

IV SHO'BA

SUN'IY INTELLEKT VOSITALARINING MOLIYAVIY TEXNOLOGIYALAR KRAUDFANDING PLATFORMALARIDA QO'LLANILISHI: ISTIQBOLLAR VA XAVFLAR

APPLICATION OF MACHINE LEARNING FOR THE PREVENTION OF FINANCIAL FRAUD IN PAYMENT SYSTEMS OF UZBEKISTAN

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The current stage of development of the global financial system is characterized by an active digital transformation in which artificial intelligence technologies occupy a central role. Their implementation enables the processing of large data sets, identification of hidden patterns, and automation of decision-making processes, significantly increasing the efficiency of financial institutions.¹⁷⁶

In the context of growing competition in financial markets and the acceleration of economic digitalization, the use of AI becomes an important factor in strengthening the stability of the banking sector and expanding financial inclusion. For countries with emerging digital economies, including Uzbekistan, these technologies open new opportunities for modernizing the national financial system and integrating into the global fintech space.¹⁷⁷

The methodological framework of the study is based on comparative analysis, a systems approach, and the generalization of international experience in the application of artificial intelligence in finance. The research relies on academic publications indexed in Scopus and Web of Science, as well as analytical reports of international organizations. This made it possible to identify the main areas of AI application and adapt them to the conditions of the financial system of Uzbekistan.

The use of machine learning algorithms significantly improves the accuracy of borrowers' creditworthiness assessment through the analysis of alternative data, including transaction activity, behavioral patterns, and customers' digital footprints.¹⁷⁸ This is particularly important for expanding access to financing for small businesses and populations with limited credit histories.

¹⁷⁶ Arner D.W., Barberis J., Buckley R.P. FinTech, RegTech and the Reconceptualization of Financial Regulation. *Northwestern Journal of International Law & Business*, 2017.

¹⁷⁷ World Bank. *Digital Financial Services*. Washington, DC, 2022.

¹⁷⁸ Lessmann S., Baesens B., Seow H.-V., Thomas L.C. Benchmarking state-of-the-art classification algorithms for credit scoring. *European Journal of Operational Research*, 2015.

Intelligent systems provide real-time transaction monitoring and detection of anomalous operations. The application of data mining methods and neural networks reduces financial losses and increases trust in digital payment instruments.¹⁷⁹ The use of AI in regulatory technologies facilitates the automation of KYC/AML procedures, reduces regulatory risks, and enhances the transparency of financial operations.¹⁸⁰

AI algorithms enable the generation of personalized financial recommendations, optimization of investment strategies, and improvement of customer service quality.¹⁸¹

Chatbots and natural language processing systems provide 24/7 customer support and reduce the operational costs of financial institutions.¹⁸²

In recent years, Uzbekistan has been implementing a large-scale program of digital transformation of the financial system aimed at developing cashless payments, remote banking services, and the fintech ecosystem. The introduction of remote customer identification systems and the expansion of mobile payment services create the technological foundation for the application of artificial intelligence algorithms.

Commercial banks in the country use big data analytics methods for credit risk assessment and customer segmentation. This contributes to the expansion of microfinance and online lending programs. In addition, the growth of e-commerce and digital payments increases the relevance of implementing intelligent transaction monitoring systems to combat fraud.

The formation of a regulatory framework for digital financial services and the development of payment infrastructure create prerequisites for the implementation of RegTech solutions and intelligent analytics in banking activities.

The implementation of artificial intelligence technologies in the national financial sector ensures:

- a) increased financial inclusion of the population;
- b) reduction of credit risks;
- c) acceleration of application processing and decision-making;
- d) development of digital payment instruments;
- e) increased transparency of financial transactions.

These effects correspond to global trends in the digitalization of financial markets and contribute to enhancing the competitiveness of the national economy.¹⁸³

Despite its high potential, the implementation of AI in the financial sector of Uzbekistan is accompanied by a number of challenges:

¹⁷⁹ Ngai E.W.T., Hu Y., Wong Y.H., Chen Y., Sun X. The application of data mining techniques in financial fraud detection. *Decision Support Systems*, 2011.

¹⁸⁰ Anagnostopoulos I. FinTech and RegTech: Impact on regulators and banks. *Journal of Economics and Business*, 2018.

¹⁸¹ Sironi P. *FinTech Innovation: From Robo-Advisors to Goal Based Investing and Gamification*. Wiley, 2016.

¹⁸² Huang M.-H., Rust R.T. *Artificial Intelligence in Service*. *Journal of Service Research*, 2018.

¹⁸³ OECD. *Artificial Intelligence in Finance*. Paris, 2021.

- limited availability of high-quality training data;
- the need for further development of digital infrastructure;
- shortage of specialists in data science and fintech;
- cybersecurity risks;
- the need to improve regulatory frameworks.

Similar issues are also characteristic of other developing countries, which confirms the need for a comprehensive institutional approach to the digital transformation of the financial sector.

Artificial intelligence is a key driver of the transformation of the modern financial system. For Uzbekistan, its implementation represents a strategic opportunity to increase the efficiency of the banking sector, expand financial inclusion, and develop the national fintech ecosystem. Further progress requires improvement of the regulatory framework, investment in digital infrastructure, and the training of qualified personnel.

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BANK XIZMATLARINI KO'RSATISHDA SUN'IY INTELLEKT ISTIQBOLLARI

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Annotatsiya. Bugungi kunda bank xizmatlari sohasida raqamli texnologiyalarning jadal rivojlanishi sun'iy intellekt orqali yechimlarni topishda