

APPLICATION OF ARTIFICIAL INTELLIGENCE TOOLS IN FINANCIAL TECHNOLOGY AND CROWDFUNDING PLATFORMS: PROSPECTS AND RISKS

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Annotation. *This thesis examines how artificial intelligence tools are being applied in Uzbekistan's financial technology ecosystem and how they can enable safer, more scalable crowdfunding platforms. It analyzes key concepts and scholarly definitions of FinTech and crowdfunding, AI use-cases in payments, lending, compliance, and platform intermediation, and Uzbekistan's current digital-finance landscape using official statistics and policy documents. The study identifies major benefits and systemic risks. It proposes risk-based governance and "sandbox-to-licensing" pathways to support responsible growth of AI-driven finance and crowdfunding in Uzbekistan.*

Key words. *Uzbekistan, FinTech, artificial intelligence, machine learning, digital payments, crowdfunding, SME finance, risk management, regulatory sandbox, fraud detection.*

Uzbekistan is experiencing rapid expansion of digital financial infrastructure and non-cash payments, creating conditions for AI-enabled financial services and new alternative financing channels such as crowdfunding. Official payment-system statistics indicate a large-scale payment infrastructure and very high transaction activity, which expands the feasible data base for AI models in finance like credit scoring, fraud detection, AML monitoring, personalization. As of 1 July 2025, Uzbekistan recorded 62,336,814 bank cards in circulation, 424,996 payment terminals, and 36,785 ATMs/infokiosks; turnover via payment terminals for Jan – Jun 2025 was 212,204,874 million UZS (\approx 212.2 trillion UZS)¹⁸⁸. At the same time, national development documents explicitly include AI and crowdfunding mechanisms for startup and innovation financing, signaling policy support for platform-based finance¹⁸⁹. Therefore, assessing prospects and risks is essential for sustainable development of Uzbekistan's digital economy.

Financial technology has become a central concept in modern economic and financial research. A widely accepted academic interpretation defines FinTech as the transformation of financial services through technology-driven innovation that significantly alters business models, financial products, and overall market structures. In *The FINTECH Book* (Wiley), Chishti and Barberis describe FinTech as a broad and dynamic ecosystem in which digital technologies create new mechanisms for delivering payments, lending, investment services, and financial

¹⁸⁸ Central Bank of the Republic of Uzbekistan. Payment system indicators: bank cards, POS-terminals, ATMs/infokiosks, turnover via POS-terminals (as of 1 July 2025). 29 July 2025

¹⁸⁹ National Legislation Database (Lex.uz). Resolution on measures to create conditions for accelerated introduction of AI mechanisms; includes crowdfunding/co-financing mechanisms for AI startup projects. PP-4996, 17 Feb 2021.

infrastructure. According to the authors, FinTech enhances accessibility, operational speed, efficiency, and customer-oriented service design, thereby reshaping the traditional financial sector. Based on these scholarly interpretations, this thesis defines FinTech as the application of digital technologies, including artificial intelligence, to design, deliver, and regulate financial services in a more efficient, inclusive, and innovative manner.

Closely connected to FinTech development is the concept of crowdfunding, which represents a platform-based alternative financing mechanism. Cambridge University Press characterizes crowdfunding as the process of raising funds from a large number of individuals through internet-based platforms, where digital intermediation reduces traditional transaction costs and financial frictions. This model enables small contributions from numerous participants, creating a decentralized funding environment for entrepreneurial and innovative projects. Crowdfunding operates through various formats, including donation-based, reward-based, lending-based, and equity-based models. In the context of this research, crowdfunding is understood as an online platform-based financing system in which a “crowd” collectively provides capital to projects or ventures under predefined platform rules and digital verification procedures that regulate participation and risk allocation.

Artificial intelligence tools in finance represent the technological core of contemporary FinTech systems. In financial services, AI is generally conceptualized as a set of machine learning algorithms, natural language processing techniques, anomaly detection models, and recommender systems that analyze large-scale transactional and behavioral datasets. These systems are designed to automate and enhance decision-making processes, including credit risk assessment, fraud detection, customer personalization, anti-money laundering monitoring, and investor-project matching. The integration of AI tools significantly increases predictive accuracy and operational efficiency, but it also introduces new governance challenges related to algorithmic bias, data privacy, cybersecurity, and systemic risk. In line with Uzbekistan’s policy orientation toward implementing AI mechanisms in innovation financing and developing modern co-financing instruments such as crowdfunding platforms, this thesis defines AI tools in finance as data-driven algorithmic systems that automate or improve financial decisions while requiring appropriate regulatory oversight to ensure transparency, fairness, and financial stability.

The development of artificial intelligence in Uzbekistan’s financial technologies and crowdfunding ecosystem must be examined within the context of current economic and institutional conditions. Official data indicate strong structural foundations for digital finance expansion. The Central Bank’s payment system indicators demonstrate a high level of digital payment infrastructure penetration and substantial transaction volumes, reflecting mass adoption of non-cash payment instruments.

In addition to payment infrastructure, the country's innovation ecosystem has shown notable expansion. According to IT Park Uzbekistan, by the end of 2024 the ecosystem included approximately 2,600 companies with a combined turnover of USD 1.6 billion¹⁹⁰. This growth indicates increasing technical capacity and human capital capable of developing AI-driven FinTech solutions and digital platform models, including crowdfunding systems. The expansion of the IT sector strengthens the domestic technological base required for algorithm development, cybersecurity solutions, and scalable digital financial platforms.

The macroeconomic environment further supports digital financial innovation. World Bank data report GDP growth rate of 6.5 percent in 2024 and a total GDP of USD 114.97 billion reflecting stable economic expansion¹⁹¹. A growing economy increases demand for financial intermediation, SME financing, and alternative capital-raising mechanisms. In this context, AI-powered FinTech and crowdfunding platforms may serve as important instruments for mobilizing private capital and improving access to finance.

However, structural constraints remain. The UNDP digital economy study notes that investment in AI adoption among businesses is still limited, with many firms allocating relatively small budgets for advanced technological implementation¹⁹². This suggests that AI diffusion across financial institutions and startups may be uneven and dependent on targeted incentives, improved access to quality data, and the development of specialized digital skills. Without systematic support, technological disparities between large financial institutions and smaller enterprises may widen. Against this background, artificial intelligence offers several important prospects for Uzbekistan's financial sector. First, AI can significantly enhance fraud detection and payment security. Given the scale of transaction activity within the national payment system, anomaly detection algorithms can identify unusual transaction patterns, abnormal velocity indicators, device inconsistencies, and merchant risk signals, thereby reducing financial losses and strengthening public trust in digital payments. Second, AI-based credit scoring systems can expand access to finance for small and medium-sized enterprises. By utilizing alternative data sources – such as POS turnover, digital cashflow proxies, electronic invoicing, and utility payment histories AI – models can reduce reliance on traditional collateral requirements and accelerate lending decisions, particularly for entrepreneurs lacking formal credit histories.

Furthermore, AI can improve the operational efficiency and credibility of crowdfunding platforms. Automated KYC and digital identity verification systems can strengthen compliance and reduce onboarding risks. AI-driven risk segmentation can categorize investors according to suitability levels, while recommendation systems can match investors with projects aligned to their

¹⁹⁰ IT Park Uzbekistan. Enterprise Uzbekistan: statistics on IT Park companies and turnover (end of 2024). 12 June 2025.

¹⁹¹ World Bank Data. Uzbekistan: GDP, GDP growth (2024)

¹⁹² UNDP. Digital Economy of Uzbekistan (study/report; AI adoption/investment constraints highlighted). 2025 (PDF)

preferences and risk appetite. Such tools enhance transparency and scalability of platform-based financing models. Importantly, national policy documents emphasize the introduction of co-financing and crowdfunding mechanisms in support of innovation and AI-related startup projects, reinforcing institutional legitimacy for regulated platform development.

Despite these advantages, significant risks must be considered. Model risk and algorithmic bias represent major concerns, particularly in a developing economy context. If training datasets reflect structural inequalities – such as urban-rural disparities, gender gaps, or high levels of informal income – AI credit scoring systems may unintentionally reproduce or amplify exclusion, undermining financial inclusion objectives. Data privacy and governance risks are also critical. AI systems require extensive datasets, and insufficient consent frameworks, weak data protection mechanisms, or insecure digital infrastructure may increase the likelihood of misuse or data leakage. Cybersecurity and operational resilience pose systemic challenges as digital finance expands. Greater reliance on online platforms increases exposure to account takeover attacks, synthetic identity fraud, and API exploitation. Given the scale of Uzbekistan’s digital payment infrastructure, resilience failures could have macroeconomic consequences. In the crowdfunding sector, investor protection risks remain substantial. Without clear disclosure standards and suitability requirements, retail participants may face high-risk ventures characterized by information asymmetry. Although AI tools can mitigate certain screening and monitoring risks, regulatory oversight remains essential¹⁹³. Finally, regulatory uncertainty and evolving compliance requirements may increase operational costs for FinTech and crowdfunding platforms. If licensing rules or sandbox frameworks lack clarity or consistency, innovation incentives may weaken despite strong policy intentions.

Uzbekistan’s rapid growth in digital payments and expanding IT ecosystem create strong preconditions for AI-enabled FinTech services and regulated crowdfunding platforms. Official statistics show a large payment infrastructure and high transaction turnover, enabling AI-based security and risk analytics. Meanwhile, policy documents explicitly encourage mechanisms such as crowdfunding for innovation and AI-related startup financing.

However, to realize inclusive and stable growth, Uzbekistan must treat AI as a high-impact financial infrastructure technology: it requires risk-based governance, strong data protection, explainability for critical decisions, cybersecurity controls, and investor-protection rules for crowdfunding. With these safeguards, AI can accelerate SME financing, improve trust in digital payments, and support new capital formation channels aligned with Uzbekistan’s economic modernization goals.

¹⁹³ Cambridge University Press. *Crowdfunding (chapter in an academic finance/technology history/regulation context; platform-based definition)*

Literature references:

1. Central Bank of the Republic of Uzbekistan. Payment system indicators: bank cards, POS-terminals, ATMs/infokiosks, turnover via POS-terminals (as of 1 July 2025). 29 July 2025.
2. IT Park Uzbekistan. Enterprise Uzbekistan: statistics on IT Park companies and turnover (end of 2024). 12 June 2025.
3. National Legislation Database (Lex.uz). Resolution on measures to create conditions for accelerated introduction of AI mechanisms; includes crowdfunding/co-financing mechanisms for AI startup projects. PP-4996, 17 Feb 2021.
4. World Bank Data. Uzbekistan: GDP, GDP growth (2024).
5. UNDP. Digital Economy of Uzbekistan (study/report; AI adoption/investment constraints highlighted). 2025 (PDF)
6. Cambridge University Press. Crowdfunding (chapter in an academic finance/technology history/regulation context; platform-based definition)

РОЛЬ ГОСУДАРСТВЕННЫХ ЦИФРОВЫХ ПЛАТФОРМ В СИСТЕМЕ СОЦИАЛЬНОЙ ПОДДЕРЖКИ НАСЕЛЕНИЯ

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Аннотация. В условиях цифровой трансформации государственного управления цифровые платформы становятся важным инструментом реализации социальной политики. Они позволяют повысить доступность социальных услуг, упростить процедуры получения помощи и повысить прозрачность распределения государственных ресурсов. Целью данного исследования является рассмотреть роль государственных цифровых платформ в системе социальной поддержки населения на примере Узбекистана. В работе анализируются ключевые цифровые сервисы, механизмы предоставления социальной помощи и уровень цифровизации государственных услуг. Результаты показывают, что развитие электронного правительства способствует повышению эффективности социальной поддержки и расширению финансовых возможностей граждан.

Ключевые слова. цифровизация, электронное правительство, социальная политика, цифровые платформы, государственные услуги, финансовая инклюзия.

В последние десятилетия цифровые технологии существенно изменили способы взаимодействия государства и общества. Одним из наиболее заметных направлений этих изменений стало внедрение