

INSTITUTIONAL FOUNDATIONS AND ECONOMIC IMPACT OF DIGITAL TRANSFORMATION IN THE BANKING SECTOR: THE CASE OF UZBEKISTAN*Hamroqulov Islomjon,**The Banking and Finance Academy Republic of Uzbekistan.*

ANNOTATION. The article provides a comprehensive analysis of the institutional foundations and economic impact of digital transformation within Uzbekistan's banking sector. It explores how the integration of advanced digital technologies such as mobile banking platforms, artificial intelligence (AI), blockchain and Big Data analytics has reshaped the operational landscape of financial institutions in the country. The study highlights significant improvements in customer service delivery, transaction efficiency and financial product accessibility which have collectively enhanced financial inclusion, particularly among underserved populations. It also discusses the strategic role of public-private partnerships, including collaborations with fintech startups in accelerating innovation and expanding digital banking services. Furthermore, the article assesses the transition toward a cashless economy in Uzbekistan, emphasizing its implications for monetary policy and economic modernization.

Keywords: Digital transformation, banking sector, financial technology, fintech, mobile banking, artificial intelligence, AI, blockchain technology, Big Data analytics, cybersecurity, financial inclusion, cashless economy, digital infrastructure, public-private partnerships, regulatory environment, economic modernization.

ANNOTATSIYA. Maqolada O'zbekiston bank sektorida raqamli transformatsiyaning institutsional asoslari va iqtisodiy ta'siri chuqur tahlil qilinadi. Unda mobil bank ilovalari, sun'iy intellekt (AI), blokcheyn va Katta ma'lumotlar (Big Data) tahlili kabi ilg'or raqamli texnologiyalarning joriy etilishi mamlakat moliyaviy muassasalarining faoliyat maydonini qanday o'zgartirgani o'rganiladi. Tadqiqot natijalarida mijozlarga xizmat ko'rsatish sifati, tranzaktsiyalar samaradorligi va moliyaviy mahsulotlarga kirish imkoniyati sezilarli darajada oshgani, bu esa, ayniqsa, kam ta'minlangan qatlamlar orasida moliyaviy inklyuziyani rivojlantirgani ta'kidlanadi.

Shuningdek, maqolada innovatsiyalarni tezlashtirish va raqamli bank xizmatlarini kengaytirishda davlat-xususiy sherikliklarning, shu jumladan, fintech startaplari bilan hamkorlikning strategik roli ko'rib chiqiladi. Bundan tashqari, maqolada O'zbekistonda naqd pulsiz iqtisodiyotga o'tish jarayoni baholanadi va uning pul-kredit siyosati hamda iqtisodiy modernizatsiyaga ta'siri yoritiladi.

Kalit so'zlar: Raqamli transformatsiya, bank sektori, moliyaviy texnologiya, fintech, mobil bank, sun'iy intellekt, AI, blokcheyn texnologiyasi, Katta ma'lumotlar tahlili, kiberxavfsizlik, moliyaviy inklyuziya, naqd pulsiz iqtisodiyot, raqamli infratuzilma, davlat-xususiy sheriklik, normativ muhit, iqtisodiy modernizatsiya.

Introduction

The digital economy has emerged as a transformative force in nearly all sectors in the 21st century. Today numerous financial institutions are using digital innovations to meet customer expectations, improve operational efficiency and remain competitive in a technology-developing world. In Uzbekistan, the transformation of the banking sector is happening because of a growing fintech ecosystem and tech-savvy people.

Several years ago banking system of Uzbekistan was mainly state-dominated as there was limited digital infrastructure. However, there have been several changes to variety sectors as well as banking sector, such as the strategies for digital development. For example, the expansion of mobile banking, the adoption of biometric technologies and the rise of electronic payment systems such as Click, Payme and Apelsin. Fintech startups have also begun to play an important role in fostering innovation and expanding access to financial services.

Methodology

In this research, a mixed-method approach is used that integrates both qualitative and quantitative analyses to examine the digital transformation of Uzbekistan's banking sector.

Quantitative data were sourced from official publications by the Central Bank of Uzbekistan, the State Statistics Committee and industry reports from international organizations such as the World Bank and the Asian Development Bank (ADB). Key metrics analyzed include the number of licensed credit institutions, the volume and share of electronic transactions, the proliferation of plastic cards and mobile banking users and ATM/terminal distribution between 2019 and 2023.

Qualitative insights were drawn from expert interviews, policy documents and case studies of digital banking innovations. Particular attention was paid to fintech collaborations, government strategies (e.g., the "Digital Uzbekistan 2030" program), and regulatory initiatives aimed at promoting financial technologies.

The study uses an institutional economics lens to assess the role of regulations, public-private partnerships and organizational structures in shaping digital banking outcomes. It also applies elements of impact assessment to evaluate the socioeconomic effects of digitalization, including financial inclusion, SME support and consumer behavior.

Results and Discussions

The development of digital services in Uzbekistan's banking sector has brought many changes to the economy and society. In recent years, mobile and internet banking have become more common, offering easy-to-use platforms for customers. The number of transactions using electronic payment systems like UzCard, Humo, Click and Payme has grown a lot. Technologies such as artificial intelligence (AI) and Big Data have helped banks automate tasks like loan approval, customer support and fraud detection. Moreover, fintech companies are working more closely with banks to provide fast loans and new types of financial services (Jumayev, 2025, p. 1043).

Although cybersecurity is a major concern, fraud cases are increasing. To protect personal data, it is important to use tools like biometric ID systems and blockchain. As a result of digital services, banks are spending less on operations, leading to lower service fees. More people are using electronic payments instead of cash. However, cooperation between banks and fintech companies is still slow and banking rules need to be improved. As Uzbekistan continues to modernize its banking sector, stronger security and better use of financial technologies are necessary. Digital banking makes the system more efficient and assists more people access financial services.

The rise of digital banking has also helped businesses in Uzbekistan. Online payments and e-commerce make it easier for entrepreneurs to handle money and grow their businesses. In particular, instant loans for small and medium-sized businesses (SMEs) have helped them get investment through digital platforms(Jumayev, 2025, p. 1043).

Even though digital services in Uzbekistan are growing, some areas still do not have good enough technology to fully access online banking and electronic payments. To fix this, banks should run more public campaigns to help people learn about digital services and make their systems even better.

Furthermore, looking at how other countries do it, Uzbekistan should focus on growing fintech startups and building stronger partnerships between government-owned banks and private businesses. This can bring in more investment and improve financial services.

Researches show that digital banking brings several benefits to the economy and society(Jumayev, 2025, p. 1044):

- **More convenience and faster services** – People can do many banking tasks from home without going to a bank.
- **Growth of financial technology** – Working with fintech companies is helping expand online payment options.
- **Cybersecurity concerns** – As more people use digital banking, fraud cases have increased, so banks need stronger security.
- **Use of AI and automation** – Tasks like giving out loans, handling payments and helping customers are now easier and faster.
- **Shift toward a cashless society** – More people are using electronic payments, which helps banks work more efficiently.

The rise of digital technologies has greatly transformed how businesses operate and the banking industry is no different. In Uzbekistan, the move toward digital banking has been gradual but consistent. Many banks now provide their customers with online and mobile banking services.

New trends and best practices can be seen in recent studies and case example around the world. They offer guidance on how banks can improve customer experiences, boost efficiency and achieve growth through digital transformation.

In Uzbekistan, mobile banking has developed in recent years. The introduction of mobile apps are comfortable that users to manage their accounts, send money and pay bills using their smartphones. Additionally, the government has launched a mobile payment system called Click which is good for people to pay for services like utilities, taxes and public transportation.

Online payments are also becoming more common in Uzbekistan. A number of e-commerce platforms have existed in which online payments are available. However, digital payments still represent a relatively small share of all transactions in the country.

In Uzbekistan, the number of users of digital financial services is lower than the quantity of them in neighbouring countries . For example, in Kazakhstan, more than 60% of people use mobile banking and online payment systems. However, it is important to remember that Uzbekistan is in the early stages of its economic development and as the economy grows, digital financial services will also expand(Mamedova, 2023, p. 143).

Around the world, the use of digital financial services is different between countries and regions. In developed countries like the United States and the ones in Europe, digital financial services are widely used, and most transactions happen online or through mobile apps. In many developing countries, however, digital services are still new and people mainly use cash.

In Uzbekistan, the use of digital financial tools has been increasing in recent years. This growth is starting to affect traditional banking methods. For instance, in 2020, the number of online payments in Uzbekistan rose by 1.5 times compared to 2019, and numerous banks introduced mobile banking services(Mamedova, 2023, p. 143).

As more people start to use digital banking, traditional services like physical bank branches and cashiers are becoming less necessary. Many customers now prefer the online banking because of speed rather than going to a branch. Therefore, some banks are changing their strategies and investing in new technology to remain competitive. Moreover, the appearance of fintech companies and the popularity of mobile banking have played an essential role in this shift. These changes have made the sector more competitive, more focused on customer needs and more efficient.

One of the biggest benefits of going digital in banking is better efficiency. As customers can use mobile and online banking, they can now manage their accounts and make transactions anytime and anywhere instead of going to bank branches.

Digitalization has also made customer service better. With digital platforms, customers do not have to stand in long lines or wait for help that they can quickly complete tasks on their own. Banks can also use digital tools to offer personalized services, like tailored marketing and product suggestions based on customer's preferences.

Furthermore, digital banking has helped to reach more people, especially in remote or underserved areas. With mobile and online banking, people no longer need to travel far to get financial services.

Digitization has also created new business opportunities. For instance, banks can now offer modern services like mobile payments and online investment platforms. These new services can help attract more customers and bring in additional income.

In spite of the many benefits of digital banking, there are still some challenges. One of the biggest issues is cybersecurity. Since digital transactions are at risk of being hacked or misused, banks must invest in strong security systems to protect customer data and prevent fraud.

Another problem is the lack of digital skills among some customers. Many people in Uzbekistan, especially older adults and those in rural areas, might not know how to use digital banking services. Therefore, banks should also focus on educating their customers, offering guidance and support to help them use online and mobile banking with confidence.

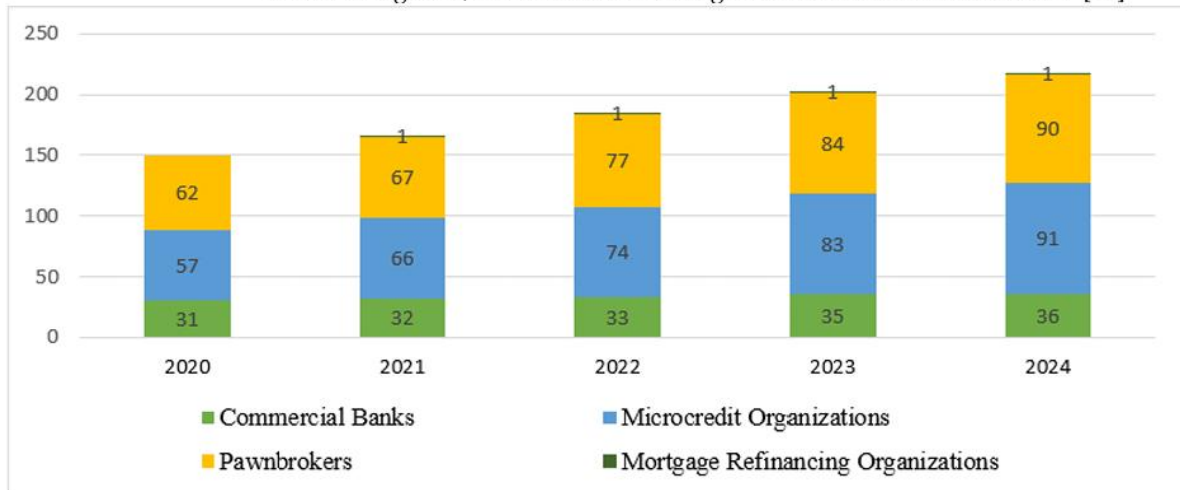
Although there are these existing challenges, the adoption of digital technologies in Uzbekistan's banking sector is expected to improve steadily. This shift presents a wide range of opportunities for banks, such as attracting new clients, enhancing operational efficiency and offering innovative financial products and services. As digitalization becomes more widespread, it is crucial for banks to invest in robust cybersecurity measures and ensure that customers are well-informed and confident in using digital platforms safely.

In examining the effects of digital transformation on financial security within Uzbekistan's banking sector, a thorough analysis was conducted using various indicators that reflect the extent of digital technology adoption and its influence on the national financial system. Key metrics analyzed included the number of credit institutions, the issuance volume of plastic cards and the number of terminals and ATMs installed between 2019 and 2023. This data enabled a comprehensive assessment of the digitalization level of financial services, as well as the identification of potential risks associated with these changes.

Figure 1 presents the number of credit institutions operating in Uzbekistan from 2020 to 2024. The data indicates a consistent and substantial expansion in the financial sector, particularly in the areas of microfinance and pawnshop services. During this five-year period, the number of commercial banks rose from 31 to 36, marking a 16% increase. Pawnshops experienced a remarkable 45% growth, rising from 62 in 2020 to 90 in 2024, highlighting an increased public demand for short-term lending options. The most rapid growth occurred in the microcredit segment where the number of organizations grew by 59%, from 57 in 2020 to 91 in 2024. Mortgage refinancing institutions, although introduced only in 2021 and maintaining a steady number of one through 2024, signal a move towards more diversified financial service offerings.

The trends depicted in Figure 1 point to a widening availability of financial services, a growing diversity of financial institutions and the overall expansion of Uzbekistan's credit landscape (Abdurakhmanova & Xodjaraxmanova, 2023, pp. 1441-1442).

Figure 1. Particular attention was paid to the number of credit organizations, as shown in Figure 1, which illustrates the growth trend from 2020 to 2024. [14]



Mortgage refinancing institutions first appeared in 2021, and their number remained unchanged at one through 2024. Although still in the early stages of development, this sector holds potential for future growth as demand for mortgage solutions and refinancing options continues to expand.

Figure 2 presents the main methods used to fund electronic wallets, categorized into cash-based and non-cash-based approaches. Cash funding options include deposits made via ATMs, information kiosks, bank branches and POS terminals. Non-cash options encompass bank cards, wire transfers, prepaid cards and other digital wallets. This classification showcases the growing range of channels available for digital financial transactions in Uzbekistan.

The figure underscores the increasing ease and accessibility of e-wallet usage, demonstrating how technological advancements are facilitating quick and secure fund transfers. These tools play a critical role in the continued growth of digital banking in the country. By depicting the different funding methods, Figure 2 also highlights the crucial role of infrastructure in advancing financial inclusion and enhancing public trust in digital payment platforms.

Figure 2. Adding Funds to an Electronic Wallet [15]

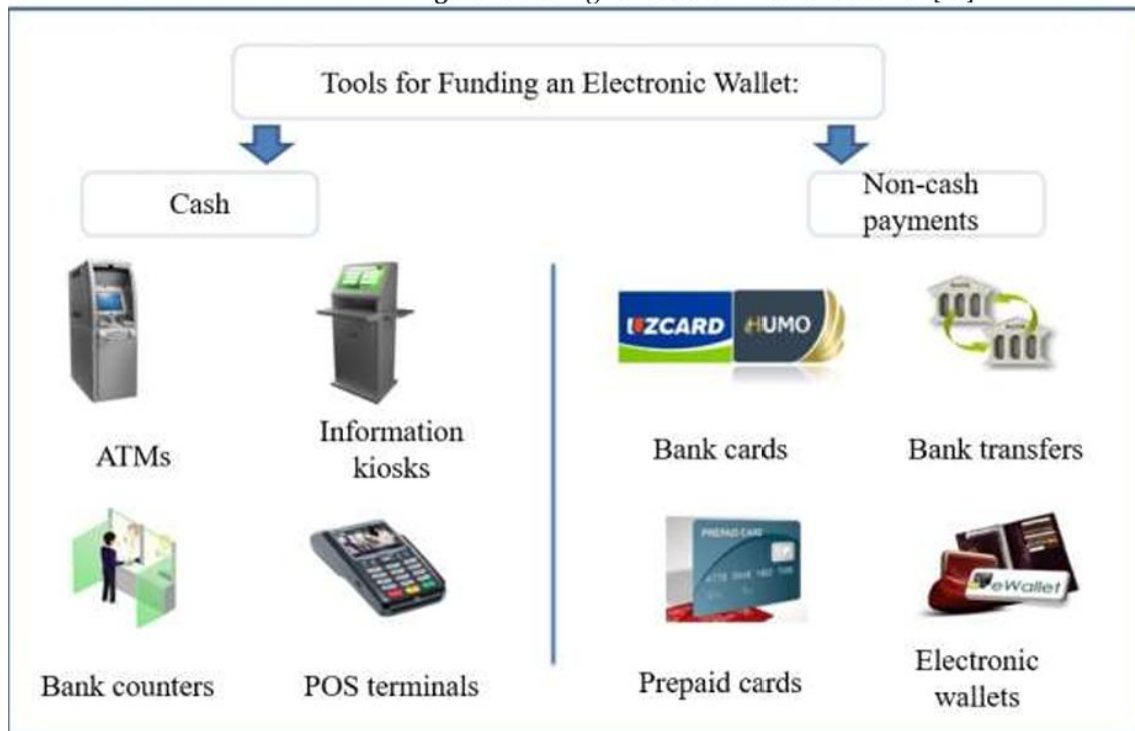


Figure 2 shows that e-wallets are mainly topped up in two ways: using cash or through non-cash methods. As e-money becomes more popular, it is clear that more and better technologies are needed to make transactions smoother. To make it easier for users and offer more ways to add money to their e-wallets, tools like ATMs, info-kiosks and POS terminals are important. These devices help users recharge their accounts and pay for things more easily and quickly. ATMs let people add cash to their e-wallets, info-kiosks allow different money-related tasks at any time and POS terminals help with paying for goods and services without using cash. Improving these technologies is important for giving better service to customers and keeping up with the needs of today's financial market (Abdurakhmanova & Xodjaraxmanova, 2023, pp. 1442-1443).

This study shows that digital transformation in Uzbekistan's banking sector has greatly improved access to financial services and made banking operations more efficient. The growing number of commercial banks, microfinance organizations and pawnshops reflects a dynamic financial sector that is meeting the public's need for modern financial options. The rise in issued bank cards, payment terminals and ATM networks shows that non-cash payment methods are becoming more available which is in line with global moves toward digital financial inclusion. At the same time, these digital changes bring new challenges, especially cyber risks like phishing, fraud and data leaks, which can threaten financial security if not properly managed. These findings support earlier research (e.g., Mamadiyarov, 2021; Berdiyarov, 2021) which emphasized the need for strong cybersecurity in digital banking. The results also support the idea that limited financial knowledge increases people's risk of falling victim to such threats, echoing the IFC's (2020) conclusion about the importance of educating consumers (Abdurakhmanova & Xodjaraxmanova, 2023, p. 1446).

In conclusion, the move towards digital banking in Uzbekistan is an important part of the country's plan to grow its economy. In recent years, big steps have been taken to bring new technologies into banking. These changes have helped banks work faster and reach more people. Government support, cooperation with fintech companies and growing customer interest have all played an important role in this progress, making Uzbekistan become an essential country in digital banking in Central Asia. However, there are some problems to solve. Many people living in rural areas do not have strong internet access, older people may not be familiar with digital tools and there are worries about online safety and protecting personal data.

If Uzbekistan can deal with these issues, digital banking could help more people get access to financial services and make the economy safer and stronger. Moving toward a cashless, digital system might change the way people, businesses and the government use money, helping the economy grow and supporting the country's long-term development.

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