intermediaries banking leads to the need to clarify the definition of this phenomenon.

In the New Economic Encyclopedic Dictionary, the concept of disintermediation is defined as: 1) refusal to mediate banks in the loan capital market in favor of the direct issue of securities; 2) withdrawal by customers of deposits from the bank for investment in other monetary transactions during the period of rising interest rates; 3) outflow of credit resources outside the country's banking system; 4) the inability of financial institutions to perform their intermediary functions⁶⁰⁵.

Thus, disintermediation is a phenomenon caused by economic, political and social factors, the result of which is the dysfunction of banking intermediation under the influence of digital technologies. Thus, disintermediation in the banking sector is manifested in the loss and reduction of the efficiency of the functions of banks as financial intermediaries.

The problem is exacerbated by the intangible nature of the banking sector that facilitates and simplifies the use of digital technologies and the provision of banking services over the Internet. This is confirmed by the experience of developing economies, which last stage in the development of banking technology, which provided for the presence of a central server and related branches of the bank, and vice versa – immediately began to offer mobile services. For example, in some emerging markets, especially in Africa, payment and credit systems have emerged outside traditional banking structures and are supported by mobile operators such as Vodafone.

A similar situation in the formation of competitive advantages may arise in developed financial markets, especially under the influence of adequate regulations. For example, intense activity after the crisis of European regulators is forcing banks in the region to make more radical changes in the products and services offered to customers.

The modern world banking sector is undergoing radical changes under the influence of digitalization, caused by a large number of factors. Customers are using more and more channels to obtain banking services, using new platforms to interact with banks, so the digitalization of banking processes improves customer experience.

The use of digital technologies and analysis of large data sets allows you to create fundamentally new banking products. Digital and technology companies (fintech companies, telecommunications players, IT companies) are entering the financial services market, and large traditional banks are creating ecosystems, focusing on the most profitable components within the banking value chain and beyond.

The use of digital technologies and analysis of large data sets allows you to create fundamentally new banking products. Digital and technology companies are entering the financial

⁶⁰⁵ Amosha O. I., Moiseev G. V. (2008) New economic encyclopedic dictionary.

services market, and large traditional banks are creating ecosystems, focusing on the most profitable components within the banking value chain and beyond.

Currently, the banking systems of the world's leading countries are adapting to the digital age of banking. The result of digitalization is the emergence of new innovative products and services.

Interest in the banking system in terms of digitalization of the economy is due to the need to solve certain problems:

1. Increasing competition in the market. Banks, as traditional market participants, are successfully competing with innovative companies that are more flexible and adaptable in terms of pricing policy and the development of new products and services. This is forcing more conservative banking institutions to abandon the dominant until recently paradigm of minor innovation.

2. Reducing the cost of banking products and services. The introduction of new technologies reduces customer service costs by abandoning the extensive network of branches and offices and the transition to electronic interaction with both the customer and the regulator.

3. Increasing the availability of banking services by introducing remote service mechanisms and lowering market entry thresholds for customers.

4. Increasing the transparency of the economy and the effectiveness of measures to combat money laundering and terrorist financing. New technologies, such as in-depth analysis of transactions, collection of information about customer activity, allow more effective counteraction to illegal activities, without imposing additional costs on law-abiding customers.

It should be noted that the banking sector of Ukraine is gradually mastering digital technologies, and this leads to the fact that service models are changing significantly. Digitization processes significantly increase the efficiency of banks by expanding the range of services and markets, offering new products and ensuring the transparency of banking operations.

The cumulative impact of factors that determine changes in the banking sector (technology, customer behavior and regulation) is exacerbated by the fact that they often interact with each other. For example, technological change creates new opportunities for customer service that encourage further investment in the development of digital technologies.

Similarly, changes in regulation lead to innovations in the field of customer service, as well as to structural innovations that change the nature of the activities of banks that are subject to regulation. At the same time, changing approaches and expectations change the very reality and perception of the role and importance of the banking sector by society.

At the digital stage of development, the bank ceases to be an intermediary, it becomes an agent that provides the client with the service of access to the account and operations on it. Communication with the banking institution is limited to the provision of appropriate commands that are executed in the digital technology system. The client becomes in some way autonomous, independent of the bank. The most common types of domestic innovative banking products and features of their management are presented in Table 1.

Using the Internet banking system provides several advantages, namely significant time savings by eliminating the need to visit the banking institution in person; the client has the opportunity to control their own accounts around the clock and, accordingly, when the situation in the financial market changes, to react immediately to these changes (for example, close a bank deposit, buy or sell currency, etc.).

The advantages of Internet banking are:

1. Perform operations on-line.
2. Use the system around the clock without weekends and breaks, have access from any computer that is connected to the Internet anywhere in the world.
3. No special software is required, only any Web browser is installed.
4. Has the most simplified connection procedure and often free help (mostly for calls from landlines in Ukraine).
5. Existence of the mechanism of mutual authentication of the bank and the client.

6. Ensuring the protection of customer transactions by using passwords stored in the system in encrypted form.
7. The presence of constant control over the integrity and reliability of the transmitted information.
8. Use of the client's electronic digital signature mechanism under all financial documents.
9. Providing feedback to express wishes about the work of Internet banking.

Table 1. Some types of domestic innovative banking products and features of their management

Type of banking product	Content / general characteristics of the latest banking products that are the result of digitalization
Internet banking	a key innovation of the coming decade, which is now offered to customers by most banks. Ukraine is among the top 10 European countries in terms of the number of users, but due to low regional penetration it still has significant potential for Internet audience growth in the future. This opens up great opportunities for banks, so experts are focusing on the development of remote banking.
Mobile banking	Thanks to the mobile phone, you can perform most transactions with your own accounts, it opens a wide range of services, in particular, account balance, payments, money transfers, loans from one individual to another, etc. According to experts, a mobile phone will replace a plastic card as a means of payment in a few years. It is with the help of NFC-chips built into the phone that the customer will be identified, so the need for a passport will disappear, because customer identification by the bank will be possible only with the help of the phone. Today, this trend has emerged in the US and European markets, where identification is already taking place even at the customer's e-mail address.
POS-terminals in retail chains	unlike Western countries, they did not lead to a global revolution in Ukraine's non-cash space. However, today's 15% of non-cash transactions with payment cards still make bankers believe in the strengthening of this trend in the next five years. In the future, POS-terminals will be installed by merchants themselves, as the payment will not be plastic cards, but information from NFC-chips built into the phone. Meanwhile, self-service terminals, which appeared a few years ago, are gaining popularity both in bank branches and abroad.
"She's 24"	With the help of this product, the client can independently manage their accounts, get advice from a call center specialist, leave an application for the service, sign up for service in any branch of the bank. Virtually every "zone 24" is equipped with an ATM, CashIn replenishment module, and a telephone for accessing the information service. This area of banking continues to improve.
E electronic balance	introduction of this service in the bank's cash desks allows to reduce the cost of circulation of coins, as the balance of less than one hryvnia is credited to the customer's mobile phone or in the form of an electronic voucher.
QR-banking	This is an invention that allows you to easily and quickly pay bills for goods, services and online purchases without a plastic card, via a QR code for a contactless banking system. QR code (quick response code) - a two-dimensional image in which a certain text or numbers are embedded, and you can read information from it on any mobile phone with a camera and software. All you have to do is take a picture of the code, which is quickly recognizable via the mobile Internet, and a payment page will open where you can enter your password.
P reasonable refueling	PrivatBank's application, which allows you to refuel at the checkout without queuing without leaving the car. "Smart refueling" works as follows: finds the refueling by GPS-coordinates, then selects the column number, brand of gasoline and the number of liters or the amount to be refueled. Then the operation is paid through the telephone application online. This allows you to save time and pay securely.
Send money	the latest service that allows you to transfer money to the recipient's account by mobile phone number. The idea is that you don't need to enter a 14-digit number as before, just the recipient's phone number. Then the system works with man-the recipient, who must enter his card details and confirm the transfer. To do this, go to the application, enter your mobile phone number, amount and choose which card to debit. Importantly, the recipient can be a customer of any other Visa or Master Card bank.
F otokasa	novelty for smartphones. According to the photos of bills and utility bills, the bank employees themselves create all the necessary documents, which then come to e-mail as a scanned photo. All you have to do is take a photo of the receipt you need to pay for, send it to the bank by SMS and confirm the transaction.
Privat24 for Google glass glasses	the application of the future, with which you can pay bills for photos, transfer funds through voice functions, refuel at gas stations, pay for goods and services in stores and on the Internet, pay for restaurant orders, withdraw cash without a card at an ATM, etc.

Disadvantages of the Internet banking system:

1. To conduct operations in the Internet banking system you need a special (usually one-time) password or password system or a special PIN code, as well as a certain number of electronic digital signatures.

2. The security and confidentiality of information depends not only on the bank, but also largely on the client: the preservation of information can be guaranteed only if all security rules are met (non-disclosure of access passwords; restriction of access to electronic signatures).

3. Using a client's logical name and password is a fairly simple way to authenticate it, which does not provide a high level of protection today.

4. Cryptographic methods to protect data from unauthorized access are not always used in the storage and processing of banking information.

5. There is a constant threat of distortion and interception of information.

6. There are special hacking programs that allow attackers to carry out so-called "phishing attacks" on customer accounts;

7. Commissions are paid for making payments using the Internet banking system.

The COVID-19 pandemic came as a surprise and affected almost every area of business and economics. However, despite the many negative consequences, it also caused positive ones changes. The study "COVID19. "Sustainable" consulting group One Philosophy showed that pandemic has become a catalyst for the launch of new products or services 71% of organizations and 55% attracted new partners to create joint initiatives⁶⁰⁶.

During the crisis, consumer habits change as the whole business switches to digital channels – and this is one of the main risks for banks that did not have time for gradual digital transformation: they had to immediately change their products and services. The purpose of digitization proved to be simple only for those banks that have long introduced digital banking in Ukraine have digitized their banking services online before the pandemic. Under the influence of quarantine restrictions, such banking institutions as CreditAgricol, Alfa-Bank Ukraine, Kredobank, Pravex Bank, Bank Pivdenny, Ukrgasbank and others launched (or completely rebranded applications) their Internet banking.

Fidelity research National Information Services (FIS) showed that due to the onset of the pandemic, mobile banking traffic increased by 85% in April 2020, and new digital registrations increased by 200%⁶⁰⁷. Among the digital banking of Ukrainian banks, the leaders in the number of users were Privat24 from Privatbank (12 million), Oschad 24/7 from Oschadbank (4 million) and the Monobank project from UniversalBank (3 million). Rating of Ukrainian banks by the number of search engines queries on the Internet in 2021 are shown in Table 2.

In order to facilitate the use of the latest IT technologies for participants in the financial sector and ensure the reliability of the IT infrastructure, the NBU implemented certain measures of the NBU Data Center Construction Project to build IT infrastructure (modernization of networks and storage systems). For simplification and savings in the storage of paper archives, measures were taken to create electronic archive of the NBU, in particular⁶⁰⁸:

- a survey of the processes of providing for archival and archival storage of documents was performed;

- the regulations of the systematization process for archival and archival storage of documents were approved;

- equipment for digitization of archival documents of the NBU central office was purchased.

An important place in banking began to occupy cybersecurity, because with the introduction new technologies, a new type of crime - cybercrime. In response, Ukraine accepted relevant laws and regulations governing this area and improving them more and more.

⁶⁰⁶ Visa and monobank launched selling payment cards with remote verification on cash supermarkets Novus (2020).

⁶⁰⁷ Walden S., Foreman D. 5 Fintech Trends Likely to Stick Around After the Pandemic. Forbes. 2020.

⁶⁰⁸ Report on the implementation of a comprehensive program for the development of the financial sector of Ukraine until 2020.

Table 2. Rating of Ukrainian banks by the number of search queries in 2021⁶⁰⁹

Name of the bank	Number of search queries, times
PrivatBank	6078600
Savings Bank	5079100
Alpha Bank	2798100
FUIB	2413800
UKRSIBBANK	2079000
Monobank	1759500
OTP Bank	1058400

In 2017, the Cyber Security Center of the National Bank of Ukraine was established, which combines and coordinates efforts in the field of cybersecurity and cybersecurity in the banking and financial sectors of Ukraine. Since 2018, part of the Center cyber defense of the National Bank of Ukraine operates a team to respond to cyber incidents in the banking system (CSIRT-NBU). In August 2019, the Center cyber defense of the National Bank of Ukraine and the State Center for Cyber Security State Service for Special Communications and Information Protection of Ukraine signed Memorandum of Understanding on Cooperation in the Field of Cyber Security and Cyber Security, aimed at prevention, detection, effective response and counteraction current cyber threats, increasing the level of information security and situational awareness in the field of cybersecurity and cybersecurity.

The banking system has changed a lot in recent years under the influence of the Internet. New banking services, Internet applications have led to the emergence of completely new types of banks, the so-called neo-banks. Neobanks are also called mobile banks, Internet banks, virtual banks, challenging banks, digital banks. The term "neobank" was first used in 2017, when it was called financial service providers based on FinTech companies⁶¹⁰.

In the work of non-banks we will understand financial and credit institutions, whose activities are carried out exclusively online. Compared to traditional banks, digital banks have no branches. The advantages of neo-banks compared to traditional banking institutions are shown in the Figure 2.

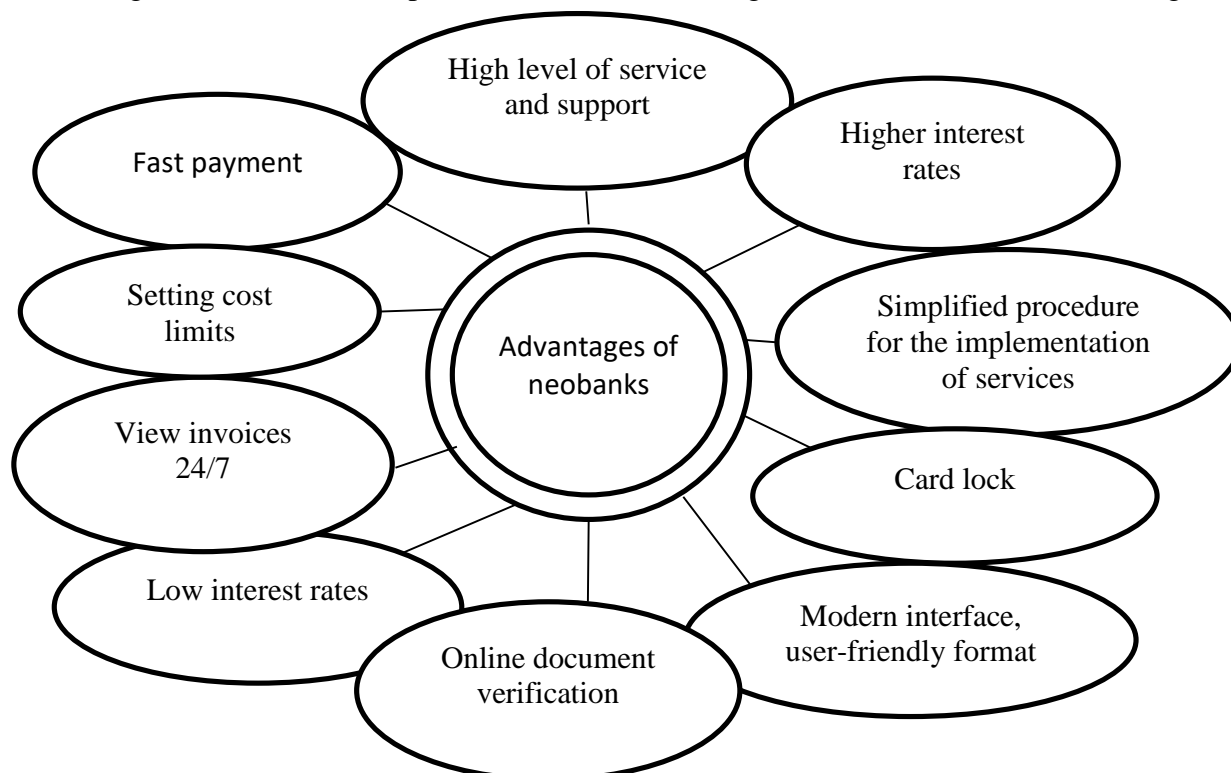


Fig. 2. Advantages of non-banks

⁶⁰⁹ Top 20 digital banks in Ukraine. Banker of Ukraine Banker. 2021.

⁶¹⁰ Zhytar M. O., Zelinska V. S. (2019) Neobanking: foreign experience and Ukrainian perspective.

Today, neo-banks have the opportunity to obtain a banking license, or operate on the basis of one of the traditional banks, that is, in fact, non-banks buy services from financial institutions in bulk, and sell to users at retail. The first option is used by financial startups in the UK, the second option is used by other companies where obtaining a license is a very expensive and time-consuming process.

Today, the UK ranks first in terms of favorable conditions for the creation of neo-banks. The large number of financial technology personnel, access to a wide base of investors, regulated legislation, minimum taxes, and the unimpeded obtaining of licenses are the reasons that contribute to the creation of online banking in the UK.

By 2021, the number of neobanks in the world will reach 300 units. Online banks do not have the costs associated with traditional conventional institutions. Thus, they tend to pass on these savings to customers in the form of lower fees, higher rates and improved digital banking products. But not all online banking is the same, and some offer better products and features than others.

Conclusions. Under modern conditions, banks' activities should be based on the strategy of digitalization and management, on the basis of which each bank can determine its own competitive advantages or weaknesses and determine which market segments it can provide certain banking products. In Ukraine, the strategy of gradual closure of the retail network and the strategy of digitalization for 1-3 years are long-term. This is due to social, political, legal factors. It is psychologically difficult for a senior target group of clients to trust a bank that does not have a physical presence. Analysis of the digitalization of commercial banks will justify not only the current activities but also the further development of the bank as a business entity, to form the conditions for assessing the feasibility of management decisions taken in the future. An important factor influencing the stability of the banking system is the level of public confidence in banks.

The digital bank must build a relevant (depending on the location and needs of the user) and trusting dialogue with the client and go where its customers are comfortable to communicate – in social networks. Social media marketing is the least expensive way to promote a brand / product globally and is one of the most promising tools. The digitalization of banking institutions, the introduction of innovative banking products and advanced marketing technologies are extremely important issues for further research.

The main focus of the digital economy is the use of digital, communication and information technologies in the virtual world, which contributes to improving the country's economy and its investment attractiveness.

The emergence of "neo-banks" as a new form of banking is associated with the significant development of Internet technology and the emergence of a new generation of consumers who actively use smartphones in everyday life and prefer total remote control with their own finances. That is why it is advisable to implement the concept of "digital DNA" of the bank, which is based on a comprehensive management system of digitalization processes, which includes: revision of business model and operational model of the bank, building an ecosystem of partnerships, modernization of customer interaction

In the conditions of active development of digitalization, modern clients in the process of evaluating a financial institution no longer compare different banks, they compare experience. Although Internet banks are becoming increasingly popular in the world and in Ukraine, due to a number of their advantages over traditional ones, they also have many disadvantages.

That is why to achieve the development of digitalization of Ukrainian banks should pay attention to the main components of modern digital banking management, namely:

1. Multichannel banking. Everyone The channel needs its own set of workflows, content, screen design and other tools support. The work is repeated many times, and the end result is distributed through channels that are not interconnected. Instead of, to Create Digital Business Features for of each channel, the development of one and distribution on all channels through becomes actual central hub. This requires a central multi-channel platform digital banking for interaction with customers through any point of contact.

2. Modular banking. Thanks to the modular architecture banks can innovate quickly and according to customer needs. Modular architecture gives the bank the opportunity go beyond responding to market realities and actively create them together with the client.

3. Open banking. Banks need to open their application software interfaces. Used properly, it can help them improve their products and services. Open banking has several elements: access to connections; distributed work; single production; common meaning; wealth management.

4. Smart banking. Effective segmentation, targeting and tracking is done by collecting data from a variety of sources and their analysis to create effective statistics.

Each customer receives a product or service adapted to his individual needs, through the channel most suitable for them or selection channels. This approach manages consumer satisfaction by adapting as a product, and sales channel to their needs in any moment of time. Each of these four components is a fundamental algorithm for successful management in the digital economy regarding the banking industry of the future.

That is why in order to achieve the development of digitalization of other Ukrainian banks it is necessary to introduce the main components of modern management digital bank, namely: multichannel banking, modular banking, open banking and smart banking. Each of these four components are a fundamental algorithm for successful governance in the digital economy regarding the banking industry of the future.

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