

American Journal of Economics and Business Management

Vol. 9 Issue 11 | **pp.** 379-386 | **ISSN:** 2576-5973

Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Identification and Evaluation of the Sources of Economic Efficiency in Improving the Management Structure of the Regional Construction Complex

Rakhimova Nilufar Abduazizovna[1]*

1. Lecturer, Samarkand State University of Architecture and Construction

* Correspondence: niluraximova396@gmail.com

Abstract: The improvement of management structures in regional construction complexes is an important factor in increasing economic efficiency, strengthening organizational coordination and ensuring the sustainable development of the construction industry. Traditional object-oriented management, in which individual construction projects are the primary objects of control, often generates excessive administrative procedures, weak coordination between public and private participants and avoidable operating costs. The purpose of this study is to identify and quantitatively evaluate the main sources of economic efficiency that arise from improving the management structure of a regional construction complex. The research is based on a systems approach, an economic evaluation approach applied at the regional, enterprise and project levels, and a calculation model consisting of three formulas that estimate the effects of integrating the informal construction sector, reducing unnecessary construction expenses and reducing construction defects. The results show that the transition to an organization-oriented management model, the development of coordination and digitalization functions, the integration of small businesses and informal sector participants, and the introduction of unified technical standards are the principal sources of efficiency. The integrated economic effect is estimated at 548.3 billion Uzbek soums, of which 236.5 billion soums (43.1%) is associated with the integration of the informal sector, 144.1 billion soums (26.3%) with the reduction of unnecessary expenses and 167.7 billion soums (30.6%) with the reduction of defects; this corresponds to approximately 2.9% of the annual construction output of the region. A sensitivity analysis indicates a range of 434.8–661.8 billion soums under alternative assumptions. The findings can be used by regional authorities and construction organizations when designing and evaluating management reforms.

Keywords: regional construction complex, management structure, economic efficiency, digital transformation, organizational development, construction industry, management optimization, technical standards.

Citation: Abduazizovna, R. N. Identification and Evaluation of the Sources of Economic Efficiency in Improving the Management Structure of the Regional Construction Complex. American Journal of Economics and Business Management 2026, 9(11), 379-386.

Received: 09th Aug 2026
Revised: 04th Sep 2026
Accepted: 08th Oct 2026
Published: 10th Nov 2026

Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/)

1. Introduction

The construction industry is one of the key sectors contributing to regional economic development. It creates fixed assets for all other sectors, generates employment and has strong backward linkages with the building materials, transport and service industries. Its performance depends on the effective use of financial, material, human and organizational resources, and in particular on the quality of the management system that coordinates the many participants of the construction process [1], [2]. International studies show that productivity growth in construction has long lagged behind that of the economy as a

whole, and that a large part of the gap is explained by fragmented organization, weak coordination and insufficient digitalization rather than by technology alone [2], [3].

In modern economic conditions, improving the management structure of regional construction complexes has become increasingly important. Traditional management approaches may create unnecessary administrative procedures, insufficient coordination and additional operational expenses. Construction is characterized by temporary project organizations, extensive subcontracting and a large number of small firms, which makes it especially sensitive to the design of coordination mechanisms [4], [5]. In Uzbekistan, the reform of public administration and the development of the construction sector are among the priorities of the Development Strategy of New Uzbekistan for 2022–2026 [6], while the "Digital Uzbekistan – 2030" Strategy envisages the digitalization of sectoral management systems, including construction [7].

The development of an effective management system requires a transition towards organization-oriented management, improved coordination between public and private institutions and the implementation of digital technologies. However, organizational restructuring involves certain costs, including employee training, the development of new management relationships, documentation and the introduction of digital platforms. Therefore, evaluating the economic efficiency of management improvements is essential for determining their practical value and their expected contribution to regional development.

The purpose of this research is to identify and evaluate the main sources of economic efficiency resulting from improvements in the management structure of the regional construction complex. To achieve this purpose, the following objectives were set: (1) to summarize the theoretical approaches to evaluating the efficiency of organizational management structures; (2) to identify the main sources of economic efficiency in a regional construction complex; (3) to develop a calculation model for estimating the economic effects of the proposed measures; and (4) to assess the integrated economic effect and its sensitivity to the key assumptions.

1.1. Literature review and theoretical background

The theoretical basis of this research concerns the relationship between organizational management, economic efficiency and the development of construction enterprises. Economic efficiency is understood as the relationship between the results achieved and the resources and expenditures required to obtain them [8], [9]. Applied to management structures, efficiency reflects not only the cost of the management apparatus but also the extent to which the structure ensures timely, coordinated and high-quality decisions [10].

Classical organization theory links the structure of an organization with its strategy and environment. Chandler showed that structure follows strategy and that changes in the scale and diversity of activities require new forms of organization [11]. Mintzberg described the basic coordinating mechanisms – mutual adjustment, direct supervision and standardization of work processes, outputs and skills – and the configurations of organizations built on them [12]. These ideas are directly relevant to construction, where coordination is achieved simultaneously through hierarchical control, contracts and technical standards. Studies of adaptive organizational structures emphasize the need for flexible structures that combine vertical hierarchy with horizontal links between participants [13], [14].

Transaction cost economics provides a further explanation of how construction is organized. Williamson argued that the choice between market, hybrid and hierarchical forms depends on asset specificity, uncertainty and the frequency of transactions [15]. Eccles demonstrated that general contractors and their subcontractors often form stable, long-term relationships – a "quasifirm" – that reduce transaction costs compared with purely market-based contracting [4]. Winch described construction projects as information-processing systems in which management quality determines the ability to

reduce uncertainty [1]. Porter's value-chain concept further highlights that competitive advantage arises from the coordination of linked activities rather than from individual operations [16].

Policy-oriented studies in other countries reached similar conclusions. The Latham report called for partnering, standard contracts and closer cooperation between clients and contractors, and set a target of reducing real construction costs by 30% [5]. The Egan report proposed an integrated process, supply-chain partnering and continuous improvement, with targets that included reducing defects by 20% per year [3]. More recent analyses identify digital technologies, especially building information modelling (BIM) and shared data environments, as key enablers of coordination and productivity [2], [17]. Empirical research on construction quality shows that the costs of defects are substantial: in a study of seven building projects, Josephson and Hammarlund found that defect costs amounted to 2.3–9.3% of production costs [18].

A separate strand of literature concerns the informal sector. Informal firms are typically small, have lower productivity and limited access to finance and technology compared with formal firms [19]; the size of the shadow economy remains substantial in many developing and transition economies [20]. In construction, informal activity is associated with the low quality of works, weak compliance with technical requirements and losses of tax revenue.

An important theoretical direction for the present study is the transition from an object-oriented management model to an organization-oriented model. This approach focuses on construction organizations as long-term economic entities rather than treating individual construction projects as the primary objects of management. Although the above studies examine individual aspects of construction management, an integrated assessment of the economic effects of restructuring the management of a regional construction complex – combining organizational, digital and technical measures – has received limited attention in the context of Uzbekistan. This study seeks to fill this gap.

2. Materials and Methods

2.1. Research design and data

The study applies an economic evaluation approach to identify the expected effects of improving the regional construction management structure. A systems approach was used to treat the regional construction complex as a set of interrelated participants – public authorities, construction organizations, small businesses, informal sector participants and customers. Methods of comparative and structural analysis, generalization of scientific literature and economic calculation were also used. The information base comprises the statistical indicators of construction output in the region for the base year, data on the structure of construction work by type of enterprise, the normative and legal documents of the Republic of Uzbekistan [6], [7] and the scientific literature reviewed above. The calculations are carried out for the forecast year 2026.

The assessment is conducted at three interconnected levels: (1) the regional level, at which the effects of reorganizing the functions of public authorities and integrating market participants are evaluated; (2) the level of construction enterprises and organizations, at which changes in costs, productivity and quality are evaluated; and (3) the level of individual construction projects, at which reductions in defects, rework and delays are considered.

2.2. Indicators for evaluating organizational structures

Following the approaches to evaluating the efficiency of management structures [8]–[10], [13], five groups of indicators were used to evaluate organizational structures (Table 1).

Table 1. Groups of indicators for evaluating the efficiency of organizational management structures

Group of indicators	Content
1. General economic indicators	Volume of construction output, cost of construction, profit and profitability, labour productivity
2. Management system performance indicators	Management costs and their share in total costs, number of management staff, speed and reliability of information flows
3. Management activity indicators	Timeliness and quality of management decisions, number of administrative procedures, compliance with deadlines
4. Organizational structure quality indicators	Number of management levels, degree of centralization, distribution of responsibilities, flexibility and adaptability
5. Social efficiency indicators	Working conditions, qualification of personnel, employment, satisfaction of customers and employees

Source: compiled by the author.

These indicators provide a comprehensive framework for evaluating organizational improvements: the first group reflects the final results of the construction complex, the second and third groups reflect the cost and performance of the management system, the fourth group reflects the quality of the structure itself and the fifth group reflects its social consequences.

2.3. Calculation model

The methodology includes identifying potential sources of economic benefits, evaluating cost reductions and calculating the integrated economic effect. The main economic effects are estimated using the following formulas.

Economic effect of integrating the informal construction sector. The effect of bringing informal sector participants into the formal management system is determined as:

$$S_1 = VH \times K_1 \times MUq, \quad (1)$$

where VH is the construction output generated by the informal sector in the base year; K_1 is the proportion of informal sector participants expected to obtain small-business status; and MUq is the difference in labour productivity between the formal and informal sectors.

Economic effect of reducing unnecessary construction expenses. The effect of eliminating unnecessary administrative and other construction-related expenses is determined as:

$$S_2 = K_2 \times Xqur, \quad (2)$$

where K_2 is the estimated level of savings in construction-related expenses (5%) and Xqur is the calculated volume of other construction expenses.

Economic effect of reducing construction defects. The effect of improving technical policies and reducing construction defects is determined as:

$$S_3 = K_3 \times Vqur \times 0.03, \quad (3)$$

where K_3 is the expected reduction in defect-related expenses (30%); Vqur is the annual construction output in the region; and 0.03 is the estimated share of expenses associated with construction defects. The coefficient 0.03 corresponds to the lower bound of the 3–5% range of defect-related losses observed in the region and is therefore a conservative assumption.

The integrated economic effect is calculated as the sum of the individual effects:

$$S = S_1 + S_2 + S_3. \quad (4)$$

To assess the robustness of the results, a sensitivity analysis was carried out by varying the coefficients K_2 (3%, 5% and 7%) and K_3 (20%, 30% and 40%) while keeping the other parameters at their baseline values.

3. Results

3.1. Organizational transformation and management efficiency

The transition to an organization-oriented management model is expected to improve the effectiveness of management decisions. This model allows management measures to be directed towards construction organizations, which are permanent economic entities capable of introducing long-term improvements, rather than towards individual projects with a limited life cycle. In line with the concept of stable inter-organizational relationships in construction [4], this approach strengthens the accountability of organizations for the quality and timeliness of their work.

The proposed approach is also expected to reduce the role of punitive administrative measures and strengthen preventive management mechanisms. The redistribution of responsibilities between public authorities and private organizations may reduce administrative expenses by up to 10%.

3.2. Coordination and digital transformation

The development of coordination and digitalization functions is another important source of economic efficiency. A regional digital construction platform can improve information exchange, monitoring and cooperation among construction market participants. The use of artificial intelligence and cloud technologies can contribute to:

- improving the quality of management decisions;
- reducing unnecessary administrative procedures;
- increasing labour productivity by 1–2%;
- improving the monitoring of construction projects;
- reducing management errors;
- strengthening cooperation between organizations.

Digital transformation also supports the implementation of the national digital construction management system envisaged by the "Digital Uzbekistan – 2030" Strategy [7] and creates the conditions for the gradual adoption of BIM-based information exchange [17].

3.3. Integration of small businesses and the informal sector

The involvement of small businesses and informal construction sector participants in the regional management structure is an important direction for improving economic efficiency. In 2025, small businesses and micro-enterprises accounted for 73.2% of the construction work performed in the region, while the informal sector accounted for more than 14.1% of regional construction output. These figures indicate that the efficiency of the regional construction complex depends to a large extent on small and informal participants that are only weakly covered by the existing management system.

Integrating these participants into the regional management system can improve organizational coordination, increase labour productivity and strengthen compliance with technical requirements. According to formula (1), the estimated additional construction output resulting from this measure in 2026 is 236.5 billion Uzbek soums.

3.4. Technical standardization and construction quality

The implementation of unified technical standards can significantly improve construction quality. Losses associated with construction defects in the region may reach 3–5% of estimated construction costs. The introduction of improved technical policies and quality management systems is expected to reduce defect-related expenses by approximately 30%, which also reduces penalties, reconstruction expenses and the costs of correcting construction errors. According to formula (3), the economic effect of this

measure is 167.7 billion Uzbek soums. In addition, the reduction of unnecessary construction expenses by 5% in accordance with formula (2) yields an effect of 144.1 billion Uzbek soums.

3.5. Integrated economic effect

The three principal quantified sources of economic efficiency and their contribution to the integrated effect are presented in Table 2.

Table 2. Integrated economic effect of improving the management structure of the regional construction complex

Source of economic efficiency	Effect, billion UZS	Share of total effect, %	Share of annual output, %
Integration of the informal construction sector (S_1)	236.5	43.1	1.27
Reduction of unnecessary construction expenses (S_2)	144.1	26.3	0.77
Reduction of construction defects (S_3)	167.7	30.6	0.90
Total (S)	548.3	100.0	2.94

Source: calculated by the author.

The integrated economic effect, according to formula (4), is:

$$S = 236.5 + 144.1 + 167.7 = 548.3 \text{ billion UZS.}$$

The resulting economic effect represents approximately 2.9% of the annual construction output of the region. The largest contribution (43.1%) is made by the integration of the informal construction sector, followed by the reduction of construction defects (30.6%) and the reduction of unnecessary expenses (26.3%).

The results of the sensitivity analysis are presented in Table 3. Under pessimistic assumptions (K_2 = 3%, K_3 = 20%), the integrated effect amounts to 434.8 billion soums (2.33% of annual output), and under optimistic assumptions (K_2 = 7%, K_3 = 40%) it reaches 661.8 billion soums (3.55%). Thus, even under conservative assumptions the effect remains significant.

Table 3. Sensitivity of the integrated economic effect to the main assumptions

Scenario	K_2, %	K_3, %	S_2, billion UZS	S_3, billion UZS	S, billion UZS	Share of output, %
Pessimistic	3	20	86.5	111.8	434.8	2.33
Baseline	5	30	144.1	167.7	548.3	2.94
Optimistic	7	40	201.7	223.6	661.8	3.55

Source: calculated by the author; S_1 = 236.5 billion UZS in all scenarios.

4. Discussion

The results confirm that improving the management structure of a regional construction complex can generate a substantial economic effect that is comparable with the effects reported in international practice. The 30% reduction in defect-related expenses assumed in this study is consistent with the target of reducing defects by 20% per year set by the Egan report [3] and with the 30% cost reduction target proposed by Latham [5]. Moreover, because defect costs in construction projects may reach 2.3–9.3% of production costs [18], the use of a 3% share in formula (3) is conservative, and the actual effect of improved technical policies may be higher.

The largest share of the effect is associated with the integration of the informal sector. This is consistent with the evidence that informal firms are considerably less

productive than formal firms [19] and that the shadow economy remains significant in many economies [20]. At the same time, the literature cautions that productivity gains from formalization are not automatic: they depend on access to finance, technology and qualified personnel and on the growth of efficient formal firms [19]. Therefore, the integration of informal participants should be accompanied by simplified registration, access to public procurement and subcontracting with larger organizations, training and technical support.

The transition to an organization-oriented management model is consistent with the theoretical view that the efficiency of an organization depends on the alignment of its structure with its strategy and coordinating mechanisms [11], [12] and that stable relationships between construction organizations reduce transaction costs [4], [15]. Digital platforms strengthen these effects by making information about participants, projects and quality available to all stakeholders [1], [17].

The findings suggest several practical directions for improving regional construction management:

- **Redistribution of management functions:** strengthening the responsibility of construction organizations and reducing unnecessary administrative intervention.
- **Digital management platforms:** developing a regional digital construction platform to improve information exchange and monitoring.
- **Formalization:** gradually integrating small businesses and informal sector participants into the formal management system.
- **Technical standards:** introducing unified technical standards and quality management practices across construction organizations.
- **Monitoring:** evaluating management improvements using measurable economic and organizational indicators (Table 1).

The study has certain limitations. The estimates are ex-ante and are based on expert assumptions regarding the coefficients K_1, K_2, K_3 and MUq; the effects of digital transformation and of the redistribution of administrative functions are not included in the integrated effect and represent additional reserves. The costs of restructuring – training, documentation and digital platforms – also need to be compared with the expected benefits. Future research should verify the estimates using ex-post data, calculate the net effect after implementation costs and extend the model to other regions.

5. Conclusion

The improvement of the management structure of the regional construction complex represents an important direction for increasing economic efficiency and strengthening regional economic development. The study identified the major sources of economic benefits: organizational restructuring and the transition to an organization-oriented management model, the integration of informal sector participants, the reduction of unnecessary construction expenses, digital transformation and the implementation of unified technical standards.

The proposed calculation model shows that the integrated economic effect of the three quantified measures amounts to 548.3 billion Uzbek soums, equivalent to approximately 2.9% of the annual construction output of the region, and that it remains within the range of 434.8–661.8 billion soums under alternative assumptions. The findings highlight the importance of combining organizational, technological and economic approaches when modernizing regional construction management systems. The proposed measures can contribute to more effective management, improved construction quality, reduced administrative costs and the sustainable development of the regional construction industry.

REFERENCES

[1] G. M. Winch, *Managing Construction Projects: An Information Processing Approach*, 2nd ed. Chichester, U.K.: Wiley-Blackwell, 2010.

[2] F. Barbosa *et al.*, "Reinventing construction: A route to higher productivity," McKinsey Global Institute, Feb. 2017.
[3] J. Egan, *Rethinking Construction: The Report of the Construction Task Force*. London, U.K.: Dept. of the Environment, Transport and the Regions, 1998.
[4] R. G. Eccles, "The quasifirm in the construction industry," *J. Econ. Behav. Organ.*, vol. 2, no. 4, pp. 335–357, 1981.
[5] M. Latham, *Constructing the Team: Final Report of the Government/Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry*. London, U.K.: HMSO, 1994.
[6] Decree of the President of the Republic of Uzbekistan No. PF-60, "On the Development Strategy of New Uzbekistan for 2022–2026," Tashkent, Uzbekistan, Jan. 28, 2022.
[7] Decree of the President of the Republic of Uzbekistan No. PF-6079, "On approval of the Strategy 'Digital Uzbekistan – 2030' and measures for its effective implementation," Tashkent, Uzbekistan, Oct. 5, 2020.
[8] M. H. Mescon, M. Albert, and F. Khedouri, *Osnovy menedzhmenta* [Management], classic ed., transl. from English. Moscow, Russia: Dialektika, 2020.
[9] I. I. Ivanova, *Menedzhment: Uchebnoe posobie* [Management: Textbook], 3rd ed. Moscow, Russia: RIOR: INFRA-M, 2011.
[10] V. V. Vesnin, *Osnovy menedzhmenta: Uchebnik* [Fundamentals of Management: Textbook]. Moscow, Russia: TK Velbi, Prospekt, 2007.
[11] A. D. Chandler, *Strategy and Structure: Chapters in the History of the Industrial Enterprise*. Cambridge, MA, USA: MIT Press, 1962.
[12] H. Mintzberg, *The Structuring of Organizations*. Englewood Cliffs, NJ, USA: Prentice-Hall, 1979.
[13] O. Yu. Trilitskaya, "Formirovanie i razvitie adaptivnykh organizatsionnykh struktur upravleniya predpriyatiem" [Formation and development of adaptive organizational management structures of an enterprise], Abstract of Cand. Sci. (Econ.) dissertation, Volgograd, Russia, 2003.
[14] V. V. Rodionov and S. V. Petukhova, "Vertikal'naya ierarkhiya i gorizontal'nye struktury upravleniya" [Vertical hierarchy and horizontal management structures], n.d.
[15] O. E. Williamson, *The Economic Institutions of Capitalism*. New York, NY, USA: Free Press, 1985.
[16] M. E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*. New York, NY, USA: Free Press, 1985.
[17] B. Succar, "Building information modelling framework: A research and delivery foundation for industry stakeholders," *Autom. Constr.*, vol. 18, no. 3, pp. 357–375, 2009.
[18] P.-E. Josephson and Y. Hammarlund, "The causes and costs of defects in construction: A study of seven building projects," *Autom. Constr.*, vol. 8, no. 6, pp. 681–687, 1999.
[19] R. La Porta and A. Shleifer, "The unofficial economy and economic development," *Brookings Papers Econ. Activity*, vol. 2008, no. 2, pp. 275–352, 2008.
[20] L. Medina and F. Schneider, "Shadow economies around the world: What did we learn over the last 20 years?," Int. Monetary Fund, Washington, DC, USA, IMF Working Paper WP/18/17, 2018.