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DEVELOPMENT OF DIGITAL TECHNOLOGIES IN THE BANKING SECTOR

Abstract

At this time, digitalization represents a significant trend in the progression of the economy. Digitization refers to the extensive implementation of interconnected digital services by various entities, including governments, enterprises, and consumers. The advent of modernization has precipitated significant economic and social changes. The digitization process has stimulated entrepreneurial innovation, increased productivity, and stimulated economic growth. In recent years, digitization has become a prominent economic determinant, causing a revolution in business operations and interactions with suppliers and customers, while concurrently stimulating expansion and employment opportunities. The technologies of the digital transformation of the banking sector were analyzed in the article. Digitalizing banking operations is a prerequisite for sustaining the competitiveness of financial institutions in the current economic climate, as it facilitates the acceleration and optimization of processes and has a substantial impact on organizational structure. Digitization is associated with the implementation of these and other digital technologies, such as Big Data, biometric user identification, remote service provision, and artificial intelligence. Moreover, it is crucial to recognize that alongside the advantages linked to digitalization, there are a number of security vulnerabilities that concern banking clients and systems.

Keywords: *bank digitization, banking transactions, digital business, digital transformation, digital banking*

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Bank sektorunda rəqəmsal texnologiyaların inkişafı

Xülasə

Günümüzdə iqtisadi tərəqqinin prioritet istiqamətlərindən biri də məhz rəqəmsallaşmadır. Rəqəmsallaşma, əlaqəli rəqəmsal xidmətlərin istehlakçılar, biznes subyektlər və hökumətlər tərəfindən kütləvi formada mənimsənilməsi prosesini əhatə edir. Rəqəmsallaşma həm iqtisadiyyatı və həm də cəmiyyətimizi kökündən dəyişdirmişdir. Rəqəmsallaşma sahibkarlıq innovasiyasını, habelə məhsuldarlığı və iqtisadi artımı stimullaşdırdı. Son illərdə rəqəmsallaşma, böyüməni və iş yerlərinin formalaşdırılmasını sürətləndirən, həmçinin firmaların bizneslərini və müştəriləri və təchizatçıları ilə qarşılıqlı əlaqəsini dəyişdirən əsas iqtisadi faktor olaraq ortaya çıxmış oldu. Məqalədə bank sektorunun rəqəmsallaşması texnologiyalarının inkişafı müzakirə olunmuşdur. Modern iqtisadiyyatda bank sektorunun rəqəmsallaşması prosesi bankların rəqabətqabiliyyətli səviyyədə saxlanmasının şərtlərindən biridir, belə ki, rəqəmsallaşma təşkilata əhəmiyyətli təsir göstərərək, orada əməliyyatların optimallaşdırılmasına və onların sürətləndirilməsinə öz töhfəsini verir. Rəqəmsallaşma prosesi Böyük Verilənlər, biometrik məlumatlardan istifadə etməklə istifadəçi identifikasiyası, xidmətlərin distant formada təqdim edilməsi və süni intellektin tətbiqi kimi bu və digər rəqəmsal texnologiyaların tətbiqi ilə əlaqəlidir. Əlavə olaraq qeyd etməliyik ki, rəqəmsallaşma üstünlükləri ilə yanaşı, bank müştərilərinin və bank sistemlərinin təhlükəsizliyi ilə əlaqəli olan bir sıra təhlükələr də ortaya çıxarır.

Açar sözlər: *bankların rəqəmsallaşması, bank əməliyyatları, rəqəmsal biznes, rəqəmsal transformasiya, rəqəmsal bankinq*

Introduction

Digitalization is becoming a crucial component of the financial industry. The development of digital financial services is contingent upon several factors, including physical intangibility and customer-centeredness. These requirements are characteristics of financial services that help to make them more digital. All financial sector firms gain greatly from the trend of digitization. Financial transactions can be completed more quickly thanks to digitalization, which may also expand the area across which financial services can be offered, save costs, boost client satisfaction with purchases made, and enhance communication (Balkan, 2021: 205-223).

The subsequent global trends are observed (Dudin, Shkodinskii, Usmanov, 2021: 59-78).

- the customers' inclination to obtain the service remotely in a prompt and effortless manner;
- predominantly concentrate on the client;
- development of their own ecosystems in the vicinity of major financial institutions;
- creation of open software interfaces to facilitate communication between institutions and fintech service providers;
- widespread adoption of digital technologies across the entire financial sector and economy;
- the progression and establishment of digital currency;
- augmenting the importance attributed to hazards within the domain of financial security.

It is evident that the COVID-19 pandemic has heightened consumer expectations regarding the digital competencies of organizations. Preference is given to the ease, quickness, and security of acquiring the product in this instance. Additionally, bank competition influences the digitalization process. Financial institutions that fail to embrace digital advancements and continue to operate under conventional business models will face future competitive disadvantages compared to those that actively integrate digital technologies into their framework. The latter will be able to deliver services with a higher degree of customization and at a quicker pace. In this situation, not only the change in the organization's work processes but also the associated hazards must be considered. Hence, it is imperative to contemplate the characteristics of banking sector digitalization in addition to the associated hazards (Marcu, 2021).

Current trends of banks digitization.

The dynamic advancement of digital technologies exerts a substantial influence on the financial industry. The requirements of bank customers have evolved within the framework of digitalization, as has the populace's desire to obtain a vast array of services remotely. Additionally, the channels of communication with banks have broadened. The implementation of digital technologies within the banking industry contributes to enhanced accessibility and quality, a broader selection of financial services, and heightened bank competitiveness (Kirillova, Zulfugarzade, 2021: 61-67).

The financial industry exhibits the highest degree of digital technology adoption due to several distinguishing factors (Sardana, Sardana, Singhania, 2018).

- incorporating digital technologies into the operations of financial institutions is a critical prerequisite for sustaining their competitive edge;
- a substantial level of digitalization in banking services facilitates a more comprehensive comprehension of customer requirements, enabling the development of tailored offers;
- digital technologies enable customers of financial institutions, irrespective of the bank's geographical location, to access offers that align with their specific requirements;
- the implementation of digitalization in the banking industry enables customers to conduct transactions with greater clarity and efficiency;
- the objective is to enhance the controllability and operational efficacy of financial transactions;
- the implementation of information technology within the financial industry contributes to the reduction of service costs through cost minimization.

Banks are now in the process of digital transformation by incorporating financial technology (Fintech) and engaging in partnerships with Fintech startups. Fintech technology is a fusion of financial services and information technology. Fintech advancements enable alternative methods for conducting payments, saving funds, requesting loans, mitigating risks, and obtaining financial guidance. This significantly alters the process of delivering financial services (Legowo, Subanidja, Sorongan, 2021: 94- 99).

1) APIs those are accessible;

2) Applications pertaining to data processing such as big data analytics, machine learning, and predictive modeling;

3) The decentralized ledger with their smart contracts;

4) The client identification and also the authentication using biometrics;

5) The cloud data storages;

6) Internet of Things (IoT) and also the mobile technologies;

7) Artificial Intelligence (AI) applications such as bots and automation in the banking sector.

Financial innovations and digital technologies in the banking system: institutional perspective.

Financial innovation's effect on the banking system has been a very intriguing subject in recent years. Financial innovation involves developing novel financial goods, services, and technology to address evolving market demands. Financial innovation may enhance efficiency and save expenses, but it also presents notable difficulties to the banking sector. Financial innovation and digital technology have transformed the banking sector, altering operational processes, consumer interactions, and competitive dynamics among banks. The introduction of innovative financial goods and services like internet banking, mobile payments, and digital currencies has enabled banks to broaden their consumer reach and enhance their revenues. Furthermore, the fast rate of technical advancements has resulted in the creation of sophisticated analytical tools and algorithms that help banks enhance risk management, optimize operations, and enhance customer satisfaction.

The increasing customer demand for quicker, more convenient, and customized banking services is a major factor driving the development of financial innovation and digital technology in the banking sector. Due to the widespread use of smartphones and other mobile devices, clients anticipate the ability to access their financial details and perform transactions from any location and at any time. Banks that do not adapt to evolving client preferences may lose market share to more adaptable and inventive competitors. Digital innovation has driven the creation of new business models like peer-to-peer lending and crowdfunding, which have disrupted established banking methods. These approaches revolutionized conventional lending methods by enabling people and enterprises to secure finance directly from investors rather than from banks (Rutskiy, Kharitonova, Alshahrani, Al-Khaldi, Almashaqbeh, Tsarev, 2022: 566-575).

Furthermore, financial innovation and digital technology have significant consequences for financial stability and the economy in its whole. They can promote financial inclusion by granting access to banking services for previously underserved communities, such the unbanked. Conversely, they can also bring up new dangers and difficulties, such cyber attacks, data privacy concerns, and the potential for propagating financial hazards in case of a system breakdown. This study aims to analyze how financial innovation and digital technology affect the banking sector from an institutional viewpoint. The study aims to determine the primary factors influencing financial innovation and digital technologies in the banking sector, examine how these innovations affect banks' behavior and operations, and evaluate the implications of these advancements on financial stability and regulation.

Financial innovation and digital technology are increasingly important for the banking system, yet there are still many difficult and unresolved topics that have not been thoroughly researched. There is a discussion over whether digital currencies like Bitcoin can fully replace traditional currencies as a means of exchange and store of value, and if they present a risk to the stability of the financial system. Questions also emerge regarding the most effective regulatory structure for these emerging technologies, including the involvement of central banks and global institutions like the IMF and the Financial Stability Board. There is ongoing discussion over how regulation impacts financial innovation and digital technology in the banking sector. Although there is increasing interest in financial innovation and digital technology in the banking sector, there are still numerous areas that have not been thoroughly investigated. The factors considered include the impact of cultural norms on the acceptance of financial innovation and digital technology, the influence of network effects on the spread of financial innovation and digital technology, and the consequences of financial innovation and digital technology on financial inclusion. Financial innovation is crucial for the banking system since it enables banks to expand their product range and adjust to evolving market conditions, ultimately enhancing their competitiveness and profitability. Financial innovation involves developing new financial goods, services, and procedures, or altering current ones to enhance efficiency and boost revenue. Financial innovation encompasses several forms, including securitization, derivatives, and structured finance.

A McKinsey research states that worldwide fintech investment hit $105 billion in 2020, a 10% increase from the year before. The survey also revealed that digital integration in financial services has advanced by three to four years as a result of the COVID-19 epidemic. Digital customer engagements have risen by 5%, and the number of new digital consumers has increased by 20%. Financial innovation has resulted in the creation of new banking products and services. Mobile banking usage has been increasing rapidly in recent years. According to a Federal Reserve survey, the proportion of US individuals utilizing mobile banking rose from 43% in 2015 to 63% in 2019. P2P lending services have impacted the traditional loan business. P2P lending platforms in the US enabled around $22 billion in loans in 2020. Financial innovation presents concerns for the banking industry. The Financial Stability Board's research highlights operational risk, cyber risk, data privacy risk, and regulatory risk as key concerns connected with fintech. In 2020, there were 2,935 data breaches in the financial industry, leading to the disclosure of over 140 million records. Financial innovation can result in heightened competitiveness and market fragmentation, potentially posing challenges for smaller banks in competing with bigger rivals (Tashtamirov, 2023: 96).

One drawback is that non-bank financial intermediaries like fintech businesses are a competitive threat to established banks. Compared to typical banking services, these non-bank intermediaries provide financial services that are more inventive, affordable, and practical. A World Bank research claims that fintech has aided in increasing low-income people's access to financial services. In sub-Saharan Africa, the percentage of adults with a bank account increased from 34% to 43% between 2014 and 2017, partly due to the adoption of mobile money services. Consumers now enjoy better goods and services as a consequence of greater competition in the banking industry brought about by the emergence of neobanks and other fintech firms in industrialized nations. Customers now find digital banking to be more easy and accessible, but there are still substantial hazards associated with it, such as operational, cyber, data privacy, and regulatory threats. In order to secure long-term success in a financial environment that is changing quickly, banks must thus strike a balance between innovation and risk management. To increase the efficacy and efficiency of their operations, financial institutions have embraced new technology more and more in recent years. The three most important ones are robo-advisors, blockchain, and mobile banking. With the ability to use their cellphones to access their bank accounts, conduct transactions, and even apply for loans, mobile banking has grown in importance for many customers. The way individuals bank might be altered by this technology, particularly in emerging nations without established banking systems (Tashtamirov, 2023: 545-551).

Conclusion

Digital technology can have a substantial impact on resolving worldwide financial disparities. In the future, advanced technologies have the potential to lessen financial disparities on a global scale by enabling banks and financial institutions to lower costs, enhance service quality, and make financial resources more accessible to a wider population. AI and machine learning allow banks to do precise data analysis, decreasing lending risks and enhancing asset management and financial modeling. Technological advancements enable the integration of global financial systems, enhancing international transactions and improving global risk management. Introducing digital technology comes with the need to address several issues and obstacles, including data security, safeguarding consumer privacy, and training banking staff to use new technologies. To effectively address these difficulties, it is crucial to create suitable policies and regulatory measures, along with fostering collaboration among banks, regulators, and technology businesses.

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