

## PROCESSES OF IMPLEMENTING DIGITAL TECHNOLOGIES IN THE BANKING SERVICES MARKET AND PRIORITY AREAS FOR STRENGTHENING COMPETITION

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### ABSTRACT

Today, the rapid global development of digital banks demonstrates the ongoing transformation of the banking system and indicates that its future is closely linked to the activities of fintech companies. The growing number of digital banks and the speed and convenience of the services they offer provide them with a significant competitive advantage over traditional banks. As a result, conventional banks are actively investing in the expansion of digital products and services, as well as in cooperation with fintech companies in order to deliver innovative solutions to their customers. Overall, the future development of the banking sector remains directly dependent on the progress of fintech companies that introduce financial innovations and advanced technologies.

**Keywords:** Digital banking, banking digitalization, fintech companies, banking services market, competition in banking, digital transformation, financial innovations, mobile banking, customer experience, Herfindahl–Hirschman Index (HHI), iBank Index, ESG in banking.

### BANK XIZMATLARI BOZORIDA RAQAMLI TEXNOLOGIYALARNI JORIY ETISH JARAYONLARI HAMDA RAQOBAT MUHITINI KUCHAYTIRISHNING USTUVOR YO'NALISHLARI

#### ANNOTATSIYA

Bugungi kunda global miqyosda raqamli banklarning jadal rivojlanishi bank tizimining transformatsiyalanayotganini va uning istiqbollari fintech kompaniyalar faoliyati bilan chambarchas bog'liqligini ko'rsatmoqda. Raqamli banklar sonining ortib borishi hamda ular tomonidan taklif etilayotgan xizmatlarning tezkorligi va qulayligi an'anaviy banklarga nisbatan yuqori raqobat ustunligini ta'minlamoqda. Shu sababli, an'anaviy banklar raqamli mahsulot va xizmatlarni kengaytirish, shuningdek, mijozlarga innovatsion yechimlarni taqdim etish maqsadida fintech kompaniyalari bilan hamkorlikka faol investitsiya kiritmoqda. Umuman olganda, bank sektorining kelgusi rivoji moliyaviy texnologiyalarni joriy etuvchi fintech kompaniyalarning taraqqiyoti bilan bevosita bog'liq bo'lib qolmoqda.

**Kalit so'zlar:** Raqamli bank xizmatlari, bank sohasini raqamlashtirish, fintech kompaniyalar, bank xizmatlari bozori, banklararo raqobat, raqamli transformatsiya, moliyaviy innovatsiyalar, mobil banking, mijozlar tajribasi, Herfindal–Xirshman indeksi (HHI), iBank indeksi, banklarda ESG tamoyillari.

## ПРОЦЕССЫ ВНЕДРЕНИЯ ЦИФРОВЫХ ТЕХНОЛОГИЙ НА РЫНКЕ БАНКОВСКИХ УСЛУГ И ПРИОРИТЕТНЫЕ НАПРАВЛЕНИЯ УСИЛЕНИЯ КОНКУРЕНЦИИ

### АННОТАЦИЯ

В настоящее время стремительное развитие цифровых банков в мировом масштабе свидетельствует о трансформации банковской системы и показывает, что её будущее тесно связано с деятельностью финтех-компаний. Рост числа цифровых банков, а также высокая скорость и удобство предоставляемых ими услуг обеспечивают им значительное конкурентное преимущество по сравнению с традиционными банками. В связи с этим классические банки активно инвестируют в развитие цифровых продуктов и сервисов, а также в сотрудничество с финтех-компаниями с целью предложения клиентам инновационных решений. В целом дальнейшее развитие банковского сектора напрямую зависит от прогресса финтех-компаний, внедряющих финансовые инновации и современные технологии.

**Ключевые слова.** Цифровой банкинг, цифровизация банковской деятельности, финтех-компания, рынок банковских услуг, банковская конкуренция, цифровая трансформация, финансовые инновации, мобильный банкинг, клиентский опыт, индекс Херфиндаля–Хиршмана (HHI), индекс iBank, принципы ESG в банковской деятельности.

### INTRODUCTION

Digital banks are gaining a strong competitive advantage over traditional financial institutions due to their technology-driven services and highly efficient operational processes. In response to these changes, conventional banks are accelerating their digital transformation by investing heavily in technological infrastructure and the development of electronic services. In particular, cooperation with fintech companies is being expanded to introduce innovative products such as peer-to-peer payments and online lending. As a result, the adoption of advanced technologies, the expansion of digital services, integration with fintech providers, and the personalization of customer experience have become key strategic priorities for traditional banks to remain competitive in the digital environment.

### LITERATURE REVIEW

Academic studies emphasize that the role of competition in the commercial banking services market is steadily increasing amid changes in regulatory frameworks, rapid technological progress, and the acceleration of market dynamics. In regional banking systems, the competitive environment is now shaped not only by traditional banking institutions but also by the active participation of non-bank entities, particularly innovative technology companies offering financial services. As a result, the structure of competition in the banking market is expanding, with various technological platforms playing an increasingly significant role in the provision of financial services.

According to I. V. Rashkovskaya and co-authors, the rapid growth of technology companies in the financial services market is forming a new model of competition. These firms are successfully delivering services traditionally provided by banks—such as payments, lending,

and capital management—through digital transformation and advanced technological solutions<sup>1</sup>. According to the authors, the widespread adoption of digital technologies enables technology companies to offer more convenient and efficient solutions in the financial services market, particularly in the areas of settlements and payments, capital management, insurance, and lending services.

The growing use of digital technologies in the delivery of products and services in the banking market requires banks to restructure their business processes, upgrade their IT infrastructure, and increase investments in digitalization. In the retail banking segment, the development of modular and flexible service models is intensifying customers' demand for new and innovative products. The widespread adoption of mobile technologies further expands opportunities for accessing banking services through remote channels. The advancement of digital services also plays a crucial role in building the information bases necessary for collecting and analyzing customer data.

In her research, A. Omarini notes that analyzing large volumes of data streams supported by artificial intelligence and machine learning technologies enables banks to identify products and services that better match customer needs. A deeper understanding of customer behavior makes it possible to determine the appropriate level of additional services to be offered.<sup>2</sup>

In the studies conducted by Risman and co-authors, it was found that digital services have a direct impact on changes in the external competitive environment of commercial banks. The authors conclude that, as part of the transformation of banks' business models, the traditional banking sector must widely adopt digital financial tools in order to capitalize on historical opportunities and manage risks more effectively<sup>3</sup>.

Kuin conducted an empirical study on the impact of digitalization on the performance of the Chinese banking system, demonstrating that the overall index of digital services has a significant positive effect on the level of competition among banks. The author found that the influence of digitalization on bank competition is mainly transmitted through three key channels: deposit flows, lending activity, and cooperation mechanisms. Using a panel data model, the analysis assessed the effect of digital finance on bank competitiveness and concluded that when digital services are insufficiently developed, interbank competition may not intensify significantly<sup>4</sup>.

Overall, the competitive environment in the commercial banking services market is being further strengthened under the influence of digital technologies and financial innovations. The digitalization of payment, lending, and capital management processes through digital banks, fintech firms, and technology companies enables banks to develop innovative products and services tailored to customer needs. The expansion of mobile and remote services improves customer experience, optimizes business processes, and enhances the capacity for in-depth

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<sup>1</sup> I., V., Rashkovskaya., N., A., Kovaleva. (2019). Problems of Competition Between Commercial Banks and Technology Companies in the Market of Innovative Products and Services. 1681-1687. doi: 10.1007/978-3-030-47945-9\_179

<sup>2</sup> Anna Omarini The Shaping Landscape of Retail Banking and the Future of Digital Banking  
[https://link.springer.com/sharter/10.1007/978-981-16-7830-1\\_8](https://link.springer.com/sharter/10.1007/978-981-16-7830-1_8)

<sup>3</sup> Risman, A., Mulyana, B., Silvatika, B., and Sulaeman, A. (2021). The effect of digital finance on financial stability. 11(7), 1979–1984. doi:10.5267/j.msl.2021.3.012

<sup>4</sup> Suiyun Gao, Qian Wang Does digital finance aggravate bank competition? Evidence from China /  
<https://doi.org/10.1016/j.ribaf.2023.102041>

data analysis. Research findings confirm that digitalization intensifies competition among banks and increases their ability to adapt to changes in the external environment.

### ANALYSIS AND RESULTS

In recent years, the digital banking services market has undergone profound changes, and the introduction of new banking technologies has become a major driver of the digital development of financial services. Globally, demographic shifts, changes in customer behavior, and the growing demand of commercial banks for remote service channels have led to a sharp increase in the use of digital banking services. For example, in the United States more than 70 percent of bank customers prefer managing their accounts online<sup>5</sup>, while in the European Union about two-thirds of the population use internet banking services. In some countries, such as Norway, Denmark, and the Netherlands, this figure exceeds 95 percent<sup>6</sup>.

The growing popularity of digital services is encouraging even traditional bank customers to switch to digital banks. Digital banks provide customers with 24/7 access to their accounts, fast and secure payments and money transfers, and the ability to use bank cards and credit products remotely. In addition, customers can manage their funds anytime, anywhere, and from any device.

At the same time, digital banking services are distinguished by a higher level of security compared to traditional services. The use of advanced banking technologies—such as biometric authentication and data encryption—to protect customer information ensures reliable safeguarding of personal and financial data, thereby strengthening customer trust in digital banking services.

In today's rapidly evolving digital environment, meeting customer needs and maintaining the competitiveness of services are of critical importance for banks. Despite the expanding technological opportunities, banks still face significant challenges in implementing new technologies. These challenges include the following:

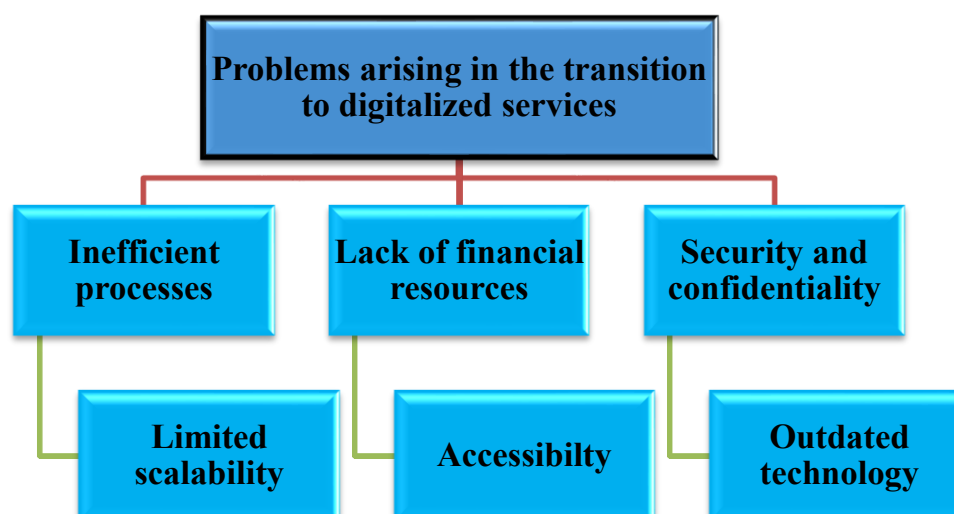


Figure 1. Barriers to the Transition from Traditional to Digitalized Services in Banks<sup>7</sup>.

<sup>5</sup> National Survey, American Bankers Association, 2023.

<sup>6</sup> Individuals using the internet for internet banking, Eurostat, 2023.

<sup>7</sup> Compiled by the author according to the research results.

The technologies used in the provision of traditional banking services must be continuously updated and developed in line with innovative processes in the banking sector. Delays in technological upgrades during the introduction of new products and services negatively affect the development of digital services. When transitioning to digital banking, issues of security and confidentiality—particularly the protection of customer information and financial transactions—become especially important. In traditional banking operations, the risks of cyberattacks and data breaches remain high, weakening the protection of sensitive information.

Moreover, traditional banking services are often characterized by inefficient processes such as long waiting times, excessive dependence on the human factor, and a lack of transparency, all of which reduce customer engagement. Expanding and developing the sale of banking services requires substantial financial resources, which may lead to higher operating costs and lower overall efficiency. As a result, banks face a number of barriers when attempting to enter new markets and offer innovative services.

By implementing advanced banking technologies, traditional banks need to modernize their infrastructure and system architecture and mobilize additional resources to adopt new solutions. As the number of users of digital services increases, the importance of cybersecurity continues to grow. Therefore, banks are compelled to develop new protection mechanisms to reduce the risks of fraud and illegal transactions. Ensuring the confidentiality of banking secrecy and customer data is also becoming an increasingly critical issue for regulatory authorities.

Digital banking services are online software solutions that allow customers to manage their bank accounts via the internet without visiting a bank branch. Through digital services, customers can check account balances, transfer funds, open deposit accounts, make payments, and perform other operations using a computer or mobile device.

It is important to examine the differences between traditional and digital services provided by commercial banks, as well as their respective advantages. Figure 2 presents an analysis of their distinguishing characteristics. Traditional banks deliver their services through a network of physically existing branches. Today, however, traditional services are increasingly being replaced by digital banking services, and their share in the banking services market is steadily declining. For example, in the United States, between 2017 and 2021, about 9 percent of all commercial bank branches—approximately 7,500 branches—were closed<sup>8</sup>. According to data from the National Community Reinvestment Coalition, one third of these closures occurred in low-income and remote areas.

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<sup>8</sup> <https://nsrs.org/the-great-consolidation-of-banks-and-acceleration-of-branch-closures-across-america/>

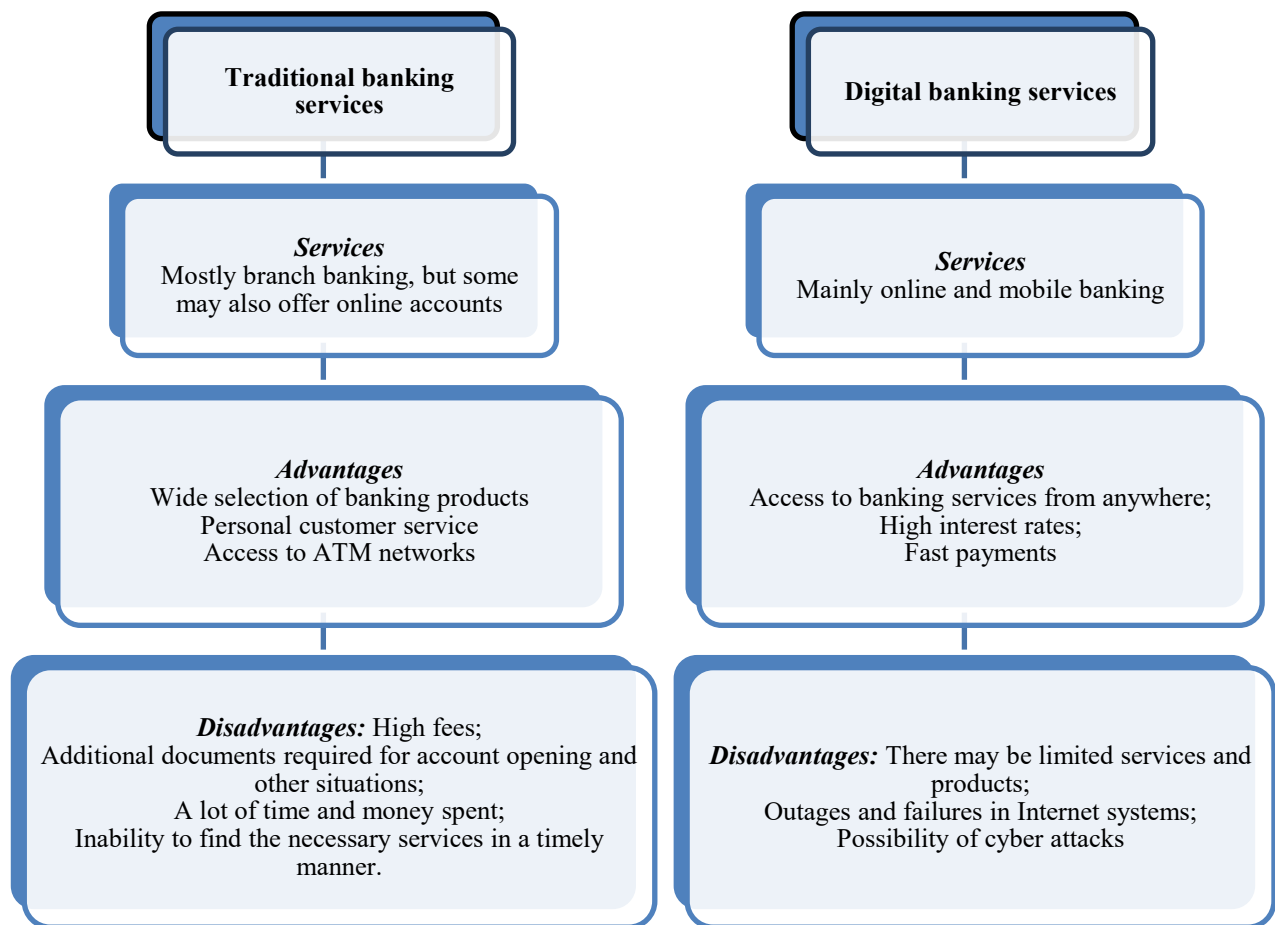
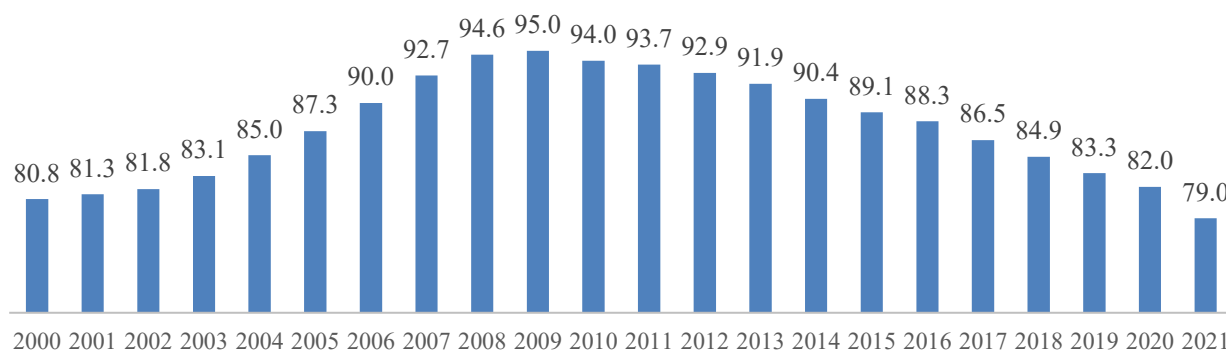


Figure 2. Differences, Advantages, and Disadvantages of Traditional and Digital Banking Services<sup>9</sup>.

Over the past nearly 45 years, mergers and consolidation processes in the U.S. banking sector have led to the concentration of bank assets in a smaller number of large financial institutions. This trend has resulted in the exit of many small banks from the market while strengthening the position of large banks. In particular, numerous bank branches located in rural areas were closed due to financial losses, with more than 80 rural branches shutting down between 2008 and 2016.

Furthermore, although the number of bank branches reached a peak of 95,000 in 2009, a downward trend in the banking system emerged following the 2007 financial crisis. Since then, the local branch network in the United States has continued to shrink, with more than 13,000 bank branches closed since 2009. This development is mainly explained by the transition of banking services to digital formats and the expansion of remote service channels.

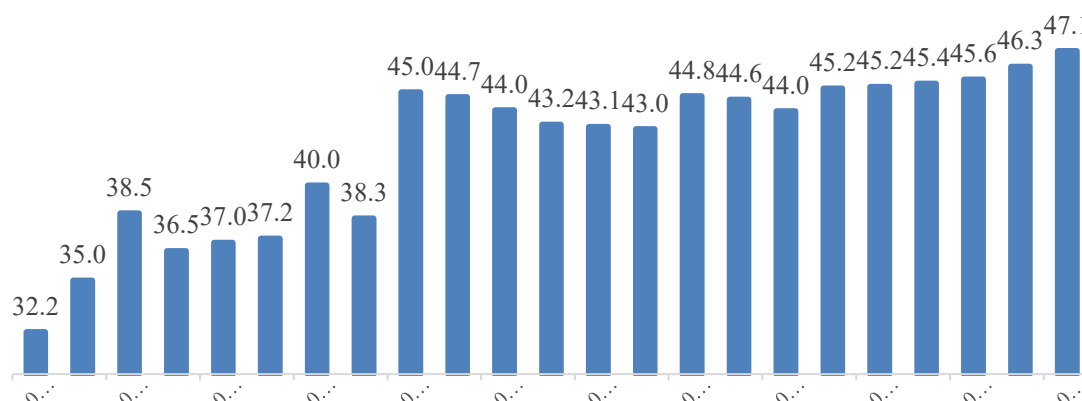
<sup>9</sup> Compiled by the author according to the research results.



**Figure 3. Changes in the Network of Local Bank Branches in the United States<sup>10</sup>**  
(thousand units, as of the beginning of each year).

Currently, the banking sector is witnessing the widespread adoption of modern technological trends such as the use of artificial intelligence to automate processes and prevent fraud, the implementation of blockchain solutions to enhance information security, the development of online banking services and mobile applications, and the analysis of large volumes of data to personalize services<sup>11</sup>. Digital banking platforms enable customers to remotely open accounts, apply for loans, top up deposits, and perform many other financial operations. By leveraging data analytics, banks offer customized products and services tailored to customers’ needs and behavior, thereby creating solutions that match individual financial goals while increasing sales volumes.

In the Japanese banking system, banks play a significant role in the country’s economic development by providing credit, attracting deposits, and delivering payment services to households, businesses, and government institutions. According to data from the Bank of Japan, as of May 31, 2024, the structure of domestically licensed banks in Japan includes 5 city banks, 62 regional banks, 37 second-tier regional banks, 31 trust banks, 3 long-term credit banks, and 48 foreign banks operating in the country<sup>12</sup>.



**Figure 4. Changes in the Concentration Level of Assets of the Top 3 Banks in the Japanese Banking System (%)<sup>13</sup>**

<sup>10</sup> Compiled by the author based on the research results and data from the National Community Reinvestment Coalition’s report “The Great Consolidation of Banks and Acceleration of Branch Closures Across America” (NCRC).

<sup>11</sup> <https://geniusee.com/single-blog/digital-banking-trends>

<sup>12</sup> <https://www.boj.or.jp/en/statistiss/outline/note/notest32.htm>

<sup>13</sup> <https://fred.stlouisfed.org/tags/series?t=banks%3Bjapan&rt=japan&ob=rv&od=dess>

The concept of using the iBank Index was proposed by Yoshihara, the former executive director of Japan's largest Shinkin bank. This indicator serves as an important catalyst for the development and stimulation of Japan's banking system, as well as for accelerating business activity and economic growth. The initiative promotes a healthy competitive environment among banks and demonstrates successful practices that can be replicated by other financial institutions.

Through the iBank Index, banks strengthen their commitment to environmental protection, social responsibility, and sound governance (ESG) principles, enhance the openness and transparency of the financial system, and create new opportunities for customers. To remain competitive in the banking services market and adapt to rapid changes, it is necessary to complement traditional management indicators with mechanisms that take external environmental factors into account. In this context, integrating ESG initiatives into banks' evaluation systems and using the iBank Index to respond promptly to changing customer needs can improve the efficiency of commercial banks and foster a more competitive interbank environment.

## CONCLUSION

Based on the analysis of the experience of developed countries, it is advisable to introduce the following scientific conclusions and practical recommendations into the banking system and practice of the Republic of Uzbekistan.

1. In U.S. banking practice, the Herfindahl–Hirschman Index (HHI) is widely used as the main indicator of market concentration to assess the level of competition among banks. In the banking system of Uzbekistan, mergers and consolidations are also predominantly carried out in favor of large banks, which significantly affects the competitive environment in the banking services market. Therefore, in order to preserve competition, it is recommended to legally establish that during bank restructuring processes the post-merger increase in the HHI in any banking services market should not exceed 200 points.

2. Drawing on the Japanese experience, the introduction of the iBank Index into Uzbekistan's banking practice would play an important role in enhancing customer engagement. Based on the principle of "the bank for the customer," commercial banks should systematically study customer preferences, needs, and operational challenges and eliminate them in order to stimulate customer activity and contribute to economic growth. An example of this approach can be observed in the activities of Aloqabank JSC, which, based on the analysis of large clients' needs, developed a billing system for accepting payments for the E-auction electronic trading platform and created an information system enabling the Muslim Board to process and monitor payments for Hajj and Umrah pilgrimages, while also providing additional services. These initiatives support the development of business entities and contribute to economic growth.

3. It is necessary to assess the level of access to banking services in remote and rural areas of the republic and to establish a system for their continuous monitoring. Since providing services in distant regions is often economically inefficient for banks, there is limited interest in opening new branches. Therefore, identifying areas with growing populations but limited

choice of banks, as well as regularly studying customers' needs for financial services, is essential for expanding the territorial coverage of the banking system.

### REFERENCES

1. Rashkovskaya, I. V., & Kovaleva, N. A. (2019). Problems of Competition Between Commercial Banks and Technology Companies in the Market of Innovative Products and Services. In: Proceedings, pp. 1681–1687. [https://doi.org/10.1007/978-3-030-47945-9\\_179](https://doi.org/10.1007/978-3-030-47945-9_179)
2. Omarini, A. (2021). The Changing Landscape of Retail Banking and the Future of Digital Banking. Springer. [https://link.springer.com/chapter/10.1007/978-981-16-7830-1\\_8](https://link.springer.com/chapter/10.1007/978-981-16-7830-1_8)
3. Risman, A., Mulyana, B., Silvatika, B., & Sulaeman, A. (2021). The Effect of Digital Finance on Financial Stability. *Management Science Letters*, 11(7), 1979–1984. <https://doi.org/10.5267/j.msl.2021.3.012>
4. Gao, S., & Wang, Q. (2023). Does Digital Finance Aggravate Bank Competition? Evidence from China. *Research in International Business and Finance*. <https://doi.org/10.1016/j.ribaf.2023.102041>
5. American Bankers Association. (2023). National Survey.
6. Eurostat. (2023). Individuals Using the Internet for Internet Banking.
7. NSRS. (2023). The Great Consolidation of Banks and Acceleration of Branch Closures across America. <https://nsrs.org/the-great-consolidation-of-banks-and-acceleration-of-branch-closures-across-america/>
8. Geniusee. (2023). Digital Banking Trends. <https://geniusee.com/single-blog/digital-banking-trends>
9. Bank of Japan. (2024). Statistics Outline. <https://www.boj.or.jp/en/statistics/outline/note/notest32.htm>
10. Federal Reserve Bank of St. Louis. (2023). Japan Banking Data Series. <https://fred.stlouisfed.org/tags/series?t=banks%3Bjapan&rt=japan&ob=rv&od=desc>