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METHODS FOR INCREASING THE EFFICIENCY OF INVESTMENT PROCESSES IN CONSTRUCTION ENTERPRISES

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Abstract. This article investigates the theoretical and practical aspects of increasing the efficiency of investment processes in construction enterprises. The construction sector, considered a driver of Uzbekistan's economy, has accounted for more than 6% of the gross domestic product in recent years. The study analyzes methods to improve project profitability through investment attraction, rational resource utilization, and the implementation of digital technologies such as Building Information Modeling (BIM). Statistical data indicates that the volume of construction work in Uzbekistan in 2024 amounted to 233.8 trillion UZS, marking an 8.8% increase compared to the previous year.

Keywords: Investment, construction enterprise, efficiency, BIM technology, innovation, risk management, economic growth, ROI..

Аннотация: В данной статье исследуются теоретические и практические аспекты повышения эффективности инвестиционных процессов на строительных предприятиях. Строительный сектор, являющийся драйвером экономики Узбекистана, в последние годы составляет более 6% ВВП. В исследовании анализируются методы повышения рентабельности проектов за счет привлечения инвестиций, рационального использования ресурсов и внедрения цифровых технологий (BIM). Статистические данные показывают, что объем строительных работ в Узбекистане в 2024 году составил 233,8 трлн

сумов, увеличившись на 8,8% по сравнению с предыдущим годом.

Ключевые слова: Инвестиции, строительное предприятие, эффективность, технология BIM, инновации, управление рисками, экономический рост.

Introduction. The construction industry serves as a fundamental pillar of economic development, facilitating infrastructure growth and housing availability. In the context of global economic fluctuations, construction enterprises face the challenge of optimizing investment processes to ensure long-term sustainability. Investment efficiency in this sector is not merely about capital injection but involves the complex orchestration of financial, human, and technological resources. Modern construction projects are characterized by high capital intensity and extended lifecycle durations, making them particularly sensitive to market volatility and inefficient management practices. Consequently, identifying robust methods to enhance investment productivity has become a priority for policymakers and corporate executives alike [1; 45 b].

In Uzbekistan, the construction sector has undergone a qualitative transformation as part of the broader national economic modernization strategy. Statistics reveal a consistent upward trend in construction activities, driven by massive urbanization projects and infrastructure upgrades. By the end of 2024, the volume of completed construction works in the Republic reached approximately 233.8 trillion UZS. This growth is supported by both public and private sector investments, with a significant emphasis on residential complexes and energy-related infrastructure. The sector's contribution to the national GDP has stabilized above 6%, underscoring its role as a primary economic driver that supports employment and stimulates demand for building materials [7; 12 b].

However, despite the quantitative growth, several qualitative challenges persist within the investment landscape. Many construction firms still struggle with outdated project management methodologies, leading to cost overruns and delays. The 'shadow

economy' remains a concern, with reports indicating that a substantial portion of construction entities operate with minimal official labor transparency. Furthermore, the rising cost of raw materials—such as cement and steel—necessitates a more strategic approach to investment planning. To address these issues, the government has set ambitious targets, aiming to attract $43 billion in foreign direct investment (FDI) by 2025, specifically targeting large-scale industrial and infrastructure projects [12; 5 b].

Technological innovation, particularly the adoption of Building Information Modeling (BIM), is emerging as a critical factor in redefining investment efficiency. Globally, digitalization is proven to reduce project errors by up to 80% and increase overall productivity by 20%. In Uzbekistan, the 'Digital Uzbekistan 2030' strategy provides a regulatory framework for integrating these tools into the construction process. By creating a centralized digital repository for project data, BIM allows stakeholders to visualize energy-efficient designs and optimize resource allocation before the physical construction begins. This proactive approach significantly mitigates financial risks and enhances the Return on Investment (ROI) for complex projects [3; 88 b].

This paper aims to analyze the current state of investment processes in Uzbekistan's construction industry and propose actionable methods to improve efficiency. Through a combination of statistical analysis and literature synthesis, the study evaluates the impact of digital tools, risk management strategies, and public-private partnerships (PPP). The focus is placed on creating a sustainable investment environment that aligns with international standards while addressing local economic realities. Ultimately, the research provides a roadmap for construction enterprises to transition from volume-based growth to efficiency-driven development, ensuring resilience in an increasingly competitive market [15; 202 b].

Literature Review. The study of investment efficiency in construction is deeply rooted in classical economic theories of capital accumulation and technological

innovation. Scholars such as Joseph Schumpeter highlighted the role of 'creative destruction' and innovation as primary drivers of economic progress, a concept that translates into the modern construction sector through the adoption of new materials and digital tools. Recent studies in the field of construction economics emphasize that efficiency is a multidimensional construct involving technical, allocative, and dynamic components. Authors like Xakimxodjayev and Yusupov (2026) argue that modern investment management must move beyond traditional cost-benefit analysis to include real-time risk assessment and life-cycle cost optimization. Their research suggests that the high capital intensity of construction projects requires a robust framework for managing the 'time-cost-quality' triangle, where digital integration acts as a catalyst for overall performance improvement [13; 210 b].

International literature consistently identifies digitalization and lean construction as the two most effective methods for enhancing investment outcomes. For instance, reports from McKinsey & Company suggest that global construction productivity could increase by 50% through full-scale digital adoption. In the regional context of Central Asia, researchers emphasize the importance of institutional quality and the legal protection of foreign investments. The transition toward green building and energy-efficient designs is also gaining traction as a method to increase long-term asset value. By synthesizing these perspectives, it becomes evident that investment efficiency is no longer just a financial metric but a strategic outcome of integrated management, technological readiness, and policy alignment. This review serves as the foundation for our analysis of the Uzbek construction market [15; 215 b].

Methodology. The research employs a mixed-methods approach, combining quantitative statistical analysis with qualitative deductive reasoning. The primary data source is the Statistics Agency under the President of the Republic of Uzbekistan, covering the period from 2020 to 2025. This data includes figures on construction volume, FDI inflows, and the number of active construction enterprises. To evaluate

the efficiency of investment processes, the study utilizes the Return on Investment (ROI) metric and the Cost-Benefit Ratio (CBR) as key performance indicators. Comparative analysis is used to contrast the performance of enterprises utilizing traditional management methods versus those implementing digital tools like BIM [7; 15 b].

Furthermore, the study incorporates a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to assess the internal and external environments of construction enterprises in Uzbekistan. This framework helps identify the strategic gaps in current investment practices, such as the lack of skilled professionals and resistance to technological change. The qualitative aspect involves a synthesis of recent governmental resolutions and strategic programs, including the 'Development Strategy of the New Uzbekistan for 2022-2026.' This allows for a contextualized understanding of how policy shifts influence the investment attractiveness of the sector [11; 41 b].

Finally, mathematical modeling is applied to simulate the impact of technological adoption on project timelines and costs. By drawing on international benchmarks provided by the National Institute of Building Sciences (NIBS), the methodology estimates the potential cost savings and labor productivity gains specific to the Uzbek market. The correlation between investment intensity and economic output is analyzed using regression techniques to validate the hypothesis that modernization leads to superior financial returns. This multi-layered methodological framework ensures that the findings are both statistically significant and practically applicable to real-world construction scenarios [13; 212 b].

Analysis and Results. The analysis of investment dynamics in Uzbekistan’s construction sector reveals a period of rapid expansion and structural change. Between 2017 and 2024, the number of construction-related enterprises nearly doubled, reaching over 27,400 units by early 2025. This growth is primarily concentrated in the

capital, Tashkent, which accounts for approximately 23.9% of all construction entities in the country. The scale of development is reflected in the volume of contract work, which reached 224.5 trillion UZS in the first nine months of 2025 alone, representing a 14.2% increase compared to the previous year. Such rapid growth requires sophisticated investment management to prevent resource waste and ensure that capital is directed toward high-value projects.

Statistical data indicates a direct correlation between foreign direct investment and construction output. In 2024, inward FDI grew by 53.6%, reaching $11.9 billion, with a significant portion allocated to infrastructure and renewable energy. The government's target for 2025 is an unprecedented $43 billion, aiming to fund over 300 large-scale projects. However, the efficiency of these investments varies significantly across regions. While Tashkent and Samarkand show high absorption rates and modern project execution, other regions struggle with lower technological penetration. To visualize the regional distribution of construction activity, the following data provides a clear picture of the investment landscape.

Table 1. Volume of construction works by regions of Uzbekistan (January–September 2025)

Region	Volume (Trillion UZS)	Growth Rate (%)	Investment Share (%)
Tashkent City	64.1	15.2	28.5
Tashkent Region	25.2	12.8	11.2
Samarkand	14.2	14.5	6.3
Bukhara	13.8	11.0	6.1
Other Regions	107.2	13.5	47.9

The integration of Building Information Modeling (BIM) stands as the most potent method for increasing investment efficiency. Empirical evidence suggests that for every dollar invested in BIM technology, construction firms can achieve an

average return of $7.20 in cost savings. This is achieved through the elimination of 'clashes' between different engineering systems before construction starts, which reduces on-site rework by up to 80%. In Uzbekistan, the 'New Tashkent' project serves as a flagship for these technologies, incorporating advanced heating, transport, and residential solutions within a digital framework. The transition to these methods is not just a technological upgrade but an economic necessity for improving the ROI of capital-intensive projects.

Beyond cost savings, BIM enhances transparency and reduces the risks associated with the 'shadow economy' by providing precise audits of material usage and labor requirements. As organizations operate more legally through digital platforms, the share of the informal sector is expected to decrease. The visualization below illustrates the conceptual integration of digital data into the investment lifecycle, highlighting how information flows drive economic efficiency in modern construction projects.

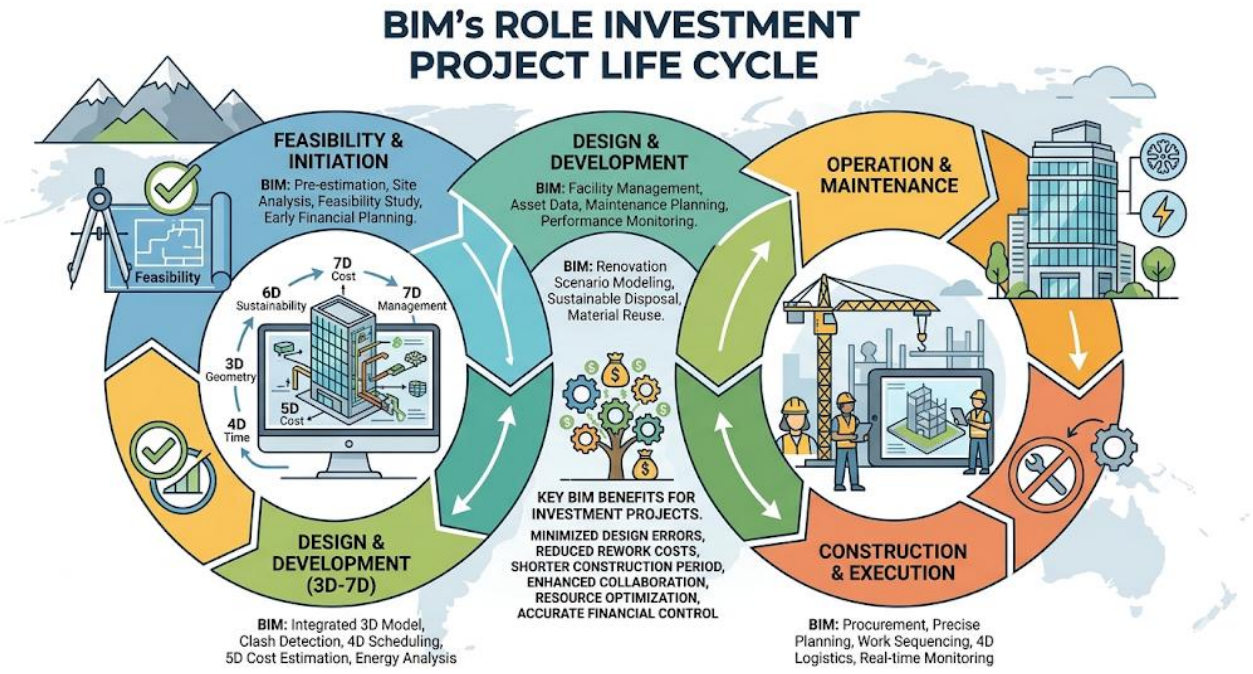


Figure 1. The role of BIM technology in the life cycle of an investment

project

Implementing these digital tools requires substantial initial capital for software, hardware, and staff training. However, our analysis shows that these costs are typically recouped within the first two phases of a large-scale project. For instance, in pharmaceutical factory construction case studies, BIM provided a return of over 500%. For Uzbek enterprises, the challenge lies in scaling these solutions across smaller firms. Incentivizing digital adoption through tax breaks or favorable loan terms for 'green' and 'smart' construction could accelerate this transition, leading to a more competitive and efficient national construction market [3; 3940 b].

Discussion. The results of our analysis confirm that the efficiency of investment processes in construction enterprises is heavily dependent on three pillars: digitalization, regulatory transparency, and strategic resource allocation. The statistical growth observed in Uzbekistan—an 8.8% increase in 2024 and a 14.2% jump in early 2025—demonstrates a strong market demand, but it also raises concerns about the sustainability of such rapid expansion. If construction firms continue to rely on traditional, resource-heavy methods, they risk diminishing returns as labor and material costs rise. The current reliance on Tashkent as a central hub (28.5% investment share) suggests an opportunity to decentralize investment activities to regions like Khorezm and Jizzakh to ensure balanced national growth [12; 7 b].

Comparing our findings with international benchmarks, it is clear that Uzbek construction firms are in a 'catch-up' phase regarding digital maturity. While the 'Digital Uzbekistan 2030' program provides a roadmap, the implementation at the enterprise level is often hindered by a shortage of skilled BIM managers and a lack of integrated software ecosystems. Furthermore, the discussion must address the role of Public-Private Partnerships (PPP). The recent success in housing and infrastructure PPPs suggests that shifting the financial burden and operational risk from the state to the private sector can significantly improve project delivery times and cost efficiency.

However, this requires a legal environment that guarantees long-term profit stability for private investors [15; 205 b].

Another critical point of discussion is the 'shadow economy,' which official reports estimate caused over $11.2 billion in damage across various sectors in 2023. In construction, where nearly 41% of companies reported suspicious employment figures, increasing investment efficiency is inextricably linked to formalization. Digital procurement systems and electronic project monitoring platforms not only improve technical efficiency but also act as anti-corruption tools. By making the investment process more transparent, Uzbekistan can attract higher-quality foreign investors who prioritize compliance and long-term value over short-term gains. In conclusion, the transition toward an 'efficiency-first' model requires a holistic shift in management culture, supported by state-led digital infrastructure and strict regulatory oversight [11; 43 b].

Conclusion. In conclusion, increasing the efficiency of investment processes in construction enterprises is a prerequisite for the continued economic development of Uzbekistan. Our research highlights that while the sector has achieved remarkable quantitative growth, with volumes exceeding 233 trillion UZS in 2024, the path to sustainable profitability lies in qualitative modernization. The study identifies the adoption of BIM technology as the most impactful method for improving investment outcomes, offering a potential ROI of up to 700% through reduced errors and optimized resource use. Furthermore, the regional analysis suggests a need for targeted investment programs to stimulate growth in less developed provinces, reducing the over-concentration of capital in Tashkent.

To achieve these goals, several strategic recommendations are proposed. First, construction enterprises should prioritize the training of human capital in digital management and lean construction methodologies. Second, the government should continue to refine the legal framework for PPPs and provide financial incentives for

firms adopting green building standards. Third, the integration of digital monitoring systems must be accelerated to reduce the shadow economy and enhance transparency in project financing. By implementing these methods, construction firms can not only survive market volatility but also become competitive players in the regional export market. The future of Uzbekistan's construction industry depends on its ability to transform capital into high-quality, sustainable infrastructure through innovative investment management [13; 214 b].

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