INTRODUCING BLOCKCHAIN TECHNOLOGIES IN THE UZBEK FINANCIAL MARKET: REDUCING TRANSACTION COSTS AND INCREASING SECURITY

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Abstract. This article examines the economic and institutional prospects of introducing blockchain technologies into the financial market of Uzbekistan, with particular attention to two strategic effects: the reduction of transaction costs and the strengthening of security. The study proceeds from the premise that blockchain should not be interpreted narrowly as a synonym for speculative crypto-asset circulation. In the context of the Uzbek financial market, its practical value is broader and lies in the modernization of payment infrastructure, post-trade settlement, digital identity verification, audit trails, tokenized financial instruments, custody services, and automated compliance procedures.

Keywords: blockchain, distributed ledger technology, Uzbek financial market, transaction costs, cybersecurity, payment systems.

INTRODUCTION

The rapid digitalization of finance has transformed the structure of national financial markets by altering the ways in which payments are processed, assets are recorded, risks are monitored, and trust is institutionalized. Under these conditions, blockchain technology has emerged as one of the most discussed infrastructural innovations in global finance. Its significance does not derive merely from the popularity of cryptocurrencies, but from the possibility of reorganizing how market participants create, verify, store, and transfer financial information. In theoretical terms, blockchain is valuable because it substitutes a fragmented database architecture with a synchronized distributed ledger, allowing authorized

participants to work with a shared and chronologically ordered record of transactions. In practical financial-market terms, such an architecture affects costs, speed, transparency, and security. For Uzbekistan, this issue is increasingly relevant because the country has already developed a legal basis for modern payment systems, established a regulated framework for crypto-asset service providers, and introduced experimental legal regimes for financial innovation. The Interbank Payment System of the Central Bank operates on the basis of the Law "On Payments and Payment Systems," while the National Agency for Prospective Projects currently exercises regulatory authority over crypto-assets and the capital market.

MATERIALS AND METHODS

From an economic point of view, the first major argument in favor of blockchain concerns transaction costs. In classical institutional economics, transaction costs include the expenses associated with information search, verification, contracting, reconciliation, monitoring, and enforcement. In financial markets, these costs are especially visible in multi-stage payment chains, securities settlement procedures, custody operations, compliance checks, and cross-border transfers. Traditional market infrastructure often requires several intermediaries to verify the same information at different points in the transaction chain. Each additional intermediary increases delays, operational expenditures, and the probability of mismatch between records. Blockchain can reduce such costs by creating a shared ledger on which authorized participants rely simultaneously, thereby reducing the need for repeated reconciliation. When transaction histories, asset ownership records, and validation procedures are stored in a synchronized ledger, settlement processes become less dependent on fragmented back-office coordination. For the Uzbek financial market, where digital payments and remote banking have expanded substantially in recent years, the relevance of such efficiency gains is obvious: as transaction volumes and service diversity increase, the cost of duplication, reconciliation, and operational control also rises.

RESULTS AND DISCUSSION

In the Uzbek payment segment, blockchain's potential is strongest where it complements rather than disrupts the existing institutional framework. The Central Bank's payment system architecture is already built around legal certainty, centralized oversight, and the secure functioning of interbank settlements in national currency. This does not mean blockchain is irrelevant; rather, it suggests that its rational use lies in specific layers of infrastructure. For example, blockchain-based solutions may be introduced for inter-institutional messaging, authentication of settlement instructions, immutable logging of transaction events, and automated reconciliation of clearing information. Such applications would not replace the Central Bank's authority or the legal status of the sum. Instead, they would reduce operational friction in processes that still rely on repeated verification across multiple information systems. The Central Bank's own 2025–2026 research agenda includes the implications of blockchain technologies for payment systems and the analysis of technological and regulatory measures used by central banks to ensure cybersecurity. This indicates that the issue has already entered the sphere of institutional policy research rather than remaining a peripheral technological curiosity.

The capital market presents a second area where blockchain may reduce transaction costs more visibly than in retail payments. Securities markets usually involve issuance, registration, custody, transfer, settlement, corporate-action processing, and post-trade reporting. In conventional systems, these functions are distributed among issuers, registrars, depositories, exchanges, brokers, and settlement institutions. Such institutional specialization is necessary, but it also creates administrative friction. Distributed ledger technology can compress some of these costs by recording ownership changes and transaction histories in a ledger that is accessible to relevant market participants according to regulated permissions. This is particularly important for emerging capital markets, where the cost of trust-building is high and market depth depends not only on liquidity, but also on confidence in record integrity and settlement finality.

CONCLUSION

The introduction of blockchain technologies into the Uzbek financial market has real potential to reduce transaction costs and increase security, but only under a regulated and infrastructure-centered implementation strategy. The principal economic effect of blockchain lies in minimizing duplication of verification, reducing reconciliation expenses, accelerating settlement, improving auditability, and lowering the administrative burden of record management. Its principal security effect lies in strengthening the integrity of transactional records, increasing traceability, and supporting more resilient supervisory and compliance systems.

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