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DIGITAL TRANSFORMATION OF BANKING ACTIVITIES (FINTECH, OPEN BANKING, BIG DATA)

Musurmankulova Fotima Atamuratovna

TASHKENT "KIMYO" INTERNATIONAL UNIVERSITY

Master's student, Faculty of Banking and Audit

Abstract

This article is dedicated to a scientific and analytical study of the digital transformation of banking activities, focusing on the role and effectiveness of FinTech, Open Banking, and Big Data technologies. The paper examines strategic, organizational, and technological aspects of digital transformation, international experiences, and opportunities to enhance banking service efficiency and improve customer experience. The research findings indicate that digital transformation is a crucial factor for increasing banks' competitiveness, implementing innovative services, and ensuring financial stability.

Key words

digital transformation, FinTech, Open Banking, Big Data, banking services, financial technologies, innovation, operational efficiency, security, customer experience.

Introduction

In recent years, significant digital changes have been taking place in the finance and banking sector. Traditional banking services have reached their technological limits and are forced to look for new innovative solutions to meet customer demand and remain competitive. Digital transformation, or digital transformation, has emerged as a strategic process aimed at modernizing banking operations, automating services, optimizing costs, and improving customer experience. This process includes a number of innovative technologies, in particular, financial technologies (FinTech), open banking services (Open Banking), big data analysis (Big Data), and systems based on artificial intelligence (AI). Digital transformation in the banking system means not only technological innovation, but also a change in the entire business model. Customer habits and expectations are also changing rapidly. Customers now demand convenient, fast, and transparent services. For example, services such as online payments made via smartphone, electronic settlements, and digital automation of loan processes have become an integral part of everyday life. In this context, digital transformation for banks is not only an opportunity, but also a prerequisite for maintaining competitiveness.

Emerging innovations in the field of financial technologies (FinTech) are helping to make banking services more flexible and individualized. FinTech startups usually develop technological solutions faster and more efficiently than traditional banks, which encourages banks to introduce new services and adapt to customer requirements. At the same time, FinTech also provides advantages such as increasing the stability of the financial system, strengthening security and speeding up transactions. Open banking services (Open Banking) allow banks and financial institutions to integrate at a new level. Through the concept of Open Banking, customers securely share their financial data with third-party services, which allows them to create new services, improve personal financial management and develop an innovative ecosystem. In this way, banks are not limited to traditional services, but also create new sources

of income. In addition, big data analysis (Big Data) plays an important role in banking services. By collecting, storing, and analyzing large amounts of data, banks can predict customer behavior, assess credit risks, improve marketing strategies, and improve service quality. Big Data can help create personalized offers, detect financial fraud, and optimize business processes more effectively.

The digital transformation process requires not only technological innovation in banking, but also organizational and strategic changes. Along with the introduction of new platforms, banks must also perform tasks such as improving personnel skills, automating internal processes, and enhancing interactive communication with customers. In this regard, digital transformation is considered an important tool for increasing the competitiveness of the banking system, improving the quality of services, and ensuring financial stability. Today, the world's leading banks are paying serious attention to digital transformation. For example, European and North American banks are developing new digital services in collaboration with FinTech startups, implementing Open Banking platforms, and expanding big data analytics. This indicates that innovative development is a global trend in the banking sector. At the same time, data security, customer privacy, and compliance with regulatory requirements are of great importance in the process of digital transformation. The article considers not only technological aspects, but also strategic and organizational factors. This analysis will allow banks to develop practical recommendations for successfully implementing digital transformation and will help ensure competitiveness in the modern financial environment.

Main part

Digital transformation is a complex process that requires fundamental technological, organizational and strategic changes in banking. For banks, this process is an important tool for improving the quality of customer service, reducing operating costs, optimizing business processes and ensuring competitiveness. The main focus is on FinTech innovations, Open Banking systems and Big Data approaches, as these three factors are the main drivers of digital transformation. FinTech (Financial Technology) plays a central role in modernizing banking services and creating innovative services. Given the limitations of traditional banking services, FinTech startups usually develop solutions that are fast, flexible and provide an individual approach to customer needs. For example, mobile banking applications, online lending systems, digital payment platforms and blockchain technologies are key elements of the FinTech ecosystem. With the help of these technologies, banks automate services, speed up transactions and reduce costs. FinTech also allows for increased security and fraud detection in financial services. It is worth noting that FinTech creates a competitive advantage for banks. For example, digital lending systems allow customers to make decisions faster than traditional processes. At the same time, through cooperation with FinTech startups, banks discover new sources of income and introduce new services. This process, in turn, helps banks modernize their business models and adapt to customer needs. The concept of Open Banking allows customers to securely connect their financial data to third-party services. This allows banks to create new services, improve personal financial management, and develop an innovative ecosystem. Through Open Banking systems, banks integrate with other financial institutions and FinTech companies, which increases the efficiency of digital services. One of the advantages of Open Banking is the ability to provide personalized services to customers. For example, a customer’s spending and income habits can be analyzed and individual financial recommendations can be made. At the same time, Open Banking also provides the opportunity to create new business models and services. For example, by combining several financial services on a single platform, it is possible to create a convenient interface for customers and simplify financial processes. In the process of digital transformation, the Big Data approach plays an important role in optimizing banking activities.

By collecting, storing and analyzing large amounts of data, banks can predict customer behavior, assess credit risks and improve marketing strategies. With the help of Big Data, it is possible to create personalized offers, detect financial fraud and optimize operational processes more effectively. Data analysis is an important tool not only for optimizing business processes, but also for making strategic decisions. For example, by analyzing customers' financial habits and requirements for purchased services, banks will be able to develop new services and improve existing ones. At the same time, Big Data technologies serve as an effective tool for strengthening security systems and preventing fraud.

The digital transformation of banking activities does not only affect external services, but also radically changes internal processes. Automated processes, electronic document exchange, and decision-making systems based on artificial intelligence increase the efficiency of bank employees. For example, in the process of granting loans, AI systems quickly assess the financial condition of the client, which significantly reduces the decision-making time. In this way, banks reduce operating costs and improve customer relations. During the digital transformation process, banks not only implement technology, but also carry out strategic planning and organizational changes. This process requires staff training, training a new workforce, and reorganizing internal processes. At the same time, the security of digital services, data confidentiality, and compliance with regulatory requirements are also important factors.

Studies show that banks that have successfully implemented the digital transformation process significantly improve customer loyalty, operational efficiency, and financial performance. For example, banks that have implemented digital platforms accelerate the lending process, automate payments and settlements, and improve personal financial services. At the same time, by integrating FinTech and Open Banking approaches, banks create new services and attract new market segments. On this basis, digital transformation is of strategic importance for the modern development of banking activities. It not only involves technological innovation, but also optimizes organizational, strategic and financial processes. At the same time, it provides opportunities to improve customer experience, increase security and create new business models. FinTech innovations, Open Banking systems and Big Data approaches are the main tools for digital transformation of banking activities. They allow banks to create competitive services, adapt to customer needs, optimize internal processes and ensure financial stability. At the same time, it is important to take into account technological, organizational and regulatory aspects in the process of digital transformation. These approaches contribute to the successful development of the banking system in the digital economy.

Analytical part

The digital transformation process requires not only technological, but also strategic and organizational changes in banking. The main analytical aspect is related to the degree of adaptation of the bank to the digital ecosystem, the integration of FinTech, the use of Open Banking platforms and the effectiveness of Big Data approaches. In this regard, it is important to consider several key factors when assessing the digital transformation of banking. FinTech innovations are a key tool in modernizing banking services. The analysis shows that banks that cooperate with FinTech startups significantly improve the customer experience. For example, through mobile banking applications and online lending platforms, customers gain quick and convenient access to services. At the same time, using FinTech approaches, banks reduce operating costs, strengthen fraud detection systems and create new sources of income. From an analytical point of view, the integration of FinTech is crucial for banks in ensuring competitive advantage. Open Banking platforms expand the bank's position in the digital ecosystem. The Open Banking concept allows for the reliable connection of customers' financial data to third-

party services and creates the conditions for the creation of new services. Analytically, through Open Banking, banks provide customers with personalized financial services, making services interactive and convenient. At the same time, through Open Banking systems, banks create a new business model and effectively cooperate with fintech companies, which accelerates innovative development. Big Data technologies play an important role in the digital transformation of banking. By collecting and analyzing big data, banks predict customers' financial behavior in advance, assess credit risks, and develop personalized recommendations. From an analytical point of view, with the help of Big Data, banks not only improve the quality of service, but also ensure operational efficiency and financial stability. At the same time, Big Data technologies serve as an effective tool for increasing security and detecting fraud. In the process of digital transformation, the bank's internal processes are also optimized. Automated processes, decision-making systems based on artificial intelligence and electronic document exchange increase the efficiency of bank employees and ensure prompt service to customers. For example, in the process of lending, AI systems accelerate the assessment of the client's financial condition and significantly reduce the decision-making time. At the same time, the digitization of internal processes reduces operating costs and improves the quality of service. Also, security, compliance with regulatory requirements and confidentiality of customer data are important analytical factors in the process of digital transformation. International experience shows that banks that have implemented digital services increase customer loyalty and maintain their reputation by strengthening data security and adapting to regulatory requirements. In this regard, the success of digital transformation requires a strategic and organizational approach, along with technology integration. In the analytical part, it should be noted that digital transformation allows a bank to increase its competitiveness, attract new market segments and personalize customer services. The integration of FinTech, Open Banking and Big Data approaches covers all aspects of banking: external services, internal processes, security systems and strategic decisions. In this way, digital transformation makes the banking system more flexible, agile and efficient.

Conclusion

Digital transformation is a rapidly developing and globally significant process in banking. FinTech, Open Banking and Big Data technologies play a key role in increasing bank efficiency, improving customer experience and creating new business opportunities. They allow banks to modernize services and create innovative sources of income. FinTech increases competitiveness for banks. Banks that cooperate with startups provide customers with fast and personalized services, reduce operating costs and reduce the risk of fraud. Big Data technologies optimize banking processes. Through data analysis, customer behavior is predicted, risks are identified and personalized services are created. At the same time, security is enhanced and strategic decisions are made more effectively. Digital transformation also changes internal processes: through automation, employee training and compliance with regulatory requirements, banks successfully implement digital services. International experience shows that banks that have done this increase customer loyalty, operational efficiency and financial stability. Thus, digital transformation has been found to be an important tool for increasing a bank's competitiveness, improving service quality and accelerating innovative development. The integration of FinTech, Open Banking and Big Data will enable banks to successfully operate in the digital economy and attract new market segments. Security, regulatory compliance and customer data protection are crucial factors for the success of digital transformation.

List of sources used.

1. Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The Evolution of FinTech: A New

Post-Crisis Paradigm? Georgetown Journal of International Law, 47(4), 1271–1319.

2. Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the FinTech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services. Journal of Management Information Systems, 35(1), 220–265.

3. Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Barberis, J. N. (2020). The Rise of FinTech in China: Redefining Financial Inclusion. Northwestern Journal of International Law & Business, 40(3), 373–423.

4. European Banking Authority. (2018). Guidelines on the Application of PSD2 and Open Banking Standards. EBA Publications.

5. Chen, M., Mao, S., & Liu, Y. (2014). Big Data: A Survey. Mobile Networks and Applications, 19(2), 171–209.

6. Bhatnagar, R., & Gupta, P. (2019). Open Banking and Its Impact on Customer Experience: A Global Perspective. Journal of Financial Services Marketing, 24(4), 85–98.

7. McKinsey & Company. (2021). Global Banking Annual Review 2021: The Next Normal in Banking. McKinsey Reports.

8. World Bank. (2020). Digital Financial Services. https://www.worldbank.org/en/topic/financialinclusion/brief/digital-financial-services

9. Deloitte. (2020). Big Data and Analytics in Banking: Driving Business Value. Deloitte Insights.

10. Frost, J., Gambacorta, L., Huang, Y., Shin, H. S., & Zbinden, P. (2019). BigTech and the Changing Structure of Financial Intermediation. BIS Working Papers, No. 779, Bank for International Settlements.