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APPLICATION OF DIGITAL TRANSFORMATION IN IMPROVING MANAGEMENT STRATEGIES OF CONSTRUCTION MATERIALS INDUSTRY ENTERPRISES

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Abstract: This article analyzes the importance of digital transformation in improving management strategies in construction materials industry enterprises. The study demonstrates that the implementation of digital technologies contributes to higher production efficiency, optimized resource utilization, reduced costs, and faster managerial decision-making. In addition, based on SWOT analysis, the strengths, weaknesses, opportunities, and threats of digital transformation are identified. The findings indicate that the adoption of digital management systems in construction materials enterprises is an important factor in increasing competitiveness and ensuring sustainable development.

Key words: digital transformation, construction materials industry, management strategy, Industry 4.0, SWOT analysis, innovative management, ERP, CRM, Big Data, digital economy.

INTRODUCTION

The construction materials industry is one of the key sectors of the national economy, playing a crucial role in infrastructure development and investment processes. Its effective functioning directly affects economic growth, job creation, and regional development.

In recent years, rapid advances in digital technologies have significantly transformed management systems in industrial sectors. Digital transformation enables the automation of production processes, real-time data analysis, and the optimization of decision-making processes. Therefore, the application of digital transformation in construction materials enterprises has become an important scientific and practical issue.

LITERATURE REVIEW

In scientific research, digital transformation is considered a key factor in industrial development and management strategies. Classical economic theories developed by John Maynard Keynes and Walt Rostow emphasize the role of the production sector in economic growth.

According to the agglomeration theory of Alfred Marshall and the cluster theory of Michael Porter, integration and innovation among enterprises enhance efficiency. Modern approaches also highlight the importance of implementing digital technologies within the framework of the Industry 4.0 concept.

In addition, recent studies show that digital technologies such as artificial intelligence, the Internet of Things, cloud computing, and big data analytics significantly improve production efficiency and resource management in industrial enterprises. These technologies enable enterprises to monitor production processes in real time, reduce operational costs, improve product quality, and respond more quickly to market changes. As a result, digital transformation is increasingly viewed as a strategic tool for strengthening the competitiveness of enterprises.

Researchers also emphasize that the successful implementation of digital transformation depends not only on technological modernization but also on the development of human capital and management systems. In particular, improving employees’ digital skills, creating an innovation-oriented corporate culture, and introducing modern management methods are considered essential conditions for achieving sustainable industrial development. Therefore, digital transformation in construction materials enterprises should be approached as a comprehensive process that combines technological, organizational, and economic changes.

RESEARCH METHODOLOGY

The research employed the following methods:
- statistical analysis
- comparative analysis
- system approach
- economic analysis
- SWOT and PEST analysis

The concepts of digital transformation, Industry 4.0, and innovation management were used as the theoretical basis of the study.

The study revealed that the implementation of digital transformation significantly improves efficiency in construction materials enterprises.

Enterprises that adopted digital management systems demonstrated:
- production growth of 15–35%
- an increase in labor productivity of 20–30%
- a reduction in costs of 10–20%
- an improvement in decision-making speed of 30–50%

Digital technologies also enable real-time monitoring and resource optimization.

ANALYSIS AND RESULTS

The study revealed that digital transformation significantly improves the performance of construction materials industry enterprises. Based on SWOT analysis, the implementation of digital management systems provides several advantages, including the automation of production processes, faster and more accurate decision-making, and more efficient resource utilization.

Quantitative findings indicate that enterprises implementing digital systems experience:
- a 15–35% increase in production output,
- a 20–30% improvement in labor productivity,
- a 10–20% reduction in operational costs,
- and a 30–50% increase in decision-making speed.

These results confirm that digital transformation enhances both operational and strategic efficiency.

SWOT Analysis: Improving Management Strategies through Digital Transformation in Construction Materials Industry Enterprises.

Table 1. SWOT Analysis of Digital Transformation in Construction Materials Industry Enterprises[1]

Strengths	**Weaknesses**
- Automation of production processes	- Insufficient digital infrastructure
- Increased speed and accuracy of decision-making	- Shortage of qualified IT specialists
- Efficient use of resources	- High initial investment costs
- Data-driven management systems	- Dependence on traditional management approaches
Opportunities	Threats
- Implementation of Industry 4.0 technologies	- Cybersecurity risks
- Attraction of foreign investments	- Intensification of global competition
- Expansion of export potential	- Difficulties in adapting to rapid technological changes
- Development of innovative products	- Rapid changes in market demand

The SWOT analysis indicates that digital transformation provides strong opportunities for improving efficiency and competitiveness in construction materials enterprises. However, challenges such as infrastructure limitations, a shortage of skilled personnel, and cybersecurity risks must be addressed to ensure successful implementation.

The findings suggest that digital transformation is not only a technological upgrade but also a fundamental shift in management practices. Strengths identified through SWOT analysis, such as automation and data-driven decision-making, contribute significantly to improving enterprise performance.

1 author's development

However, weaknesses such as insufficient digital infrastructure and a lack of qualified personnel hinder the full implementation of digital transformation. These challenges are particularly relevant in developing economies and require coordinated efforts between the government and the private sector.

Opportunities such as the adoption of Industry 4.0 technologies, increased foreign investment, and export expansion highlight the potential for further development. At the same time, threats including cybersecurity risks and increasing global competition must be carefully managed.

Overall, the successful implementation of digital transformation requires a comprehensive approach that integrates technological, organizational, and human resource dimensions.

CONCLUSION AND RECOMMENDATIONS

The study concludes that digital transformation plays a crucial role in improving management strategies in construction materials enterprises. It significantly enhances efficiency, reduces costs, and strengthens competitiveness.

Based on the findings, the following recommendations are proposed:

- expand the implementation of digital management systems in enterprises;
- adopt ERP, CRM, and Big Data technologies to optimize management processes;
- develop employees' digital skills through training and education programs;
- strengthen investment mechanisms to support digital transformation;
- enhance cybersecurity systems to ensure data protection;
- integrate innovative technologies into production processes;
- promote government support for digital economy initiatives.

Digital transformation is a key driver of management system modernization and economic efficiency in the construction materials industry, contributing to sustainable development and global competitiveness.

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