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PROSPECTS FOR THE USE OF BLOCKCHAIN TECHNOLOGY IN TAX ADMINISTRATION

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Annotation. Raqamli iqtisodiyot sharoitida davlat boshqaruvi tizimlarini modernizatsiya qilish, xususan soliq ma'murchiligini takomillashtirish muhim strategik vazifalardan biri hisoblanadi. Mazkur tadqiqot soliq ma'murchiligida blokcheyn texnologiyasidan foydalanish istiqbollarini tahlil qilishga bag'ishlangan. Tadqiqot davomida blokcheyn texnologiyasining asosiy xususiyatlari, jumladan ma'lumotlarning o'zgarmasligi, shaffofligi va xavfsizligi soliq tizimida qo'llash imkoniyatlari nuqtai nazaridan o'rganildi. Shuningdek, O'zbekiston Respublikasining 2026-yilgi Soliq kodeksi, raqamli transformatsiya siyosati hamda xalqaro tajribalar asosida blokcheyn texnologiyasining soliq nazorati, soliq hisobotlari va soliq yig'imlarini avtomatlashtirish jarayonlariga ta'siri baholandi.

Kalit so'zlar: blokcheyn texnologiyasi, soliq ma'murchiligi, raqamli iqtisodiyot, soliq nazorati, smart kontraktlar, soliq tizimi.

Abstract. In the context of the rapidly developing digital economy, the modernization of public administration systems, particularly tax administration, has become an important strategic priority. This research examines the prospects of using blockchain technology in tax administration. The study analyzes the key characteristics of blockchain technology, including data immutability, transparency, and security, and evaluates their potential application in tax systems. The research is based on the current Tax Code of the Republic of Uzbekistan (2026), national digital transformation policies, and international experiences in digital tax administration.

Keywords: blockchain technology, tax administration, digital economy, tax compliance, smart contracts, fiscal transparency.

Аннотация. В условиях стремительного развития цифровой экономики модернизация системы государственного управления, особенно налогового администрирования, становится одной из приоритетных задач. Данное исследование посвящено анализу перспектив использования технологии блокчейн в налоговом администрировании. В работе рассматриваются основные характеристики блокчейн-технологии, такие как неизменяемость данных, прозрачность и высокий уровень безопасности, а также возможности их применения в налоговой системе. Исследование основано на действующем Налоговом кодексе Республики Узбекистан (2026 год), государственной политике цифровой трансформации и международном опыте цифровизации налогового администрирования.

Ключевые слова: блокчейн технология, налоговое администрирование, цифровая экономика, налоговый контроль, смарт-контракты.

INTRODUCTION

The development of digital technologies has fundamentally transformed the functioning of modern economies and public administration systems. In the context of globalization and the rapid expansion of the digital economy, governments face increasing challenges in ensuring

effective tax administration. Traditional tax administration mechanisms often struggle to keep pace with the complexity of modern financial transactions, cross-border economic activities, and the growing use of digital platforms.

One of the key challenges faced by tax authorities is the lack of transparency in financial transactions and the difficulty of verifying tax-relevant information. Tax evasion, tax avoidance, and the expansion of the shadow economy significantly reduce the effectiveness of tax systems and negatively affect government revenues. According to international estimates, tax evasion and illicit financial flows lead to substantial losses in public budgets each year, particularly in developing economies. In response to these challenges, many countries have initiated large-scale reforms aimed at digitalizing tax administration processes. The integration of advanced digital technologies into tax administration systems has become a strategic priority for improving tax compliance and enhancing the efficiency of tax collection. Technologies such as artificial intelligence, big data analytics, and blockchain are increasingly being explored as tools capable of transforming the traditional tax administration framework.

Among these technologies, blockchain has attracted considerable attention due to its unique technical characteristics. Blockchain is a distributed digital ledger that records transactions across a network of computers in a secure and transparent manner. Each transaction is verified by network participants and stored in blocks that are cryptographically linked to one another. Once recorded, the data cannot be modified without altering all subsequent blocks, making the system highly resistant to fraud and manipulation. These characteristics make blockchain particularly relevant for tax administration, where the reliability and transparency of financial information are essential. Blockchain can enable real-time monitoring of financial transactions, improve the accuracy of tax reporting, and facilitate secure data exchange between taxpayers and government authorities.

The relevance of this topic is especially significant for countries that are actively modernizing their tax systems, including Uzbekistan. In recent years, Uzbekistan has undertaken substantial reforms aimed at improving tax administration and strengthening fiscal discipline. The current Tax Code of the Republic of Uzbekistan, along with national digital transformation strategies, emphasizes the importance of implementing innovative technologies to increase transparency and efficiency in the tax system.

The purpose of this research is to analyze the prospects for implementing blockchain technology in tax administration and to evaluate its potential impact on improving the efficiency, transparency, and reliability of tax systems.

LITERATURE REVIEW

The application of blockchain technology in tax administration has attracted growing interest among researchers, policymakers, and international organizations. A significant body of academic literature highlights the transformative potential of blockchain in improving transparency, efficiency, and accountability within public financial management systems. Many researchers emphasize that blockchain technology provides a decentralized system for recording and verifying transactions without the need for a centralized intermediary. This structure significantly reduces the risk of data manipulation and increases the reliability of recorded information. Because blockchain records are immutable and transparent, they can serve as a trusted source of information for tax authorities and other government institutions.

Scholars have also pointed out that blockchain can simplify complex tax administration processes by enabling direct and secure data exchange between taxpayers and tax authorities. Traditional tax reporting systems often involve multiple intermediaries and manual verification procedures, which increase administrative costs and create opportunities for errors or fraud. Blockchain-based systems can automate many of these processes and significantly improve

operational efficiency. Another important topic discussed in the literature is the use of blockchain technology in value-added tax administration. VAT systems are particularly vulnerable to fraud due to the complexity of supply chains and the large number of transactions involved. Blockchain technology can provide a transparent record of transactions throughout the entire supply chain, enabling tax authorities to verify the legitimacy of VAT claims and reduce fraudulent refund requests.

Several studies also highlight the potential of blockchain-based electronic invoicing systems. By integrating electronic invoicing with blockchain technology, tax authorities can receive real-time information about economic transactions. This approach allows governments to monitor taxable activities more effectively and detect suspicious transactions at an early stage. International organizations such as the OECD and the World Bank have also emphasized the importance of digital transformation in tax administration. According to these organizations, modern tax systems must adopt innovative technologies in order to address the challenges of globalization, digitalization, and the increasing complexity of financial transactions.

Despite these advantages, the literature also identifies several limitations associated with blockchain implementation. These include high implementation costs, technical complexity, scalability challenges, and regulatory uncertainty. Some researchers also emphasize the need to address data privacy concerns and ensure that blockchain systems comply with existing legal frameworks.

Overall, the literature suggests that blockchain technology has significant potential to improve tax administration, but its successful implementation requires careful institutional and regulatory preparation.

METHODOLOGY

This research is based on a qualitative analytical approach aimed at evaluating the potential role of blockchain technology in tax administration. Several research methods were employed to ensure a comprehensive analysis of the subject.

First, the study relies on a systematic review of scientific literature related to blockchain technology, digital taxation, and public finance management. Academic articles, international reports, and policy documents were analyzed to identify the key theoretical concepts and practical applications of blockchain in tax administration.

Second, the research uses comparative analysis to examine international experiences in implementing blockchain technologies within public administration systems. By analyzing examples from different countries, it is possible to identify best practices and evaluate the feasibility of adopting similar approaches in other national contexts.

Third, the research includes an institutional analysis of the current legal framework governing tax administration in Uzbekistan. Particular attention is given to the provisions of the Tax Code of the Republic of Uzbekistan (2026) and national policies related to digital transformation in public administration.

The analytical framework of the study focuses on identifying the mechanisms through which blockchain technology can enhance tax administration. These mechanisms include improving transparency in financial transactions, automating tax collection processes, strengthening inter-institutional data exchange, and reducing administrative costs.

Results and Discussion

The analysis of blockchain technology applications in tax administration reveals several important advantages that can significantly improve the efficiency and transparency of tax systems.

One of the most important benefits of blockchain technology is the ability to ensure the integrity and reliability of tax-related data. In traditional tax administration systems, financial

information is often stored in centralized databases that may be vulnerable to manipulation or unauthorized access. Blockchain technology eliminates many of these risks by distributing data across multiple network nodes and securing each transaction through cryptographic mechanisms. Another major advantage of blockchain is the possibility of real-time monitoring of economic transactions. In a blockchain-based tax system, financial transactions can be recorded immediately after they occur, allowing tax authorities to track taxable activities without waiting for periodic reporting. This real-time access to information can significantly improve the ability of tax authorities to detect tax evasion and other forms of financial misconduct.

Blockchain technology also enables the implementation of smart contracts that can automate certain tax administration processes. Smart contracts are self-executing programs stored on the blockchain that automatically perform predefined actions when specific conditions are met. In the context of taxation, smart contracts can be used to automatically calculate and transfer tax payments when a financial transaction takes place. For example, when a company completes a taxable transaction, the blockchain system could automatically calculate the relevant tax liability and transfer the required tax amount to the government account. This approach would significantly reduce administrative burdens for both taxpayers and tax authorities while minimizing the risk of tax underreporting.

Another important benefit of blockchain technology is its potential to improve cooperation between different government institutions involved in tax administration. In many countries, tax authorities must coordinate with customs services, financial regulators, and other government agencies in order to monitor economic activities effectively. Blockchain-based information systems can facilitate secure and efficient data sharing among these institutions, thereby improving the overall effectiveness of tax administration. However, the implementation of blockchain technology also presents several challenges. One of the main obstacles is the need for advanced technological infrastructure capable of supporting large-scale blockchain networks. Governments must invest in digital infrastructure, cybersecurity systems, and specialized technical expertise in order to successfully implement blockchain-based tax systems.

Another important challenge relates to regulatory and legal frameworks. Existing tax legislation may need to be adapted in order to recognize blockchain-based records and smart contracts as legally valid instruments. Furthermore, governments must establish clear rules regarding data protection, privacy, and access to blockchain-based information. Despite these challenges, the long-term benefits of blockchain technology in tax administration appear to be substantial. By improving transparency, reducing administrative costs, and strengthening tax compliance, blockchain technology can contribute to more efficient and sustainable tax systems.

CONCLUSION

The rapid development of digital technologies has created new opportunities for improving the efficiency and transparency of tax administration systems. Blockchain technology represents one of the most promising innovations capable of transforming the structure and functioning of modern tax systems. The results of this research demonstrate that blockchain technology can significantly enhance the reliability of tax information, facilitate real-time monitoring of financial transactions, and automate various tax administration processes through the use of smart contracts. These capabilities can contribute to reducing tax evasion, improving tax compliance, and increasing government revenues.

For countries that are actively modernizing their tax systems, the adoption of blockchain technology offers significant potential benefits. In the case of Uzbekistan, the ongoing digital transformation of public administration creates favorable conditions for the gradual integration of blockchain-based solutions into tax administration processes. However, successful implementation requires the development of appropriate legal frameworks, investment in digital

infrastructure, and the training of qualified specialists capable of managing advanced technological systems. Governments must also ensure that blockchain systems comply with existing data protection regulations and maintain the confidentiality of taxpayer information.

Future research should focus on developing practical models for blockchain-based tax administration systems and evaluating their potential economic impact on public finance management.

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