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Current Trends in Digitalization of Banking Business in Russia

O. Yu. Donetskova
Orenburg Branch of the Russian Presidential Academy of National Economy and Public Administration (RANEPA), Orenburg, Russian Federation

ABSTRACT

Currently, digital technologies are being actively implemented in all sectors of the economy, including the banking industry. This process is influenced by various factors that either stimulate or limit its development. The subject of the research is innovative digital developments that can help banks become more efficient and competitive; protect them from risks, and improve the quality of their banking services. The object of the study is digital banking, a promising form of banking service provision. The relevance of this research is due to the rapid digital transformation and the introduction of innovative technologies, which are radically changing the paradigm of customer service and risk management. The purpose of the work is to identify current trends in the digital banking, to systematize the benefits of digital technologies and to identify key areas of banking practice that are affected by them. The study of the development of digital banking business models is based on the methods of chronological cognition and expert assessments. The scientific article is interdisciplinary in nature, based on the fundamental works of leading domestic and foreign economists, as well as analytical materials from the Bank of Russia. The author concludes that banks are conquering new markets by providing mainly remote services and contactless payment options. The scientific novelty of the paper lies in the author's interpretation of the process of digitalization in the banking industry, highlighting the various stages of its development and providing a comprehensive analysis of Russian digital banking practices. The practical significance lies in the development of recommendations for optimizing the digital transformation of banks, which is useful for financial professionals and developers of digital solutions. A promising area for further research is a more in-depth study of the factors that hinder digitalization and the methods for minimizing them.

Keywords: banks; digitalization; blockchain; cryptocurrency; artificial intelligence; mobile banking

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INTRODUCTION

Currently, all sectors of the economy are characterized by the integration of modern digital technologies. The process of digitalization in the banking business is more dynamic than in other sectors of the economy. Recent decades have been accompanied by increased interest in the topic of digitalization of business models, including from the banking and scientific communities, as well as from technical and information institutions. In the scientific works of Russian economists, much attention is paid to the topic of innovation in banks [1–7].

In a broad sense, digitalization refers to the rapid integration of new digital and trending technologies into the business context of financial intermediaries in order to increase their profits and expand opportunities. According to the author, the term "digitalization" implies the introduction of affordable new technologies into the business process of companies to bring them to a high-quality and efficient level.

Based on the global and domestic experience in the development of digitalization of the banking business, a number of models of digital banking organization have been formed (*Fig. 1*).

1. *The Anglo-American model* was formed during the COVID-19 pandemic in the context of widespread coverage of territories by Internet resources and the spread of marketplaces, as well as constant consumer demand for services from digital providers and trust in them for personal data protection (in the UK, the cybersecurity index was 0.931; in the USA — 0.926). This model is characterized by the presence of independent platforms such as Apple Pay, Google Pay, and the merging of banking services with customers' digital devices, which allow users to freely access their banking services in the "here and now" format. Such a banking business model is actively integrated into the daily lives of customers.

2. *The Russian model* was formed as part of the implementation of the state program for the digitalization of the economy[1] and the achievement of the strategic objectives of the mega-regulator for the creation of national digital banking systems. The formation of the domestic model was significantly influenced by the active innovation policy of the TOP 3 Russian banks[2] and the expansion of the niches of the Internet service provider[3] market. However, the business models of digital banking in Russia do not have a single transparent customer base.

3. *The European model* of digital banking reflects the specifics of national guidelines. Some countries (Sweden, Denmark) actively use digital technologies in financial services, while others (Italy, Spain) have traditional banking systems. The European Commission actively supports the development of digital financial services by creating conditions for competition and innovation, as well as developing new rules and regulators to protect consumers and ensure security.

Digitalization of the banking business is the process of introducing new technologies and digital tools to improve the quality of customer service, optimize business processes and increase the efficiency of the bank.[4]

The initial stage of digitalization of the banking business began with the introduction of automation of routine and monotonous processes. Banks began using computer programs, which made it possible to speed up transactions and reduce costs [9].

With the spread of the Internet, banks were able to provide their services online, which

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[1] National Program "Digital Economy of the Russian Federation" dated 04.06.2019 No. 7. URL: https://digital.gov.ru/target/naczionalnaya-programma-czifrovaya-ekonomika-rossijskoj-federaczii (accessed on 05.02.2024).

[2] PJSC "Sber". URL: https://www.sberbank.ru /; PJSC "T-Bank:. URL: https://www.tbank.ru /; Alfa-Bank JSC. URL: https://alfabank.ru / (accessed on 05.02.2024).

[3] PJSC Rostelecom. URL: https://www rt.ru / (accessed on 05.02.2024). MTS PJSC. URL: https://www.mtsbank.ru / (accessed on 05.02.2024).

[4] Digitalization of business processes. URL: https://rpa-robin.ru/blog/cifrovizaciya-biznesa / (accessed on 05.02.2024).

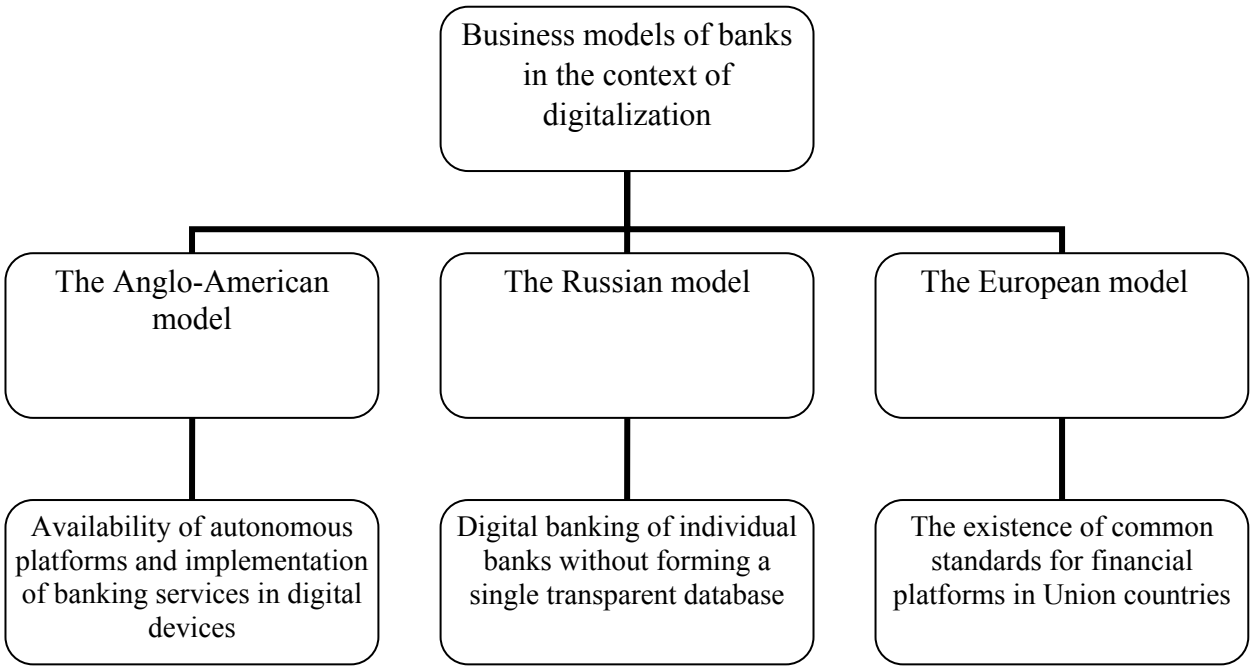

Fig. 1. **Business Models of Banks in the Context of Digitalization**

Source: Compiled by the author based on the data [8].

significantly expanded the customer audience and reduced operating costs.

The development of artificial intelligence and machine learning has revolutionized the approach to the organization of banking. Banks began to actively implement it to analyze transactions, customer behavior, and market conditions in order to provide personalized products, process data, and make informed decisions. This allows you to increase revenue, improve customer service, and reduce risks.

The emergence of blockchain technologies has allowed banks to ensure the security and transparency of transactions, as well as to develop the latest financial instruments based on cryptocurrencies. In banks, it is advisable to use it for transaction security and optimization of international payments [10].

The integration of virtual and augmented reality (VR/AR) into the banking business is characterized by the creation of interactive presentations of their products and services, providing customers with the opportunity to virtually "visit" the bank, as well as develop distance learning courses to improve the skills of their employees.

Banks have recently started using the Internet of Things (IoT) to monitor and control their equipment and systems. The Internet of Things allows banks to analyze data received from various devices to optimize business processes and improve the quality of service.

Banks are actively developing digital channels of interaction with customers, offering a wide range of their services and products through them.

In order to expand the customer base and explore new market segments, banks are forming ecosystems that combine various services and offerings, which allow them to meet consumer demand for integrated solutions.

For example, Sber, being one of the largest banks in Russia, has its own ecosystem, including many different services that manage finances, pay for goods and services, transfer funds, etc. Sber has its own chain of stores, actively develops areas of medicine, education and tourism.

Table 1

The Latest Stage in the Development of Digital Technologies in the Banking Business

Late 1990s — early 2000s	2010s	Modernity (2020 s)
Introduction of information technologies for remote banking (Internet banking and online services for customers)	"Mobile banking": Banks actively developed mobile applications for customer service on smartphones and tablets	Banks are actively implementing artificial intelligence, process automation, data analytics and blockchain technologies

Source: Compiled by the author.

The Yandex ecosystem is characterized by many useful services for users.[5] Banks and Yandex interact through various platforms, and users can make payments and transfers through Yandex.Money, as well as open bank accounts. Financial intermediaries are constantly striving to develop new technologies to automate processes and improve the quality of customer service. New "unmanned" technologies allow banks to evaluate large amounts of data, maintain transaction security, improve customer service, and minimize risks.

Digitalization of banking involves the robotization (RPA) of banks' core business processes to perform routine tasks and operations, which significantly reduces task completion time, reduces the likelihood of errors, and optimizes resource usage and increases the efficiency of the bank as a whole. Over the past 20 years, digitalization has completely covered the banking process (see *Table 1*).

These conditional time frames illustrate the desire of banks to take a leading position in the use of modern technologies to optimize their work.

[5] For example, Yandex.Taxi allows you to order a taxi, Yandex.Food — order food from restaurants, Yandex.Health — get a doctor's consultation, Yandex.Real Estate — find a place to buy or rent, Yandex.Travel — book a hotel or buy plane tickets, Yandex.Afisha — buy tickets to concerts and performances, and so on.

OVERVIEW OF DIGITAL BANKING TECHNOLOGIES IN RUSSIA AT THE PRESENT STAGE

At the current stage of functioning in Russia, the main trends of the banking business have already been formed. There is a tendency to increase the role of virtual branches and minimize physical presence in the market: through ATMs, without the participation of bank staff, documents are signed with personal electronic signatures.

At the same time, physical branches of banks provide their clients with a full range of not only banking services, but also products of financial intermediaries (insurance policies, pension products, etc.). Most banks have cafeterias for meetings with partners for meetings and business events, as well as halls for video conferences with clients.

Banks are often installed in various locations (for example, in shopping malls and car dealerships) both their representatives and fully automated kiosks (in the form of a video screen and an ATM, through which customers can independently receive banking services) [11].

Banks are also developing social banking: they send personal financial offers to their clients using social networks and messengers (Odnoklassniki, VKontakte, etc.).

The expansion of the possibility of offering banking services has become possible thanks to the "digital footprint" of the client.

Table 2

The Number of Users of Banking Applications

Bank	The number of installations since 01.01.2015, including App Gallery, App Store, Google Play	The number of installations excluding AppGallery	Increase in installations 2021–2022/2020–2021	The number of sessions per day	Average user time per day
Sberbank	440 384 599	10 033 999	7 226 761	0.97	190
VTB	32 346 864	4 909 367	1 863 609	101	230
Tinkoff	60 896 001	14 632 274	2 898 965	1.4	200
Alpha	31 615 616	5 439 042	–391 571	0.96	190
PostOffice Bank	24 907 343	4 326 659	391 982	1.3	190

Source: Compiled by the author on the basis of data from: Mobile Banking Application Survey in Russia, 2022. URL: https://goahead.ai/goawards/gobanking2023/cases/Go_Banking_2022.pdf (accessed on 05.02.2024).

Thus, when searching for financial services necessary for clients or communicating on social networks, their "digital footprint" remains [12]. Financial intermediaries constantly analyze it and determine the preferences of the client in order to form personal recommendations and ensure the safe use of the Internet.

Statistical data on digital banking services in Russia can be quite extensive and diverse. There are about 370 banks operating in Russia in 2024, and each of them has its own mobile application and online banking. The total number of such services can reach several hundred. The number of active users of mobile applications and online banking is constantly changing, as users can install and delete applications, as well as change banks (see *Table 2*).

In addition, the number of "mobile" customers of the older generation is growing every year, as well as people with disabilities who find it difficult to understand the functions of banking applications. According to some estimates, the share of mobile payments in Russia exceeds 70% of the total volume of non-cash transactions.[6]

Let's take a look at the trends in the number of accounts and the volume of transactions through mobile applications and online banking services. This indicator is dynamic and can be expressed in various currencies (in rubles, dollars, or euros). During the period under review, there has been a steady increase in the volume of transactions conducted through digital channels (see *Table 3*).

Contactless payment systems are widely used in Russia, and alternative methods of non-cash payment are actively developing. Thus, after the termination of the service of foreign cards, the national payment system "Mir" rapidly conquered the market in

[6] Mobile Banking Application Research in Russia, 2022. URL: https://goahead.ai/goawards/gobanking2023/cases/Go_Banking_2022.pdf (accessed on 05.02.2024).

Table 3

The Number of Accounts and the Volume of Payments with Remote Access Opened in Credit Institutions of the Russian Federation, 2021–2023, Thousand Units

Date	Total amount of payments	Total number of accounts	Including those opened to clients:					The share of using mobile subscriber devices of individuals in the total volume
			Legal entities, not included, total	Of them	Individuals, total of them:	Of them	With access via messages using mobile subscriber devices	
				With access via the Internet		With access via the Internet		
1	2	3	4	5	6	7	8	9
2023	x	356.6	8.9	8.2	348.4	334.2	254.8	0.73
2022		333.2	7.8	7.9	325.2	311.9	242.5	0.75
2021		293.4	6.6	6.5	286.7	276.1	210.8	0.74
2023	523.4	x	799.6	694.9	35.2	27.0	13.5	0.00
2022	1339.6	x	1306.3	1165.6	33.3	18.1	1.2	0.04
2021	881.6	x	859.6	707.2	21.9	12.0	0.8	0.04

Source: Compiled by the author on the basis of data from: URL: https://cbr.ru/statistics/nps/psrf/ (accessed on 05.02.2024).

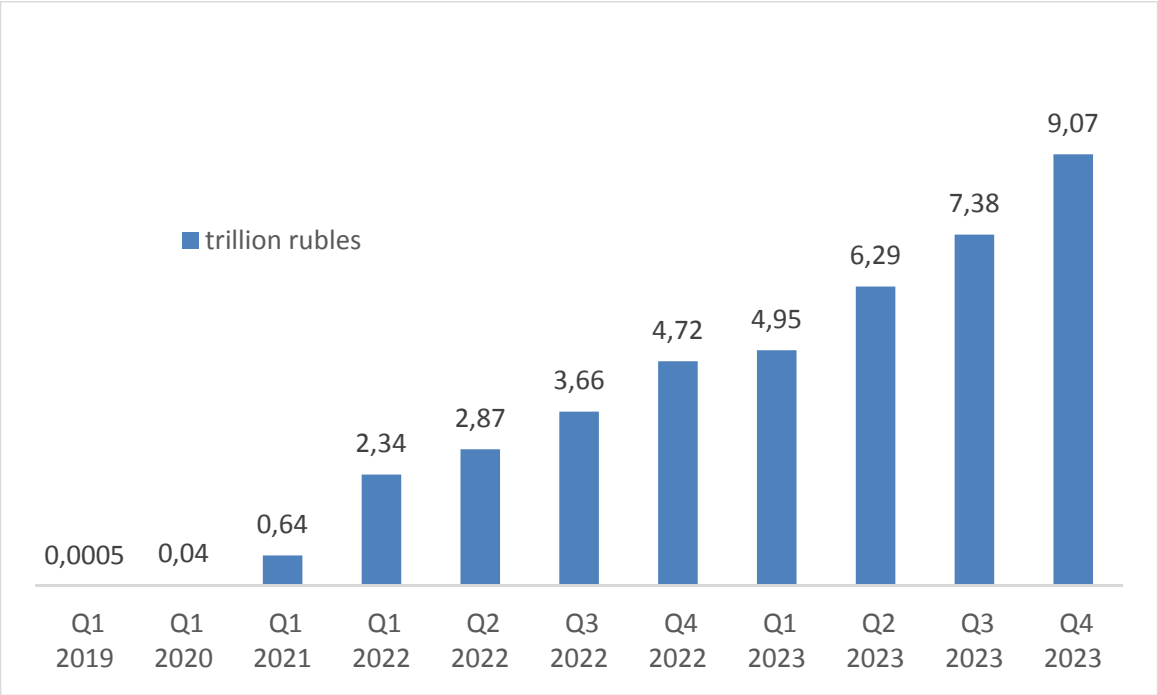

Fig. 2. **Dynamics of the Volume of Purchases of Goods and Services in the Total Number of Transactions in the SBP Trillion Rubles**

Source: Compiled by the author.

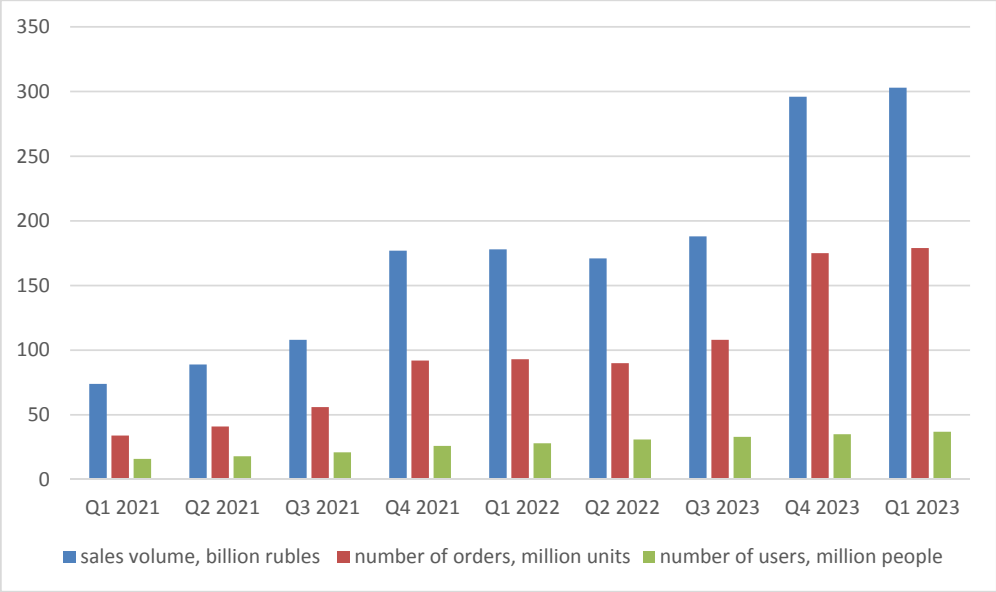

Fig. 3. **Ozon's Operational Performance**

Source: Compiled by the author on the basis of data of Ozon press releases. URL: https://ir.ozon.com/ru/news/4510/ (accessed on 05.02.2024).

Russia. NPC Mir offers its own application for contactless payments — Mir Pay.

Payment services Yandex.Money and Qiwi and others are actively developing their technologies for contactless payments.

Sberbank, Russia's largest bank, has developed the Cyberpay Online application for contactless payments using NFC technology, which allows you to quickly pay for online purchases. For example, in March 2022, the population made payments from Cyberpay Online in the amount of 28.8 billion rubles, and in 2023 — by 169.7 billion rubles. Payments increased almost 6 times, and the number of customers increased from 6.8 million to 25.6 million people. The share of online payments for the analyzed period is almost 45% of Sber's online acquisition.[7]

In June 2022, the MIR payment system introduced an alternative method of making payments using QR codes, in which the seller reads the code created by the customer in the Mir Pay application and deducts the required amount from his account.

Banks constantly monitor customer demand in order to improve their products and develop new financial products and services for all categories of customers [13].

At the same time as using "traditional" payment tools, banks are developing new payment mechanisms that are more attractive to customers and stable to external factors. Thus, the quick payment system (SBP)[8] has become in demand (*Fig. 2*).

Current trends in Russia include: growing demand from sellers and a franchising network of financial product pick-up points, as well as increasing confidence in "quasi-banks". Clients are ready to use Big Tech companies as a provider of financial services [14]. Platforms and the marketplace compete for their attention, time, and the functionality of applications that allow them to receive services quickly and efficiently. The emerging technology of embedded finance in the banking service makes it possible to integrate payment instruments, lending, insurance, as well as investing in any non-financial service or product.[9]

[7] More than 25 million Russians use Cyberpay every month. URL: https://dzen.ru/a/ZEfCjwVoDBX74pL_ (accessed on 05.02.2024).

[8] URL: https://cbr.ru/analytics/nps/sbp/4_2023 (accessed on 05.02.2024).

[9] Russian FinTech-2023: payment in messengers and electronic wallets 2.0. Read more on RBC. URL: https://trends.rbc.ru/trends/industry/6438feb49a7947f538487af6?from=copy(accessed on 05.02.2024).

Table 4

Dynamics of the Number of Devices Used for Transactions with and Without Payment Cards for the Period 2017–2023 (Thousand Units)

Date	The number of ATMs						The number of terminals				
	In total	With a cash withdrawal function		With the function of accepting cash			Electronic terminals	Cashless payment terminals	Electronic terminals at cash	Withdrawal points of imprinters installed in trade (service)	Organizations of imprinters at cash withdrawal points
		In total	Total of them	In total	Total of them:						
			With the functi/on of paying for goods and services		Without using payment cards (their details)	With the function of accepting cash from					
1	2	3	4	5	6	7	8	9	10	11	12
1.10. 2023	149.2	112.9	105.3	122.4	6.9	115.4	3967.6	343.3	163. 6	0	0
1.01. 2023	179.7	114.3	107.4	149.7	6.2	143.4	3809.5	272.4	165.3	0	0
1.01. 2022	190.4	120.7	114.5	148.3	6.2	142.1	3546.8	201.3	178.9	0.4	0.3
1.01. 2021	200.0	124.6	121.5	151.6	5.9	145.7	3598.7	121.3	185.9	0.47	0.6
1.01. 2020	202.6	131.9	128.6	145.8	7.0	138.8	2913.0	92.6	194.4	1.2	0.2
1.01. 2019	200.9	129.3	127. 3	135.1	9.9	125.1	2588.8	5.1	218.8	16.2	0.9
1.01. 2018	206. 4	125.6	123.7	134.5	1.1	123.1	2189.1	3.9	179.0	16.7	1.0
1.01. 2017	208.9	126.7	123.8	131.5	7.4	124.07	1761.3	5.7	190.2	16.6	0.7

Source: Compiled by the author on the basis of data from: URL: https://cbr.ru/statistics/nps/psrf/ (accessed on 05.02.2024).

Table 5

Sbercoin Roadmap

2020	2021	2022	2023	2024
Creating the SbercoinOne project Registration of a legal entity (sole proprietor) in the Russian Federation Deploying a smart contract on the Ethereum Blockchain	The fixed value of one coin is 200 rubles. Listing on decentralized exchanges.Enabling online payment by bank cards on the website. Migration of 10% of coins to BSC.5,000 coins to eth addresses of Holders. Online promotion	Indexing the value of the coin by 50% Listing on a centralized exchange Offline promotion 50,000 coins on Holders' eth addresses Changing the form of ownership of an LLC	Indexing the value of the coin by 50% Obtaining a crypto license Listing on a major API exchange Adding Coins to CoinMarketCap Attracting investors of 300,000 coins on eth addresses of Holders	Establishing the market value of the coin. Creating an ecosystem and deploying decentralized SbercoinOne applications 100% coins in free circulation

Source: Compiled by the author.

Ozon Bank provides express loans or installments to pay for purchases, issues cards with favorable terms and high cashback (*Fig. 3*).

The M. Video–Eldorado group[10] provides credit brokerage services, develops its own fintech platform focused on electronic payments and consumer lending, and also offers its customers the BNPL ("buy now, pay later") service.[11]

MTS Corporation has formed a personal fintech ecosystem by combining MTS Bank and MTS Money.[12]

The Tinkoff service also mediates marketplaces. An actual advantage for consumers of modern services is the ability to pay for online purchases in equal installments over a short period of time.

In order to increase sales, financial intermediaries are expanding online lending, including on marketplaces. An important indicator of the development of contactless payments is the number of contactless terminals and POS terminals (*Table 4*).

A wide range of devices, and their availability in large numbers, allow for fast and convenient transactions.

The expansion of the range of financial services and the appearance of numerous financial intermediaries on the market obliges the Bank of Russia to improve legislation and introduce modern legal mechanisms that increase the degree of liability of credit institutions for damage caused to the client due to illegal actions of third parties and technical failures. According to the Center for Strategic Research (CSR), the information security market in Russia, despite the expected decline due to the departure of foreign vendors, grew by 4% in 2022 and is expected to further increase to 24% by 2027. The positive aspect is the fact that the Russian growth rate of the cybersecurity market is much higher than the global average.[13] Investments in cyber defense are economically more profitable than the costs that the bank will have to incur to cover the negative consequences of illegal actions.

[10] The M. Video — Eldorado group is the leader of the Russian retail market for household appliances and electronics. Combining two leading Russian retail brands, the company operates the largest online platform for the sale of household appliances and electronics and more than 940 stores in all regions of Russia.

[11] Russian FinTech-2023: payment in messengers and electronic wallets 2.0. Read more on RBC. URL: https://trends.rbc.ru/trends/industry/6438feb49a7947f538487af6?from=copy (accessed on 05.02.2024).

[12] Electronic payment systems in Russia. URL: https://www.tadviser.ru/index.php/(accessed on 05.02.2024).

[13] URL: https://www.vedomosti.ru/investments/articles/2023/08/30/992513-kuda-investirovat-na-rinke-kiberbezopasnosti (accessed on 05.02.2024).

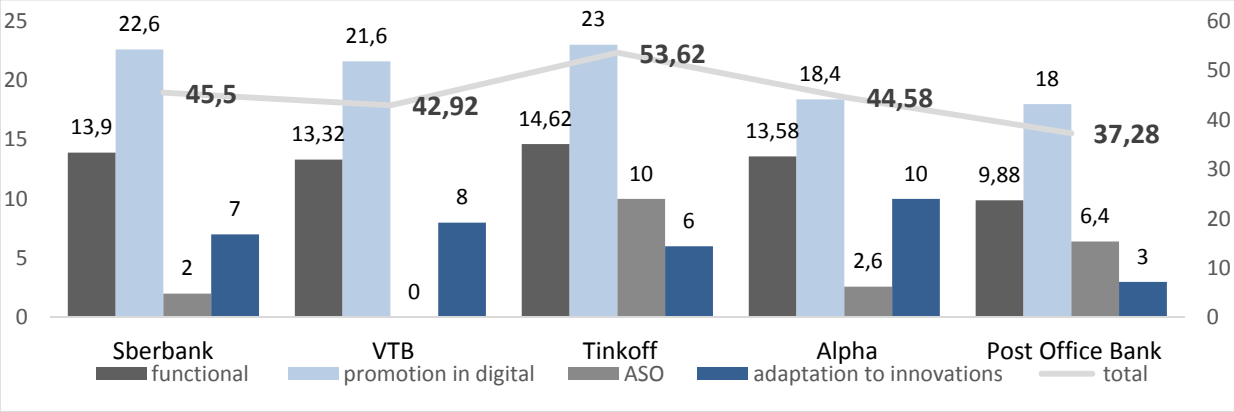

Fig. 4. **The Best Mobile Bank in 2022**

Source: Compiled by the author on the basis of data from Research of mobile banking applications in Russia. URL: https://goahead.ai/goawards/gobanking2023/cases/Go_Banking_2022.pdf (accessed on 05.02.2024).

To ensure the protection of the legitimate interests of customers, banks will receive legal grounds for the creation and use of the Central Bank's "Know Your Customer" information service.

This service processes information on a daily basis "on the level of risk of customer involvement in suspicious transactions and uses it in the implementation of anti-legalization control procedures".[14]

Transactions with a new digital form of money are an urgent area in the financial market [15]. After the introduction of the digital ruble,[15] which the Bank of Russia issued in 2023, banks are required to make payments and transfers in a third form of money, similar to non-cash payments. In January 2021, Sber submitted an application to the Bank of Russia for the registration of a blockchain platform and the issuance of its own digital asset Sbercoin. The Sbercoin development strategy is outlined in the form of a roadmap (see *Table 5*).[16]

According to CoinMarketCap, Sbercoin began trading on March 17, 2022 at $ 0.0003617, and as of January 2024, the price of Sbercoin was $ 0.0115034987.[17]

Currently, there are a limited number of statistical and analytical reviews on the use of blockchain technology by banks in Russia, as this is a relatively new area of development [16]. Based on the results of the presented study, it is possible to determine the level of customer satisfaction with the digital services of financial intermediaries (*Fig. 4*).

Analytical and informational reports show that most Russian bank customers are satisfied with the quality and functionality of their mobile applications and internet banking systems.

PROBLEMS OF DIGITALIZATION OF BANKING SERVICES IN RUSSIA

The rapid development of digitalization of banking services is accompanied by numerous limitations and difficulties.

Firstly, the lack of qualified specialists in the field of IT and digital transformation is a serious problem for the banking sector. With the development of technology and digitalization of banking processes, more and more specialists with relevant knowledge and skills are required [17, 18].

Banks face competition from other industries, such as technology companies,

[14] The Central Bank's draft of the main directions of digitalization of the financial market for the period 2022–2024. URL: https://cbr.ru/press/event/?id=12518 (accessed on 05.02.2024).

[15] The Law on Digital Financial Assets and Digital Currencies dated 31.07.2020 No. 259-FZ, which entered into force on January 1, 2021, allows the Russian citizens to buy digital analogues of securities and gives digital assets a legal status.

[16] URL: https://sbercoin.one/#start (accessed on 05.02.2024).

[17] URL: https://coinmarketrate.com/ru/currency/sbercoin/ (accessed on 05.02.2024).

which also need IT specialists. This creates a shortage of qualified personnel and increases competition in the labor market.

To solve this problem, banks can motivate banking specialists to improve their knowledge in the field of modern digital technologies; cooperate with educational organizations for high-quality professional retraining of bank employees; use outsourcing services.

Secondly, consumer demand places high demands on the convenience, speed and security of banking services. This forces banks to constantly improve their technological processes. It is not enough for banks to use their own funds accumulated from profits or other sources. They can interact with other financial intermediaries in order to obtain consortium loans or borrowed funds to finance digital projects.

Government support is important for solving the problem of insufficient resources. In some countries, governments may provide grants or subsidies to support digital transformation in various industries, including the banking industry.

Banks can use crowdfunding platforms to raise funds from a wide audience interested in developing digital innovations in the banking sector.

Third, the digital transformation of banking services is accompanied by data security and cybersecurity risks. Responsibility for uncontrolled transactions is generally assigned to the bank [19]. Digitalization potentially increases the frequency of fraud and unauthorized break-ins. To solve this problem, banks can apply:

1. Multi-factor authentication, data encoding and monitoring of network activity, which timely identifies potential threats and prevents cyber attacks.

2. Systematic training and improvement of security policy to reduce the risk of data leakage.

3. Clear action plans (strategies) in the event of a cyberattack or data leak, which will allow banks to quickly respond to the incident and restore customer data.

Fourth, many banks have limited access to modern developments. European economic sanctions have a negative impact on the digitalization of the banking business directly (a ban on the use of services) or indirectly (restrictions on imported programs and other equipment). At the same time, the sanctions applied have become an incentive for the production of domestic software equipment for banks.

Fifth, customer adaptation to new digital banking technologies is a complex process due to a variety of factors: insufficient technical literacy, little experience with digital devices; lack of constant Internet access; distrust of digital services and the threat of cyber attacks or fraud. Some clients, typically of the "silver" age, may be accustomed to traditional methods of banking, such as visiting a physical branch or interacting with a bank representative in person, and may not see the value in switching to digital services. This can create barriers to adopting new technologies.

To mitigate the difficulties of adapting customers to new digital technologies, banks can take the following steps:

- training and support: providing training materials, trainings and consultations on the use of digital services for customers, especially for those who are experiencing difficulties;
- improving user demand: developing user-friendly and intuitive interfaces for mobile applications and online services to make the use of new technologies easier and more convenient;
- offline support: providing alternative service methods for customers who prefer traditional ways of interacting with the bank, for example, through branches or contact centers;
- encouraging the use of digital services: offering bonuses, discounts or other incentives to customers who actively use the bank's digital services [20].

Sixth, the late adoption of regulatory documents and the lack of relevant laws and regulations can slow down the process of digital transformation of the banking business and create obstacles to the introduction of new technologies.

In order to contribute to the digital modernization of the banking business, it is necessary to develop new laws and regulators that will meet the realities of the digital economy and provide support for:

- minimizing cybersecurity threats: legislation should include data encoding requirements, fraud prevention measures, and obligations to notify about security breaches;
- legal regulation of digital payments, ensuring the security and efficiency of electronic payments, including the use of blockchain technologies and cryptocurrencies;
- consumer protection when using digital banking services, including transparency of the terms of service, protection of personal data and the possibility of contacting law enforcement agencies;
- stimulating innovation in the banking sector, for example, by creating special programs to support startups and technological innovations, as well as simplifying procedures for innovation;
- development of laws and regulations that will comply with international standards and promote global cooperation between countries in the field of digital modernization of the banking business.

Seventh, banks are forced to incur significant costs for the introduction of digital technologies into their operations. In our opinion, the formation of a single transparent customer base of banks will improve the efficiency of financial services, improve the quality of customer service, and create broader opportunities for personalization of offers.

Thus, the issue of creating a unified, transparent customer database in the context of digital banking can be seen as a balancing act between competition and collaboration, where each bank must individually determine the best course of action for its strategy.

Also, in order to solve the tasks of national projects on the digitalization of the economy, we recommend that banks form common standards for financial platforms for conducting banking operations. This will reduce costs, increase the efficiency and transparency of the banking system, as well as ensure the safe handling of customer personal data and counteract fraudulent schemes.

An integrated approach to solving these tasks will help develop digital processes in the banking business at all stages — from short-term to long-term.

PROSPECTS FOR THE DEVELOPMENT OF DIGITALIZATION OF BANKING SERVICES IN RUSSIA

The prospects for the digital transformation of the banking sector in Russia are determined by the following strategic directions:

1. Development of mobile and online platforms. It is expected that by 2025, more than 80% of the Russian population will use mobile devices with the ability to use contactless payment technologies.

2. Widespread adoption of artificial intelligence and machine learning to continuously repeat banking business processes in order to reduce costs and improve customer service.

3. Cloud solutions will reduce banks' infrastructure costs, increase business flexibility and accessibility.

4. Biometric identification will help to build a psychological profile of the client and form a unified system of their identification.

5. Providing a range of banking products with cryptocurrencies based on blockchain technology can provide more efficient and secure financial transactions, improve access to financial services, and increase customer confidence. In our opinion, such products will be the most promising. Financial intermediaries can open digital wallets that will allow customers to store, send, and

receive cryptocurrencies. This can provide convenience and security for customers who want to manage their digital assets. Banks can offer loans secured by cryptocurrencies, which will allow customers to use their digital assets to obtain financing. Banks are able to provide cryptocurrency trading services to their clients, who will be able to invest them in digital assets through a reliable intermediary. However, it is necessary to take into account the risks associated with the volatility of the cryptocurrency market, the security of digital asset storage and compliance with legislation. Banks should develop risk management strategies and ensure a high level of security to protect the interests of their customers.

Thus, the prospects for the development of digitalization of the banking sector in Russia look promising, due to the growing demand for digital services from customers and the innovative technologies that banks are implementing to improve their business.

CONCLUSIONS

The process of digitalization is transforming all sectors of the economy, including the banking industry, and is progressing rapidly. Through the study of domestic and international experiences in the field of banking digital transformation, we have identified three models of digital banking. The Anglo-American model involves the operation of autonomous platforms that integrate banking services with customers' digital devices for immediate access. The Russian model was developed as part of the government's digitalization program and is implemented by individual banks. The European model reflects national priorities and operates based on common standards adopted across European countries.

With the development of information technology, banks are actively introducing computer technology, banking equipment and ATMs, and software, which makes it possible to increase the efficiency and accuracy of work. Monotonous banking operations are performed by robots and artificial intelligence. Machine learning is used to analyze transactions, customer behavior, and market trends. Virtual and augmented reality allow for interactive presentations of banking products. The Internet of Things provides fast and high-quality analysis of data received from various devices in order to optimize banking activities and improve the quality of customer service. The use of blockchain technologies allows banks to carry out secure and transparent transactions, as well as offer customers new financial instruments based on cryptocurrencies.

Banks are abandoning traditional customer service and offering virtual branches and self-service points without the help of a banking specialist. If it is necessary to design more complex financial or investment products and services, video banking consulting is provided. Banks also offer boxed products — banking products with integrated services of other financial intermediaries (insurance, pension provision, investments). Bank employees can also serve clients in their partners' offices (in shopping malls, car dealerships, etc.) and place fully automated video kiosks.

The development of the Internet has allowed banks to carry out social banking, analyze consumer demand, and develop new banking products.

The Mir national payment system has been actively developed in Russia to replace the banned international payment systems. Due to the use of contactless payment features, payments through the Quick payment system (SBP) and QR codes turned out to be the most in demand. The development of marketplaces has become a modern trend in Russia. Banks mediate online sales platforms for non-financial products by providing customers with installments and online loans. At the same time, the total number of active users of digital technologies is constantly changing. Customers under the age of 25 have become active users of credit cards issued through online banking and mobile applications. Currently, the Central Bank has given

permission to carry out transactions with the digital form of money. One of the first banks in the Russian Federation, Sber has registered a blockchain platform and is issuing Sbercoin.

The analysis revealed that the majority of Russians are pleased with the quality and usability of digital banking services. However, there are some challenges related to the lack of qualified IT professionals and the delay in the digital transformation process. Significant investments are needed in technology development, modernization of banking infrastructure, ensuring data security, and access to advanced European digital solutions. Customers also need to adapt to new digital banking technologies and regulatory regulation of the digital transformation of the banking sector. Solving these priorities will accelerate the digital transformation of the banking sector and apply advanced financial instruments, including cryptocurrencies and blockchain.

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ABOUT THE AUTHOR

Olga Yu. Donetskova — Cand. Sci. (Econ.), Assoc. Prof., Assoc. Prof. of the Department of Theory and Practice of Management, Orenburg Branch of the Russian Presidential Academy of National Economy and Public Administration (RANEPA), Orenburg, Russian Federation
https://orcid.org/0000-0002-7849-4034
olja-ja-77@mail.ru

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