
APPLICATION OF CLUSTER SYSTEM IN COTTON-TEXTILE INDUSTRY DEVELOPMENT

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Abstract. The ways to increase economic efficiency and the development of the cotton-textile industry through the use of cluster systems are discussed in this peer-reviewed article. The issues that currently hinder the development of the cotton-textile sector are also highlighted, and suggestions and recommendations for solutions have been developed.

Keywords: cotton-textile industry, production, micro level, macro level, lean production, re-production, export, import, competitive market, management mechanism, localization of production.

Introduction. The stable predominance of production and export of cotton-textile industry products, the production of finished products with high added value, and insufficient capacity to build national brands that can adequately compete freely in the world markets make it impossible for enterprises to improve competitiveness of enterprises.

Global experience demonstrates that developing industry clusters take the shape of a vertical chain made up of numerous tiers of ladder networks that supply equipment and other specialized resources. Cluster creation quickens the pace of distinct industries, fostering innovation and boosting competitiveness in the global marketplace.

The problem with developing cotton-textile clusters is, of course, the creation of high added value through the thorough processing of goods cultivated in areas that specialize in the cultivation of raw cotton, offering high-quality and reasonably priced textile products to the domestic market. Additionally, because the nation is export-oriented, the country's foreign exchange earnings have sharply increased, creating new jobs and improving the standard of living for the populace.

Studying its theoretical and practical aspects is advised before organizing cotton-textile clusters and its legal, organizational, and economic underpinnings. Given the current state of the economy, businesses in the textile sector are looking for new revenue streams, even if it means growing their operations in order to do so. One of the most popular approaches in these situations is business mergers.

It is commonly known that business integration, particularly in the textile sector, is typically done to increase efficiency. In other words, extra efficiency can be attained at the cost of merging resources or collaborating with other businesses. It is ideal to combine corporations in order to execute the joint corporate strategy of the businesses, which was created to produce excellent outcomes.

Literature review on the topic. The creation of cotton-textile clusters in Uzbekistan will present a chance to quickly penetrate the global textile market and completely meet domestic demand, beginning with the production of deep-processed finished textile products and ending with the cultivation of raw cotton. Rural areas will also see the creation of contemporary employment opportunities and a significant improvement in living standards as a result of population growth.

Although local and centralized state structures support the activities of clusters developed in the industry today in a variety of ways, the state support mechanism for clusters has not been taken into consideration and systematized as a whole. Taking this into consideration, the research examined the state support mechanism for textile industry clusters as a whole system, and it was

suggested that the improved mechanism be applied in the process of developing and assisting textile industry clusters in our nation. The method, which was separated into two primary periods—the period of cluster creation and the period of cluster development following cluster formation—systematized the use of state support instruments for textile sector clusters.

The following directions are among the experiences gathered in the establishment of clusters in foreign nations and their practice:

The first approach is thought to be the Italian model (industrial districts), which is predicated on internal clusters that function as a formal or informal community to enter and occupy the market and a high concentration of small businesses for export expansion. [1]

Industrial clusters, which create concentric circles (centralized organizations) with a central management structure, are thought to represent the second path. Higher education institutions, scientific research facilities, and scientific laboratories are examples of such industrial clusters. The experiences of Germany, France, South Korea, Japan, and South Korea all show this cluster development. They have well-established official internal links as well as strong collaborations for outside markets.

This cluster creation strategy is characterized by the dispersion of inventive activity and the absence of linear connections. The key to guaranteeing mutual integration is giving each cluster member a chain link to the system's control hardware. Relying on additional financial resources during the cluster's establishment creates a requirement for state intervention and motivates it to take on the role of primary financial supplier. [2]

Although the state's backing and ample financial resources are the weak points in its organization, this cluster formation approach is thought to be the primary tool or strategy for boosting the nation's competitiveness in the global market.

The third direction is said to be typical of the industrialization era; the United States, Scandinavia, and Switzerland were major users of these clustering techniques. The triple helix model of clustering places a greater emphasis on innovation creation, with the primary goal being to sustain competitiveness by disseminating the innovations made across cluster members.[3]

The aforementioned cluster formation directions are established in accordance with the competitive landscape that has developed in the market and the state of Uzbekistan's textile industry firms at the moment.

Increasing efficiency at the expense of scope of operations (within the integration of sector forces); geographic diversification; ensuring economic security in conditions of vertical integration and strengthening market principles, such as the use of new technologies, are some of the various types of strategies that exist today, depending on their characteristics.

The balanced scorecard (also known as the Balanced ScoreCard, or BSC) is one tool used to achieve integration initiatives. American management consultant David Norton and Harvard Business School professor Robert Kaplan created this type of strategy in the early 1990s.

A system of harmonized indicators is a management system that assesses an organization's effectiveness using carefully chosen metrics that account for both financial and non-financial facets of the business's operations.

Robert Kaplan and David Norton's research led to the conclusion that, among other things, at least four factors—finance, buyers, internal business processes, and development—should be taken into consideration when creating a system of harmonized indicators of successfully operating enterprises.

The textile industry cluster's primary members—manufacturers, design firms, and sales systems—cooperate with pertinent state agencies, service and support providers, logistics providers that guarantee the flow of products and raw materials, and organizations that aid in the cluster's implementation. Businesses, groups, and systems involved in the aforementioned cluster activities also function as cluster members, guaranteeing the procedures linked to the textile cluster's product production and sales.[4]

Corporate business structures and major enterprises are the main users of the business system method. This approach calls for applying production system management techniques and instruments to all corporate processes and organizational structures. The Lean system is one of the

concepts, models, and methodologies that are utilized in conjunction with the business system approach. It should be mentioned that the management and organization of production systems employ combinations of the lean system and TOC, lean system and 6 Sigma, lean system and Kaizen, and lean system, TOC, and 6 Sigma. The management of the organization so attempts to consider the benefits of each strategy. Still, one must fully understand one strategy before switching to a format that combines multiple approaches. [5]

Lean Production gives you a cost and pricing advantage, but only if your local business is operating on a largely same technology platform and is competing on an even playing field with international players. Modern business management strategies cannot guarantee an increase in an enterprise's market share if the items it offers fail to meet the expectations of its customers about their high level of technology and functionality. However, if the production system increases losses in addition to product output, you could lose out on important investment possibilities for modernizing your business, which would considerably increase expenses and make it impossible for you to compete with overseas competitors. [6]

The statistical indicators analyzed regarding the production of textile industry products point to Uzbekistan as a weak point in the industry's competition. These indicators include the spiritual obsolescence of weaving machines, a lack of qualified engineering and technical personnel, and a low level of specialization in the production of gauze and fabric products. It was also discovered that the country's production of domestic fabrics intended for knitting and sewing did not progress, certain regions had low levels of fiber assimilation, and there were few businesses that implemented Quality Management in compliance with international standards. [7]

The experience of implementing cost-effective technologies demonstrates that new methods of removing losses are always developing, regardless of how much workers improve the process or how "economical" it is. Employees are the ones who make the improvement and value development process happen. The enterprise's most valuable resource is its workforce, who also possess the cultural value of economical manufacturing. [8]

The adoption of lean production technologies to guarantee an improvement in the efficiency of the production system will result in a number of qualitative and quantitative changes, including high financial performance, increased labor productivity, improved production processes, and a reduction in costs. This conclusion is based on the experience of foreign companies. [9]

Identifying the features that add value to the manufactured product for the customer is one of the fundamental tenets of lean manufacturing and the initial phase of its application. This is where lean manufacturing deployment starts. Waste is produced by business operations that don't add value for the client. As such, lean manufacturing's very early stages of deployment already have an effect on raising competitiveness. [10]

Enhancing the model of effective utilization of production capacity, raising worker productivity, and strengthening corporate culture and spirit in textile companies by implementing the 5S system and other cost-effective production methods (Lean manufacturing). Demonstrate how well the concept of cost-effective production was implemented by introducing the organizational system "5S" (sorting, compliance, cleanliness, standardization, and improvement) to manage the use of production capacity as a component of improving process quality and production culture in textile enterprises. [11]

We believe that the experts' above-mentioned theory provides a significant scientific and commercial foundation for the development of cotton-textile clusters in Uzbekistan.

Research methodology. Many scientific study, comparative comparison, statistical data analysis, economic comparison and analysis, logical reasoning, scientific abstraction, analysis and synthesis, induction, and deduction techniques are employed throughout the article.

Analysis and results. The following primary strategic objectives for maximizing the potential of the light industry are congruent with the cluster creation in Uzbekistan:

The goal of deep processing cotton fiber using contemporary technologies is to boost production volume of ready-made, eco-friendly textiles and light industrial goods by 5.6 times by 2030. These items are highly sought after in both domestic and international markets.

1. Taking into account the international experience, it is necessary to organize a showroom of

clothing samples, to open a pilot production workshop, which is part of the design fashion center, and to study the experience of the design and fashion centers of France, Germany, and Italy.

- To find a place in the domestic and international marketplaces, one must constantly look for new and creative products, consider design considerations when researching market dynamics, and—above all—raise the profile of the national brand abroad.

The major direction of in-depth research of the essence of these tasks and ensuring their execution in practice is to ensure the competitiveness of firms manufacturing textile industry products through the development of creative activities. Figuring out the best course of action for the cotton-textile cluster's growth.

This stage represents the primary mechanisms and steps for the development of cotton-textile clusters in Uzbekistan in the following directions and is a continuation of the phases previously mentioned: Production integration between manufacturers and consumers; labor productivity growth and modernization; development of technical and technological processes; strengthening of domestic textile market protection measures, etc.; The company's primary objectives are financial (to increase profit, cut costs, and increase market share in the domestic and international textile industry); customer (to satisfy customers, keep existing ones, and fortify relationships with new businesspeople); internal business environment (to increase production capacity, buy new, cutting-edge equipment, expand product composition and assortment); and personnel (to increase education and capacity).

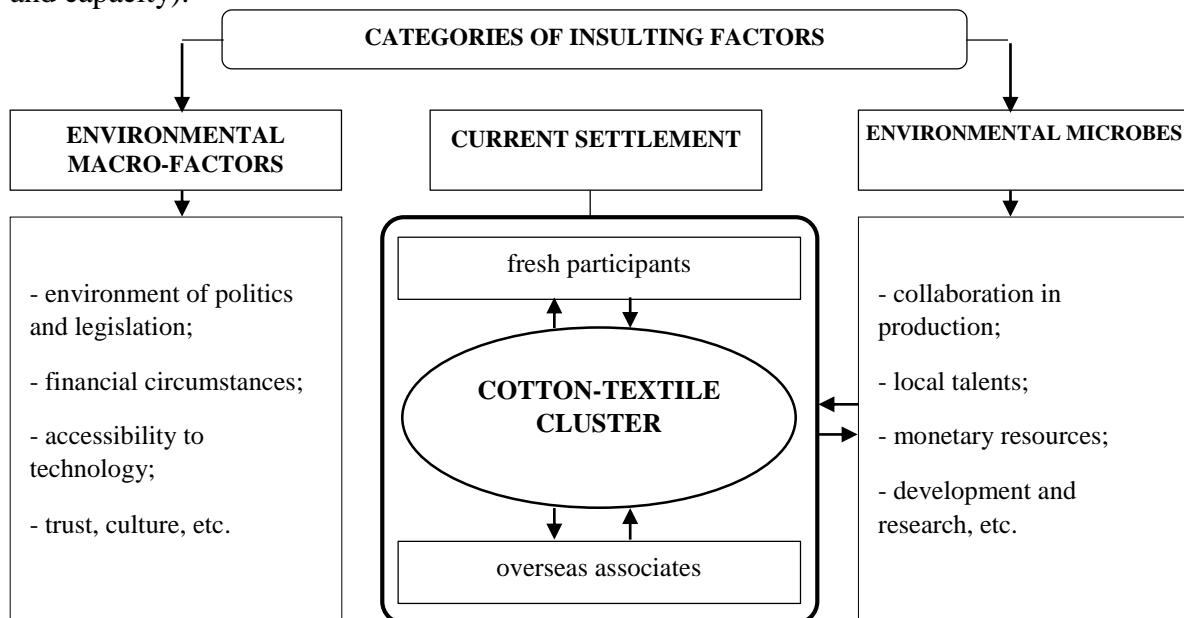


Figure 1. Factors affecting the cotton-textile manufacturing cluster's activity

While keeping the mechanisms for topic development's incentive, a high degree of cluster efficiency is attained. In this situation, the examination of staff of textile industry businesses demonstrates the high age of employees and the separation of practical education in higher education institutions from the production process. The solution to this issue is directly tied to the creation of a system for the focused training of highly skilled professionals through the addition of specialized curricula that are tailored to the requirements of particular textile industry enterprises in the organization of competitive production using cutting-edge new technologies.

Enhancing the efficiency of human capital is given specific focus to prevent outsourcing textile production to other nations, while also considering the necessity of enhancing the interaction mechanism between current industrial firms, universities, and research organizations.

The impact of both macro- and micro-level elements determines the cotton-textile sector cluster's success. These elements are separated into those that are more and less crucial to the cluster's long-term growth. describes the products of the cotton textile industry's sustainable value chain. Its primary components are the raw materials, semi-finished goods, production network,

export and trade network, and production network. It is crucial to keep in mind that the process encompasses the whole value chain when forming the value added chain within the cotton-textile industry cluster. This includes the production of raw materials, particularly cotton, as well as spinning, weaving, and weaving for the purpose of producing fabric and ready-made clothing.

Table 1

The principal governmental assistance programs for the cotton-textile sector

On a national scale	Locally
Creation of the network development economic strategy (concept) based on clustering	Allocation of necessary resources to support cluster activities (training of personnel, production infrastructure, etc.)
Creation, certification, and standardization of national curriculum requirements for educational establishments training specialists for the cluster	Establishing local support systems for the cotton and textile industries, building technology parks and business incubators, etc.
Creation of neighborhood clustering schools through commercial collaboration	Encourage collaboration between local companies and cluster members and create a system of competitive incentives for local suppliers.
Fostering innovation and research amongst cluster businesses and research organizations	Encouragement of the venture capital industry, funding of new businesses within the cluster, and use of knowledge gained from company development

The creation of a cluster-based economic policy, the standardization and certification of national educational standards for training specialists for clusters, the establishment of local clustering schools based on business collaboration, and the encouragement of research and development between research institutes and cluster enterprises are all advantageous ways for the state to support the national cotton-textile industry at the macro level.

In addition to the main lead enterprises exporting their goods or services outside the region, a cluster needs a network of inter-regional producers and raw material suppliers in order to function efficiently. Figure below depicts a general model of a textile industry cluster that accounts for causal linkages. (Figure 2)

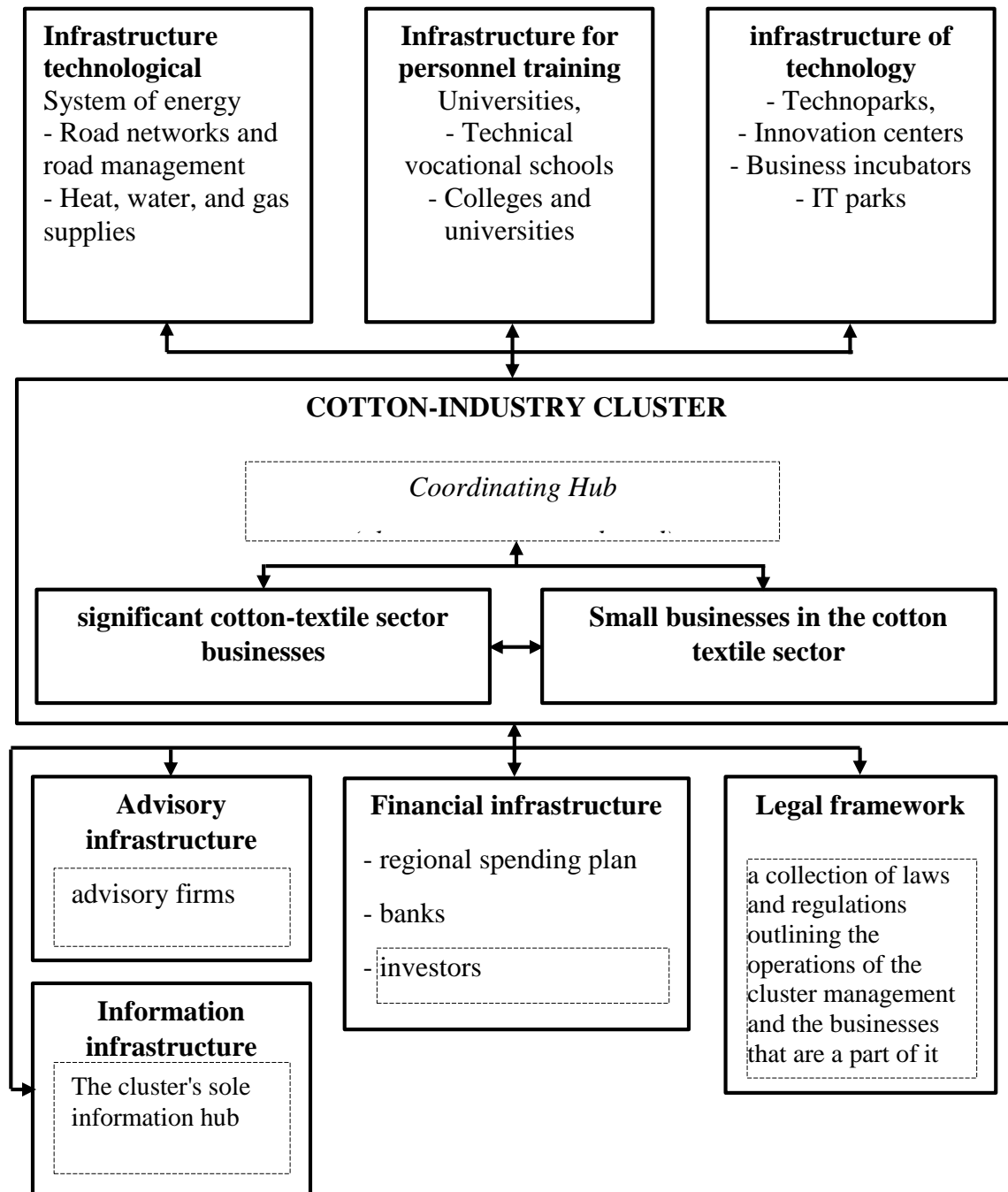


Figure 2. A novel approach to managing the cotton-textile industry cluster

Authorities at the local, state, and federal levels implement cluster policies to encourage the formation and growth of clusters in specific regions. It consists of information assistance measures as well as financial, fiscal, investment, and regulatory processes.

The cluster strategy should be included into network development plans and programs, industrial and innovation policies, and socio-economic development strategies and programs with priority.

Offering information-consulting services to cluster member firms is a crucial responsibility. The local government structure will assist in luring foreign participants to the industrial cluster if needed. In order to address the most crucial problems with cluster development, state authorities will guarantee interregional collaboration if the cluster is established along the boundaries of two adjacent areas.

In order to create this system, state administration bodies must reevaluate their current organizational structures, engage outside consulting firms, and create new authority for the regional administration body. In addition, to support businesses with their marketing needs, build

and maintain networks and business relationships, gather and present business and economic data, create and manage websites for the dissemination of essential information to business representatives, and provide statistics to the business community at large, priority areas include information provision and services for the growth and development of small and medium-sized enterprises.

Conclusion. The cotton-textile sector clusters prioritize modernizing infrastructural facilities, fostering new cluster initiatives, and ensuring sustainable development. Improvements to the regions' basic infrastructure in this direction include raising and developing the effectiveness of research institutes, technical research organizations, and higher education institutions; enhancing the development and sufficiency of transportation infrastructure; raising the development and dependability of energy infrastructure; and advancing engineering infrastructure; (efficient banking system, stock market, support for the establishment of collective investment institutions, including the growth of leasing and factoring, granting businesses access to risk and enterprise capital, setting up services for currency exchange, etc.); creation of social infrastructure; provision of land and commercial real estate access (industrial parks); development of telecommunications infrastructure (including development of free access to broadband and support for diversification of services and forms of communication). The following conclusions were drawn from the study of relationships pertaining to the processes of cluster development and management in the cotton-textile industry:

1. In terms of methodological support and suitability for studying complex socio-economic systems, including geographical cluster agglomerations, the resource-oriented approach is the best. The notion of resources and the resource-oriented approach facilitate a deeper comprehension of the connections and interrelationships in the logical progression of the economic system's changing states: means (as resources) - action (as management) - result (as competitiveness).

2. Members of a cluster are linked in the factor of exchange and distribution, as well as in a permanent resource state. The characteristics of resource-factor exchange and distribution amongst cluster members define the peculiarities of the cluster form of spatial economic agglomeration for the organization of territorial administration.

Every economic institution needs specific resources to carry out the manufacturing process; these resources, being production factors, result in a finished product. After that, the completed product is made available as a resource element or condition to other entities inside and outside the cluster. A shared sequential or parallel understanding of the prerequisites and production factors serves as the foundation for the creation, manufacturing, and marketing of particular products. One way to think of this kind of interoperability is as industry collaboration.

3. The methods used to assess the efficacy of integration processes are currently categorized into three groups: complex methods of assessing the effectiveness of integration; qualitative methods of evaluating the effectiveness of integration; and quantitative (cost) methods.

The profitability index is a technique for assessing the cluster structure's effectiveness based on a comparison of industrial companies' performance metrics. Furthermore, an indicator for assessing the capitalization of integrated organizations, the degree of security of businesses with intangible assets, and the integrated enterprises' coefficient of independence are characteristics of integration processes.

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