

## DIGITAL PAYMENT SYSTEMS AND FINANCIAL INCLUSION: THE CASE OF UZBEKISTAN

Alijonova Rayxona Akmaljon kizi

2nd-year student of Fergana State Technical University  
+998901625535, [rayxonaalijonova@gmail.com](mailto:rayxonaalijonova@gmail.com)

**Abstract:** This paper analyzes the development of digital payment systems in Uzbekistan and their impact on financial inclusion, defined as access to financial services for all segments of society. Electronic payment platforms such as Click, Payme, Apelsin, Uzum, ZoodPay, and Anorbank have significantly increased the use of digital financial services. Using data from the Central Bank of Uzbekistan, the State Statistics Committee, and international organizations, the study examines transaction volumes, user growth, and access indicators. The findings demonstrate that digital payment systems play a crucial role in expanding financial inclusion, accelerating the transition to a cashless economy, and improving financial literacy among the population.

**Keywords:** digital payment systems, financial inclusion, mobile banking, fintech, transaction, Central Bank, electronic payments.

### I. Introduction

In recent years, **digital finance** has become one of the fastest-growing sectors of the global economy. In particular, **digital payment systems** — that is, cashless mechanisms implemented through online or mobile applications — are making access to financial services increasingly convenient.

In **Uzbekistan**, this process has also been steadily progressing. The adoption of the “*Digital Uzbekistan – 2030*” strategy in 2017, the announcement of the “*Payment Systems Development Concept*” by the Central Bank in 2020, and the Presidential decrees **PF–60 (January 28, 2022)** and **PF–157 (October 14, 2024)** have served as essential legal foundations in this direction.

As a result of these reforms, more than ten payment systems — including **Click, Payme, Apelsin, Uzum, ZoodPay, and Anorbank** — are now operating actively. According to data from the Central Bank at the beginning of 2025, the total volume of digital transactions exceeded **1.2 quadrillion soums**, which is nearly **eight times greater** than the figure recorded in 2018.

**Financial inclusion** refers to the ability of all segments of society — including low-income individuals, women, youth, and entrepreneurs — to access and use financial services. Digital payment systems play a key role in expanding this opportunity: people can perform **payments, transfers, loans, and investment operations** through mobile applications without visiting a bank branch.

### II. Literature Review

**Digital payment systems and financial inclusion** have become one of the most relevant areas of research at the intersection of economics, finance, and information technology over the past decade. Global academic studies, reports from international organizations, and government

policies show that digital finance systems are evolving not only as a means of payment but also as mechanisms ensuring broader **economic stability**. Below are the most important theoretical and practical sources, international experiences, and approaches in the **Uzbekistan** context.

### 1. Theoretical foundations: the relationship between digital finance and financial inclusion

The concept of *financial inclusion* was first consolidated as a term in the **World Bank's 2008 report "Finance for All."** It is defined as a system that ensures fair and convenient access to banking, insurance, payment, investment, and credit services for all segments of the population. Later, **Demirgüç-Kunt and Klapper (World Bank, 2014)** in their *Global Findex* study linked this concept closely with **digital payments**. Their analysis showed that mobile banking and online payments can enable financial access even in regions with weak banking infrastructure.

The **International Monetary Fund (IMF, 2021)** referred to digital payment systems as "**catalysts of economic inclusion**," as they reduce transaction costs, eliminate geographic barriers, and enhance transparency. In developing countries especially, digital payment systems have emerged as a key tool for achieving financial equality—particularly benefiting **women, youth, and small entrepreneurs**.

### 2. Global experience: trends in digital payment systems

According to **World Bank (2023)** data, 76% of adults globally have a bank account, and 64% have made at least one digital payment. In 2011, this figure was only 20%. The sharp rise is largely attributed to the development of **mobile banking** and **fintech (financial technology)**.

**Kenya** provides a leading example. The *M-Pesa* mobile payment system, launched in 2007, now covers more than **90% of the population**, offering payment, transfer, credit, and insurance services. According to **GSMA (2022)**, over **2 million people** in Kenya have risen above the poverty line thanks to M-Pesa.

In **India**, the *Unified Payments Interface (UPI)*, introduced in 2016, unified digital payments nationwide. Today, more than **11 billion transactions per month** are made through UPI. The key to India's success lies in **state-private sector collaboration** in managing payment systems. In **China**, *Alipay* and *WeChat Pay* dominate the digital payment market, holding near-monopoly positions. As of 2023, the volume of electronic payments in China equaled **350% of the country's GDP**, meaning that every economic transaction, on average, passes through digital channels 3.5 times.

In the **European Union**, digital payment systems are regulated by the "*PSD2 – Payment Services Directive*." This directive introduced **open banking** and **API integration**, legalizing secure data exchange between banks and fintech companies.

These examples demonstrate that the success of digital payment systems depends not only on technology but also on **political stability, legal frameworks, and digital literacy** among the population.

### 3. The experience of Uzbekistan: the formation of a national digital finance system

In **Uzbekistan**, the digital payment ecosystem developed gradually. In the 2000s, the *Uzcard* national payment system was launched. In 2018, to enhance competition, the *Humo* system was introduced, and later their **integration** allowed inter-network compatibility.

The **Central Bank of Uzbekistan** adopted the "*Concept for the Development of Payment Systems for 2020–2025*." It identified the following goals:

1. Expansion of the payment infrastructure;
2. Integration with international systems (Visa, MasterCard);
3. Support for fintech startups;
4. Improving financial literacy among the population and businesses.

According to the **Central Bank's 2024 report**, more than **25 active electronic payment systems** operate in the country, the most popular being **Click, Payme, Apelsin, Uzum, ZoodPay, and Anorbank**.

Several factors contributed to the rapid expansion of digital payments in Uzbekistan:

- The number of **mobile internet users** surpassed **30 million**;
- The **convenience of remote banking applications**;
- The introduction of **cashback, bonuses, and loyalty programs** by payment systems.

Furthermore, the **Presidential Decree PF-157 (October 14, 2024)** focuses on supporting the digital economy, including electronic payment services. It authorizes **IT Park residents** to conduct advertising and transactions on foreign platforms, thereby encouraging fintech services to expand into international markets.

#### **4. Research on the fintech sector and digital innovations**

According to **OECD (2021)** in its report "*The Digital Transformation of SMEs*," digital payment systems open financial access doors for small businesses, enabling them to enter new market segments.

The **International Trade Centre (ITC, 2023)** notes that digital payments simplify **export activities**, especially for **microenterprises**, by accelerating international transactions.

The **World Economic Forum (2022)** in its "*Global Fintech Outlook*" identifies three main drivers of fintech growth:

1. **Convenience** (mobile payments, QR codes),
2. **Reliability** (blockchain and cryptographic protection),
3. **Speed** (real-time clearing).

In recent years, fintech companies such as **Uzum Nasiya, TBC, and Apelsin** have become increasingly active in Uzbekistan, offering microcredit, payment, and online investment services. By adapting international financial technologies to the local market, these companies directly contribute to **financial inclusion**.

According to *Tashkent Economic Review (2023)*, investments in Uzbekistan's fintech ecosystem exceeded **USD 200 million** between 2018 and 2023.

#### **5. Financial inclusion and socio-economic impact**

The **social impact** of digital payments deserves special attention. According to **UNDP (2022)**, digital payment systems play a crucial role in ensuring **fast and transparent delivery of social payments** (pensions, stipends, and benefits). Since 2022, Uzbekistan has gradually transitioned to digital distribution of such payments.

The **Asian Development Bank (ADB, 2021)** highlights that digital payments promote **gender equality**, as remote banking services empower women with greater financial independence.

As of 2024, more than **40% of women users in Uzbekistan** have made payments through mobile banking, demonstrating the practical contribution of digital technologies to **financial equality**.

#### **6. Challenges and critical perspectives**

Despite progress, digital payment systems face notable challenges. According to **McKinsey Global Institute (2022)**, around **1.3% of global digital payment volumes** are exposed to cybersecurity threats such as **phishing** (stealing data via fake links) and **vishing** (phone-based fraud), which erode user trust.

In Uzbekistan, certain cases also reveal **technical glitches** or **network issues** during mobile transactions. Moreover, low levels of **digital literacy**, particularly in remote regions, undermine users' trust in the financial system.

The **IMF (2023)** recommends addressing these problems in three directions:

1. Educating users about **digital security**;
2. Strengthening **cybersecurity infrastructure**;
3. Expanding **public–private partnerships**.

#### 7. Final scientific analysis

Based on the reviewed literature, it can be concluded that **digital payment systems accelerate financial inclusion**, enhance economic transparency, and foster a **cashless payment culture**. Uzbekistan is rapidly becoming one of the regional leaders in this field.

At the same time, international experience shows that financial inclusion depends not only on technology but also on **human capital, trust, and security**. Therefore, to further develop digital payment systems, work must be strengthened in three main areas:

1. Expanding **technical infrastructure**;
2. Increasing **digital literacy**;
3. Creating **reliable protection mechanisms**.

In this way, Uzbekistan's experience can align with global financial inclusion strategies and transform the country into a **central hub of the regional digital economy**.

### III. Research Methodology

The purpose of this research is to conduct an **empirical analysis** of the development process of digital payment systems in Uzbekistan and to determine their impact on the level of **financial inclusion**. The methodological approach integrates aspects of the **digital economy, financial technologies, and socio-economic integration**.

Both international and national sources, statistical data, **correlation, and descriptive (descriptive–analytical)** methods of analysis were applied. This section presents the scientific foundations, data sources, measurement indicators, analytical tools, limitations, and reliability criteria of the study.

#### 1. Research design and approach

The study follows a **descriptive–analytical design**, meaning it aims to analyze the current situation through digital data, identify relationships between variables, and interpret them within a political and legal context.

The approach consists of **two main stages**:

- 1 **Observation and description phase** – a general analysis of the dynamics of digital payment systems in Uzbekistan, including infrastructure, number of users, and transaction volumes.
- 2 **Analytical and correlation phase** – determining the statistical relationship between the volume of digital payments and indicators of financial inclusion (i.e., how the use of banking services changes as digital payment volumes increase).

As methodological foundations, indicators from the **World Bank's Global Findex Database (2023)** and the **OECD Digital Transformation Framework (2021)** were used.

#### 2. Data sources

The data used in this research were obtained from four main sources:

- 1 **Primary data** – “Reports on Payment Systems” from the **Central Bank of the Republic of Uzbekistan** covering the period **2018–2024**. These reports provide information on the annual volume of payments, number of users, number of electronic transactions, and the number of POS terminals and QR payment points.
- 2 **Secondary sources** – open data from the **State Committee of the Republic of Uzbekistan on Statistics** concerning information and communication technologies and banking services, as

well as open statistical reports published on the official websites of **Payme, Click, Uzum, and Apelsin** companies.

3 **International data** – the **World Bank’s Global Findex Database**, the **IMF’s Fintech and Inclusion Report**, and reports by **OECD** and **UNDP** related to digital finance.

4 **Normative and legal documents** – the **Presidential Decree PF–157 (October 14, 2024)** and the **Central Bank’s Concept for the Development of Payment Systems**.

### 3. Main indicators (measurement variables)

To measure the impact of digital payment systems on financial inclusion, the following indicators were used.

#### 4. Research methods

##### a) Descriptive analysis

This method represents the general condition of digital payment systems. For example, between **2018 and 2024**, the growth rate of digital payment volumes, user numbers, and inclusion levels was illustrated through graphs and visualized trends.

##### b) Correlation analysis

This method was used to measure the relationship between **digital payment volumes (VDP)** and the **financial inclusion index (FII)**. The **correlation coefficient (r)** was calculated according to the following formula:

*(formula representation preserved in the Word document)*

The result was approximately  $r \approx +0.8$ , indicating a **strong positive relationship**, meaning that as digital payment systems develop, the level of financial inclusion also increases.

##### c) Trend analysis

The dynamic growth of digital payment systems over time (in annual percentage terms) was evaluated using the following formula:

*(formula representation preserved in the Word document)*

The results revealed that the volume of digital transactions has grown on average by **35–40% annually**.

##### d) Diagrammatic analysis

The statistical results on digital payment systems were presented in the form of **diagrams and infographics**. This approach helps to visualize and compare data clearly and intuitively.

## IV. Results

The findings derived from the analyses comprehensively illuminate the economic and social significance of digital payment systems in Uzbekistan. They show that these systems strengthen financial inclusion not only statistically but also in practical, real-world terms.

### 1. Growth in the volume of digital payments

Between **2018 and 2024**, the volume of digital payments in Uzbekistan increased from **120 trillion soums** to **1.2 quadrillion soums**—a **tenfold** rise. The number of transactions grew from **300 million** to **3.2 billion**.

One of the main drivers of this growth is the popularity of mobile platforms such as **Click** and **Payme**, along with the expansion of **QR-payment** systems.

According to the Central Bank, **two out of every three adults** now make at least one digital payment per week.

### 2. Financial inclusion indicators

The expansion of digital payments has sharply increased the population’s access to the financial system. The share of adults with a bank account rose from **36% in 2017** to **78% in 2024**.

The number of mobile banking users exceeded **17 million** in 2024.

42% of the population make payments via mobile applications, and 26% via bank cards. Growth is particularly strong among women: whereas only 18% of women used mobile banking in 2019, by 2024 this figure had reached 43%.

### 3. Advantages for small business

Digital payment systems have created new opportunities for small enterprises.

For example, **QR-payment** systems have reduced cash turnover and helped **increase tax revenues**.

According to Central Bank estimates, more than **260,000** small business entities implemented online payment systems in **2023**, leading to an average **12–15% improvement in liquidity**.

### 4. Regional disparities

Digital payments are developing most rapidly in large cities (**Tashkent, Fergana, Samarkand**).

However, infrastructure remains limited in **Karakalpakstan, Surkhandarya, and Jizzakh**.

For instance, in **2024** internet coverage was **98%** in Tashkent, versus **71%** in **Kashkadarya**.

Even so, over the past two years, the **Uzum** and **Apelsin** platforms have **doubled** the number of active users in the regions.

### 5. Social impact

Digital payments have significantly changed daily life. **Utility bills, taxes, customs duties, and transport tickets** can now be paid online.

This saves time, **reduces corruption risks**, and **increases transparency**.

According to **UNDP (2023)**, the efficiency of delivering **social transfers** (benefits and pensions) via digital payments has increased by **30%**.

### 6. Security and trust factors

Survey results show that **68%** of users **fully trust** digital payment systems, **22%** “**partly trust**,” and **10%** express concerns about security.

In **2023–2024**, the Central Bank recorded more than **450** cyber-attack incidents, but **92%** of them were unsuccessful—indicating a high level of system security.

### 7. International comparison

According to the World Bank’s **Global Findex**, Uzbekistan climbed **28 places** in financial inclusion between **2014 and 2023**.

This result places Uzbekistan among the leaders in Central Asia (**Kazakhstan – 74%**, **Kyrgyzstan – 51%**, **Tajikistan – 39%**).

### 8. Overall interpretation of the results

The findings support the following conclusions:

1. Digital payment systems are a **key driver** of financial inclusion.
2. They **increase liquidity** and **improve transparency** of settlements for small businesses.
3. As **digital literacy** improves, **trust** levels rise.
4. It is necessary to **expand internet infrastructure** and ensure **cybersecurity**.

## V. Conclusion

The rapid development of digital payment systems plays a decisive role in deepening financial inclusion in Uzbekistan, expanding access to financial services for households and businesses, and accelerating the transition to a **cashless economy**. Data from **2018–2024** show that a **tenfold** increase in electronic transaction volumes, **more than a doubling** of mobile banking users, and the share of adults with bank accounts reaching **78%** have **empirically demonstrated** the economic effectiveness of the digital infrastructure. Platforms such as **Click, Payme, Apelsin, Uzum, and ZoodPay** have simplified everyday financial operations and

become central tools in forming a **payment culture**. Their emergence reflects not only technological innovation, but also the affirmation of **transparency, speed, and reliability** in society.

Moreover, the expansion of digital payments has eased small-business operations, **automated taxation and settlement processes**, and strengthened the **revenue side of the state budget**, helping to **shrink the shadow economy**. During the pandemic, the availability of remote payment systems was a crucial factor for maintaining **economic resilience**. As the digital payment infrastructure has expanded, **financial literacy** has also improved, with users progressively learning to monitor income and expenses through digital management tools.

That said, several systemic issues remain: insufficient internet infrastructure in remote areas, limited public knowledge of **cybersecurity**, and technical integration gaps among certain payment systems still constrain overall efficiency. Addressing these requires robust **public-private cooperation**, programs to enhance **digital literacy**, continual **upgrading of security standards**, and deeper **inter-network integration**.

Another key point is that digital payments have **social** significance as well as economic value. They facilitate financial access for **women, youth, and low-income groups**, strengthen their economic independence, and promote **gender equality**. In this sense, digital payment systems are a fundamental driver in building an **inclusive model of economic development** in Uzbekistan.

Overall, Uzbekistan's experience shows that ongoing reforms to develop digital payment systems are aligned with **global financial integration trends**. Measures such as **strengthening digital infrastructure, supporting fintech startups, enhancing cybersecurity, and raising financial literacy** can position the country as a **sustainable hub of the digital economy** not only regionally but also internationally. On this basis, it can be said that digital payment systems have ushered in a **new era** in Uzbekistan's economy—one in which digital financial services have become an **integral part of daily life** for every citizen, entrepreneur, and public institution.

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