

## Article

# Improving the Organizational and Economic Mechanism for Reducing Production Cost in the Textile Industry

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**Abstract:** In this article, we will take a detailed look at the organizational and economic mechanisms that can be optimized to reduce production costs in the textile industry. In the course of the study, we analyzed the structure of production costs, identified the factors influencing their formation, and identified ways to use resources effectively. The analysis showed that the main reasons for the cost increase are the high cost of raw materials, high energy consumption, equipment wear and management problems. Optimizing production, implementing digital technologies, recycling waste, and improving energy efficiency can significantly reduce costs. As a result of the analysis of the practical case, it was revealed that the costs can be reduced by an average of 13%. The article also presents evidence-based initiatives and recommendations aimed at optimizing production processes, increasing competitiveness and ensuring sustainable economic growth.

**Keywords:** Textile Industry, Cost of Production, Production Costs, use of Resources, Introduction of Digital Technologies, Energy Efficiency, Waste Recycling, Business Process Management, Economic Efficiency, Competitiveness

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## 1. Introduction

In recent years, Uzbekistan has been actively working on industrial renewal, improving productivity and developing export-oriented industries. The textile industry is becoming an important economic sector that helps create added value, provide employment, and promote economic growth at the regional level. Therefore, issues related to reducing the cost of products, optimizing production costs and increasing competitiveness in the textile industry are becoming particularly important.

A number of legislative measures have been implemented in our country with the aim of promoting the development of the textile industry and enhancing its competitiveness [1]. These measures contribute to optimizing production processes, enhancing the depth of processing of domestic raw materials, and expanding export opportunities, as well as reducing production costs. The President of the Republic of Uzbekistan, Shavkat Mirziyoev, has emphasized the importance of reducing production costs in every industry and enterprise as a key factor in a successful economic strategy, emphasizing the significance of efficient resource utilization and the adoption of modern management practices [2]. These initiatives underscore the significance of enhancing production efficiency within the textile sector.

In the context of modern economic realities, this issue is becoming particularly significant. In a global textile industry where competition is at its peak, product quality and cost are key success factors [3]. High production costs have a negative impact on export opportunities and competitiveness in the domestic market. In this regard, it becomes necessary to apply scientific methods of production cost management and develop effective strategies for their optimization.

The research has both theoretical and practical significance. It is a fact that the factors that influence the formation of high production costs in the textile industry are complex and varied. More specifically, the main causes of this issue include high costs of raw materials, poor energy efficiency, outdated production techniques, increasing logistics expenses, and insufficient development of management systems. In addition, the inconsistency between cost accounting systems and management systems, as well as modern methods, also contributes to an undesirable increase in production costs.

In the process of solving these issues, it is necessary to improve organizational and economic mechanisms. From an organizational point of view, it is necessary to optimize production processes, effectively use human resources, introduce advanced technologies and modernize the management system. From an economic point of view, it is possible to reduce production costs by optimizing the systems of planning, accounting, analysis and cost control. This, in turn, will increase the financial stability of companies and their competitiveness in the market.

#### **Literature Analysis**

The problem of reducing the cost of production in the textile industry is the subject of research by both domestic and foreign scientists. This is one of the key areas aimed at improving economic efficiency.

In their scientific papers, the authors highlight various aspects related to cost factors, management mechanisms, and innovative approaches. The model developed by N. Sawangrat stands out among foreign researchers [4]. It demonstrates that the successful operation of textile enterprises depends on a harmonious combination of technological development, marketing strategies and organizational resources. The author emphasizes the importance of the technological factor and notes that there are opportunities to reduce costs by increasing production efficiency.

At the same time, research on digital transformation in industry (for example, the work of H. Ngarianto and others) demonstrates that there are a number of difficulties preventing the introduction of Industry 4.0 technologies, including significant investment costs, infrastructure shortages, and management problems. However, the use of these technologies is considered as a significant tool for optimizing production costs [5].

Special attention should be paid to the concept of "lean manufacturing", which is one of the modern ideas aimed at improving the efficiency of production processes. M. A. Azad's research has empirically proved that this approach can significantly reduce excess losses in production processes, use resources efficiently and, as a result, significantly reduce the cost of production [6].

In addition, the quality cost management model developed by M. R. Yasin and other scientists makes it possible to reduce total costs by reducing internal losses in production processes [7].

The problems of energy efficiency and rational use of resources have become the subject of a separate scientific study. In the works of A. Hasanbeigi and other scientists, it was shown that the use of energy-saving technologies can simultaneously reduce production costs and improve the environmental situation [8].

In addition, A. Datta and S. Christoffersen in their works demonstrated the relationship between the cost of production and the level of technological development

[9]. They found that scale of production and technological innovation are key factors contributing to lower production costs.

The research of scientists from the CIS countries, including N. A. Goncharov, identified methods to increase production efficiency and reduce costs by optimizing the business process management system at light industry enterprises. Special attention is paid to the identification and elimination of so-called "problem areas" in production activities, which is considered as an important management tool [10].

N. I. Skreblov, in turn, suggests considering organizational and economic mechanisms as a single system and emphasizes that their effective application contributes to the improvement of economic indicators [11].

In the scientific works of domestic scientists, various methods of cost optimization in the textile industry are examined. In particular, R.S. Khalikova work emphasizes the importance of technical and technological re-equipment of production, as well as increasing investment and innovation as key factors for sustainable development [12].

Based on the experience of cotton and textile clusters, B.K. Madartov scientifically substantiates that effective investment management not only increases productivity but also reduces costs [13]. The author notes that economic efficiency can be achieved by improving the mechanisms for the formation and rational use of investment resources.

In her scientific works, N.A. Boltabayeva focuses on the importance of improving the organizational and economic mechanisms for managing textile clusters, strengthening cooperative ties between participants and developing infrastructure [14]. These measures help to reduce production costs by optimizing the value chain.

In the works of G.M. Gaibullayeva, a thorough analysis of the elements that make up the cost of production and the factors that influence its reduction is presented [15]. The author arrives at the conclusion that the amount of raw materials, labour productivity, and the efficiency of fixed asset utilization are the primary determinants of cost.

Furthermore, the study highlights that the inefficient use of resources, high energy consumption, and outdated equipment contribute to an increase in costs [16]. The author observes that addressing these issues can assist in optimizing costs and enhancing economic performance.

S. P. Burlankov and other experts also conducted a study aimed at finding ways to reduce the cost of production. As a result, it was proposed to optimize production processes, recycle waste and introduce technologies that make it possible to use resources efficiently [17].

A. B. Dolgushin and his colleagues came to the conclusion that the introduction of the principles of circular economy will allow efficient use of resources and reduce production costs [18].

The study showed that reducing production costs in the textile industry is a complex process that is closely related to the introduction of modern technologies, digitalization, optimization of resource use, creation of clusters and improvement of management systems.

Despite the availability of scientific papers on this topic, the issues of the integrated application of organizational and economic instruments and their adaptation to the conditions of a particular country have not been studied deeply enough. This indicates the need for additional research in this area.

## **2. Material and Methods**

As part of this project, aspects related to improving organizational and economic mechanisms with the aim of reducing production costs in the textile industry have been thoroughly investigated. An integrated, systematic, and multi-level approach has been applied to this end.

In the course of the research, the issue has been considered not as a standalone entity, but as an integral part of the overall production process, which encompasses the supply of raw materials, manufacturing processes, labor inputs, energy usage, logistics, management, and control systems. This approach has allowed for a comprehensive analysis of both internal and external factors that influence the formation of production costs.

### 3. Results

In the course of examining the organizational and economic methods for reducing production costs in the textile industry, it became apparent that this sector is a complex production system, with interconnected multi-stage technological processes, resource flows, and management decisions. To achieve cost reduction, a comprehensive approach that encompasses all stages of production is necessary.

The analysis revealed that the cost structure of textile products is heavily influenced by the cost of raw materials, which can account for up to 60% or more in some cases. However, despite this, a substantial amount of waste is generated during the manufacturing process, reaching 20-25% at certain stages. This presents an opportunity to reduce production costs by optimizing the utilization of production resources.

As a result of the analysis, the following generalized structure of production costs was obtained.

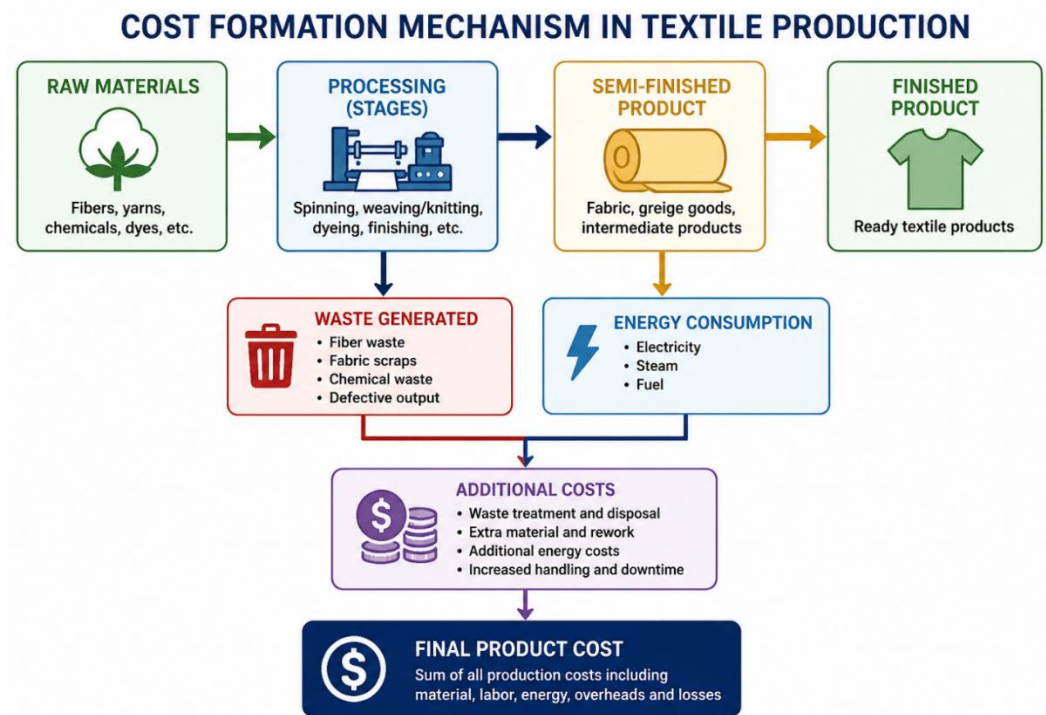
**Table 1.** The structure of the cost of textile products, calculated on the basis of average indicators

Cost element	Share (%)
Raw materials and supplies	55–65
Salary and deductions	10–15
Energy costs	8–12
Depreciation	5–10
Management expenses	5–8

Analyzing the presented data, it can be concluded that the most effective ways to reduce costs are associated with the rational use of raw materials and minimizing production losses.

In particular, technological inconsistencies in the production chain can cause bottlenecks that negatively affect the overall efficiency of the process. As noted in scientific publications, a detailed analysis of business processes and their optimization can shorten the production cycle and, as a result, reduce the cost of production.

To illustrate the process of cost formation, it is possible to present it in a simplified form.



**Figure 1.** The model of formation of the cost of textile products

This diagram clearly shows how losses and resource overruns at each stage of the production process affect the final cost of the product. Therefore, optimizing all stages of production is a key tool for reducing the total cost of goods.

In the course of our research, we found that the implementation of modern management techniques, such as business process management (BPM) systems, plays a crucial role in enhancing production efficiency. These systems assist in identifying areas of improvement in the production process, optimizing resource utilization, and significantly accelerating the management decision-making process.

Furthermore, the integration of digital technologies and automation in production processes not only increases labor productivity but also significantly reduces errors related to human error. Research indicates that increasing automation levels can result in a 15-25% improvement in production efficiency.

It is also essential to implement the principles of a circular economy based on international best practices. This approach entails the recycling of industrial waste and its utilization as secondary raw materials. Such an approach not only helps to minimize the negative impact on the environment but also significantly reduces production costs. Scientific research indicates that recycling waste can result in a 30%-40% reduction in overall costs.

As part of the study, calculations were carried out using the example of a hypothetical TEXTILES INVEST enterprise. At the initial stage, the cost of production was 10,000 soums, while the share of waste reached 18%.

Thanks to the optimization of production processes, reduction of raw material consumption, introduction of energy-saving technologies and implementation of waste recycling measures, the following results have been achieved.

**Table 2.** An example of the practical results of the activities of Textile Invest LLC

Indicator	Previous state	After the improvement
Cost of production (sum)	10 000	8 700
Percentage of waste (%)	18	10

Profit margin (%)	12	20
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These findings demonstrate that, through a comprehensive range of organizational and economic initiatives, it is feasible to reduce expenses by approximately 13%. Such an outcome would enhance the company's competitiveness, increase profitability, and expand its market share.

As a result of the conducted research, important scientific results were obtained:

1. The main ways to reduce the cost of production in the textile industry are related to the organization of the production process. An integrated approach is needed to identify them.

2. Optimization and implementation of digital technologies in production are key factors contributing to reducing the cost of goods.

3. The application of the principles of a closed-loop economy makes it possible to use resources more efficiently.

4. The implementation of business process management systems significantly increases production efficiency and reduces costs.

In order to enhance the efficiency of the textile industry and decrease production costs, it is essential to conduct a comprehensive analysis of production procedures, implement modern technologies, and modernize management systems. Only a holistic approach to implementing these measures will guarantee sustainable development and increased economic viability.

#### 4. Discussion

Based on scientific principles and empirical data, this research confirms that reducing expenses in the textile sector is a multifaceted and systematic process. The study revealed that the primary contributor to production costs, accounting for 55-65%, is the expense of raw materials. Therefore, optimizing the cost of these materials is a priority. This finding is in line with previous scientific studies and highlights the importance of effective resource management in minimizing production costs.

In the course of the research, it was found that a significant amount of unnecessary materials is generated during production activities – from 18% to 25%. This has a negative impact on production performance. The results of the study demonstrate that waste recycling and the use of secondary resources not only reduce costs, but also contribute to environmental stability. This confirms the practical importance of the principles of a closed-loop economy.

The study also found that in order to increase production efficiency, it is necessary to actively use digital technologies and automate processes. For example, the use of business process management systems (BPM) helps to identify problem areas in production, optimize resource use, and speed up the management decision-making process. Research shows that this significantly increases production efficiency and helps to reduce its cost.

Taking Textile Invest as an example, it was demonstrated that a 13% decrease in expenses, a reduction in waste, and an increase in profit all support the validity of the research findings. These findings indicate that the integrated use of organizational and economic instruments is a crucial approach to enhancing a company's competitiveness.

However, despite the positive outcomes of the study, there are certain limitations. In particular, it is not feasible to employ the same model for all businesses, as the manufacturing conditions, technological level, and resource availability vary from one company to another. Consequently, the suggested methods must be tailored to the unique characteristics of each company.

The findings of the research showed that cost reduction in the textile sector can be accomplished not only through individual efforts but also through a comprehensive strategy that encompasses the optimization of manufacturing, administrative, and financial operations.

## 5. Conclusion

The findings of the research underscored the importance of a holistic and methodical strategy for minimizing production expenses in the textile sector. The examination revealed that the primary expenses are linked to the wastage of raw materials, energy, and manufacturing processes, and improvements in these areas can result in substantial financial gains.

Research has shown that cost optimization yields tangible results if it is carried out not only as separate activities, but also as part of an integrated system covering production, administrative and innovation processes. Digitalization, waste reduction and the introduction of advanced management systems will allow enterprises to significantly increase their profitability and competitiveness.

Within the framework of this approach, proposals have been formulated that include a range of measures that can be implemented both as part of the overall strategy and in practical terms.

**1. Optimized resource utilization and reduced waste generation.** With regard to this aspect, particular attention should be given to scientifically informed rationing of raw material usage and minimization of production losses. To this end, rigorous accounting systems must be put in place at all stages of the manufacturing process, and waste levels should be monitored for each operation. Moreover, the establishment of a system for the recycling and use of waste as secondary materials not only lowers costs but also contributes to environmental sustainability.

**2. Comprehensive review of all production processes.** In order to enhance efficiency, it is essential to thoroughly review all aspects of the manufacturing process, identifying and correcting any inefficiencies. The implementation of lean principles in production demonstrates particular benefits in this regard. Through shortening the production cycle, removing redundant steps, and optimizing the use of time and resources, overall production costs can be reduced. Equally important is establishing standardized production protocols and continuously striving for improvement.

**3. Active Implementation of Digitalization and Automation.** In today's world, the digital transformation of production processes has become increasingly strategic. The implementation of business process management (BPM) systems, enterprise resource planning (ERP) programs, and digital monitoring tools enables real-time monitoring of production activities. This allows for minimization of errors, more efficient use of resources, and faster decision-making by management. By increasing the level of automation, labor productivity can be significantly enhanced and the likelihood of human error reduced.

**4. Enhancing energy and technological efficiency.** Given that energy costs constitute a significant portion of the overall production cost, the implementation of energy-efficient practices has become a crucial task. The adoption of modern equipment, performing energy audits within production facilities, and optimizing energy usage can significantly reduce expenses. Furthermore, the replacement of obsolete technologies and the application of innovative technical approaches contribute to enhancing the efficiency of manufacturing processes.

**5. Improvement of Management and Investment Practices.** It is crucial to establish a strategic management system at enterprises and optimize the processes of planning and budgeting. The use of technology can be supported by innovation projects, investment attraction, and effective management. Moreover, through cooperation within textile

clusters, logistics optimization and supply chain management can lead to overall cost reduction and synergetic efficiency.

As a result, we can say that the consistent implementation of the proposed measures will help reduce production costs in textile factories, use resources more efficiently and create prerequisites for stable economic development in the long term.

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