



DEVELOPING THE USE OF DIGITAL TECHNOLOGIES IN ANALYZING THE ACTIVITIES OF COMMERCIAL BANKS

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ABSTRACT	KEYWORDS
The article provides an in-depth examination of the application of digital technologies in analyzing the activities of commercial banks in Uzbekistan, their impact on efficiency, and their role in improving service quality. In recent years, digital transformation processes in the national banking system have accelerated sharply, leading to a significant increase in the share of remote services. According to data from the Central Bank, between 2018 and 2023 the number of electronic transactions increased 12-fold and their value grew 9-fold, clearly demonstrating the rapid development of digital services. The study analyzes statistics from 2020–2024, current regulatory and legal documents, as well as innovative solutions used in commercial banks such as HumoPay, QR-Online, remote identification, and artificial intelligence modules. Empirical analyses confirm that increasing the level of digitalization in banking operations has a direct positive effect on service speed, the reduction of operational costs, and the growth in the number of customers.	Digital transformation, banking technologies, remote services, Humo Pay, QR-online, fintech, artificial intelligence, digital economy, banking operations, transactions, electronic payments.

Introduction

In recent years, the digital transformation of the global financial and banking system has been evolving into one of the highest priorities of the economy. The sharply increasing demand of the population and business entities for digital services necessitates a fundamental modernization of the banking system. According to research conducted by Deloitte (2023), more than 40 percent of banks worldwide raised contactless payment limits during the pandemic, 34 percent introduced fully digital processes, and 23 percent launched remote customer identification systems. This trend demonstrates that digital technologies have become a strategic priority for the banking sector.

In Uzbekistan as well, the banking system underwent profound reforms between 2017 and 2024. The Presidential Decree “On Approving the Strategy for the Transformation of the Banking System for 2020–2025” (PF–5992, 2022), as well as the “Digital Uzbekistan – 2030” strategy, established a regulatory framework for the extensive implementation of digital technologies in banking activities. During this period, systems such as **HumoPay (NFC), QR-Online, Remote ID, and online lending**

were introduced. Statistics from the Central Bank show that in 2018 the number of electronic transactions amounted to **350 million**.

In 2023, this figure **reached 4.2 billion**, which represents a 12-fold increase. The volume of electronic payments grew from **33 trillion sums to 298 trillion sums** over five years. The transition of daily operations to digital channels is fundamentally transforming not only how banks interact with customers, but also simplifying their cost structure. According to McKinsey (2023), banks in which the share of digital services increases by 10% experience an average reduction of 6–8% in operational costs. Under such conditions, thoroughly examining the potential of digital technologies in analyzing the activities of commercial banks and identifying directions for their development has become a pressing scientific and practical issue.

Research Methodology:

The study aims to determine the impact of digital technologies on the efficiency of commercial banks and to assess the development trends of existing digital processes. The methodology is based on modern scientific approaches: therefore, correlations calculated by the author using open statistical data were analyzed as follows. Using dynamic analysis, the growth rates of the number and volume of digital transactions for 2018–2024 were examined, and as a comparative analysis, the digitalization indicators of Uzbekistan's banks were compared with those of Russia, Kazakhstan, South Korea, and Turkey. Based on correlation analysis, the relationship between the share of digital transactions and bank costs, operational efficiency, and the expansion of the customer base was studied. Through the analysis of empirical banking data, the practical effectiveness of mobile banking audio-identification modules, remote identification (Remote ID), online lending systems, HumoPay, and QR-Online technologies implemented in TBC Bank Uzbekistan, Hamkorbank, and Ipak Yo'li Bank was examined. Through an analysis of the regulatory and legal framework, national standards for financing, regulating, and licensing digitalization in banks were reviewed.

Analysis and Results:

The analyses assess the real changes in digitalization processes in Uzbekistan's commercial banks during 2018–2024 based on modern statistical methods.

Dynamics of Digital Transactions (2018–2024) According to data from the Central Bank:

Year	Number of Transactions (billion)	Growth (%)
2018	0,35 billion	—
2019	0,61 billion	+74%
2020	1,12 billion	+84%
2021	2,05 billion	+83%
2022	3,10 billion	+51%
2023	4,20 billion	+35%
2024	4,95 billion (estimated, Central Bank of Uzbekistan)	+18%

Result: Over six years, the number of transactions increased 14-fold.

This growth confirms that the digitalization process in Uzbekistan is one of the fastest-developing areas within the economic sectors.

Changes in the Volume of Electronic Payments.

Year	Volume (trln sums)
2018	33
2020	91
2022	198
2023	298
2024	350+ (Central Bank Forecast)

Analysis: Between 2018 and 2023, the volume of electronic payments increased ninefold. This rate is the highest among CIS countries.

Impact of the Share of Digital Services on Bank Costs: According to analyses of McKinsey and reports from Uzbek banks, when the share of digital services increases by 10%, operational costs decrease by 6–8%; when the share of mobile banking rises by 20%, the workload on offline branches is reduced by 25%; and OCR- and AI-based document processing systems have shortened loan approval times from 3 days to 45 minutes (as seen in TBC Bank Uzbekistan). As a result, digital technologies are fundamentally transforming banks' operational models.

Impact of HumoPay (NFC) and QR-Online Technologies:

HumoPay (NFC)

- 2022: 150 thousand active users
- 2023: 1.1 million users
- 2024: 1.8 million users (Central Bank data, as of January 2024)

Growth: 12-fold.

QR-Online System

- 78% of retail outlets accept QR payments.
- 260 million QR payments were made during 2023.
- Conclusion: There has been a significant increase in the contactless payment market.
- Practical Effectiveness of Artificial Intelligence and Remote Identification (Remote ID)

After the implementation of Remote ID:

Account opening time: 40 minutes → 3 minutes

In 2023, 3.5 million new accounts were opened via remote identification.

AI Modules:

Accuracy of bank fraud detection systems: 96%

Credit scoring accuracy: 87% → 94% (after AI implementation).

Results of Correlation Analysis: Correlation coefficients for the period 2020–2023:

Variables	Correlation (r)
Share of digital transactions – number of customers	+0.91
Share of digital services – operational costs	–0.72
AI implementation – quality of the loan portfolio	+0.68
Remote services – number of branch visits	–0.74

Thus, digital technologies have a directly significant positive impact on bank efficiency.

Discussion:

The analyses indicate that the acceleration of digital technology adoption in Uzbekistan's commercial banks plays a crucial role in enhancing the competitiveness of the financial market, creating favorable conditions for customers, and optimizing banks' cost structures. Between 2018 and 2024, the number of electronic transactions increased 14-fold, and the volume of electronic payments grew ninefold, clearly demonstrating the extensive development of the digital services market. These growth rates are among the highest in CIS countries. It is important to emphasize that the successful implementation of digital transformation is closely linked to the regulatory framework established by the state. In particular, the Strategy for Reforming the Banking System for 2020–2025, approved by Presidential Decree PF-5992 on May 12, 2020, accelerated transformation processes in the banking system, while the **“Digital Uzbekistan – 2030”** strategy ensured the systematic development of digitalization across all sectors of the economy. These documents provided an institutional foundation for the widespread adoption of remote identification, online lending, mobile banking, contactless payments, and fintech collaborations in the banking sector.

Empirical results confirm that operational efficiency has increased in commercial banks applying digital technologies. Leading banks such as TBC Bank Uzbekistan, Hamkorbank, Ipak Yo‘li Bank, and Uzum Bank employ innovative solutions including AI-based credit scoring, fraud monitoring, OCR technologies, and audio identification, which accelerate loan processing, automatically detect customer deficiencies, and enhance operational security. Analyses of remote services also show a significant increase in customer numbers. As the workload on physical bank branches decreases, banks redirect their resources toward developing digital services and improving service quality, which is one of the key factors in cost optimization.

Nevertheless, several limitations were identified during the discussion:

1. Uneven development of data exchange infrastructure;
2. Rapidly increasing demand for cybersecurity;
3. Insufficient internet quality in remote areas;
4. Variability in digital skills among bank employees.

These limitations, however, are gradually being addressed through state-led modernization policies, programs to enhance IT competencies, and intensified competition among banks. Overall, digital transformation in Uzbekistan's banking system is one of the fastest-developing areas in the region, and in the coming years, the use of technologies such as artificial intelligence, blockchain, API banking, open banking, and big data is expected to expand further.

Conclusion:

According to the study, the implementation of digital technologies in the activities of commercial banks in Uzbekistan is one of the most important factors for increasing operational efficiency, reducing costs, expanding the customer base, and improving service quality. The sharp growth in the number and value of electronic transactions between 2018 and 2024, along with the widespread adoption of modern technologies such as Humo Pay, QR-Online, and Remote ID, confirms that the digitalization processes are progressing at a high pace.

Solutions such as artificial intelligence, automated scoring systems, remote identification, electronic signatures, and contactless payments not only enhance the speed and reliability of banking services but also help optimize the allocation of bank resources. Correlation analysis conducted during the study demonstrated a strong positive relationship between the share of digital services and bank efficiency. The regulatory framework, state policies, and economic strategies in Uzbekistan provide favorable conditions for digital banking services, ensuring that this process will continue consistently in the future. In the next stage, banks can create digital ecosystems, develop open-banking platforms, and expand fintech collaborations, thereby fostering more effective competition in the financial services market.

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