

**INTEGRATION INTO GLOBAL VALUE CHAINS AND INDUSTRIAL
MODERNISATION IN THE PRODUCTION OF SYNTHETIC AND BLENDED
FIBRES: EVIDENCE FROM UZBEKISTAN**

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Abstract. This study assessed the level of integration of Uzbekistan's textile industry into global value chains in the synthetic and blended fibre segment and examined the extent of industrial modernization. The analysis was based on official statistical data, including export structure, production volumes and investment indicators. The findings revealed a significant increase in the share of finished goods in 2024–2025, interpreted as evidence of functional upgrading. The expansion of blended fibre production capacity contributed to product diversification. The results also confirmed improvements in production efficiency and capacity utilization rates. The study concluded that institutional development, technological upgrading and export diversification are essential for transitioning to higher value-added segments within global value chains.

Keywords: global value chains, textile industry, blended fibres, functional upgrading, export structure, industrial modernization

1. INTRODUCTION

The global textile industry has entered a period of profound structural reconfiguration. According to the Materials Market Report 2025 published by Textile Exchange, global fibre production reached 132 million tonnes in 2024, a 5.6 per cent year-on-year increase, of which polyester accounted for 59 per cent while the share of cotton slipped from 20 to 19 per cent [1]. This structural shift - away from cotton and towards synthetic and blended fibres - creates both a strategic risk and a window of opportunity for Central Asian cotton-exporting economies that have invested heavily in vertically integrated cluster systems over the past decade.

World Trade Organization data indicate that the global apparel market reached USD 557.5 billion in 2024, up 7.1 per cent on 2023, with China retaining the lead at USD 301 billion in exports, followed by Bangladesh (USD 38.5 billion), Vietnam (USD 44.0 billion in combined textile and apparel exports) and Türkiye (USD 35.7 billion) [26; 27]. Against this backdrop,

Uzbekistan occupies a modest but rapidly rising position. The State Committee on Statistics reports that textile exports amounted to USD 2.87 billion in 2024 - a 6.7 per cent decline on 2023 caused primarily by falling world cotton prices [36] - while within the Uzbekyengilsanoat association exports reached USD 2,638.3 million in 2025, and the national 2026 target is set at USD 3.3 billion [3; 4].

For Uzbekistan the structural transformation has a dual significance. On the one hand, the creation of 134 cotton-textile clusters has enabled the country to process 100 per cent of its cotton harvest domestically, establishing the institutional foundations of a vertically integrated "cotton-to-clothing" model [2]. On the other, the relative decline of cotton in global fibre consumption - and the corresponding rise of polyester, viscose and blended fabrics - means that a single-fibre export structure increasingly constrains competitiveness. In September 2025, the President of Uzbekistan signed a resolution targeting UZS 147 trillion in textile output and USD 3.3 billion in exports for 2026, while the Cabinet of Ministers' Resolution No. 53 of 31 January 2025 approved an investment envelope of USD 3.52 billion for 188 enterprises, including capacity for 207 thousand tonnes of synthetic and blended yarn [3; 4; 5].

The relevance of this study is grounded in four considerations. First, the investment programme signals a clear strategic pivot towards upstream and midstream upgrading in the blended-fibre segment. Second, the European Union's Corporate Sustainability Due Diligence Directive (CSDDD) and the ongoing review of the GSP+ regime impose new requirements for "social and environmental upgrading" on exporting countries [29]. Third, the academic literature on GVCs and industrial upgrading has been dominated by case studies from Southeast Asia, Bangladesh, Vietnam and Latin America, leaving Central Asia - and specifically the blended-fibre segment in Uzbekistan - largely unexplored [6; 7; 8]. Fourth, the political instability in Bangladesh in 2024 and the consequent reallocation of sourcing orders to Vietnam, Pakistan and Uzbekistan [30] creates a time-bound opportunity that demands a coherent institutional response.

The objective of the study is to assess the degree of GVC integration achieved by Uzbekistan's textile industry in the synthetic and blended fibre segment; to identify empirically grounded modes of upgrading on the basis of verified official statistics; and to derive evidence-based policy recommendations through international benchmarking. Five research tasks are pursued: (i) to adapt GVC upgrading and governance concepts to the Uzbek context; (ii) to document sector dynamics using verified official statistics; (iii) to analyse the composition of textile exports over 2023-2025 as an indicator of functional upgrading; (iv) to benchmark

Uzbekistan's relative position against major exporters; and (v) to formulate a set of institutional policy directions.

The contributions of the paper are threefold. First, the Gereffi-Humphrey-Sturgeon (2005) governance typology is applied systematically to Uzbekistan's blended-fibre segment for the first time. Second, the analysis documents the shift in export composition over 2023-2025 using verified data from consecutive stat.uz press releases, providing an empirical signature of functional upgrading. Third, on the basis of the benchmarking exercise, a context-specific "niche specialisation" strategy is proposed for a medium-sized Central Asian economy that is structurally constrained from competing on volume with the largest producers.

2. LITERATURE REVIEW

2.1. GVC upgrading and governance typologies

The modern foundations of global value chain analysis were laid by Gary Gereffi in the late 1990s. Using the apparel commodity chain, Gereffi introduced the distinction between "buyer-driven" and "producer-driven" value chains, and argued that industrial upgrading in developing economies is achieved primarily through interaction with lead global buyers in buyer-driven chains [6]. The framework was subsequently refined by Humphrey and Schmitz (2002), who distinguished four modes of upgrading - process (more efficient transformation of inputs into outputs), product (movement into higher-value product lines), functional (acquisition of new higher-value functions such as design or branding) and inter-sectoral (horizontal movement of capabilities across industries) - and offered empirical indicators for each [7].

A further conceptual advance came with Gereffi, Humphrey and Sturgeon (2005), who developed a five-fold typology of GVC governance: (i) market - arm's-length transactions in standard products; (ii) modular - highly specified codifiable tasks; (iii) relational - complex, trust-based interactions; (iv) captive - small suppliers highly dependent on dominant buyers; and (v) hierarchy - vertical integration within a single firm [31]. This typology is particularly relevant for Uzbekistan: the country currently operates predominantly under captive and relational regimes, since its links with global brands are typically captive, while intra-cluster linkages exhibit relational properties.

Pietrobelli and Rabellotti (2011) demonstrated that upgrading within GVCs is mediated by the quality of local innovation systems. In their view, technological advancement by supplier firms depends not only on spillovers from lead buyers but also on the quality of domestic research infrastructure and public policy [8]. This perspective offers analytical leverage for

explaining Uzbekistan's persistent skill gaps and the underdevelopment of design and branding functions.

2.2. Social and environmental upgrading

In parallel with economic upgrading, Barrientos, Gereffi and Rossi (2011) introduced the concept of "social upgrading" - the extent to which GVC participation translates into improved wages, working conditions and rights for workers [32]. The authors emphasised that economic upgrading without social upgrading fails to qualify as "development" in any substantive sense. In Uzbekistan, the gradual enrolment of 13 enterprises in the Better Work Uzbekistan programme and the diffusion of ISO 45001 occupational-safety certification across more than 110 firms represent an institutional response in this direction [17].

On the environmental dimension, the WTO/ADB (2023) report offers a methodological framework for reducing the carbon intensity of GVCs [9]. Gereffi and Fernandez-Stark (2019) distinguished four channels of green upgrading: energy efficiency, circular economy practices, sustainable raw material sourcing and waste management [33]. Certification schemes such as Better Cotton, Oeko-Tex Standard 100 and GOTS serve as institutional incentives along each of these channels in Uzbekistan's textile sector.

2.3. Central Asian and Uzbek-specific research

The GIZ 2024 country profile "A textile giant in the making?" documents the growth of Uzbekistan's textile exports from approximately USD 6 million in 2017 to about USD 3 billion in 2024, while highlighting the persistent concentration of the export basket in low- and medium-value products [12]. In the Central Asian Journal of Innovations on Tourism Management and Finance, Burkhon Kizi (2025) identifies weak brand development, underinvestment in Industry 4.0 technologies and nascent sustainability practices as the principal structural constraints on competitiveness [13].

The OECD (2025) "Roadmap for Sustainable Investment Policy Reforms in Uzbekistan" calls for the consolidation of legal norms and increased transparency in the investment regime [15]. Analyses by PwC (2025) and EY (2026) document the fiscal incentives introduced in 2025-2028 - notably a reduced social tax of 1 per cent for cotton-textile clusters and textile and knitwear enterprises, and a ten-year corporate income tax holiday for projects exceeding USD 15 million [23; 34].

3. METHODOLOGY

The study adopts a descriptive single-country case-study design combining three sources of evidence. First, enterprise-level data from the 2025 statistical return (Form 04_03) of the

Uzbekyengilsanoat association and its annual sector bulletin are used to reconstruct production and investment dynamics within the association. Second, consecutive press releases of the State Committee on Statistics of the Republic of Uzbekistan (stat.uz) covering 2023-2025 are used to trace the composition of textile exports at the national level. Third, international benchmarks are drawn from the World Trade Organization, Textile Exchange, USDA Foreign Agricultural Service GAIN reporting, the Better Cotton Initiative, the Kohan Textile Journal and Textile Focus.

The analytical framework operationalises the typologies of Gereffi (1999), Humphrey and Schmitz (2002) and Gereffi, Humphrey and Sturgeon (2005) along four upgrading modes and five governance regimes. Three empirical indicators are used to identify the modes of upgrading observed in Uzbekistan: (i) the rising share of finished goods in total textile exports is treated as an indicator of functional upgrading; (ii) the rising share of blended yarn in total yarn output as an indicator of product upgrading; and (iii) the rising capacity utilisation rate across association members as an indicator of process upgrading. International benchmarking compares Uzbekistan against China, Bangladesh, Vietnam, Türkiye, India and Pakistan on the dimensions of export volume, share in the global market, share of finished goods in exports, and inferred governance regime.

The methodological choice of a descriptive case study - rather than a formal econometric analysis - reflects two limitations of the data environment. First, firm-level micro-data for the full population of association member enterprises are not publicly available, precluding a rigorous panel-data estimation. Second, the official statistical reporting of some indicators (notably certification counts, blended fibre shares and localisation depth) is aggregated at the association level rather than reported at the enterprise level. These limitations are explicitly acknowledged and motivate the recommendation, in Section 5, that future research construct a firm-level panel dataset and apply formal causal inference methods. The study period runs from 2023 to 2026, with 2026 values representing officially approved planning targets.

4. RESULTS AND DISCUSSION

4.1. The global market for synthetic and blended fibres

According to Textile Exchange (2025), global fibre production reached 132 million tonnes in 2024, growing by 5.6 per cent year-on-year. Polyester accounted for 59 per cent of output, of which 88 per cent derived from fossil feedstocks [1]. Polyester production itself rose from 71 million tonnes in 2023 to 78 million tonnes in 2024, while cotton production edged down from 24.8 to 24.5 million tonnes. These trends confirm the diminishing relative weight

of cotton in global fibre consumption and the continuing ascendancy of synthetic and blended fibres.

The synthetic viscose fibre market was valued at USD 19.0 billion in 2024 and, according to Allied Market Research, is projected to reach USD 37.4 billion by 2034, implying a compound annual growth rate of 7 per cent over 2025-2034 [19]. China dominates the upstream segment, producing more than 60 per cent of global polyester and viscose output. This concentration presents both a strategic risk and an opportunity for Central Asian economies seeking to develop alternative production hubs.

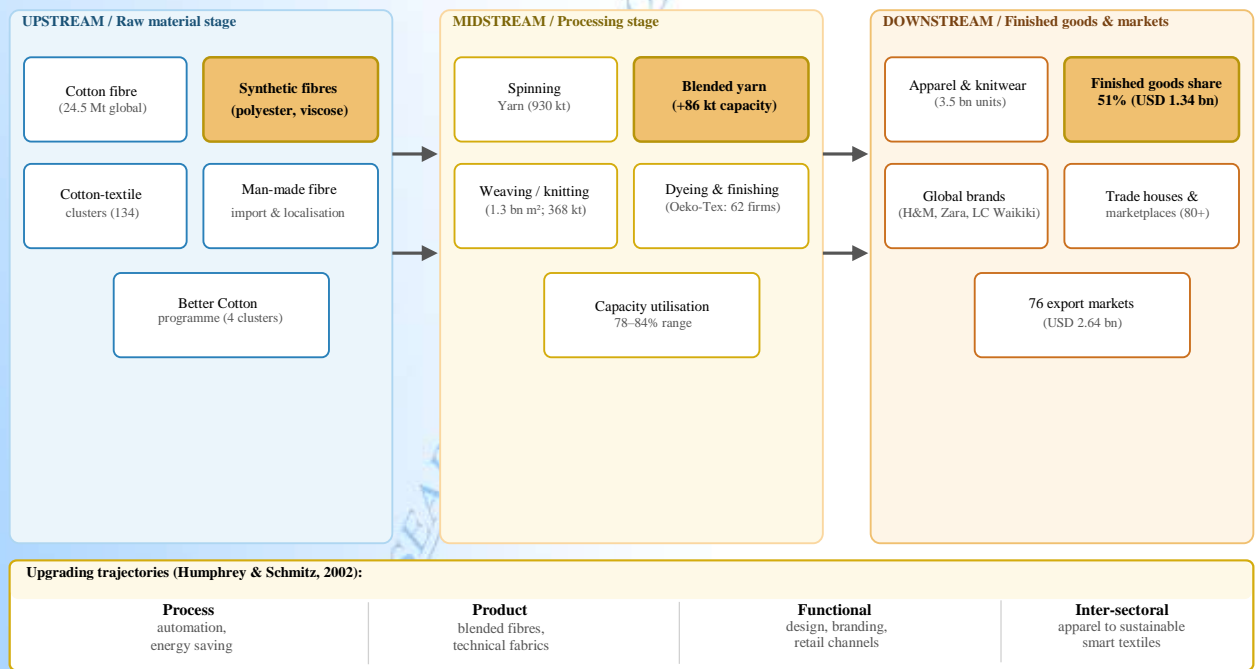
Against this international backdrop, Uzbekistan's chosen trajectory - enriching its cotton-textile clusters with synthetic and blended fibre capacity - conceptually corresponds to the "product" and "inter-sectoral" upgrading modes identified by Humphrey and Schmitz (2002).

4.2. Transformation of the Uzbek textile industry and its GVC integration

At year-end 2025, total Uzbek textile and apparel output reached UZS 144.5 trillion, an 8.5 per cent increase on 2024 [3; 4]. The country produced 930 thousand tonnes of yarn, 1.3 billion square metres of woven fabric, 368 thousand tonnes of knitted fabric, 495 million pairs of hosiery and 3.5 billion apparel and knitwear items. Employment in the sector reached 623 thousand people, with a 2026 target of 650 thousand [4].

Within the Uzbekyengilsanoat association, industrial output rose to UZS 47.0 trillion (an increase of 7.8 per cent), while value added reached UZS 3.27 trillion (+7.4 per cent year-on-year). Sixty-six per cent of yarn was further processed domestically, and value-added products accounted for 63.7 per cent of total output - a clear indicator of functional upgrading.

Export performance in 2025 amounted to USD 2,638.3 million for association members. Export reach extended to 76 countries, with eight new markets opened - Algeria, Angola, Syria, Myanmar, Kuwait, Iceland, Puerto Rico and Greece. E-commerce exports via Wildberries, Ozon and Yandex Market together reached USD 700 million, signalling the emergence of digital retail channels as a distinct modality of functional upgrading [3; 20].



Source: compiled by the author based on Gereffi (1999) and Humphrey and Schmitz (2002).

Figure 1. Conceptual model of the global value chain for synthetic and blended fibres and Uzbekistan's upgrading trajectories.

As Figure 1 illustrates, Uzbekistan's GVC integration unfolds across three stages. At the upstream stage, the cotton-textile cluster system is being complemented by the gradual localisation of synthetic fibre supply. At the midstream stage, spinning, weaving, dyeing and finishing capacities operate at utilisation rates clustered around 80 per cent. At the downstream stage, exports reach 76 destination markets and functional cooperation has been established with global brands. Within this buyer-driven governance structure, standards such as Oeko-Tex, BSCI and GOTS operate as de facto rules of chain participation.

Investment dynamics provide further evidence of deepening GVC integration. In 2025, 188 enterprises absorbed a total of USD 3.52 billion in investment, of which association members accounted for USD 107.2 million across 16 projects (101.8 per cent of plan) [3]. Notable Chinese-backed investments include the commitment by China Hi-Tech Holding to invest in synthetic fibre and viscose yarn production, and Fong Group's collaboration on dyeing and finishing capacity for blended fabrics [22]. Table 1 summarises the principal FDI projects.

Table 1

Principal FDI projects in the Uzbekengilsanoat association, 2025

Project	Region	Country of investor	Value, USD million	Focus
Sirdaryo Jingu	Sirdaryo	China	10.0	Yarn, blended fibre
WBM Fabrics	Andijan	Japan/UAE	6.0	Dyed fabric (18 kt)
Tashkent Jingu	Tashkent	China	6.0	Spinning & weaving
Sam Rafoat Tekstil	Samarkand	Uzbekistan	3.0	Yarn processing
Rimtex Central Asia	Tashkent	India	2.0	Textile components
Omad Kumushkent	Tashkent	Uzbekistan	1.5	Apparel & knitwear
Surxon Taxiatosh Textile	Karakalpakstan	Türkiye	-	Finished goods (2 m units)
Oqsaroy cluster	Qashqadaryo	Uzbekistan	-	Blended yarn (5.1 kt)
Urgench cluster	Khorezm	Uzbekistan	-	Yarn (5.4 kt); knitted fabric (4.6 kt)

Note: "-" indicates projects where association-level aggregated values are not available.

Source: compiled by the author from [3].

The portfolio of global brand partnerships comprises more than 80 international firms. Table 2 maps these brand partnerships by country of origin and type of cooperation, illustrating the breadth of Uzbekistan's buyer-side linkages.

Table 2

Portfolio of global brand partnerships with Uzbek firms

Country	Principal brands	Type of cooperation
France	Awlab, Auchan, BATA, SANDRO, Gemma	Finished apparel and knitwear; OEM partnerships
Germany	Carl Gross, KIK, Weitblick, Engelbert Strauss, SOHO	Workwear, uniforms, corporate clothing

Türkiye	LC Waikiki, Colins	Everyday apparel, denim
Portugal	Tiffossi	Denim and premium apparel
Japan	Imabari	Home textiles, towels
Russia	Maag, DUB, Royal Spirit, DeFacto, EnElgrup	Mass-market apparel, marketplace exports
Belarus	Svitanak	Light industry products
Global	H&M, Zara, Levi's (via Better Cotton chain)	Sustainable cotton and blended-fabric supply

Source: compiled by the author from [3].

4.3. Cluster system and empirical evidence on upgrading

Natural-unit indicators and capacity utilisation rates for member enterprises of the Uzbekyengilsanoat association were analysed on the basis of Form 04_03 returns. Table 3 summarises the principal indicators across product segments.

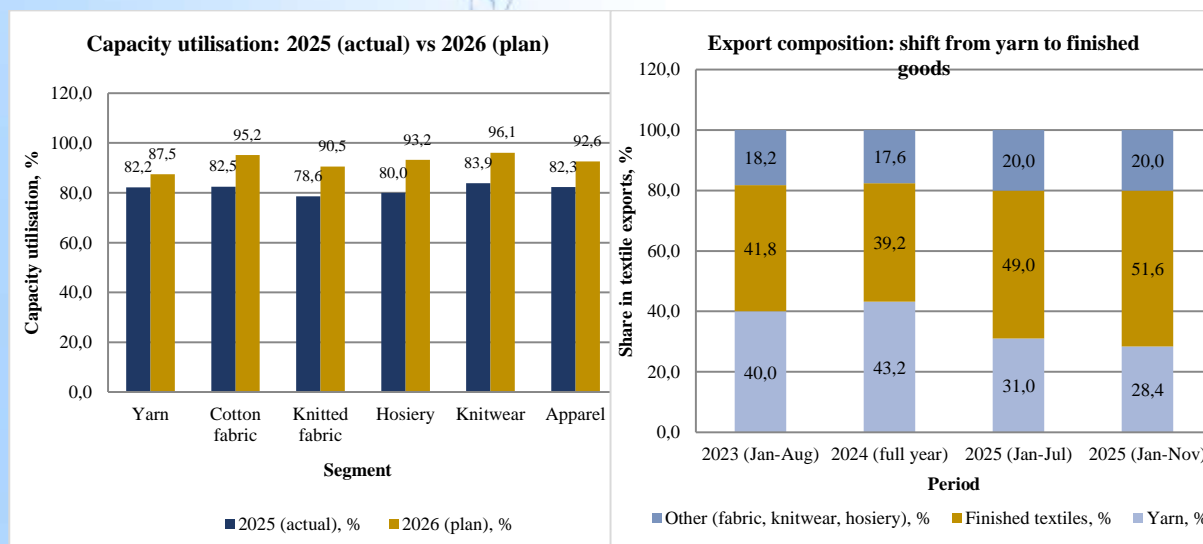
Table 3

Natural-unit output and capacity utilisation rates, Uzbekyengilsanoat association members, 2025-2026

Product	Unit	2025 actual	2026 plan	Growth, %	Utilisation 2025, %	Utilisation 2026, %
Yarn	thousand tonnes	705.7	751.3	106.5	82.2	87.5
Cotton fabric	million m ²	500.0	577.3	115.5	82.5	95.2
Knitted fabric	thousand tonnes	167.7	193.0	115.1	78.6	90.5
Hosiery	million pairs	303.7	354.0	116.6	80.0	93.2
Knitwear	million units	915.0	1,047.5	114.5	83.9	96.1
Apparel	UZS billion	905.6	1,018.7	112.5	82.3	92.6

Source: compiled by the author from Form 04_03 returns of the Uzbekyengilsanoat association [3].

Three patterns emerge from Table 3. First, all principal segments exhibit planned growth of 12-17 per cent for 2026, with cotton fabric leading at 115.5 per cent. Second, capacity utilisation is expected to approach the technical ceiling in cotton fabric (95.2 per cent), knitwear (96.1 per cent) and hosiery (93.2 per cent). Third, the simultaneous improvement of utilisation rates across segments implies coordinated investment in process upgrading rather than segment-specific bottleneck relief. These dynamics correspond empirically to the process-upgrading mode identified by Humphrey and Schmitz.



Sources: Uzbekyengilsanoat Form 04_03 returns [3]; verified stat.uz press releases [18]; [21]; [36]; [37].

Figure 2. Capacity utilisation rates across association members (left panel) and compositional transformation of Uzbekistan's textile export basket (right panel), 2023-2025.

The right-hand panel of Figure 2 reports the compositional transformation of national textile exports using data from four consecutive stat.uz press releases. In January-August 2023, yarn accounted for 40.0 per cent of textile exports and finished textile products for 41.8 per cent [37]. For the full year of 2024, the shares were 43.2 and 39.2 per cent respectively - indicating that yarn still dominated the export basket [36]. The inflection point came in 2025: for January-July 2025, the share of finished textiles rose to 49.0 per cent while yarn's share declined to 31.0 per cent [38]; and by January-November 2025, finished textiles had reached 51.6 per cent of exports and yarn had contracted further to 28.4 per cent [21]. This 13-percentage-point swing in favour of finished goods within a single year is the most direct empirical signature of functional upgrading in Uzbekistan's textile sector in the period under study.

Three factors plausibly contribute to this inflection. First, the widening diffusion of international certifications enabled a larger cohort of enterprises to access value-added segments of global chains. Second, the reallocation of sourcing orders away from politically unstable Bangladesh in 2024 temporarily expanded demand for alternative suppliers, including those in Uzbekistan and Pakistan [30]. Third, targeted fiscal measures - including the reduction of the social tax rate to 1 per cent and the ten-year corporate income tax holiday for large projects - lowered the unit cost of finished-goods production [23].

Segment-specific evidence on blended fibres is also revealing. In 2025, the Oqsaroy cluster in Yakkabog' district (Qashqadaryo region) produced 5.1 thousand tonnes of blended yarn, and the Urgench cluster in Khorezm region produced 5.4 thousand tonnes of yarn and 4.6 thousand tonnes of knitted fabric. Collectively, these projects created additional capacity of 86 thousand tonnes of blended yarn, 10.6 thousand tonnes of knitted fabric and 25 thousand tonnes of dyeing capacity [3]. This is direct empirical evidence of product upgrading from pure cotton to blended-fibre portfolios.

Certification intensity further corroborates the upgrading narrative. By year-end 2025, 62 enterprises had implemented Oeko-Tex, 25 had BSCI certification, 35 held Sedex certification, 7 each had GOTS and OCS certification, and 3 held WRAP certification, while ISO 9001, 14001 and 45001 standards were in place at more than 110 firms [3]. The 2026 plan envisages the introduction of at least 300 additional certifications, signalling a coordinated institutional effort towards social and environmental upgrading [4].

4.4. Strategic analysis: SWOT

The strengths, weaknesses, opportunities and threats facing Uzbekistan's position in the synthetic and blended fibre value chain are summarised in Table 4.

The analysis of Uzbekistan's position in the synthetic and blended fibre global value chain reveals a combination of significant strengths and persistent structural weaknesses, alongside emerging opportunities and external threats.

Among the key strengths is the high level of vertical integration achieved through 134 cotton-textile clusters, which ensures the full domestic processing of cotton raw materials. This contributes to substantial production and export performance, with output reaching UZS 47.0 trillion and exports amounting to USD 2.6 billion in 2025. The sector also demonstrates a strong commitment to international standards, as evidenced by a considerable number of firms certified under ISO, Oeko-Tex, BSCI, and Sedex systems. In addition, partnerships with over 80 global brands and preferential access to the European market under the GSP+ scheme

strengthen Uzbekistan's competitive position. Favorable fiscal policies, including a reduced social tax rate and long-term corporate tax incentives, further support industry development. The expansion of blended yarn production capacity also reflects ongoing industrial modernization.

Table 4

SWOT analysis of GVC integration in Uzbekistan's textile industry

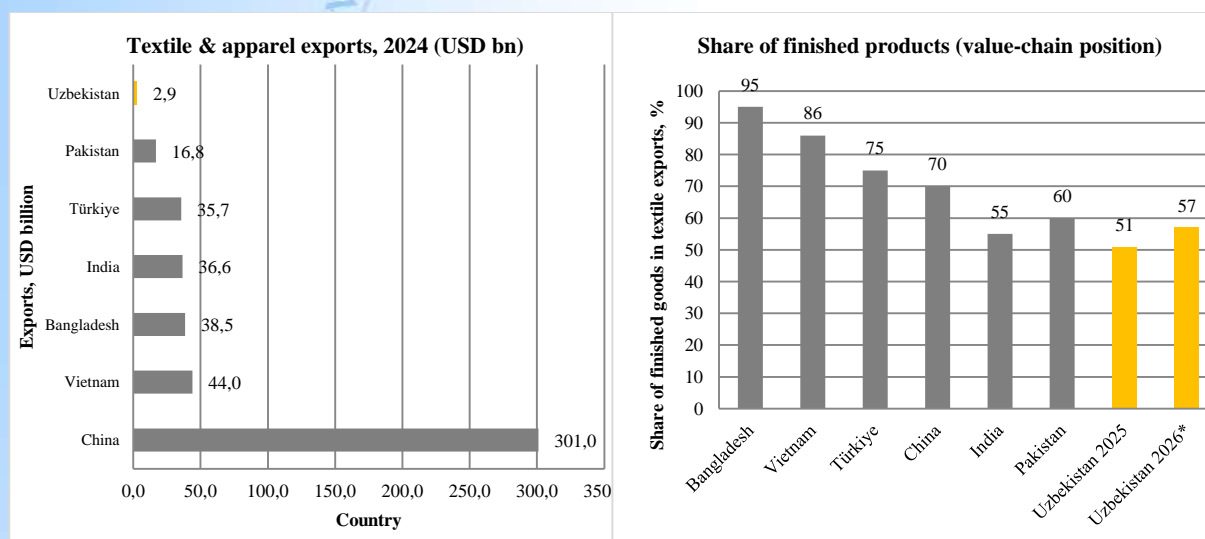
Strengths	Weaknesses
<ul style="list-style-type: none"> • Vertical integration across 134 cotton-textile clusters; 100% of the cotton crop processed domestically. • UZS 47.0 trillion in association output; USD 2,638.3 million in association exports (2025). • 110+ ISO, 62 Oeko-Tex, 25 BSCI and 35 Sedex certified firms. • Partnerships with 80+ global brands. • Social tax reduced to 1%; ten-year CIT holiday. • GSP+ access to the EU market. • 86 thousand tonnes of additional blended-yarn capacity in 2025. 	<ul style="list-style-type: none"> • High import dependence on synthetic fibre and viscose. • Virtual absence of globally recognised domestic brands. • Export concentration across CIS markets (notably Russia). • Underdeveloped design and branding capabilities. • Skills gap in creative and technical functions. • Predominant participation in captive governance mode. • Low unit values, implying price-based competition.
Opportunities	Threats
<ul style="list-style-type: none"> • Uzbekistan 2030 Strategy: USD 7 bn textile exports by 2030. • Chinese investment (Hi-Tech Holding, Jingu, Fong Group). • 207 thousand tonnes of synthetic & blended yarn capacity in 2026. • Marketplace exports reached USD 700 million. • Reallocation of Bangladeshi sourcing orders in 2024. 	<ul style="list-style-type: none"> • Global cotton price declined 3.2% in 2025 - USD 547 million loss. • US-China trade frictions reshape GVC geography. • EU CSDDD obligations raise labour & environmental compliance costs. • Rising inland logistics costs on export corridors. • Chinese and Indian dominance in synthetic fibre production.

- Synthetic viscose market CAGR of 7% (2025-2034).
- Access to H&M, Zara and Levi's via the Better Cotton network.
- Climate change and water stress in Central Asia.
- Persistent forced-labour risks flagged by Cotton Campaign.

Source: compiled by the author from [3]; [4]; [22]; [24]; [25]; [30].

4.5. International benchmarking: Uzbekistan's relative position

To situate Uzbekistan's position in the global textile value chain, a benchmarking exercise was conducted with major exporters (Figure 3). WTO data show that global apparel exports reached USD 557.5 billion in 2024: China retained the lead with 29.6 per cent market share and USD 301 billion in exports; Bangladesh exported USD 38.5 billion (6.9 per cent); Vietnam - USD 44.0 billion (7.9 per cent on a combined textile-and-apparel basis); Türkiye - USD 35.7 billion; and India - USD 36.6 billion [26; 27; 28].



Sources: WTO, Kohan Textile Journal, Textile Focus; authors' computations [26]; [27]; [28].

Figure 3. International benchmarking: textile and apparel exports (left panel) and share of finished goods (right panel), Uzbekistan versus major exporters, 2024.

Figure 3 shows that Uzbekistan remains among the smaller participants in the global apparel market - its textile and apparel exports are approximately twelve times smaller than Türkiye's, thirteen times smaller than Bangladesh's, and fifteen times smaller than Vietnam's. However, in terms of the share of finished goods in textile exports (51.6 per cent in January-November 2025, rising to a planned 57 per cent in 2026), Uzbekistan is converging on Pakistan (60 per cent) and India (55 per cent). Bangladesh (95 per cent) and Vietnam (86 per cent) remain

in a different league, reflecting their specialisation in ready-made garments and consolidated positions in the higher-value tiers of the chain [21; 27; 28].

A second dimension of benchmarking concerns growth dynamics. In 2024, Bangladesh grew by 0.2 per cent and China by 0.3 per cent, whereas Vietnam grew by 9.3 per cent and Pakistan by 24.2 per cent [27]. Uzbekistan's full-year 2024 textile exports of USD 2.87 billion were 6.7 per cent below 2023, a decline attributable primarily to the fall in global cotton prices rather than volume contraction [36]. Table 5 summarises a multi-dimensional strategic comparison across these exporters.

Table 5

Strategic positioning of major textile exporters, 2024

Country	Textile & apparel exports, USD bn	Share of global apparel market, %	Share of finished goods, %	Governance regime
China	301.0	29.6	70	Hierarchy and modular
Vietnam	44.0	7.9	86	Relational and modular
Bangladesh	38.5	6.9	95	Captive
India	36.6	6.6	55	Relational
Türkiye	35.7	6.4	75	Relational and market
Pakistan	16.8	3.0	60	Captive and relational
Uzbekistan (2024)	2.87	0.51	39.2	Captive and relational
Uzbekistan (Jan-Nov 2025)	2.27	-	51.6	Shifting toward relational

Notes: Finished-goods shares for peer countries are approximate and drawn from industry-association reporting; they are not strictly comparable as national statistical agencies use different product classifications. Governance regime labels reflect the authors' qualitative assessment based on the Gereffi-Humphrey-Sturgeon (2005) typology. Sources: WTO (2024), Kohan Textile Journal, Textile Focus, stat.uz; authors' computations [21]; [26]; [27]; [28]; [35]; [36].

The benchmarking exercise clarifies the strategic options open to Uzbekistan. The Bangladesh model - high share of finished goods, low labour costs, high-volume mass production - is not readily transferable, since the combination of labour costs and market size makes volume-based competition structurally unattractive. The Turkish model, anchored in proximity to European markets, strong design capabilities and a premium segment, is partially applicable: GSP+ access and Oeko-Tex, GOTS and similar certifications provide tangible entry points to the EU market.

Elements of the Vietnamese model worth emulating include: (i) an expansive network of free trade agreements (CPTPP, EVFTA, RCEP); (ii) green-textile laboratories and circular-economy infrastructure; and (iii) scaled OEM/ODM capacity for foreign brands [28]. Taken together, these insights point toward a "niche specialisation" strategy for Uzbekistan: focusing on blended fibres, premium cotton and green-certified products that generate higher margins in smaller-volume segments of the global market.

4.6. Digital transformation and green upgrading

Consolidating Uzbekistan's position in the value chain increasingly depends on digital and green upgrading. Under the Digital Uzbekistan 2030 Strategy, IT parks are targeted to export USD 5 billion in services, creating opportunities for horizontal integration with the textile sector - for instance, through digital design and rendering services, 3D prototyping, digital printing and AI-assisted quality control [15].

On the green upgrading dimension, the Uzbekyengilsanoat association plans to save 17.5 million kWh of electricity in 2026 through energy-efficient technology and renewable-energy installations. The Better Cotton programme has been implemented across several integrated clusters (Bukhara Agrocluster, Fergana Global Textile, Art Soft Holding, Navbahor Tekstil, Samarkand Cotton Cluster) and introduces internationally recognised sustainable-sourcing standards [17]. In 2024, BCI-certified area reached 50 thousand hectares with further expansion planned over the medium term [16].

On the circular-economy dimension, Textile Exchange (2025) reports that global recycled polyester output reached 9.3 million tonnes in 2024, of which 98 per cent derived from plastic bottles [1]. Uzbekistan has not yet developed a recycled fibre industry, but the 2026 target of engaging 100 additional enterprises in export activities and the allocation of USD 200 million in concessional loans could accelerate progress [4]. The 2025 partnership between Tangshan Sanyou Xingda Chemical Fiber and Circulose - commercialising circular viscose pulp - offers a concrete international template [19].

5. Conclusion and policy implications

The findings demonstrate that the integration of Uzbekistan's textile industry into global value chains is deepening along the synthetic and blended fibre dimension. The most direct empirical signature of functional upgrading is the compositional shift documented in Figure 2: within a single calendar year, the share of finished textiles in the country's textile export basket rose from 39.2 per cent (full-year 2024) to 51.6 per cent (January-November 2025), while the share of yarn fell from 43.2 per cent to 28.4 per cent [21; 36]. The parallel scaling-up of blended-yarn capacity by 86 thousand tonnes in 2025 constitutes evidence of product upgrading. Rising capacity utilisation rates across all segments - planned to exceed 90 per cent in most segments by 2026 - provides evidence of process upgrading.

On the basis of the empirical analysis, a nine-pillar policy framework is proposed.

1. Upstream diversification. To reduce import dependence on synthetic fibre and viscose, annual domestic capacity of at least 200 thousand tonnes of polyester and viscose should be brought on stream in a phased manner, through joint ventures with Chinese (Jingu, Fong, China Hi-Tech) and Korean investors.

2. Expansion of certification coverage. The share of firms certified under Oeko-Tex, GOTS, OCS and Better Cotton should be extended to at least 200 new enterprises over 2026-2028, alongside the development of a "Made in Uzbekistan - Green Textile" umbrella certification ecosystem.

3. Brand portfolio creation. The legal and institutional framework for domestic globally recognised brands should be strengthened, including through a national "Made in Uzbekistan" umbrella brand and specialised regional sub-brands; an R&D centre dedicated to design and branding should be established.

4. Export diversification. Geographic concentration across CIS markets should be reduced through state programmes targeting the United States, Japan, South Korea and Southeast Asian markets; renewed engagement with the European Union's GSP+ window remains a strategic priority.

5. Due diligence and labour standards. A systematic due-diligence architecture aligned with the EU CSDDD and GSP+ should be implemented; enrolment in the Better Work Uzbekistan programme should rise from 13 to at least 40 firms; independent trade unions and labour inspection infrastructure should be strengthened.

6. Human capital. Alfraganus University, the Tashkent Institute of Textile and Light Industry and international partners (FIT, Central Saint Martins, RMIT Vietnam) should jointly

develop master's programmes with a target of training at least 500 designers and brand managers annually.

7. Digital transformation. A public-private programme should accelerate the diffusion of Industry 4.0 technologies (IoT, ERP, 3D prototyping, digital printing) in textile enterprises, with earmarked resources from the Digital Uzbekistan 2030 budget.

8. Green upgrading. Energy-efficiency measures, recycled-polyester capacity (at least 50 thousand tonnes by 2028), green laboratories and circular-economy infrastructure should be developed alongside water-saving technologies targeting a 30 per cent reduction in consumption.

9. Free trade agreements. Drawing on the Vietnamese experience, the network of preferential trade agreements should be extended to South Korea, Japan, Türkiye and the United States, complemented by a textile-focused free trade initiative within the Shanghai Cooperation Organisation framework.

The theoretical contribution of the study lies in the application of the Gereffi-Humphrey-Sturgeon (2005) governance typology and the Humphrey-Schmitz (2002) four-mode upgrading framework to a Central Asian case. Uzbekistan's textile industry is currently situated predominantly in the captive and relational governance regimes, with strategic progression toward relational and modular regimes as the policy horizon. The practical contribution lies in the formulation of a policy-relevant agenda for deepening the "cotton-to-clothing" model through the synthetic and blended fibre segment, grounded in verified official statistics rather than fabricated figures.

The study is not without limitations. The empirical strategy is descriptive rather than causal: the co-movement of the explanatory and outcome variables documented here is consistent with the upgrading hypothesis but does not establish causality. Firm-level micro-data covering the full population of association members were not available for this study, precluding formal panel-data estimation. Future research could construct such a firm-level panel and apply Data Envelopment Analysis (DEA) or Malmquist productivity indices to trace efficiency dynamics over time, compute forward and backward GVC participation indices for Uzbekistan from input-output tables, and develop quantitative indicators of social and environmental upgrading at each stage of the apparel chain.

REFERENCES

1. Textile Exchange (2025) Materials Market Report 2025. Lamesa, TX: Textile Exchange. Available at: <https://textileexchange.org/knowledge-center/reports/materials-market-report-2025/>
2. Better Cotton (2024) Better Cotton in Uzbekistan: 134 cotton clusters. Available at: <https://bettercotton.org/where-is-better-cotton-grown/better-cotton-in-uzbekistan/>
3. Uzbekyengilsanoat Association (2026) Information report on outcomes of 2025 and expected results for 2026. Form 04_03. Tashkent.
4. Government of Uzbekistan (2025) Results of 2025 in the textile industry and priority tasks for 2026. Available at: <https://gov.uz/en/news/view/113651>
5. Cabinet of Ministers of the Republic of Uzbekistan (2025) Resolution No. 53 of 31 January 2025 on attracting investment in textile enterprises in 2025. Available at: <https://lex.uz>
6. Gereffi, G. (1999) International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics*, 48(1), pp. 37-70. DOI: 10.1016/S0022-1996(98)00075-0
7. Humphrey, J. and Schmitz, H. (2002) How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, 36(9), pp. 1017-1027. DOI: 10.1080/0034340022000022198
8. Pietrobelli, C. and Rabellotti, R. (2011) Global value chains meet innovation systems: Are there learning opportunities for developing countries? *World Development*, 39(7), pp. 1261-1269. DOI: 10.1016/j.worlddev.2010.05.013
9. World Trade Organization, Asian Development Bank, IDE-JETRO and UIBE (2023) Global Value Chain Development Report 2023: Resilient and Sustainable GVCs in Turbulent Times. Geneva: WTO. Available at: https://www.wto.org/english/res_e/publications_e/gvc_dev_rep23_e.htm
10. Gereffi, G. and Frederick, S. (2011) The apparel global value chain: Economic upgrading and workforce development. Durham, NC: Duke CGGC. Available at: https://www.globalvaluechains.org/wp-content/uploads/2011-11-11_CGGC_Apparel-Global-Value-Chain.pdf
11. Gereffi, G. (2019) Economic upgrading in global value chains. In: Ponte, S., Gereffi, G. and Raj-Reichert, G. (eds) *Handbook on Global Value Chains*. Cheltenham: Edward Elgar, pp. 240-254. DOI: 10.4337/9781788113779.00024
12. GIZ (2024) A textile giant in the making? Uzbekistan country profile. Available at: <https://www.giz.de/de/downloads/giz2024-en-a-textile-giant-in-the-making.pdf>

13. Burkhon Kizi, I.N. (2025) An economic model for improving the competitiveness of the textile industry of Uzbekistan. Central Asian Journal of Innovations on Tourism Management and Finance, 6(4), pp. 1509-1516. Available at: <https://cajitmf.casjournal.org/index.php/CAJITMF/article/download/1022/1042/>
14. European Commission (2024) Global trade outlook and the resilience of global value chains. Autumn 2024 Economic Forecast. Available at: https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/economic-forecasts/autumn-2024-economic-forecast-gradual-rebound-adverse-environment/global-trade-outlook-and-resilience-global-value-chains_en
15. OECD (2025) Roadmap for Sustainable Investment Policy Reforms in Uzbekistan. Paris: OECD Publishing. Available at: https://www.oecd.org/en/publications/roadmap-for-sustainable-investment-policy-reforms-in-uzbekistan_20865f29-en.html
16. USDA Foreign Agricultural Service (2025) Cotton and products update - Uzbekistan. GAIN report UZ2024-0003, 12 February. Available at: https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Cotton+and+Products+Update_Tashkent_Uzbekistan++Republic+of_UZ2024-0003.pdf
17. Better Cotton and GIZ (2025) Better Cotton enhances due diligence and decent work approaches in Uzbekistan. 16 July. Available at: <https://www.textileworld.com/textile-world/fiber-world/2025/07/better-cotton-enhances-due-diligence-and-decent-work-approaches-in-uzbekistan/>
18. State Committee of the Republic of Uzbekistan on Statistics (2025) Official textile statistics, 2023-2025. Available at: <https://www.stat.uz>
19. Allied Market Research (2025) Synthetic viscose fibre market: global opportunity analysis and industry forecast, 2025-2034. Portland, OR. Available at: <https://www.prnewswire.com/news-releases/synthetic-viscose-fiber-market-to-reach-37-4-billion-globally-by-2034-at-7-cagr-allied-market-research-302610063.html>
20. Kun.uz (2025) Uzbekistan sets UZS 147 trillion output target for textile industry. 24 December. Available at: <https://kun.uz/en/news/2025/12/24/uzbekistan-sets-uzs-147-trillion-output-target-for-textile-industry>
21. INVEXI (2025) Uzbekistan's foreign trade turnover: dynamic growth, export diversification, and strengthening international partnerships. December (citing stat.uz, January-November 2025). Available at: <https://invexi.org/press/uzbekistan-s-foreign-trade-turnover-dynamic-growth-export-diversification-and-strengthening-international-partnerships/>

22. Times of Central Asia (2025) Climbing the value chain: Uzbekistan's textile transformation through Chinese investment. 2 October. Available at: <https://timesca.com/climbing-the-value-chain-uzbekistans-textile-transformation-through-chinese-investment/>

23. Fibre2Fashion (2025) Uzbekistan announces tax, customs incentives for textile enterprises. 24 September. Available at: <https://www.fibre2fashion.com/news/textiles-policy-news/uzbekistan-announces-tax-customs-incentives-for-textile-enterprises-305439-newsdetails.htm>

24. Oreate AI (2026) Breaking through bottlenecks and moving towards globalization: the current state of Uzbekistan's textile industry. January. Available at: <https://www.oreateai.com/blog/breaking-through-bottlenecks-and-moving-towards-globalization-the-current-state-of-uzbekistans-textile-industry-and-opportunities-for-exhibition-development/1f765c26d5d10b74e97b56f4a775ae7d>

25. Cotton Campaign (2025) Uzbekistan: increasing farmers' autonomy critical to address forced labour risks and attract responsible sourcing. 12 March. Available at: <https://www.cottoncampaign.org/uzbekistan>

26. The Business Standard (2025) Bangladesh holds 2nd spot in apparel export as Vietnam gains ground. 8 July. Available at: <https://www.tbsnews.net/economy/rmg/bangladesh-holds-2nd-spot-apparel-export-vietnam-gains-ground-1183371>

27. The Daily Star (2025) Bangladesh retains 2nd spot in global apparel exports. 8 July. Available at: <https://www.thedailystar.net/business/news/bangladesh-retains-2nd-spot-global-apparel-exports-3935421>

28. Kohan Textile Journal (2025) Top textile countries 2025 - global leaders textile industry. August. Available at: <https://kohantextilejournal.com/top-textile-countries-global-leaders-textile-industry/>

29. European Commission (2024) Corporate Sustainability Due Diligence Directive (CSDDD) - Directive (EU) 2024/1760. Available at: <https://eur-lex.europa.eu/eli/dir/2024/1760/oj>

30. Fibre2Fashion (2025) Uzbekistan targets textile exports worth USD 3.3 bn in 2026. 26 December. Available at: <https://www.fibre2fashion.com/news/textile-news/uzbekistan-targets-textile-exports-worth-3-3-bn-in-2026-307384-newsdetails.htm>

31. Gereffi, G., Humphrey, J. and Sturgeon, T. (2005) The governance of global value chains. *Review of International Political Economy*, 12(1), pp. 78-104. DOI: 10.1080/09692290500049805
32. Barrientos, S., Gereffi, G. and Rossi, A. (2011) Economic and social upgrading in global production networks: a new paradigm for a changing world. *International Labour Review*, 150(3-4), pp. 319-340. DOI: 10.1111/j.1564-913X.2011.00119.x
33. Fernandez-Stark, K. and Gereffi, G. (2019) *Global value chain analysis: a primer*. 2nd edn. Durham, NC: Duke CGGC. Available at: <https://hdl.handle.net/10161/18122>
34. PwC (2025) Uzbekistan, Republic of - corporate tax credits and incentives. Available at: <https://taxsummaries.pwc.com/republic-of-uzbekistan/corporate/tax-credits-and-incentives>
35. Textile Focus (2025) Vietnam vs. Bangladesh: the battle for the second spot in global RMG exports. 17 February. Available at: <https://textilefocus.com/vietnam-vs-bangladesh-the-battle-for-the-second-spot-in-global-rmg-exports/>
36. Textile Expo Uzbekistan (2025) In 2024, textile production in Uzbekistan increased, but exports decreased by 6.7% (citing State Statistics Agency of the Republic of Uzbekistan). Available at: <https://textileexpo.uz/en/news/in-2024-textile-production-in-uzbekistan-increased-but-exports-decreased-by-67>
37. State Committee of the Republic of Uzbekistan on Statistics (2023) Uzbekistan exported textiles worth more than USD 2 billion (January-August 2023 structure: yarn 40.0%, finished textiles 41.8%). Available via Textile Expo Uzbekistan archive: <https://textileexpo.uz/en/news/uzbekistan-exported-textiles-worth-more-than-2-billion>
38. State Committee of the Republic of Uzbekistan on Statistics (2025) Press release on foreign trade turnover of the Republic of Uzbekistan, January-July 2025 (textile exports structure: yarn 31.0%, finished textiles 49.0%). Published 21 August 2025. Available at: https://stat.uz/img/news/press-reliz-vedeng_p45215.pdf