

INNOVATION SCIENCE AND TECHNOLOGY



Scopus || Electronic journal specializing in Scopus

ISSUE 4

 Acceptance of papers **April, 2026**



Acceptance of papers

Published monthly



Topics

economics, technology, social sciences

ISSN 3060-5229



Digital Object Identifier



Visit the website t.me/scopus_IST2100

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JOURNAL "INNOVATION SCIENCE AND
TECHNOLOGY" HAS BEEN REGISTERED
UNDER THE NUMBER C-5669633 BY THE
AGENCY FOR INFORMATION AND MASS
COMMUNICATIONS (AOKA) OF THE
REPUBLIC OF UZBEKISTAN, EFFECTIVE
FROM OCTOBER 9, 2024.

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STRATEGIC DIRECTIONS FOR THE DEVELOPMENT OF EXPORTS OF PRODUCTS BASED ON ARTIFICIAL FIBERS

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Abstract: This study examines the strategic directions for developing exports of products based on artificial fibers from both theoretical and practical perspectives. The structure of the global artificial fiber market, key competitors, and trade flows were analyzed. Based on value chain theory, Michael Porter's competitive advantage model, and international trade methodologies, a conceptual framework for shaping export strategies was developed. During the research, strategic priorities such as improving certification systems, integrating into digital trade platforms, using cluster models, and strengthening institutional mechanisms were identified. Special attention was given to the role of human capital, innovative technologies, and trade diplomacy in enhancing export competitiveness. The findings of the study have practical significance for industrial policymakers and the academic community seeking to expand the export potential of their countries.

Key words: artificial fibers, export strategy, competitiveness, value chain, cluster model, digital trade, certification.

INTRODUCTION

When examining the history of the global textile industry, it becomes evident that the share of products based on artificial fibers in international trade has shown a steady upward trend over the past decade. Synthetic fibers such as polyester, nylon, acrylic, and polypropylene have become the main raw material base of modern industrial textiles, and their range of application has expanded from clothing to technical textiles, medicine, aeronautics, and construction materials [1]. This trend is driven not only by technological progress, but also by the strategic transformation of the industry, which has gained the capacity to create flexible products that meet diverse consumer demands.

The global scale of the synthetic fiber market and the dynamics of its exports remain a constant focus of attention for researchers in industrial economics. According to data from the International Trade Centre (ITC), synthetic fibers and semi-finished products made from them account for a significant share of global textile exports, which makes strategic planning in this field especially relevant [5]. Economic analysts emphasize that, particularly for developing countries, the artificial fiber sector serves as an important avenue for export diversification, as it offers opportunities for generating high added value alongside relatively low technological barriers [16].

In the context of intensifying competition among countries, relying solely on raw material exports is no longer sufficient to ensure economic stability. Carrying out additional processing stages within the domestic economy, increasing the commodity value of finished products, and entering high-demand international markets together constitute the core objectives of export policy [6]. In this regard, strengthening the theoretical foundation, clarifying strategic priorities, and developing mechanisms for their practical implementation are essential both for state industrial policy and for specialized academic research.

The main purpose of this article is to analyze the strategic directions for developing exports of products based on artificial fibers from theoretical and conceptual perspectives, to draw lessons from international experience, and to formulate scientifically grounded recommendations for building a competitive export system. The study was conducted in close connection with global trade theory, value chain analysis, and methodologies for assessing export competitiveness. The structure of the paper consists of an introduction, literature review, methodology, analysis and results, conclusion and recommendations, and a list of references.

LITERATURE REVIEW

There is a substantial body of research in the field of international economics devoted to the export of artificial fibers and textile products. In this area, the concept of national competitive advantage developed by Michael Porter holds particular theoretical significance. Porter's "diamond" model—factor conditions, demand conditions, related and supporting industries, and firm strategy—has been widely applied as a universal analytical tool for examining industrial export strategies [20]. This model also retains strong explanatory power when applied to the textile sector: for countries producing artificial fibers, the availability of modern technologies, a reliable supply of raw materials, a skilled labor force, and domestic demand for high-quality products become key determinants of export potential.

The global value chain (GVC) analysis methodology developed by Gereffi and Fernandez-Stark is recognized as an important tool for studying textile exports [16]. This approach demonstrates how added value is created and distributed across different stages of product development. From the perspective of GVC theory, the main challenge for exporters in the synthetic fiber sector is to move upward within the market hierarchy, that is, to implement a strategy of shifting from raw materials or semi-finished goods to finished apparel and technical textile products. In the economic literature, this strategy is commonly described by the term "upgrading."

Value chain studies conducted by the OECD in the textile and apparel sector have shown that export success in this field does not depend solely on low production costs [6]. Product quality, delivery speed, compliance with specific technical and environmental standards, branding, and customer relationship management are all identified in the academic literature as important determinants of export competitiveness. It is precisely this multidimensional concept of competitiveness that occupies a central place in the design of modern export strategies.

In their foundational work, Helpman and Krugman demonstrated the decisive role of economies of scale and product differentiation in shaping international trade flows [23]. For the synthetic fiber sector, the practical implication of this theoretical conclusion is that even small manufacturers can achieve a competitive position in international markets by targeting specialized market segments with distinctive niche products. Functional fibers, environmentally friendly synthetic products, and smart textiles are practical examples of such differentiation strategies.

The literature also places special emphasis on the important role of the cluster model in enhancing export competitiveness. Industrial clusters generate competitive advantages that individual firms often cannot achieve on their own, through local cooperation, knowledge exchange, and shared infrastructure [21]. In the case of textile clusters, the examples of Jiangsu Province in China, the districts of Prato and Biella in Italy, and the polyester industrial complex in Surat, India, have demonstrated the effectiveness of this model.

The Revealed Comparative Advantage (RCA) index developed by Balassa is widely used as an empirical tool for monitoring and evaluating the export competitiveness of a country or industry [22]. RCA analysis provides an important analytical basis for determining which products and markets should be prioritized in the formulation of export strategies. The strategic framework presented in the following sections is aligned with these methodological criteria.

The rapid development of the digital economy and e-commerce is also transforming the paradigm of textile exports. As noted in a McKinsey & Company report, the share of digital channels in the global fashion and textile market is steadily increasing, opening new opportunities for exporters [4]. Communication with buyers through B2B electronic platforms, digital catalogs, and online exhibitions significantly reduces export marketing costs while also expanding geographic reach. Studies by the International Trade Centre particularly emphasize this trend in the context of developing countries [5].

Statistical data presented by EURATEX—the European Apparel and Textile Confederation—served as an important source for explaining new demand trends for synthetic products in the European market [10]. The green economy paradigm is introducing new standards into the textile market as well: environmental certification, the use of recycled synthetic fibers, and requirements to reduce carbon footprints are becoming new selection criteria for exporters. As noted in a report by Textile Exchange, the market share of textile products based on the principles of the circular economy is expanding year by year [3].

In its study on labor market trends in the textile, apparel, and leather goods sectors, the International Labour Organization (ILO) highlighted the positive impact of investment in human capital on export competitiveness [14]. Skilled designers, quality control specialists, and international trade managers are becoming direct

resources for advancing exports of synthetic fiber products to a new level. These conclusions served as the theoretical foundation for the human capital section of this research.

RESEARCH METHODOLOGY

The study is primarily theoretical and conceptual in nature and combines several analytical methods widely recognized in international trade economics. The first method is a systematic literature review. Scientific studies directly or indirectly related to the topic, as well as reports and policy papers from international organizations available in Scopus, Web of Science, and Google Scholar databases, were examined. Open-access databases of prominent international institutions such as UNCTAD, WTO, ITC, OECD, the World Bank, and UNIDO were included in the analysis [1, 2, 5, 6].

The second method is comparative analysis. The industrial policies and export strategies of countries that hold leading positions in the export of artificial fiber products, including China, India, South Korea, Taiwan, and Turkey, were examined. These countries are characterized by different levels of economic development and distinct export models; therefore, a comparative study of their experiences made it possible to derive broader strategic lessons [17, 21].

The third method is conceptual modeling. Based on Porter's theory of competitive advantage, global value chain (GVC) methodology, and the principles of institutional economics, a six-dimensional strategic framework for the development of artificial fiber exports was designed. This framework was presented as a strategic model visually illustrating the logical structure of export development priorities [20, 16].

The fourth method is source synthesis. Different types of information sources—including statistical data, expert opinions, policy documents, and theoretical studies—were integrated into a unified analytical framework. In selecting sources, attention was paid to their academic credibility, accessibility, and relevance, with preference given to materials published within the past five years. All numerical data and statistical indicators were referenced using primary or reliable secondary sources.

The fifth method is strategic analysis. Using elements of the SWOT framework and competitiveness matrix analysis, the key components of export strategy in the synthetic fiber sector were assessed. Strategic strengths, weaknesses, opportunities, and threats were classified qualitatively rather than quantitatively and served as the basis for developing recommendations [20, 24].

Among the limitations of the study, it should be noted that theoretical research in the field of economic policy cannot accurately predict the time gap between policy formulation and implementation. In addition, the unique institutional context of each country may limit the direct transferability of universal recommendations. Nevertheless, at the level of strategic principles, the conclusions of this study can be adapted to different national contexts.

ANALYSIS AND RESULTS

The global market for artificial fibers has followed a stable growth trajectory throughout the second decade of the twenty-first century. According to the UN Comtrade database and reports from leading textile market research organizations, polyester is the most widely used synthetic fiber and accounts for the largest share of global synthetic fiber production [17]. China continues to maintain an absolute leading position in this field, supplying the dominant share of global polyester yarn and fiber production. However, the existence of such dominance also creates opportunities for other countries to compete in niche segments, particularly in highly processed and specialized synthetic products [3].

In the nylon and technical synthetic fiber segment, India, South Korea, and Taiwan stand out as major competitors. These countries have successfully specialized their industries in high-technology products, including functional fibers for sportswear, technical textiles for the automotive industry, and specialized garments used for medical purposes [13]. Their experience demonstrates that, in order to maintain export competitiveness, it is increasingly necessary to move from standard product segments toward specialized and higher-value products.

Trade statistics from the World Trade Organization indicate that global trade in synthetic fibers and yarns for textiles and apparel continues to grow steadily. This growth is largely driven by cost differences among producing countries, technological differentiation, and the liberalization of regional trade agreements [1]. This trend provides a strong foundation for new exporters, especially as demand remains stable in the markets of Europe and North America for products that combine competitive pricing with acceptable quality standards (Figure 1).

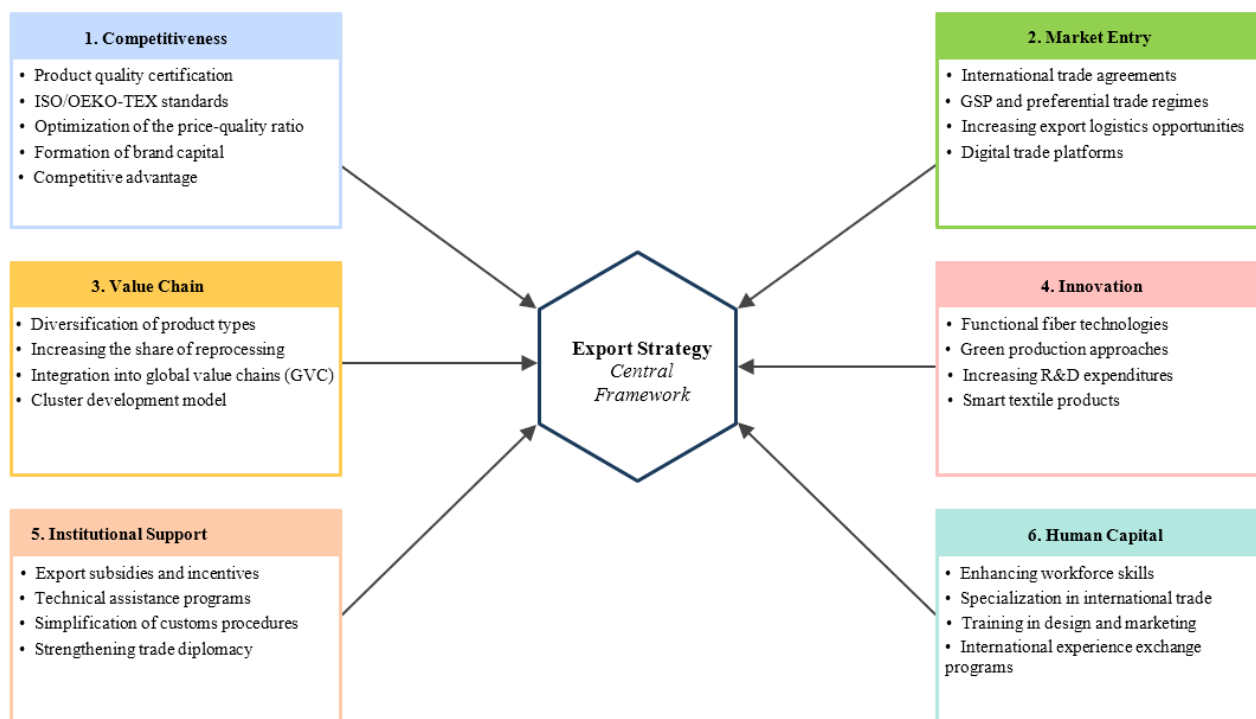


Figure 1. Strategic Framework for the Development of Artificial Fiber Exports¹

The strategic framework presented above (Figure 1) illustrates six interrelated directions for the development of artificial fiber exports. The central element of the framework is export strategy, which is simultaneously supported by competitiveness, market access, value chain development, innovation, institutional support, and human capital. The interaction among these dimensions highlights the importance of strategic complexity and synergy.

The first and most important strategic direction in the export of products based on artificial fibers is competitiveness, which is formed through compliance with international standards. International quality management certification such as ISO 9001, the OEKO-TEX Standard 100 for confirming the environmental safety of textile products, and the Global Organic Textile Standard (GOTS) for sustainable textile goods have become essential requirements for accessing the markets of Europe and North America without barriers [18].

Practical experience shows that the European Union is imposing increasingly strict environmental and social requirements on imported artificial fibers and related products. According to EURATEX reports, chemical safety certification, verification of recycled content, and documentation of carbon footprints have already become standard requirements for selling synthetic products in the EU market [10]. Therefore, exporters must demonstrate not only the price competitiveness of their products but also their quality and sustainability to international buyers.

The formation of brand capital is almost as important as certification. Research indicates that branded products can command significantly higher price premiums than similar unbranded goods. Major buyers, including global brands, thoroughly evaluate the reliability, capacity, and sustainability of new suppliers before beginning cooperation. Preparing for such requirements demands long-term strategic investment from exporters [4].

To expand export markets, preferential tariff regimes under bilateral and multilateral trade agreements are considered important strategic tools. The Generalized System of Preferences (GSP) within the framework of the WTO, as well as tariff reduction or elimination mechanisms included in various bilateral free trade agreements, improve the competitive environment for exporters [24]. To take full advantage of these opportunities, active participation in trade diplomacy and a thorough understanding of documentation requirements are essential.

Digital trade platforms such as Alibaba, Global Sources, Made-in-China, and specialized B2B portals provide significant opportunities for exporters of synthetic textile products. Through these platforms, exporters can establish contacts with potential buyers from dozens of countries without attending international exhibitions. According to analyses by the McKinsey Global Institute, the growth rate of B2B trade conducted through digital channels is significantly faster than that of traditional channels [4]. The International Trade Centre (ITC) also

¹ author's development

implements special programs aimed at increasing the use of digital trade opportunities for exporters from developing countries [5].

Improving export logistics is another important component of market access. Reducing delivery times, simplifying port and customs procedures, and developing intermodal transport systems significantly lower export costs. In its research, the Asian Development Bank has highlighted the positive impact of improved transport and logistics infrastructure on export competitiveness in Central Asian countries [19]. To address complex logistics challenges, public-private partnership mechanisms can serve as an effective model.

Integration into the global value chain in the artificial fiber sector directly determines exporters' profit margins and export stability. According to GVC theory, the stage of the product chain in which a company participates—raw materials, semi-finished products, or finished products—determines the share of added value it can capture [16]. Moving products to higher stages of the value chain, for example from polyester granules to yarn, from yarn to fiber, from fiber to fabric, and finally to finished goods, not only increases added value but also strengthens resilience to changes in market demand.

Diversification of raw material supply is also strategically important. Excessive reliance on a single supplier or on raw materials from one country exposes exporters to risks related to price fluctuations and supply disruptions. OECD studies show that supply chain resilience is becoming an increasingly important measure of competitiveness in modern international business [6]. Therefore, maintaining several alternative suppliers and technological options creates additional strategic value for buyer companies.

Technological innovation in the synthetic fiber sector serves as the main driver of product differentiation. Functional synthetic fibers—such as moisture-resistant, temperature-regulating, antibacterial, or ultra-durable fibers—are sold at significantly higher market prices than standard synthetic fibers and provide access to more demanding market segments [3]. Global demand for these innovative products is growing rapidly in areas such as sportswear, medical protective equipment, and military technical textiles.

An important trend can also be observed in the field of green innovation. The market for polyester fibers made from recycled plastic bottles (rPET) is expanding rapidly. According to reports by Textile Exchange, demand for recycled synthetic fibers is increasing, making investment in recycling technologies a strategically sound decision for exporters wishing to participate in this segment [3]. Major global sports brands such as Nike, Adidas, and H&M are openly encouraging their suppliers to increase the share of recycled fibers in their products.

Increasing research and development (R&D) expenditures is also an integral part of the innovation agenda. Large textile companies in industrially advanced countries allocate a certain share of their revenues to R&D, enabling them to maintain long-term technological advantages. As noted in UNIDO's reports on industrial competitiveness, there is a positive correlation between technological intensity and industrial export competitiveness [21].

The role of state institutions in expanding synthetic fiber exports is directly reflected through setting strategic priorities, improving the regulatory environment, and establishing support mechanisms. Export subsidies, preferential loans, export guarantee systems, and the simplification of customs procedures are widely used policy instruments around the world that have a direct impact on export growth [24].

The development of industrial clusters is another important institutional direction. A cluster model that brings together raw material suppliers, manufacturers, technology parks, research institutions, and export service providers within a single geographic area creates strong synergy effects. Textile clusters in Italy, Turkey, and India have demonstrated the long-term effectiveness of this approach [20]. Information exchange, joint export initiatives, and common certification programs within a cluster can significantly reduce costs and expand opportunities for individual firms.

Trade missions and participation in international exhibitions are also considered important institutional tools. A permanent and reliable presence in export markets provides a significant advantage in establishing long-term relationships with buyers and securing new orders. Within the framework of the World Trade Organization, "Aid for Trade" mechanisms can also serve as an effective channel for financing such activities [24].

The main factor ensuring long-term export competitiveness is the availability of qualified human capital. In the artificial fiber sector, producing goods that meet international standards, conducting quality control, analyzing foreign markets, and preparing export contracts are tasks that directly depend on highly skilled specialists. Research by the International Labour Organization has identified vocational education and skills development as decisive factors in improving labor productivity in the textile industry [14].

Design competence deserves special attention. In export products based on artificial fibers, especially in the ready-made garment segment, product design and aesthetics are major sources of added value. In the leading markets of Germany, United States, and Japan, the importance of design and branding continues to grow relative to price. Establishing partnerships with foreign design centers and universities can accelerate progress in this direction [4].

Knowledge of international trade management forms the managerial layer of the export process. Export regulations, customs declarations, international payment terms, marine and air cargo insurance, and trade finance mechanisms are all areas of expertise that management teams must master. To systematically strengthen such knowledge, cooperation with industry associations, state export agencies, and international trade organizations is highly important [19].

CONCLUSION AND RECOMMENDATIONS

This study examined the issue of developing exports of products based on artificial fibers from theoretical and conceptual perspectives. Drawing on Porter's model of competitive advantage, global value chain analysis, and the core principles of international trade economics, six main directions of export strategy were identified: competitiveness and certification, market access and digital trade, value chain integration, innovation, institutional support, and human capital. Their interconnections were presented as a unified strategic framework.

An important conclusion derived from the literature review is that export success in the artificial fiber sector cannot be achieved through a one-dimensional strategy based solely on low production costs. High levels of competitiveness are multidimensional and are shaped by the combined strategic influence of product quality, innovation, logistics efficiency, compliance with international standards, human capital, and institutional mechanisms. This complexity also determines the challenges involved in designing an effective export strategy.

The analysis of the global artificial fiber market showed that it is becoming increasingly difficult to compete with China and India in the standard mass-product segment on the basis of cost alone. An alternative strategy is to focus on specialized segments involving functional, environmentally friendly, and technically advanced products, where competition is based on technology and quality. Although this direction requires greater investment and more time, it represents the leading long-term strategy in terms of stable returns.

Based on the findings of the study, several practical recommendations were developed. The first recommendation is to introduce special government subsidies and technical assistance programs to support the integration of manufacturers of synthetic textile products into international certification systems such as ISO and OEKO-TEX. The costs of certification often remain a barrier for small and medium-sized producers; removing this barrier would increase the number of enterprises involved in export activities.

The second recommendation is to establish an e-commerce support system that encourages integration into digital export platforms. This program should include practical training courses to help exporters present their products effectively on B2B platforms, adapt digital marketing materials to the requirements of foreign markets, and strengthen their negotiation skills with international buyers. International donor organizations may also provide effective support in this area [24].

The third recommendation is to establish and develop specialized industrial clusters in the synthetic textile sector. Within these clusters, cooperation with research institutes, the creation of shared laboratories and certification centers, joint financing of export services, and the establishment of national pavilions at international exhibitions would enhance the export opportunities of all participating firms. Particular attention should be paid to studying successful international experiences with cluster models and adapting them to local conditions.

The fourth recommendation is to introduce tax incentives and grant mechanisms to stimulate R&D expenditures in the field of artificial fibers. Functional fibers, recycled synthetic materials, and smart textile products are areas where continuous scientific and technological investment is necessary to maintain technological leadership. Building cooperation frameworks among universities, research institutes, and industrial enterprises is an effective way to strengthen innovation capacity.

The fifth recommendation is to expand the system for training specialists in international trade and export management. It would be beneficial to include courses in international trade, brand management, and export marketing within university programs related to textile technology and industrial design. In addition, practical training opportunities with major textile exporters should be expanded as part of applied education programs.

For future research, it is recommended to test the strategic framework presented in this study across different national contexts, develop a quantitative index for measuring export competitiveness in the synthetic fiber sector, and conduct empirical studies on the impact of digital trade platforms on export performance. Such studies would further strengthen the scientific foundation of policy recommendations in this field.

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Proofreader: Zokir ALIBEKOV
Layout and Designer: Oloviddin Sobir ugli

2026. № 4

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