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Organizing Production Processes in the Construction Materials Industry Based on Quality Management Principles

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Abstract

General Background: The acceleration of globalization and intensification of competition in industrial sectors have positioned product quality as a key determinant of market position and long-term development prospects, particularly in the construction materials industry where quality directly affects public safety and structural reliability. **Specific Background:** The construction materials industry represents a technologically complex, multi-stage system requiring strict adherence to technological regimes, yet traditional management approaches focus primarily on finished product inspection rather than addressing root causes of quality deficiencies. **Knowledge Gap:** While foreign scholars have extensively addressed theoretical foundations and universal models of quality management, and domestic researchers have examined technological and standardization aspects, the comprehensive organization of production processes in the construction materials industry based on quality management principles remains insufficiently systematized. **Aims:** This study provides a comprehensive analysis of organizing production processes in the construction materials industry through quality management principles, examining theoretical foundations, scientific approaches, practical state, and recent statistical data to develop specific practical recommendations. **Results:** The research demonstrates that implementing quality management systems—including ISO 9001 standards, statistical quality control methods, and process-based approaches—stabilizes quality indicators, optimizes production costs, and enhances competitiveness while positively impacting environmental sustainability and social responsibility. **Novelty:** This study systematically integrates quality management principles with resource efficiency and environmental requirements as essential components of sustainable production organization in construction materials enterprises. **Implications:** The findings confirm that quality-oriented management strengthens enterprise positions in domestic and international markets, enhances investment attractiveness, and constitutes a critical direction for ensuring sustainable development of the construction materials sector and national economic competitiveness.

Keywords : Quality Management Systems, Construction Materials Industry, Production Process Organization, ISO 9001 Implementation, Statistical Quality Control

Highlight :

- Process-based quality control reduces defects more effectively than traditional post-production inspection methods.
- Statistical analysis integration enables forecasting of quality variations in cement and concrete manufacturing.
- ISO 9001 implementation requires strategic alignment and active management involvement beyond documentation compliance.

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Introduction

The acceleration of globalization processes in the world economy, the intensification of competition in industrial sectors, and the widespread adoption of innovative technologies are placing new management challenges on enterprises. Under such conditions, product quality is becoming one of the key factors determining a company's market position, financial stability, and long-term development prospects. This is particularly true for the construction materials industry, where quality issues are of special importance, as the products manufactured in this sector are directly related to public safety, occupational health, and the reliability of construction structures.

The production of construction materials represents a technologically complex, multi-stage system that requires substantial material and technical resources. In the manufacturing of cement, concrete, bricks, glass, ceramics, and other types of materials, the quality characteristics of raw materials, strict adherence to technological regimes, the reliable condition of equipment, and the qualifications of the workforce are of decisive importance. Deficiencies in any of these factors may lead to a decline in product quality, an increase in production costs, and adverse effects on the enterprise's overall economic performance.

In traditional management approaches, primary attention is often focused on inspecting finished products and identifying defects, which limits the ability to eliminate the root causes of quality problems. In contrast, quality management principles propose a comprehensive, systematic, and proactive approach to managing production processes. In this framework, quality is viewed not merely as an object of control, but as the central objective of planning, organizing, and continuously improving all processes.

Moreover, current requirements for construction materials are no longer limited to strength and durability indicators, but also encompass issues of resource efficiency, energy efficiency, and environmental safety. Reducing environmental impact, minimizing waste volumes, and developing recycling processes are becoming integral components of quality management systems. This, in turn, requires construction materials manufacturing enterprises to implement modern management approaches that comply with international standards.

Internationally recognized models of quality management, including systems based on the ISO 9001 standard, contribute to the documentation of production processes, the clear allocation of responsibilities, and the establishment of continuous improvement mechanisms. In enterprises where operations are organized in accordance with these standards, opportunities for proactive assessment of quality risks, early identification of deficiencies, and efficient use of resources are significantly enhanced.

Taking the above factors into account, a thorough scientific analysis of the organization of production processes in the construction materials industry based on quality management principles, an assessment of the current state, and the development of practical recommendations aimed at improvement constitute one of the most pressing tasks at present.

At present, the rapid development of the construction sector, the expansion of urbanization processes, and the growing demand for infrastructure facilities are imposing new quality- and efficiency-related requirements on the construction materials industry. In this context, the technical, operational, and environmental characteristics of manufactured materials play a decisive role in ensuring the reliability and long service life of construction projects. Therefore, the issue of construction materials quality is highly relevant not only from an economic perspective, but also from social and safety standpoints.

Under market economy conditions, the intensification of competition in enterprise activities is further increasing demands for product quality. In practice, consumers' refusal to accept low-quality products and the inability of materials that do not meet standards to compete in international markets clearly demonstrate this reality. From this perspective, organizing production processes in construction materials manufacturing enterprises based on quality management principles is becoming a key prerequisite for achieving and sustaining competitive advantage.

At present, in many enterprises quality assurance is largely limited to the inspection of finished products, while insufficient attention is paid to quality management at all stages of the production process. Such an approach is primarily aimed at eliminating defects after they occur and restricts opportunities to identify and address their root causes in advance. In contrast, quality management principles emphasize systematic planning, control, and continuous improvement of production processes, thereby contributing to the prevention of defects.

Furthermore, in the modern construction materials industry, issues of resource efficiency, energy efficiency, and environmental protection are becoming increasingly significant. The limited availability of raw material resources and the tightening of environmental requirements necessitate a reassessment of production processes, the reduction of waste, and the implementation of effective management mechanisms. In addressing these challenges, quality management systems serve as an important instrument.

In addition, organizing production in the construction materials industry in accordance with international standards is essential for entering external markets, attracting investment, and ensuring the innovative development of enterprises. However, the effective implementation of these standards requires the reorganization of production processes based on quality management principles.

Review of Relevant Literature

The theory of quality management and issues related to its application to industrial production processes have been extensively studied by foreign and domestic scholars. In particular, considering quality as a strategic management factor in the activities of industrial enterprises has become one of the central directions of scientific research since the second half of the twentieth century.

Among foreign scholars, E. Deming is regarded as one of the first researchers to substantiate a systematic approach to quality management [1]. In his studies, quality is interpreted not as the final result of production, but as a reflection of the effectiveness of management and processes. The principle of "continuous improvement" proposed by Deming serves as an important methodological foundation for stabilizing technological processes in construction materials production. However, his works do not sufficiently address sector-specific features, including the variability of raw material quality and the influence of natural factors.

J. Juran approached quality from the perspective of "fitness for use" and proposed the well-known "quality trilogy," consisting of quality planning, quality control, and quality improvement. This approach is of significant importance for clearly defining and standardizing product parameters in the construction materials industry [2]. However, Juran's works devote limited attention to issues related to integrating production processes with environmental and resource-efficiency requirements.

In the studies of K. Ishikawa, the human factor and collective participation play a central role in ensuring quality. The cause-and-effect diagram developed by Ishikawa is widely applied as an effective tool for identifying the causes of defects. However, this approach is primarily analytical in nature and has limited capacity when it comes to the comprehensive reorganization of production processes [3].

Studies based on the ISO 9001 standard extensively address issues related to documenting production processes, allocating responsibilities, and establishing internal audit mechanisms through the implementation of quality management systems. However, many scholarly works criticize the formal adoption of these standards, emphasizing that their full impact on production efficiency largely depends on practical implementation [4].

The concept of quality management and issues related to its application to production processes have been examined from the perspectives of various scientific schools in the studies of numerous foreign and domestic scholars. An analysis of the content of these studies makes it possible to identify the general and specific aspects of the formation, development, and practical application of quality management theory.

Among foreign scholars, Philip Crosby interpreted quality based on the principle of "doing things right the first time," scientifically substantiating that priority in production should be given not to eliminating defects, but to preventing them. According to his view, expenditures on quality are not an additional burden for an enterprise, but rather a source of long-term economic benefits [5]. However, Crosby's concept does not sufficiently take into account the technological variability and natural raw material factors inherent in the construction materials industry.

The concept of "total quality control" developed by Armand Feigenbaum proposes viewing quality not merely as the responsibility of the production department, but as a strategic system encompassing the entire enterprise. This approach is of particular importance in construction materials production for ensuring interconnections among logistics, supply, laboratory control, and marketing functions [6]. At the same time, the Feigenbaum model may be difficult to implement fully in all enterprises, as it requires a high level of organizational culture and well-developed corporate governance.

Issues related to the use of statistical methods in industrial processes are comprehensively addressed in the works of Walter Shewhart. The statistical control charts developed by him are considered an important tool for assessing the stability of technological processes. In the construction materials industry, these methods can be applied to control concrete mixtures, cement composition, and product density [7]. However, this approach does not fully encompass the influence of the human factor and managerial decision-making on quality.

Among European researchers, David Garvin proposed evaluating quality through eight dimensions, advancing a multidimensional approach to product quality. This concept demonstrates that in construction materials it is necessary to consider not only strength, but also reliability, service life, and customer satisfaction [8]. At the same time, the practical application of this model requires a high level of analytical capacity and a well-developed information base.

Turning to the studies of domestic scholars, the works of A. M. Qodirov analyze issues related to the economic efficiency of implementing quality management in industrial enterprises. The scholar scientifically substantiates the possibility of reducing product cost and expanding market share through improving quality [9]. However, in his research, technological processes specific to construction materials production are not sufficiently examined as a distinct object of study.

In the studies of N. T. Yusupov, issues of standardization and certification in construction materials enterprises occupy a central place. He emphasizes that the implementation of international standards has a positive impact on product quality [10] At the same time, these works do not provide an in-depth analysis of the internal management mechanisms of quality management systems or the process-based approach.

In addition, studies conducted by O. R. Tursunov demonstrate that the implementation of resource-efficient technologies is closely linked to quality management. According to the scholar, improving quality and increasing production efficiency are interrelated processes that cannot be considered separately [11]. However, in this approach, the institutional and organizational aspects of quality management are addressed to a limited extent.

In general, while the studies of foreign scholars extensively address the theoretical and methodological foundations and universal models of quality management, the works of domestic researchers place greater emphasis on the practical and technological characteristics of the sector. However, the issue of comprehensively organizing production processes in the construction materials industry based on quality management principles has not yet been sufficiently systematized. This, in turn, further enhances the scientific and practical significance of research in this field.

Research Methodology

In studying the organization of production processes in the construction materials industry based on quality management principles, methods of system analysis, historical and logical analysis, induction and deduction, analysis and synthesis, comparative and selective research, as well as monographic analysis and grouping methods were applied.

In the Republic of Uzbekistan, the construction materials industry demonstrates a stable development trend, with industrial growth being ensured through meeting domestic market demand, increasing export volumes, introducing innovative technologies, ensuring environmental sustainability, and attracting investment. As a result of state-led reforms and strategic approaches, the competitiveness of the industry has increased, enabling domestic manufacturers to expand their opportunities for entering international markets. In the future, these trends are expected to intensify further, accompanied by the implementation of more effective measures aimed at technological modernization and the enhancement of export potential. Therefore, the development prospects of the construction materials industry serve to ensure the stability of the national economy and to position Uzbekistan as a regional leader in the production of construction materials.

In shaping management strategies in the construction materials industry, it is essential to take into account the reforms being implemented in the construction sector of the Republic.

At present, it can be observed that the volume of construction activities in the country is increasing year by year. Moreover, the scale of construction work is expanding not only in the centers of the regions, but also across regional and local levels.

Attention is focused on the activities of enterprises engaged in the production of construction materials across the regions of the Republic of Uzbekistan.

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Table 1. Number of enterprises engaged in the production of construction materials by regions of the Republic of Uzbekistan [12]

Regions	**2018**		**2020**		**2022**		**2023**	
	IFUT		IFUT		IFUT		IFUT	
	08	**23**	**08**	**23**	**08**	**23**	**08**	**23**
Republic of Karakalpakstan	110	334	174	440	190	471	171	415
Andijan	72	701	112	1101	138	1237	116	674
Bukhara	65	595	128	855	146	846	117	653
Jizzakh	101	457	135	677	128	698	89	436
Kashkadarya	183	549	244	863	284	948	253	668
Navoiy	141	557	163	760	226	777	202	636
Namangan	81	656	101	1089	110	1173	89	711
Samarkand	208	870	251	1209	276	1364	214	897
Surkhandarya	69	548	102	1023	111	1148	80	797
Sirdarya	65	180	97	294	110	316	71	211
Tashkent	251	995	402	1361	425	1496	307	1008
Fergana	118	1021	171	1660	202	1877	182	1252
Khorezm	6	379	12	549	19	625	20	482
Tashkent city	231	988	310	1177	382	1177	292	771
Overall:	**1701**	**8830**	**2402**	**13058**	**2747**	**14153**	**2203**	**9611**

Note: IFUT – National Classification of Types of Economic Activities; Code 08 – other activities related to the mining industry; Code 23 – manufacture of other non-metallic mineral products.

According to the data presented above, the number of enterprises engaged in the production of construction materials across the regions of the Republic of Uzbekistan shows the following trends. Enterprises involved in other activities related to the mining industry amounted to 1,701 in 2018, and increased by 502 to reach 2,203 in 2023. Compared to 2018, a decrease of 12 enterprises was observed in Jizzakh region in 2023. Enterprises engaged in the production of other non-metallic mineral products numbered 8,830 in 2018 and increased by 781 to reach 9,611 in 2023. In this category, compared to 2018, a decrease was recorded in 2023 in Jizzakh region by 12 enterprises and in Andijan region by 31 enterprises.

Considering the continuously changing strategies in the activities of construction materials manufacturing enterprises, changes may also occur in the functioning mechanisms of organizational management systems. In enterprise operations, the organizational management system may be influenced by the following factors:

- reforms implemented by the state aimed at the development of the sector;

- positive or negative changes influencing the development of the construction industry;

- consumers' perceptions regarding the quality and price of construction materials produced;

- cyclical changes in the development of macro-level socio-economic systems affecting construction materials production and the state of enterprise management system development;

- the socio-psychological readiness of employees and staff working at the enterprise.

Information on the number of employees working in construction materials industry enterprises across the Republic is presented in

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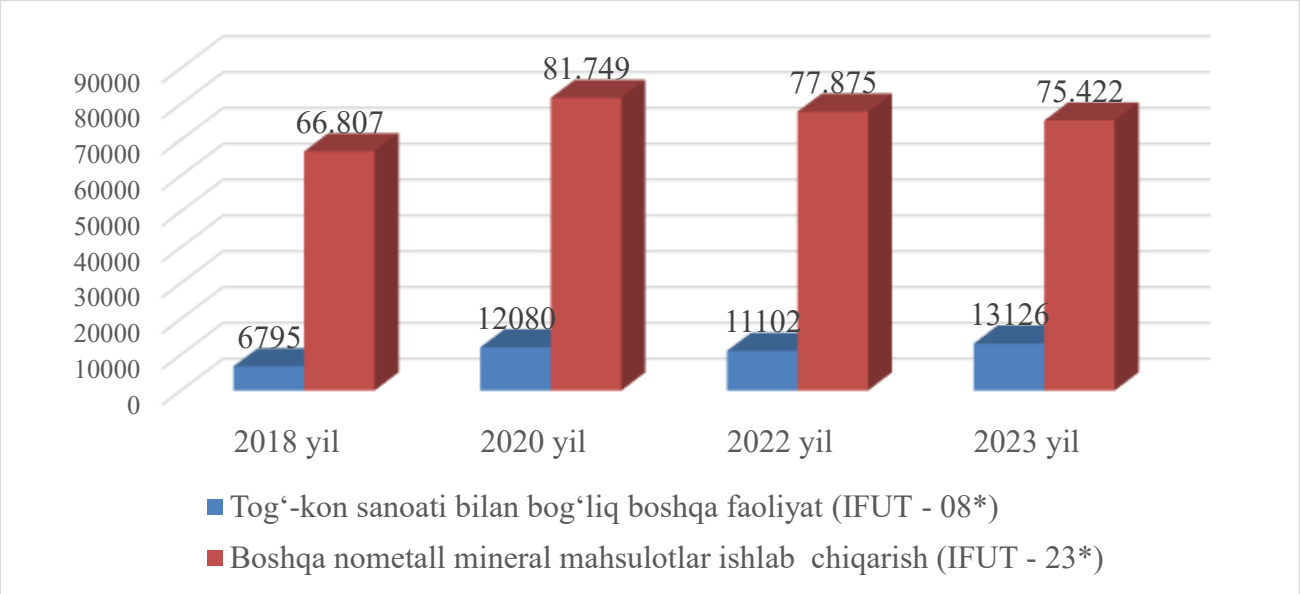
Figure 1. Number of employees working in construction materials industry enterprises across the Republic [12]



Note: IFUT – National Classification of Types of Economic Activities. Code 08 – other activities related to the mining industry; Code 23 – manufacture of other non-metallic mineral products.

The figure presented above provides information on the number of employees working in construction materials industry enterprises across the Republic. In particular, in other activities related to the mining industry, 6,795 employees were engaged in 2018, while this number increased to 13,126 in 2023. In enterprises engaged in the manufacture of other non-metallic mineral products, 66,807 employees were recorded in 2018, and this figure rose to 75,422 in 2023.

At the same time, an increase in the cost levels associated with the production of construction materials was observed (Table 2).

Table 2. Increase in production cost prices of construction materials [12]

Name of the cost	**2018**	**2020**	**2022**	**2023**
	Increase rate, %			
Steam and hot water (thermal energy)	132,6	106,9	93,0	207,5
Electricity generation, transmission, and distribution	183,4	100,0	105,5	180,1
Diesel fuel	323,1	97,3	103,2	76,3
Production of cast iron, steel, and iron alloys	110,9	92,7	113,8	104,9
Cement production	97,9	107,1	118,4	103,1
Rail freight transport	165,7	98,9	100,0	127,3

This table presents the dynamics of the increase in production cost prices for construction materials. In terms of the degree of price growth, steam and hot water (thermal energy) accounted for 132.6 percent in 2018 and increased by 74.9 percent to reach 207.5 percent in 2023. Electricity generation, transmission, and distribution amounted to 183.4 percent in 2018, while in 2023 it decreased by 3.3 percent to 180.1 percent. Diesel fuel accounted for 323.1 percent in 2018; however, by 2023 the degree of price increase declined to 76.3 percent. Cement production costs amounted to 97.9 percent in 2018 and increased by 5.2 percent to reach 103.1 percent in 2023.

Depending on the level and depth of production at which the defined goals and objectives are pursued, the operational, tactical, and strategic effectiveness of enterprise management is manifested in different ways. The forms in which the effectiveness of enterprise management is expressed are illustrated in **Figure 1**.

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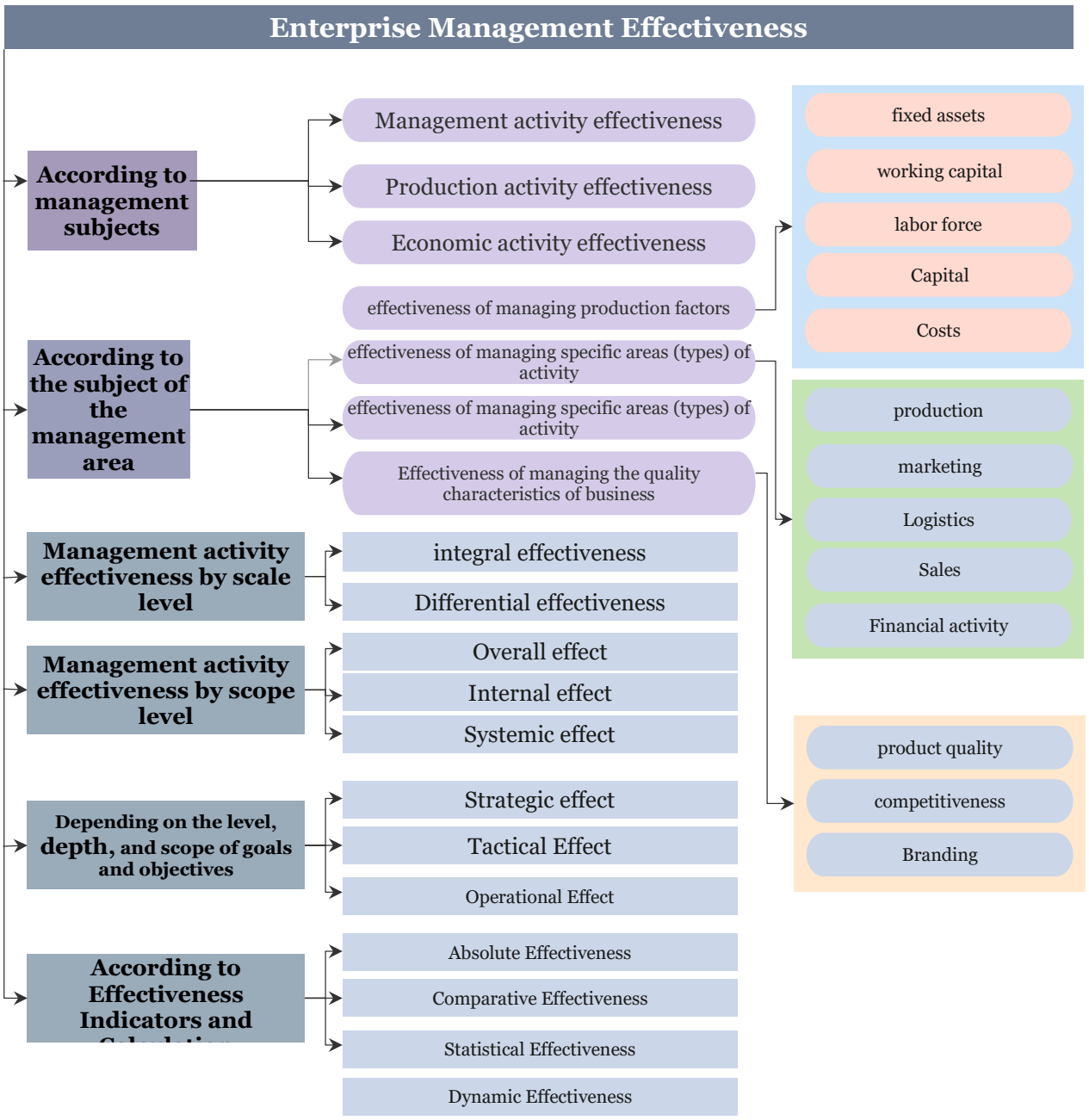

Figure 2. Classification according to the manifestation of efficiency [13]

The multiplicity and diversity of types of enterprise management effectiveness predetermine the multi-criteria nature of its evaluation, that is, the existence of a specific system of characteristics according to which an appropriate assessment should be carried out.

In general, as a result of studying theoretical and methodological approaches to assessing the effectiveness of management systems and the real analytical capabilities of enterprises, it is advisable to evaluate enterprise management effectiveness using a simple yet universal tool. This involves analysis based on management efficiency indicators that reflect faster growth in the results of enterprises' production and economic activities in comparison with the increase in enterprise management costs.

The analysis of an enterprise's economic and financial indicators is most often carried out by assessing the factors that influence changes in enterprise profit, and all indicators tend to move toward positive changes in this key measure over time.

The final results of enterprises' economic activity are determined by profit, while the ultimate outcome of management activity is defined by its role in ensuring that profit. The more profit is achieved with lower management costs, the more effectively management is organized.

In the construction materials industry, the significant increase in production volumes—particularly the high dynamics observed in cement and concrete products—demonstrates the necessity of further deepening the implementation of quality management systems [14]. Based on the analyses conducted, the following specific recommendations have been developed.

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1. **Reorganizing production processes in accordance with a comprehensive process-based approach.**

It is necessary to organize quality control in enterprises not only at the finished product stage, but also by covering the stages of raw material acceptance, technological processing, and storage. For this purpose:

a. specific quality indicators should be defined for each technological stage;

b. critical control points (Critical Control Points) should be introduced;

c. the causes of defects should be eliminated at the initial stages.

2. **Implementing ISO 9001 requirements on a practical rather than a formal basis.**

Analyses indicate that in many cases the implementation of standards is limited to documentation procedures. Therefore, it is advisable to:

a. align the quality management system with the enterprise's overall strategy;

b. ensure the active personal involvement of top management in quality policy;

c. transform internal audit results into factors that directly influence production-related decision-making.

3. **Expanding the implementation of statistical quality control methods.**

In order to ensure quality stability alongside increasing production volumes in cement and concrete manufacturing, it is proposed to:

a. conduct continuous statistical analysis of technological parameters;

b. introduce mechanisms for forecasting quality variations in advance.

4. **Integrating resource efficiency with quality management.**

As the analysis indicates a risk of increasing resource consumption, it is necessary to:

a. assess raw material and energy consumption in relation to quality indicators;

b. integrate waste recycling into the quality management system;

manage production based on the principle of "quality + environmental efficiency."

5. **Enhancing employees' quality-related competencies.**

Taking into account that the effectiveness of quality management is directly dependent on the human factor, it is advisable to:

a. organize continuous training courses for workers and engineering–technical staff;

b. provide material and non-material incentives for teams that achieve quality targets;

c. implement corporate programs aimed at developing a culture of quality.

6. **Monitoring the relationship between quality indicators and production volume.**

Considering the upward trend in production volumes, it is proposed to:

a. continuously analyze changes in quality indicators as production volumes increase;

b. identify "growth risks" that may lead to a decline in quality;

c. define quality indicators as key benchmarks in strategic planning.

Growth in production volumes in the construction materials industry cannot be sustainable without the systematic and in-depth implementation of quality management principles [15]. Therefore, integrating quality management into all levels of enterprise management, linking it with economic outcomes, and establishing mechanisms for continuous improvement constitute one of the most important practical tasks.

Conclusion

The issues of organizing production processes in the construction materials industry based on quality management principles have been examined in a comprehensive and systematic manner. Within the scope of the study, the fundamental provisions of quality management theory, the scientific approaches of foreign and domestic scholars, the practical state of the sector, and recent statistical data were analyzed in an integrated way. This made it possible to provide a well-grounded scientific justification for the importance of quality-oriented management in the construction materials industry.

In global practice, quality management systems are regarded as one of the key factors in enhancing the competitiveness of industrial enterprises. The theoretical models developed by scholars such as Deming, Juran, Crosby, and Feigenbaum interpret quality not as a production outcome, but as the result of effective management processes. At the same time, although domestic studies provide more detailed coverage of the technological and standardization aspects of construction materials production, it has been identified that the implementation of quality management as a comprehensive management system remains insufficiently systematized.

In recent years, the construction materials industry has demonstrated a stable upward trend in production volumes. In particular, the sharp increase in cement and concrete output is explained by the expansion of construction and infrastructure projects in the country. However, the analysis shows that growth in production volumes does not always guarantee the stability of product quality. On the contrary, under conditions where quality management principles are not sufficiently implemented, production expansion may lead to an increase in defects, higher resource consumption, and a decline in economic efficiency.

As a result of the research, specific and practical recommendations were developed, including the reorganization of production processes

based on a process-based approach, the implementation of ISO 9001 standards in a practical rather than formal manner, the extensive use of statistical quality control methods, the integration of resource efficiency with quality management, and measures aimed at strengthening the human factor. These recommendations contribute to stabilizing quality indicators, optimizing production costs, and enhancing competitiveness in construction materials enterprises.

It has also been scientifically substantiated that the implementation of quality management systems has a positive impact not only on economic efficiency, but also on ensuring environmental sustainability and social responsibility. It has been demonstrated that reducing waste, optimizing energy consumption, and complying with environmental requirements should be regarded as integral components of quality management. This, in turn, constitutes an important condition for the long-term sustainable development of the construction materials industry.

In general, organizing production processes in the construction materials industry based on quality management principles confirms that this approach is one of the most important directions for increasing enterprise performance efficiency. The implementation of this approach enables enterprises to strengthen their positions both in domestic and international markets, enhance investment attractiveness, and achieve innovative development.

In conclusion, it should be emphasized that an in-depth scientific study of quality management issues in the construction materials industry, the practical implementation of the results obtained, and the continuation of research in this area are of great importance for ensuring the sustainable development of the sector and enhancing the competitiveness of the national economy.

References

1. W. E. Deming, Out of the Crisis. Cambridge, MA, USA: MIT Press, 1986.
2. J. M. Juran and A. B. Godfrey, Juran's Quality Handbook, 5th ed. New York, NY, USA: McGraw-Hill, 1999.
3. K. Ishikawa, What Is Total Quality Control? The Japanese Way. Englewood Cliffs, NJ, USA: Prentice Hall, 1985.
4. International Organization for Standardization, ISO 9001:2015 Quality Management Systems Requirements. Geneva, Switzerland: ISO, 2015.
5. P. B. Crosby, Quality Is Free: The Art of Making Quality Certain. New York, NY, USA: McGraw-Hill, 1979.
6. A. V. Feigenbaum, Total Quality Control, 3rd ed. New York, NY, USA: McGraw-Hill, 1991.
7. W. A. Shewhart, Economic Control of Quality of Manufactured Product. New York, NY, USA: D. Van Nostrand Company, 1931.
8. D. A. Garvin, Managing Quality: The Strategic and Competitive Edge. New York, NY, USA: Free Press, 1988.
9. A. M. Qodirov, Quality Management and Efficiency in Industrial Enterprises. Tashkent, Uzbekistan: Iqtisod-Moliya, 2017.
10. N. T. Yusupov, Issues of Standardization in the Construction Materials Industry. Tashkent, Uzbekistan: Fan, 2019.
11. O. R. Tursunov, Resource-Efficient Technologies and Quality Management. Tashkent, Uzbekistan: Navruz, 2021.
12. State Statistics Committee of the Republic of Uzbekistan, Official Statistical Data. Tashkent, Uzbekistan, 2024. Available: https://stat.uz
13. U. R. Uzakova, Improving the Management Mechanism of Construction Materials Manufacturing Enterprises, Ph.D. dissertation, Tashkent State University of Economics, Tashkent, Uzbekistan, 2025.
14. D. C. Montgomery, Introduction to Statistical Quality Control, 8th ed. Hoboken, NJ, USA: John Wiley & Sons, 2020.
15. International Organization for Standardization, ISO 9004:2018 Quality of an Organization Guidance to Achieve Sustained Success. Geneva, Switzerland: ISO, 2018.

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