VIET NAM

NATIONAL EXPORT ROADMAP

TECHNICAL TEXTILES

SECTOR

Acknowledgements and disclaimer

This document was developed under the aegis of Viet Nam's Ministry of Industry and Trade (MoIT) following the leadership of the Planning & Finance Department and the Foreign Trade Agency with the technical assistance of the International Trade Centre (ITC). The purpose of the document is to orient Viet Nam's future trade development. The findings in the document are based on extensive research and the result of several national and sector stakeholder consultations. The document summarizes the trade and competitiveness performance of Viet Nam and contains a detailed plan of action to guide its further development and future upgrading. This document was shared and taken into the Vietnam National Import-Export Strategy period to 2030, its National and Ministerial Action Plans. The document was developed following the process, methodology and technical assistance of the International Trade Centre (ITC) within the framework of its Trade Development Strategy programme.

This National Trade Strategy was developed following the process, methodology and technical assistance of the International Trade Centre (ITC) within the framework of its Trade Development Strategy programme.

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Abbreviations and acronyms

AFTA	ASEAN Free Trade Area
AI	Artificial Intelligence
AKFTA	ASEAN-Korea Free Trade Agreement
AR/VR	Augmented Reality/ Virtual Reality
ASEAN	Association of Southeast Asian Nations
Bn.	Billion
CAGR	Compound Annual Growth Rate
CEPT	Common Effective Preferential Tariff
CMT	Cut, Make and Trim
CoE	Centre of Excellence
CPTTP	Comprehensive and Progressive Agreement for Trans Pacific Partnership
ESG	Environment, Social and Governance
EU	European Union
EVFTA	European Union-Viet Nam Free Trade Agreement
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GSO	General Statistics Office
HICT	Hanoi Industrial Textile Garment University
Agtek	Association of Garments, Textiles, Embroidery and Knitting
IIP	Index of Industrial Production
IOT	Internet of Things
LED	Light Emitting Diode
Mn.	Million
MOET	Ministry of Education and Training
MOIT	Ministry of Industry and Trade
NES	National Export Strategy
R&D	Research and Development
RoW	Rest of the World
SaaS	Software as a Service
SME	Small and Medium Enterprise
T&A	Textile and Apparel
TTIC	Technical Textiles Information Cell
USD	US Dollar
VND	Vietnamese Dong
VTRI	Viet Nam Textile Research Institute

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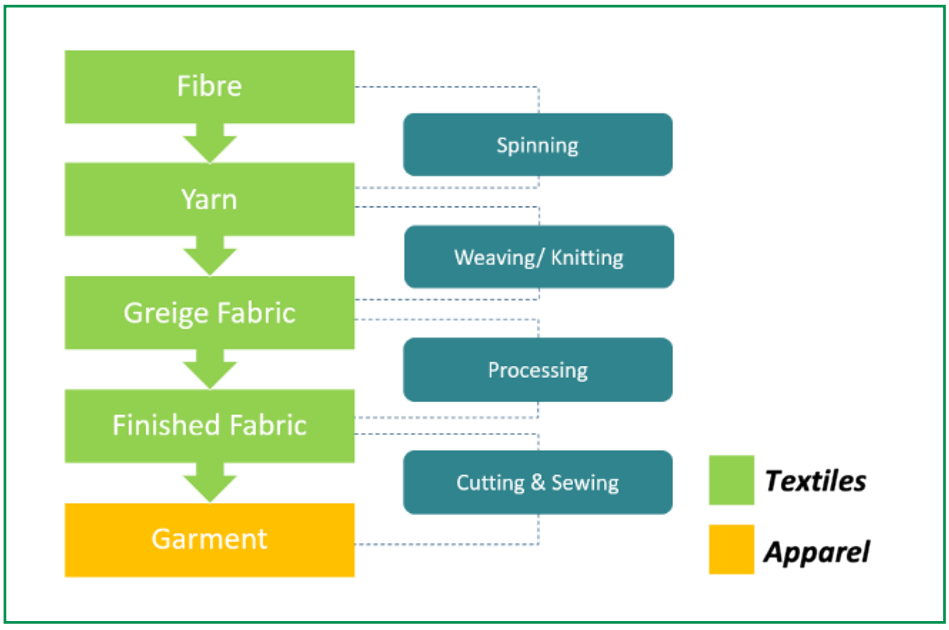
Definitions and Concepts

Textile and Apparel Industry

Textile and Apparel (T&A) industry has two major segments: (i) textiles: concerned with the design, production and distribution of fibre, yarn and fabrics, and (ii) apparel (or garments or clothing): concerned with the transformation of fabrics into clothing and other accessories.

Broad overview of the manufacturing process flow is shown below:

Figure 1: *Textile & Apparel Manufacturing Value Chain*



Source: *ITC*

Technical Textiles

Technical textiles (or high-tech textiles) are products, materials, and fibres that are used for their functional use rather than for aesthetic purposes. They have an added functionality beyond the basic aesthetics, leveraging advancements in science and technology across fields. These textiles enhance performance and value for its customers with a strong focus on its functional properties. Technical textiles have varied applications in industries including aerospace, packaging, hazard protection, shipping, sports, agriculture, defence, healthcare, construction, etc.

Based on their usage, technical textiles are divided into 12 major segments. The segments along with key products are listed in the table below:

Table 1: *Examples of Technical Textiles Segments*

Segment	Brief description	Example products
Agrotech	Agriculture, Horticulture, Fisheries, and Forestry Textiles	Anti-Bird/Insect nets, ground cover fabric, harvesting nets, shade nets
Buildtech	Architectural and Constructional Textiles	Awnings & Canopies fabrics, Scaffolding nets, wall covering, architectural membranes, tents, HDPE tarpaulins
Clothtech	Clothing Textiles	Cotton sewing threads, functional yarns, military fabrics, Shoe linings, Velcro, Zip Fasteners
Geotech	Geotextiles	Geogrids, geonets, geo composites, geofabrics, geomembranes, geocells
Hometech	Household Textiles	Fibrefill, mattress & pillow components, quilts, carpet backing cloth, stuffed toys, blinds, blackout curtains
Indutech	Industrial Textiles	Industrial tapes & hoses, conveyor belting fabrics, drive belts, nylon ropes, bolting cloth, paper making fabrics, etc.
Meditech	Medical and Hygiene Textiles	Diapers, Sanitary napkins, surgical products, artificial implants, masks, PPE kits, surgical gowns
Mobiltech	Transportation Textiles	Airbags, car body covers, helmets, sails, truck covers
Oekotech	Environment Protection Textile	Geomattresses, erosion mats and nets, landfill solutions: liners and fabrics
Packtech	Packaging Textiles	Gunny bags, military backpacks, Toiletry bags and satchels
Protech	Protection and Safety Textiles	Anti-static garments, camouflage nets, high altitude clothing, high visibility clothing, wind cheaters, rain coats
Sportech	Sports And Recreation Textiles	Artificial turfs, cricket nets, footballs, basketballs, hot air balloon fabrics, trekking boots, sport composites

Source: *Baseline Study, Technical Textiles Industry in India, 2020*

Executive Summary

The technical textiles sub-sector of the global textile and apparel industry is emerging to be a sector of varied application and increasing importance. There has been a global shift towards the adoption and production of technical textiles and the sector is growing faster than any other sub-sector. It is the highest value adding sector with the deployment of cutting-edge technology. The range that falls under the umbrella of technical textiles is vast. From a simple t-shirt that has high absorbency or rapid-dry feature to seismic powered suits that leverage technological advancements to help elderly people with strength and support, both fall under the purview of technical textiles.

This sub-sector is witnessing a global growth and is thus proving to be a potential sunrise sector in the industry. Leading exporting countries are looking for ways to invest in the production of the technical textiles, in order to maintain their positions in the global textile and apparel exports.

Viet Nam also holds a significant position in the global exports of the textile and apparel industry. The country's exports have grown at a CAGR of 7% since 2015 and currently it is the fifth largest T&A exporter. Viet Nam has solid infrastructural and manpower capabilities for basic CMT operations, and produces products with no to very little value addition.

Viet Nam's current contribution in the global technical textiles industry is negligible. Considering that this sub-sector has a huge scope of value addition, Viet Nam should focus on it for the next level of industry growth.

Consultations with various Vietnamese stakeholders across the textile value chain highlighted various constraints at the firm, business and national level which need to be addressed in order to make the production and exports of technical textiles seamless. At the firm level, there is limited understanding and exposure to technical textiles, which comes along with resistance to switch to this novel and unknown territory in Viet Nam. The players in Viet Nam are also not aware about the development of the technical textiles' market and the few textile players who have tried their luck in this sector have limited manufacturing capacities.

At the business level, Viet Nam faces non-availability of technical manpower, limited technology, innovation and R&D in the technical textiles domain, low investments as this sector is capital intensive in nature and limited product testing infrastructure. Lack of product standards and certification, lower access of SMEs to credit facilities and high interest rates on loans, limited bandwidth of SMEs for evaluating and tapping new technical textiles business opportunities, limited information about the sector as well as limited domestic demand are factors that create hindrance towards the technical textiles domain at the national level.

In order to expand its presence to the ever-growing technical textiles sector, Viet Nam needs to address these constraints. It is important for the country to invest in this sector. Large and small players alike should embrace the shift towards more functional clothing and try to set up manufacturing facilities in accordance to the same early-on so that they can be prepared for the boom of technical textiles that is currently taking place and is expected to increase in the coming years. This will help them become industry leaders in the technical textiles domain globally.

In order to set up its base for technical textiles' production, there are three strategic objectives that Viet Nam needs to work towards:

1. INCREASE AWARENESS ABOUT GLOBAL OPPORTUNITIES IN THE TECHNICAL TEXTILES SECTOR

To make the shift towards the technical textiles industry, the most crucial gap is the lack of exposure and understanding about this sub-sector in the Vietnamese T&A industry. Key players and SMEs are both have limited knowledge about the industry, its exports, its spearheaded growth, etc. Thus the first towards venturing into the technical textiles domain is to increase the awareness about this sub sector in Viet Nam. It is essential to spread information about technical textiles to all the stakeholders of the T&A industry. This will help them understand the shift towards these in the global industry, the growing markets, what products they can venture into, etc.

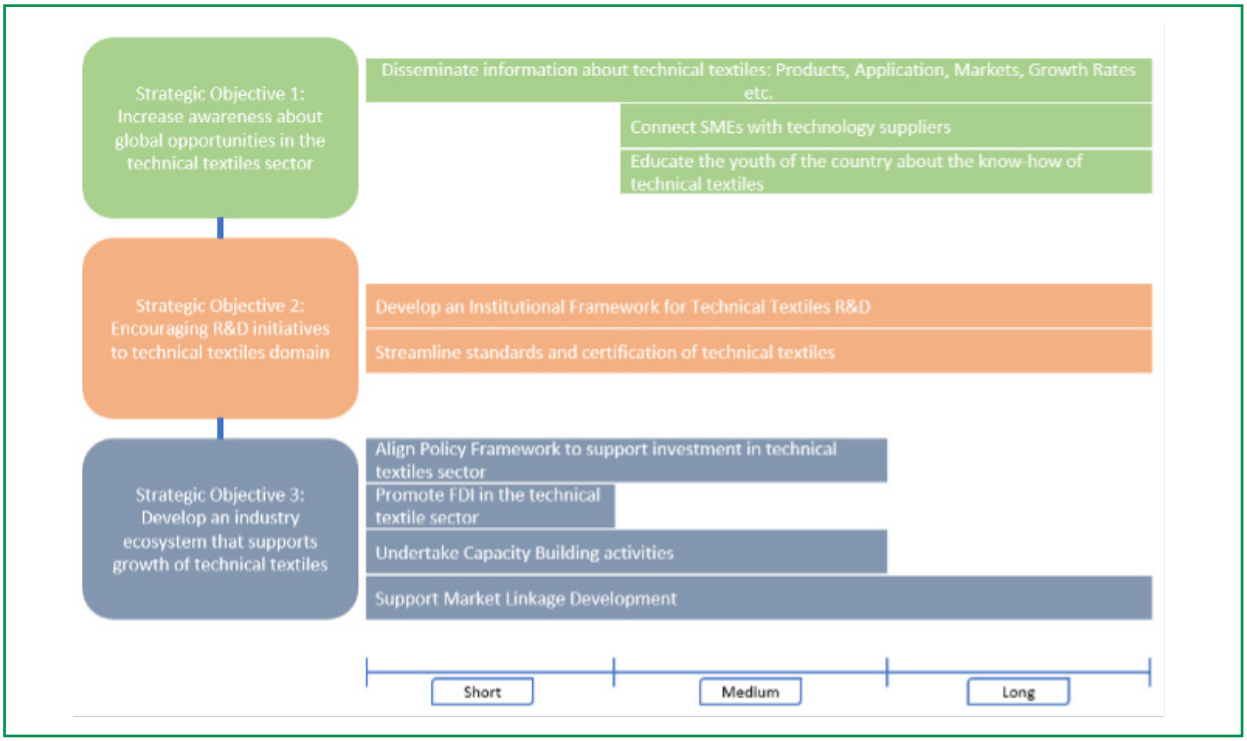
2. ENCOURAGE R&D INITIATIVES IN TECHNICAL TEXTILES DOMAIN

Continuous research and development in every sector is essential for it to thrive. Especially in the case of technical textiles, where technological developments that the industry can leverage take place at a rapid pace. Research and development will assist Viet Nam in improving its manufacturing skills in the novel field of technical textiles, eventually leading to the development of new products in the domain a few years down the road.

3. DEVELOP AN INDUSTRY ECOSYSTEM THAT SUPPORTS GROWTH OF TECHNICAL TEXTILES

Disseminating information and encouraging R&D activities for the technical textiles sector are important for the development of the sector. However, it is critical that it goes hand in hand with the creation of an industry ecosystem that supports the growth of technical textiles in Viet Nam. This will not only encourage the expansion of technical textile production, but will also assist new players in entering this domain and launching their operations smoothly. This will further lead to enhanced capabilities of the sector in Viet Nam and help the country emerge as a leading player in the technical textiles domain.

Figure 2: *Strategic Framework of Technical Textiles Strategy – Viet Nam*



Source: *ITC Analysis*

The strategic objectives are divided into operational objectives and further into activities which helps breakdown a major goal into actionable points, which are easier to adopt and move towards the ultimate goal of venturing into technical textiles and establishing state-of-the-art facilities and capabilities to emerge as a global leader in this domain. These activities, which span across short, medium and long term, serve as a concrete plan of action to overcome the struggles and hindrances faced by the Vietnamese T&A industry.

Strategic Objective 1: Increase awareness about opportunities in the technical textiles sector globally	
Operational Objective	Activities
1.1 Disseminate information about technical textiles: Products, Application, Markets, Growth Rates etc.	1.1.1 Development of a Technical Textiles Information Cell (TTIC)
	1.1.2 Conduct webinars and seminars
	1.1.3 Interaction with global players via study tours & exhibition visits
1.2 Connecting SMEs with technology suppliers	1.2.1 Conducting B2B meetings between SMEs and leading global technical textiles machinery suppliers
1.3 Educating the youth of the country about the know-how of technical textiles	1.3.1 Introduction of a course on technical textiles in engineering colleges
	1.3.2 Support and promote faculty development in technical textiles domain
Strategic Objective 2: Encouraging R&D initiatives to boost technical textiles production in Viet Nam	
Operational Objective	Activities
2.1 Develop an Institutional Framework for Technical Textiles R&D	2.1.1 Partner with international institutes to establish a technical textiles Centre of Excellence(CoE)
	2.1.2 Incentives to set up research labs and institutions or augment the current infrastructure
2.2 Streamlining standards and certification of technical textiles	2.2.1 Establish globally accepted product standards and certifications
	2.2.2 Promote the adoption of developed standards
	2.2.3 Incentives to set up testing labs for technical textiles
Strategic Objective 3: Develop an industry ecosystem that supports growth of technical textiles in Viet Nam	
Operational Objective	Activities
3.1 Aligning Policy Framework to support investment in technical textiles sector	3.1.1 Provide capital subsidies for machinery upgradation required for the production of technical textiles
	3.1.2 Provide fiscal incentives such as tax breaks for production of identified technical textiles products such as Medical Textiles
	3.1.3 Subsidize interest rates on loans availed by companies' technical textiles projects
3.2 Promoting FDI in the technical textile sector	3.2.1 Identify key global players and sensitize them to invest in Viet Nam by showcasing the opportunities and a favourable policy framework

These activities will require the involvements of all stakeholder of the Vietnamese textile and apparel industry as well as an extensive support from MOIT and MOET. Support from associations like Agtek and research institutes like HICT and VTRI will also be required in the collection and dissemination of information relating to the technical textiles' domain. All in all, cumulative efforts from all stakeholders will help the country strive in the technical textiles domain and garner a huge share in the global technical textiles' exports.

Strategic Objective 3: Develop an industry ecosystem that supports growth of technical textiles in Viet Nam	
Operational Objective	Activities
3.3 Undertaking Capacity Building activities	3.3.1 Conduct training programmes for capacity building for Vietnamese companies/entrepreneurs in areas of supply chain management, customs procedures, sourcing strategy, etc.
	3.3.2 Promote collaboration between SMEs to form co-operatives which can collectively engage resources for some common activities, thus, increasing the management bandwidth
	3.3.3 Creating awareness of about technical textile products' standard and certifications and creating an online repository of global standards & certifications as well as requirements to obtain them
	3.3.4 Implementing staff and worker training programme for technical textile products
3.4 Supporting Market Linkage Development	3.4.1 Undertake a study to identify the exact scope in individual technical textile products in domestic and export markets
	3.4.2 Prioritize indigenously made technical textile products for domestic consumption, e.g. Army uniforms, textiles for infrastructure development, etc.
	3.4.3 Provision of training programmes to businesses on various aspects of export market development
	3.4.4 Creating a dedicated portal to cover information including major buyers, global trade data, competing countries information, global trade fairs, etc.
	3.4.5 Financial support to SMEs for participation in International trade shows, exhibitions, workshops, conferences etc. for network development and knowledge gaining
	3.4.6 Creation of sub-contracting opportunities through interactions between large exporters and SMEs

Global Textile & Apparel Sector

Apparel Market Size

Global apparel consumption in 2020 had seen a downfall of 22% from the 2019 value of US$ 1.6 trillion on account of the COVID-19 pandemic. However, the markets recovered 16% in 2021 reaching around US$ 1.5 trillion, led by strong growth in US, Chinese and Indian markets. The three largest apparel markets are EU-27, the US and China with a share of 18%, 14%, and 13%, respectively (2021).

The global apparel market is expected to grow by a CAGR of 8% and reach about US$ 2 trillion by 2025. China is expected to emerge as the biggest apparel market by 2025, growing at a CAGR of 16% to reach US$ 340 billion.

Table 2: *Global Apparel Consumption (US$ Bn.)*

Region	2019	2020	2021	CAGR 2019-21	CAGR 2021-25 (P)	2025 (P)
EU-27	264	219	211	-11%	7%	280
United States	235	176	257	5%	1%	265
China	184	166	188	1%	16%	340
Japan	101	81	78	-12%	8%	105
India	78	55	72	-4%	17%	135
Brazil	48	34	39	-10%	11%	60
Canada	25	20	22	-6%	14%	37
RoW	690	517	600	-7%	7%	780
World	1,625	1,269	1,467	-5%	8%	2,002

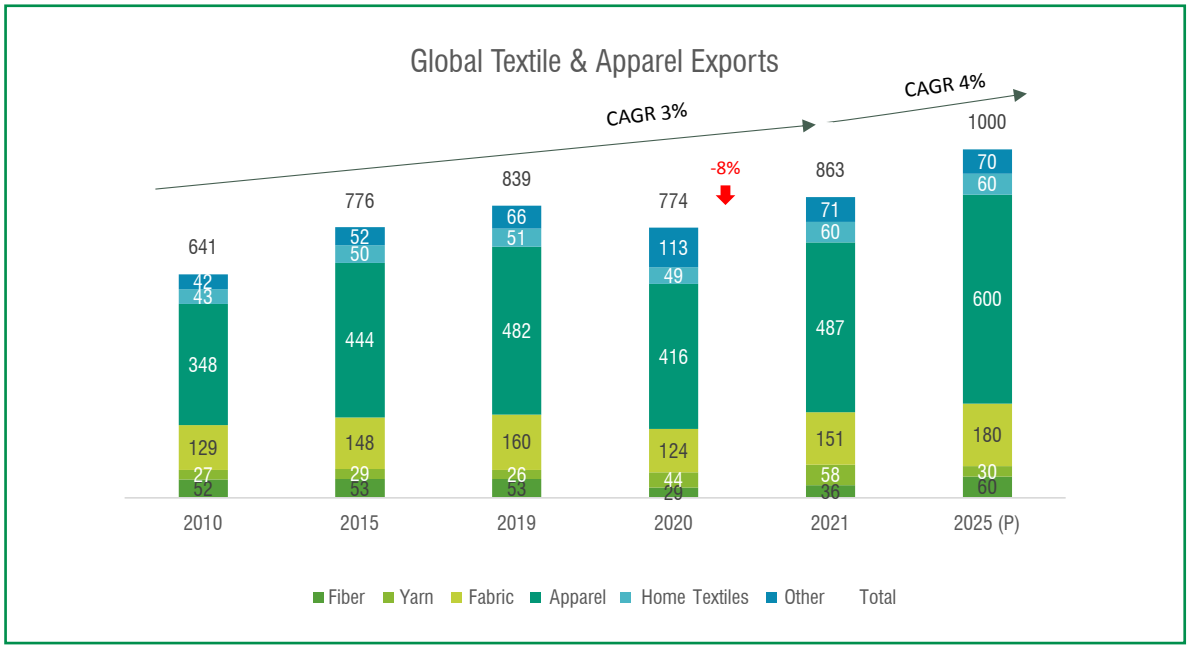
Source: *ITC*

Trade Scenario

The global textile & apparel exports stood at US$ 863 billion in the year 2021, growing at a CAGR of 3% since 2010. Affected by the pandemic, year 2020 saw a decline of 8% from the 2019 exports, however, the industry recovered from this impact in 2021. The textile & apparel exports are set to see a further growth in the coming years, reaching US$ 1 trillion by 2025. Apparel is the largest traded category with a share of 56% (2021), followed by fabrics, forming a share of around 18%. In the year 2025, the share of apparel is expected to increase to 60%.

Technical Textiles (covering functional yarn, fabric and garment products) exports account for US$ 218 billion in 2019 (26% share in value terms).

Figure 3: *Global Textile & Apparel Exports (US$ Bn.)*



Source: *ITC Analysis using UN Comtrade data*

Leading Exporting Nations

Over the years, China has proved its dominance as the leading exporter of the textile & apparel products. In 2021, China's textile & apparel exports were US$ 318 billion – a share of approximately 37% of the global trade. China is followed by Bangladesh, India and Germany as the leading exporters, however, their share is much lower, approx. 5% each. The top 3 exporters, i.e. China, Bangladesh and India cater to around 50% of the total textile & apparel requirements of the world. Textile exports from Bangladesh are meagre whereas it is the second largest apparel exporter. India is the second largest textile exporter with almost 7% share of the global exports.

Table 3: *Leading Textile & Apparel Exporters of 2021 (US$ Bn.)*

Rank	Country	Apparel	Textile	Total	Share (%)
1	China	165	153	318	37%
2	Bangladesh	40	2	43	5%
3	India	15	26	41	5%
4	Germany	25	15	40	5%
5	Viet Nam	29	9	38	4%
6	Italy	25	12	37	4%
7	Turkey	18	16	34	4%
8	USA	5	20	26	3%
9	Spain	15	5	21	2%
10	Netherlands	14	6	20	2%
	RoW	135	110	245	28%
	Grand Total	487	376	863	

Source: *UN Comtrade*

Technical Textiles Sector

Introduction

The technical textile products derive their demand from development and industrialization in a country. Given the large scale at which emerging nations are industrialising, the market for technical textiles can only be expected to grow in tandem with industrial growth in different parts of the world. The world's leading countries viz. China, USA and Germany account for nearly 60% of the annual output of technical textiles. Out of these leading countries, China dominates the global technical textile exports with one-fourth of the total requirement. China's robust business ecosystem coupled with strong technologically advanced infrastructural facilities and a larger skilled workforce make it the leading exporter. Vibrant and accelerated R&D ecosystems as well as government investments in China further propels the growth of the technical textiles sector in the country.

Global Market Demand

The global technical textiles market is estimated to be worth US$ 218 billion in 2019, and is expected to exceed US$ 279 billion by 2024, growing at a CAGR of around 5%. This can be attributed to the ground-breaking technological advancements like Artificial Intelligence, Nanotechnology, miniaturization and easier assimilation techniques of wireless and electronic segments, conductive yarns that can be woven into fabrics, etc. The large share and growth of technical textiles can also be accounted to their ability of effectively dealing with life-threatening circumstances, such as accidents or battlefield or to maintaining high levels of comfort even during extreme environmental changes.

Table 4: *Global Market Size of Technical Textiles Segments (US$ Mn.)*

Segment	2019	2024 (P)	2019 Share	2024 Share (P)	CAGR 2019-25 (P)
Agrotech	9,847	11,749	5%	4%	4%
Buildtech	13,923	19,472	6%	7%	7%
Clothtech	11,656	13,980	5%	5%	4%
Geotech	7,445	9,753	3%	4%	6%
Hometech	19,654	24,687	9%	9%	5%
Indutech	29,157	37,204	13%	13%	5%
Meditech	25,214	34,736	12%	12%	7%
Mobiltech	36,345	44,779	17%	16%	4%
Oekotech	1,363	2,635	1%	1%	14%
Packtech	27,597	33,744	13%	12%	4%
Protech	11,187	14,862	5%	5%	6%
Sportech	24,416	31,237	11%	11%	5%
Total	217,805	278,837			5%

Source: *Baseline Study, Technical Textiles Industry in India, 2020*

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The above forecast indicates that Geotech, Protech, Sportech and Oekotech are the highest growing segments (CAGR > 5%) while Mobiltech, Indutech, Meditech, Packtech and Sportech will constitute a major share of the market value of technical textiles.

With the amalgamation of technology and textiles/apparels, the horizon of what comes under high-tech textiles has widened with time. Starting from the very basic functional wear to technology heavy special purpose textiles/apparel, all come under the umbrella of high-tech textiles. Due to changes in the consumption trends and shift towards a more fit and active lifestyle, busier daily schedules, focus on hygiene, need for improved functionalities etc, the consumption of technical textiles is increasing manifold.

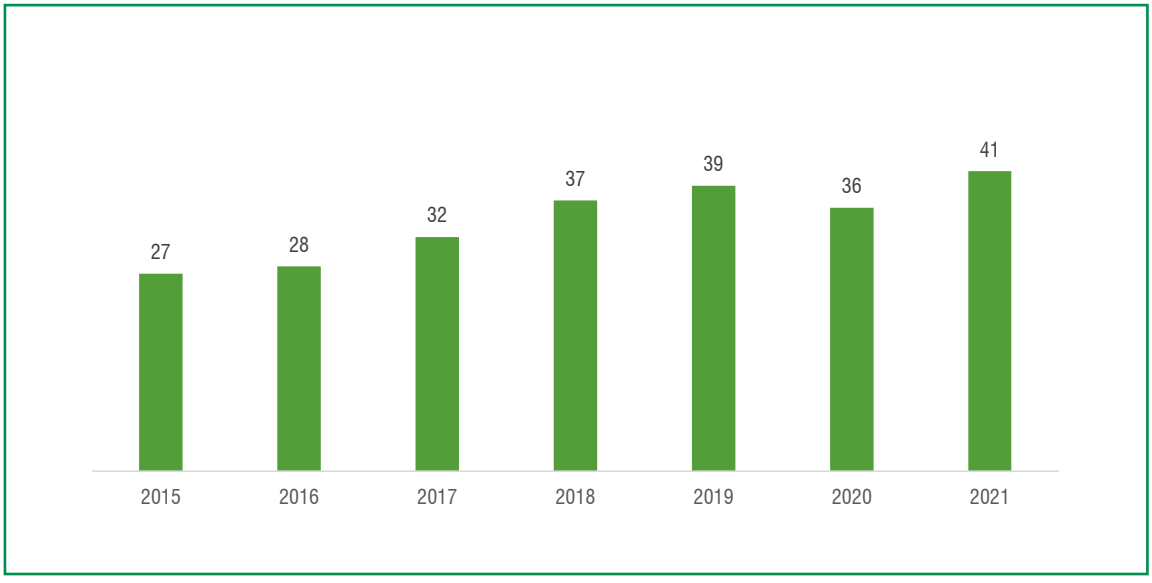
Vietnamese Textile & Apparel Sector

Introduction

The textile and apparel industry of Viet Nam is one of its most important industries for the country, contributing to its economy. Viet Nam is a net exporting country, with the year 2021 seeing US$ 41 billion of textile and apparel exports from Viet Nam. This has contributed to about 4-5% of the country's economy over the years.

Viet Nam's textile & apparel exports have increased at a CAGR of 7% from 2015 to 2021. The exports saw a minor dip in 2020 on account of the Covid-19 pandemic, however, Viet Nam was able to recover from this dip within a year.

Figure 4: *Textile & Apparel Exports of Viet Nam (US$ Bn.)*



Source: *ITC Analysis using UN Comtrade data*

The textile & manufacturing industry in Viet Nam is the third largest exporter of the economy, after telephones and electronics. Total textile and garment export turnover in 2020 for the country reached US$ 36 billion, accounting for 12.6% of Viet Nam's total export turnover. However, this growth seems to have slowed down in comparison with the overall export growth rate of the country. In the period of 2010-2015, the average export growth of textile and garment reached 16.3%, compared with 17.5% of the whole economy, but in the period of 2016-2020, the export growth rate of textile and garment industry was only 6% per year, in comparison with 12.5% of the economy.

Table 5: *Viet Nam's Textile & Garment trade scenario (US$ Bn.)*

	2015	2016	2017	2018	2019	2020	2021
Export value	26.8	28.3	31.4	36.4	39	35.6	41.1
Fibres of all kinds	2.5	2.9	3.5	4	4.1	3.7	5.6
Textile, sewing products	22.8	23.8	26.1	30.4	32.8	29.8	32.7
Textile & footwear materials	1.4	1.5	1.7	1.9	2	1.6	1.9
Other technical fabrics						0.4	0.7
Import value	18.3	18.9	20.9	23.9	24.1	21.5	26.3
Cotton	1.6	1.6	2.3	3	2.5	2.2	3.2
Fiber	1.5	1.6	1.8	2.4	2.4	1.9	2.5
Fabric	10.2	10.5	11.4	12.7	13.2	11.8	14.3
Textile & footwear materials	5	5	5.3	5.7	5.8	5.3	6.2
GDP (current price)	193.3	205.2	223.7	245.1	261.8	343.2	362.6
NX/GDP (%)	4.36	4.58	4.69	5.11	5.69	4.12	4.07

Source: *Viet Nam General Department of Customs*

The Index of Industrial Production (IIP) of textile and apparel has been equivalent to the average level of the manufacturing industry over the years, however it has tended to decrease in recent years. Before the pandemic, in 2019, the IIP of textile was 110.4%, garment was 107.6%, compared to the average of 110.4% of the whole manufacturing industry.

The reduction in the attractiveness of the Vietnamese textile and apparel industry is advocated by the slowdown in the FDI inflows in the industry. The number of projects have been fluctuating, however, the total value of investments irrespective of the number of projects has reduced. From 2010-2015, the FDI growth rate in the textile & apparel and supporting sectors, was 78% per year, however, from 2016-2019, this greatly reduced to a small share of 17.8% per year. This trend is again witnessing a shift as countries are trying diversify from China. Many foreign textile and dyeing industries are setting up their shop in Viet Nam which is a can prove to be the backbone of the growth of the textile and apparel industry in the coming years.

Table 6: *FDI in supporting segments of Textile & Apparel industry (US$ Mn.)*

	2010	2015	2016	2017	2018	2019
Machine for the sector	0	0	3	29	22	2
Dyeing chemicals	6	5	18	24	118	16
Manufacturing other materials	31	469	410	255	663	712
Dyeing	11	25	181	100	30	5
Weaving	0	107	118	26	98	109
Yarn manufacturing	84	1784	70	590	423	465
Total FDI in supporting segments of textile & garment	132	2390	800	1024	1353	1309

Source: *GSO*

With the world embracing technical textiles at a fast pace, it is important for Viet Nam to keep up with this change in order to retain its leading position in the global textile and apparel exports. Even though Viet Nam holds a significant position in global T&A exports, its contribution to the global technical textiles industry is negligible. Viet Nam caters to basic CMT operations with limited value addition and technical textiles segment showcases the huge scope of value addition. For the next level of industry growth, the potential of technical textiles is expansive and Viet Nam should focus on honing its capabilities for the production of the same. There are several products that Viet Nam is already producing which, with some functionality can become technical textiles.

Key Challenges

Vietnamese textile & apparel industry is grappling with various issues. As per the stakeholder interviews conducted and secondary research, following are the most critical ones:

1. Reduced Capital Investment: The capital scale of textile & garment enterprises in Viet Nam has reduced significantly from 2015-2019. The capital investment for the textile enterprises in the year 2019 went down by 37% as compared to that of 2015. For the enterprises related to garment manufacturing, the capital investments went down by 20%.

Table 7: *Capital Investment in the Textile & Garment Industry (VND)*

	2015	2019	Reduction
Textile Enterprises	85.4	54.3	37%
Garment Enterprises	31.2	24.9	20%

2. High Interest Rates: The interest rates on loans in Viet Nam have de-stabilized post the pandemic. The difference between lending and borrowing rates of Viet Nam is around 4-5%. The current rate of interest for loans in the country is 10-11% per annum with a preferential interest rate period of 1 year when the interest on the borrowed amount is 8%. Considering the dynamics of the world economy, the interest rates are on an upward trajectory, due to which the local Vietnamese interest rates are also bound to increase, putting an added pressure on the SMEs of the country.

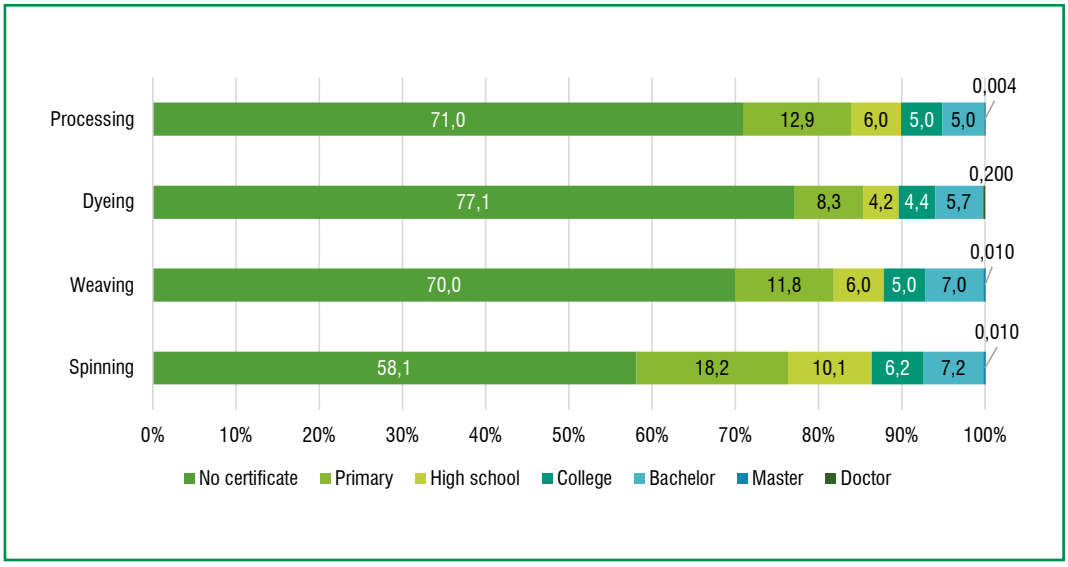
   According to VES 2021 survey, average interest expense in garment enterprises[1] is about 236 million VND/year, but if counting on the number of companies that have liabilities (24%), the average interest expense is 998 million VND/year. In textile sector, this cost is at more than 760 million VND/enterprises, and 4,4 billion/enterprise if counting on the number of companies that have liabilities (17%).

3. Labour shortage: T&A is a labour-intensive industry. Labour in garment enterprises has increased from 1.58 million to 1.91 million in the period 2015-2019, accounting for approximately 20% of industrial labour and 12% of the total workforce of the country.

   With rapid development of the industry, labour force is no longer as abundant as it was 10 years ago. There is a labour shortage in the T&A industry of Viet Nam.

It is also worth noting that majorly the workforce employed in the textile & apparel industry are uneducated. The share of uneducated employees goes to as high as 58% in spinning department, 70% in weaving and processing and 77% in the dyeing department. The qualification of employees in various department of the textile & apparel industry are shown in the chart below.

Figure 5: *Qualification of Workforce in the Textile and Apparel Industry in 2018*



Source: *GSO, in Report on the Impact of Industry 4.0 on the textile and garment industry, MOIT, 2019*

1.– Sector code 14, 5800 enterprises.

4. Low wages of T&A workers: The compensation offered to labour in the T&A sector is lower than the average compensation offered in Viet Nam as shown in the table below.

Table 8: Compensation of employees per month ('000 VND)

	2015	2016	2017	2018	2019
Manufacture of textiles	6365	6839	7369	8206	8618
Manufacture of wearing apparel	5585	6119	6638	7184	7437
Computer, electronic and optical products	7441	8900	9148	9627	10029
Electrical equipment	7489	7630	8802	9270	9765
Manufacturing industry	6346	7091	7725	8226	8569
Total of the economy	6966	7517	8269	8836	9325

Source: *GSO 2020 Yearbook*

5. Slow technology reception: 70% of textile and garment enterprises are SMEs[2]. Only 30% of enterprises, including FDIs, have applied automation in each production stage. The last 5 years have seen many businesses investing in newer technologies, such as new management software or automatic equipment, in order to increase productivity and reduce labour pressure. However, these investments have not spread to advanced technologies like Industry 4.0.

   R&D in textile and apparel industry has been gaining active interest with the establishment of R&D departments in many enterprises, but these activities are limited to improving production and business processes or renewing product designs. Though, there is an increased focus in the R&D part, the spending involves only small amounts. 90% of enterprises spends less than 3% of their profits on R&D[3].

   Consequence of low technology can lead to ineffective use of resources like electricity, water etc. To produce the same product value, Vietnamese enterprises need to consume energy that is 1.5-1.7 times more than businesses in Thailand, China and Malaysia. On an average, Viet Nam's textile and garment industry spends US$ 3 billion per year for production energy. Electricity cost accounts for about 8-10% of the total cost. Improved technology will help leverage advancements in order to increase productivity as well as help better utilize these resources.

6. Supply chain issues: Viet Nam exports up to 90% of garment products, but imports almost 100% of cotton and 40% of polyester fiber. Similar situation can be seen in the spinning and weaving departments. Viet Nam exports 80-90% of yarn production, but still ~60% of domestic demand is imported. As a result, fabric production only meets about 30% of the local market demand, and this results in the raw materials becoming a bottleneck in the operation, which is a persistent problem in the country.

   Viet Nam not only faces the problem of low position in the value chain and bottleneck in the raw materials, but also the lack of linkages in the chain, both vertical linkage (between firms at different levels of the value chain) and horizonal linkage (between firms at the same level). Vietnamese textile and garment enterprises often deal with international traders and know little about end-users or markets of final products. In the local market, textile and garment enterprises are quite separate, there is no specific evidence of actively cooperation between local firms to fulfill large orders.

2.– <200 employees, <100 billion VND capital or <300 billion VND in revenue

3.– Report on the Impact of Industry 4.0 on the textile and garment industry, MOIT, 2019

Figure 6: *Viet Nam's Production and Global Trade across the Value Chain*

	Cotton, Polyester	Fibers	Weaving, Dyeing	Processing	Distribution
Producing	Cotton: 0.5 th. tons	Cotton/staple: 1200 th tons Filament: 200 th tons	2.85 Bn. m	–	
Exporting	–	Cotton/staple: 1100 th tons Filament: 70 th tons	0.39 Bn. m	US$ 23.8 Bn.	
Importing	Cotton: 1034 th. tons Poly: 300 th. tons	Cotton/staple: 180 th tons Filament: 380 th tons	6.4 Bn m		
Local demand	–	Cotton/staple: 280 th tons Filament: 510 th tons			

Source: *Report on the Impact of Industry 4.0 on the textile and garment industry, MOIT, 2019*

The above discussed challenges that the Vietnamese textile & apparel industry faces if worked upon can turn the tables to become opportunities for growth in the coming years. Venturing into technical textiles is yet another option that can help Viet Nam retain its position as a global leader. The enterprises in Viet Nam need to capitalize on the potential of the technical textiles industry and the shifting trends of the international supply chain towards developing countries like Viet Nam. Another important aspect that can help boost the Vietnamese T&A industry are the Free Trade Agreements (FTAs) that will give open access to the international markets and make Vietnamese products cost competitive.

Government Policies

The government of Viet Nam is formulating policies for the industrial development of the nation. A few of them that benefit Vietnamese Textile and Apparel industry are highlighted below:

"Orientation for building national industrial development policy to 2030, vision to 2045" in Resolution No. 23-NQ/TW dated March 22, 2018 of the Politburo of the 12th Central Committee.

1. By 2030, Viet Nam aims to meet its industrialization and modernization target, basically becoming a modernity-oriented industrialized country among the top three ASEAN countries in industry, with some of its industries being globally competitive and deeply participating in the global value chain. Development in the textile, leather and footwear industry to continue with higher priority to the stages of creating high added value associated with intelligent and automated production processes. By 2045, Viet Nam aims to become a modern and industrialized country.

2. In order to implement the resolution, the government has chalked out an action plan which includes formulation of a strategy for developing the textile and leather – footwear industry by 2025, with a vision to 2035; developing a target program and policies and solutions to remove "bottlenecks" in raw materials and accessories, fabric production for the garment industry and other supporting solutions in order to take advantage of the FTAs that Viet Nam has signed.

Decree No. 111/2015/ND-CP in 2015 on the development of supporting industries

Textile and garment is one of the six fields on the list of supporting industry products prioritized for development in Viet Nam. Specifically, the Government will support up to 50% of funding for R&D activities, and 50-75% for technology application and transfer. In addition, garment and textile auxiliary enterprises to enjoy CIT incentives, exemption from import tax for fixed assets, incentives for loans, land rent exemption and reduction, etc.

The plan on restructuring the industry and trade sector to serve the cause of national industrialization, modernization and sustainable development through 2020, with a vision toward 2030 at Decision No 2146/QĐ – TTg dated 01/12/2014

To form textiles and garments clusters, create a linked production network of enterprises, develop the value chain of the industry along with forming unions of

stakeholders across the value chain, encourage investment in building textile and dyeing industrial parks, expand and explore production of technical and medical textile products, and strengthen the specialized textile and garment training system in the country.

Decision 3218/QD-BCT dated 11/04/2014 approved the Development planning of Viet Nam's textile and garment industry to 2020, vision to 2030 issued by the MOIT.

3. Product development orientation: Strengthening the export garment industry alongside satisfying the domestic demand. Developing cotton growing areas, polyester yarn factory and focusing on developing the textile dyeing stage in the country.

4. Region and territory orientation: To develop textile and garment clusters in 7 regions that are suitable and convenient in terms of labor supply, road & sea transportation.

Decree 60/2014/ND-CP

In order to obtain license for importing printers to be used in textile and garment manufacturing, the business owners must have a college degree or higher in the printing industry or to be approved by the Ministry of Information and Communications (MIC) in attending a training course of printing operation management. This is a stringent regulation as Viet Nam does not have a lot of qualified labour in the printing industry.

Official Letter 1966/BCT dated 27/2/2015

In order to increase the consumption of polyester fibre in the domestic market, the import tax on polyester fibre traded under the HS Code 55032000 increased to 2%.

Key Stakeholders

The key stakeholders in Viet Nam's Textile and Apparel Industry involve yarn/fabric/garment manufacturers, associations, research institutes and government agencies. A few of these stakeholders are mentioned below.

Manufacturers:

1. Vinatex and its subsidiaries like Phong Phu, Thanh Cong, Viet Thang, Century Synthetic Fiber Corporation, Phu Bai Spinning, etc.
2. FDI companies like Scavi, Hanesbrands Viet Nam, Regina Miracle, Gain Lucky, Tinh Loi (Regent Garment), Crystal Marin etc.
3. Large local manufacturers like Agtex 28, VN Poly (Dinh Vu), Tuong Long, Bac Giang etc.
4. Thousands of local SMEs.

Associations:

1. Viet Nam Textiles and Apparel Association (VITAS)
2. Viet Nam Cotton and Spinning Association (VCOSA)
3. Association of Garments, Textiles, Embroidery and Knitting (Agtek)

Institutes:

1. Hanoi Industrial Textile Garment University (HICT)
2. Viet Nam Textile Research Institute (VTRI)
3. HCMC University of Technology (HUTECH, VNU)

Govt agencies:

1. Ministry of Industry and Trade (MOIT)
2. Provincial Departments of Industry and Trade (DOITs)

Potential of Technical Textiles

The global textile industry has embraced the advancements in technology, and there is an inclination towards leveraging these advancements in order to enhance the functionality and durability of apparel and textiles. Technical textiles is a niche category catering to the specific requirements of the user, but its scope is huge. From a simple t-shirt that has high absorbency or rapid-dry feature to seismic powered suits, airbags in cars, geonets, etc. all fall under the umbrella of high-tech textiles. The applicability of high-tech textiles in everyday life is improving with time and thus, the industry is set to see a growth globally.

This potential growth presents itself as an opportunity for Viet Nam, which should be seized to become one of the leading manufacturers of technical textiles. For immediate future, the target high-tech textile for Viet Nam should be Meditech, Protech, Sportech and Agrotech.

Links, pexels-pixabay-276267.jpg

Meditech is the combination of textile technology and medical sciences spanning across products like diapers, sanitary napkins, wipes, surgical sutures, hernia mesh, artificial ligaments, etc. Protech are the textiles that used in protection against heat, flame and radiation for fire fighter clothing, against molten metals for welders, for bullet proof jackets, etc. These textiles have enhanced properties, having a high entry barrier including use of patented technology and very niche markets controlled by a handful of buyers and raw material suppliers and hence, is an attractive opportunity for Viet Nam. Sportech are the textiles than span across the entire spectrum of sports related products which could range from high performance apparels like swimwear, special finishes that make garments breathable, quick dry, odour-free, anti-microbial etc. to sports equipment like parachute fabrics, racquets, lifeboats, sleeping bags, artificial turfs, etc. Over the years, the scope of such functional clothing was limited based on the wearer's requirements. However, in the recent times masses have been seen to resort to functional clothing not just for playing sports or working out, but also in other casual scenarios where the need for specific functionalities is not there. Agrotech are the textiles used in the fields of agriculture, horticulture, fishing, forestry and other allied activities. The products that fall into this segment are fishnets, shade nets, crop covers, soil savers etc. Agrotech products help in production and protection of crops and other related produce from livestock and marine life, and thus are of national importance.

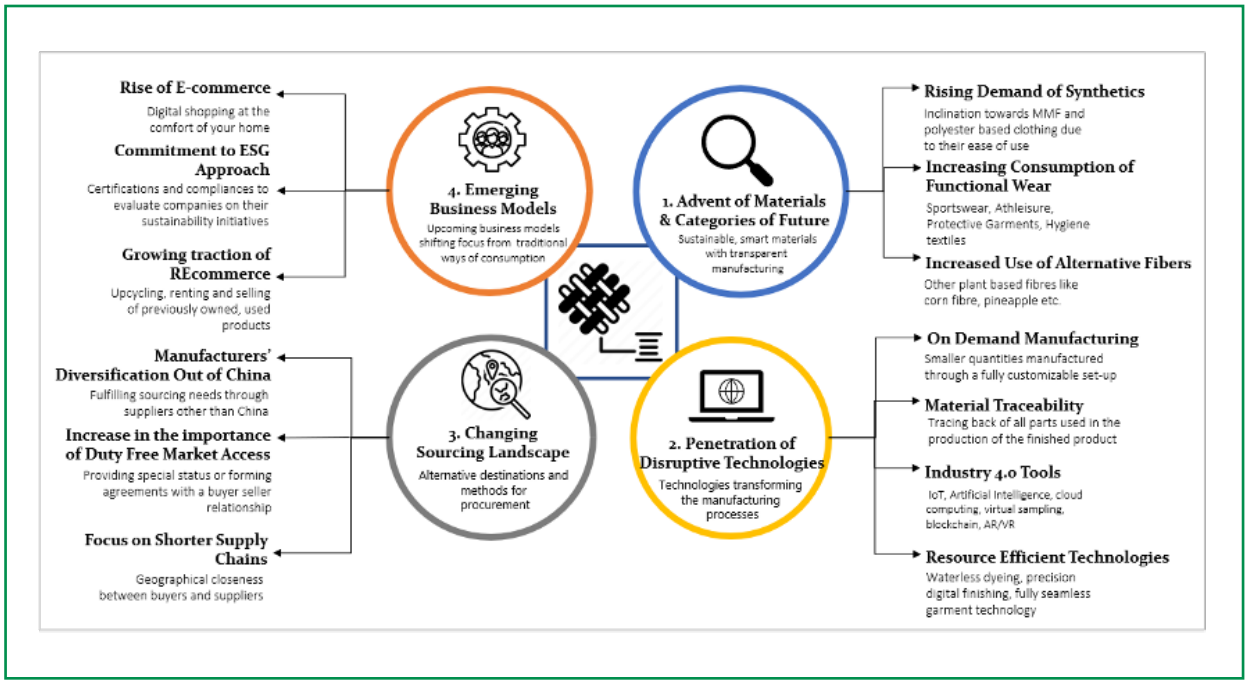
The status quo of the industry in Viet Nam based on reports, studies, and primary research show that initial steps of venturing into technical textiles have been taken, especially with the shift from garment manufacturing to mask manufacturing due to the Covid-19 pandemic. An increased trend of antibacterial fabric is also seen in the country, which forms the foundation of Meditech products. Many Vietnamese SMEs have the capacity to produce Protech and Sportech products and the manufacturing of functional textiles from natural materials like oysters, mint, coffee, etc are also gaining traction in the country and promoting sustainability in the Textile & Apparel sector.

Considering the huge range of products that the technical textiles encompass and their rising traction, Viet Nam should focus on basic textile and apparel which are enhanced using fundamental technology, instead of focusing on cutting edge technology products such as space suits, or seismic powered suits. Once it develops its expertise in the production of such products, the country can move on to produce more complex technical textiles.

Emerging Trends

With shifting consumption patterns, technological disruptions, focus on sustainability, and geopolitical changes, the global textile & apparel industry is undergoing a massive structural shift. There are several emerging trends which are leading to such a shift:

Figure 7: *Key Trends in the Global Textile and Apparel Industry*



Source: *ITC*

Advent of Materials and Categories of Future

Changing consumption patterns have diluted the dominance of cotton over the years. The shift towards a healthier and more active lifestyle is encouraging the industry to move towards synthetic fibres like polyester while consumer's focus on finding sustainable alternatives to their clothing has led to the need of 'eco-friendly' fashion. This trend has gain traction as the large amount of textile and apparel industry waste ending up in landfills, having a huge impact on the environment as well as the inhumane conditions the workers are subjected to in the fast-fashion industry came to light. Today's consumers are woke and understand the graveness of these factors. They are enthusiastic towards contributing to the change in whichever manner possible, and are hence switching from fast fashion to eco-friendly fashion, which not only attempts to minimize the impact on the environment but also focuses on the health and the working conditions of its workers.

1. RISING DEMAND OF SYNTHETICS

Synthetic fibres like polyester are dominating the fibre consumption space, making up around 57% of the global demand in 2022. This huge demand is due to the versatility of their applications as well as less resource intensiveness. Cotton's limitations like inability to meet the rapidly increasing fibre demand (land shortage), high water consumption (approximately 20,000 litres per kg) and high chemical consumption (5% of global pesticide and 10% of global insecticide while covering just 2.4% of global cultivated land[4]) as well as its inadequacy in product innovation have further increased the demand of synthetic fibres. While polyester itself is not exactly sustainable (non-biodegradable and release of micro plastics) but its production is less resource intensive and has possibility of innovative solutions[5].

Polyester has become the largest and fastest growing fibre category in the world, replacing cotton and its demand is expected to compound in the coming years, reaching approximately 80 million tonnes by the year 2030.

Figure 8: *Global Fibre Demand Over the Years (Mn. Tonnes)*

Source: *UN Comtrade*

2. INCREASING CONSUMPTION OF FUNCTIONAL WEAR

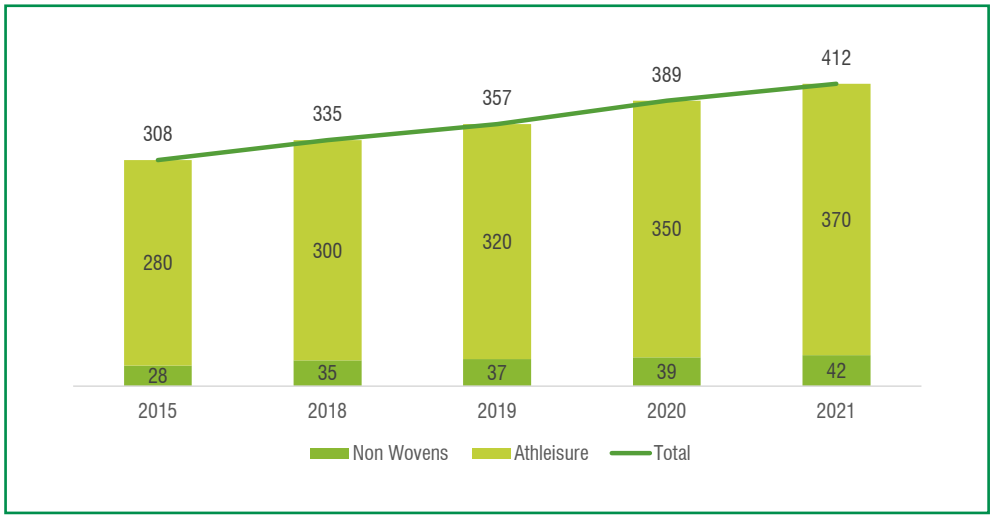
Functional wear are apparel or textiles incorporated with functionalities like absorbency, air permeability, durability, functional finishes, etc. based on the wearer's requirements. Initially, the main focus of such clothing was merely the functionalities that it catered to, however, over the years, the scope has expanded and the attributes of style and comfort have associated themselves with such clothing, demanding a perfect balance between style and comfort.

Consumption of functional wear has increased as the consumers have resorted to these not just for working out or playing sports, but also in other casual scenarios where the need for specific functionalities is not there. With more and more people adapting to an active lifestyle, the requirement of functional wear is set to increase further. The market is expected to increase by US$ 80 billion, growing from US$ 342 billion in 2019 to US$ 423 billion by 2024.

4.– Source: International Cotton Advisory Committee

5.– R&D towards making Polyester a sustainable fibre is continuously going on e.g., biodegradable polyester https://www.innovationintextiles.com/sustainable/new-biodegradable-polyester-fibre-for-apparel-solutions/

Figure 9: *Growth of Functional Wear Over the Years (US$ Bn.)*



Source: *Morgan Stanley, Precedence Market Research*

3. INCREASED USE OF ALTERNATIVE FIBRES

Consumers are looking for sustainable alternatives that are functional, fashionable and cost-effective, which has led to the introduction and increased use of alternative fibres. These fibres can be plant or microbe derived, re-cycled, blends of various fibres, or cultivated through animal cells or even fungi. The receptiveness towards adopting such fibres is high, especially in case of Gen Z and Millennial consumers. On the whole, approximately 50% of the global population[6] is moderately willing to purchase these fibres and it is estimated that they'll form 3% of market by 2026 amounting to approximately US$ 2 billion.

Some companies have already progressed in this area and are leading the next-gen material space:

Spiber	Produces spider silk proteins via precision fermentation to create next-gen silk
BOLT THREADS	Uses mycelium to produce leather & uses precision fermentation to produce spider silk proteins
SPINNOVA®	Uses bio mass pulp or paper pulp to produce next-gen wool.
MYCO WORKS	Grows mycelium to produce next-gen leather
VitroLabs Inc	Uses stem-cell technology and tissue engineering to cultivate real skins to produce next-gen leather/exotic skins.
MODERN MEADOW	Develops a technology application platform, including a protein and bio-polymer blend that is applicable to next-gen leather.

6.– *Source: Material Innovation Initiative*

Penetration of Disruptive Technologies

Disruptive technologies are transforming the textile and apparel manufacturing processes and paving the way for better utilization and transparency of resources. Digital devices, platforms, and technologies such as smart phones, social media, advanced data analytics, artificial intelligence, and e-commerce are re-shuffling the market dynamics and influencing the choices that the consumers of the industry make. Social media plays a huge role in influencing buying decisions and consumers are jumping on the bandwagon of sharing and reviewing experiences online. Artificial intelligence and data analytics help collect data from consumers, in turn providing them a seamless personalized experience. With customization taking the centre-stage, a consumer-centric business model incorporating disruptive technologies is the need of the hour.

1. ON-DEMAND MANUFACTURING

On-demand manufacturing, is the process of producing goods only when they are needed, and in the quantities that are required. The textile and apparel industry is combining on-demand manufacturing with digital and in-store to streamline and accelerate the manufacturing process. On-demand production is expected to reach US$ 112 million by 2024.

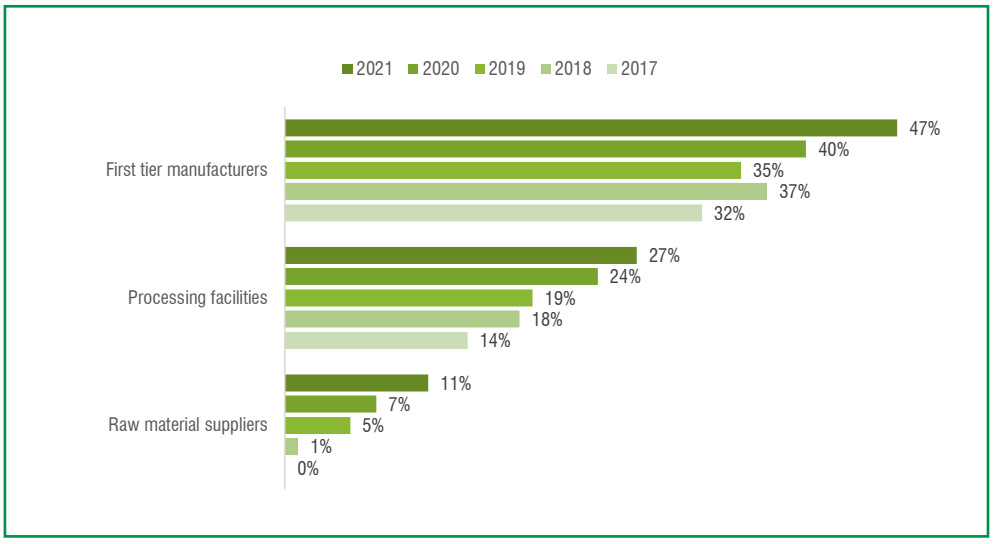
Few examples of brands moving towards on-demand manufacturing:

1. Amazon's on-demand manufacturing system for apparel: Comprising of a textile printer creating the required fabrics and a textile cutter, cutting out pattern pieces further to be assembled into finished garments.
2. Adidas's pop-up store: High-tech sensors and lasers scanning a customer's body, followed by knitting of a custom designed sweater ready within 4 hours.
3. H&M's Body Scan Jeans: 3-second body scan followed by customization of jean details like waist, fit, wash, stitch colour etc. by the customer at its Götgatan store in central Stockholm.

2. MATERIAL TRACEABILITY

A study published by Fashion Revolution recorded that brands have limited information about the suppliers in their product supply chain, pointing to the dearth of information available to the consumers especially about raw material suppliers and processing facilities.

Figure 10: *Percentage of Brands Publishing Suppliers Lists*



Source: *Fashion Transparency Index 2021, Fashion Revolution*

However, today's consumers are actively seeking product details and are concerned about issues including fair labour, sustainable resourcing, and the environment. Based on Mckinsey and Business of Fashion report 2019, 52% of the today's consumers do their due diligence about the materials involved in the production as well as the process of production, before buying any product, making material traceability an important mechanism which can act as the backbone of building consumer trust in a brand these days.

3. INDUSTRY 4.0 TOOLS

Industry 4.0 is leading to increased automation, predictive maintenance, self-optimization of process improvements and new levels of efficiencies and responsiveness to customers not previously possible. Textile and apparel manufacturers are thus trying to integrate such new technologies into their production facilities and operations. The various tools used under the umbrella of Industry 4.0 are as follows:

Blockchain Technology
Using this technology and supply chain modeling, tracing every phase of garment making, every process used to get a product from point of origin to final retail destination is possible.

Artificial Intelligence
AI can access and collect historical and real-time operational data, providing insights that can improve operational efficiency.

AR/VR (Augmented Reality/ Virtual Reality)
AR/ VR is mainly used to enhance the customer shopping experience with curated and individualized touches for each customer in the retail space.

Internet of Things (IoT)
IoT finds application in e-textiles, automated monitoring, predictive maintenance, increasing efficiency, product development

A few examples that highlight how Industry 4.0 tools are reshaping the T&A industry operations are as follows:

a. Cognex: An American manufacturer of machine vision system, sensors and software which can inspect the appearance of fabric. The system learns the weaving pattern, yarn properties, colours and tolerable imperfections from the images provided. After a training period of few weeks the software is able to detect defects like wrong fabric pattern, printing quality, certain weaving defects saving humans from the manual task of inspecting hundreds of yards of material manually.

b. Sewbots by Softwear Automation: Softwear Automation is an Atlanta based machine vision and robotic based start-up that uses fully automated sewbots that can sew footwear, t-shirts pillows, bath mats, automotive mats, etc. Their technology has the needle move around the fabric and not the other way around. Only one operator can produce the same number of t-shirts as 17 manual sewers.

c. Textile Genesis's solution: Successfully tracing renewable fibers from their source to the final product using blockchain technology.

d. TrusTrace's new tool: Allowing brands to trace products back to the material level, creating a centralized database of certifications and documents that prove companies' sustainability claims.

4. RESOURCE EFFICIENT TECHNOLOGIES

Efficient manufacturing, less waste and renewable inputs are paramount in the textile economy. Constantly decreasing the use of energy and materials, optimizing transport and reducing waste in production should be the primary goal of the textile and apparel industry, in focus for the sustenance of manufacturing units to compete in a global market. The attention of the stakeholders of the industry is shifting towards sustainability and circularity in order to redeem the defamed T&A industry in terms of pollution generation.

Sustainability goes well beyond sourcing organic materials, and extends to the entire value chain from raw materials to disposal. Resource efficient technologies play a major role in this journey towards sustainability. Few examples of resource efficient technologies:

- Substitution of old candescent or fluorescent lighting with energy saving LED lights
- Reverse Resources' Software as a Service (SaaS) platform: An effort to make fabric offcuts profitable by connecting brands, traders, suppliers and fabric recyclers into a central data platform, increasing the visibility of production leftovers.

- Danfoss India's energy efficient heat exchangers and advanced motion control systems: Avoiding yarn breaks, reducing downtime and increasing efficiency with a predicted energy saving of around 30% in the overall ecosystem
- Imogo's sustainable production processes (dyeing): The speed valve in combination with the high precision nozzle produces an even and consistent coverage along and across the fabric, dramatically reducing the wasteful use of water, chemistry and energy.

Changing Sourcing Landscape

Globalization has brought the world closer by creating strong supply chain networks all across the globe. However, recent years have seen tensions in this network grow stronger. China has been at the forefront of textile sourcing over the past couple of decades. However, its trade war with the US, rising labour costs, acute manpower crisis, and the pandemic, warrant that China is no longer the favoured sourcing location. Countries across the globe are changing their sourcing landscape by diversify their partners and strengthening their supply chains through nearshoring or reshoring.

1. MANUFACTURERS' DIVERSIFICATION OUT OF CHINA

China has been the most favoured sourcing location for decades, dominating the textile and apparel trade across the globe. However, recent years have seen a shift in this trend with an increasing number of countries looking to move their sourcing base out of the country. This can be attributed to US-China trade tensions, diminishing cost advantage due to increasing labour costs and growing geopolitical distrust between China and the West. Human rights related allegations in Xinjiang have also intensified pushback against China, especially by US and EU. In the last decade China has lost over 15% share in the US apparel imports which has mainly been taken up by Viet Nam and Bangladesh.

Table 9: *US Apparel Imports (US$ Bn.)*

Row Labels	2010	2015	2019	2020	2021	Loss/ Gain in last decade
China	40%	36%	30%	27%	25%	**-15%**
Viet Nam	8%	12%	16%	19%	17%	**9%**
Bangladesh	5%	6%	7%	7%	8%	**3%**
India	4%	4%	5%	4%	5%	1%
Indonesia	6%	6%	5%	5%	5%	-1%
Cambodia	3%	3%	3%	4%	4%	1%
Mexico	5%	4%	4%	3%	3%	-1%
Honduras	3%	3%	3%	3%	3%	-
Pakistan	2%	2%	2%	2%	3%	1%
Nicaragua	1%	2%	2%	2%	2%	1%
Row	21%	22%	23%	22%	23%	2%
Total Imports	75.6	89.1	87.5	71.2	87.3	

Source: *ITC Analysis using UN Comtrade data*

2. FOCUS ON SHORTER SUPPLY CHAINS

Businesses across the world are struggling to cope with the twisting and turning global supply chain dynamics, whose unreliability has been revealed by the pandemic. Apparel sourcing is facing a storm of challenges like demand volatility, logistics jams, rising costs, shipping disruptions, etc. and hence, they have been jolted to a new trajectory, prompted to boost agility, shorten lead times and pivot towards demand driven supply chains. Buyers are evaluating options like nearshoring and reshoring, trying to de-risk their supply chain, lower

operational costs and gain higher control. In the Gartner Future of Supply Chain Survey 2020, 30% of respondents said that they are shifting from a global supply chain model to one that is regionally based in order to increase supply chain efficiency. While the trend has not gained significant traction, it could impact Asian suppliers such as Viet Nam with international buyer looking for suppliers nearby e.g. US buyers preferring to source from Honduras, Mexico, Nicaragua etc and EU buyers targeting suppliers from Turkey, Eastern Europe, Northern Africa, etc.

3. INCREASE IN THE IMPORTANCE OF DUTY-FREE MARKET ACCESS

In the last two decades, the world has seen a shift from trade protectionism to the emergence of Free Trade Agreements between countries. These have helped countries catalyze their exports, dismantling tariff walls for easier access to the markets worldwide. The world is waking up to the advantages of FTAs and various countries are entering into mutually benefitting agreements in the textiles and apparel sector. This will help countries widen their market penetration all across the globe and expand business.

A few FTAs that have helped developing countries like Viet Nam to expand their business and increase their exports manifold are:

- AFTA, a multilateral Free Trade Agreement among ASEAN countries, is the first agreement Viet Nam joined. Since it took effect in 1993, Viet Nam has continuously joined several FTAs both bilateral and multilateral agreements. ASEAN was attracting a large investment capital when Viet Nam joined in the AFTA, therefore, it has created many possible opportunities to industrialize and modernize the country. The key mechanism for carrying out AFTA is Common Effective Preferential Tariff (CEPT).

- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTTP) is a new-generation free trade agreement, containing 11 countries. CPTPP member countries constitute a huge market containing 500 million people, holding approximately 15% of GDP, accounting for about 15% of total global trade. It also pushes Viet Nam's export goods to big countries on 3 continents: Asia, America and Oceania.

- The ASEAN – Korea Free Trade Agreement (AKFTA) into effect in 2016 which led to a significant growth in Viet Nam's textile and garment industry. It allowed zero tariffs on goods that satisfied certificate of origin norms.

- The European Union and Viet Nam Free Trade Agreement (EVFTA) allows Viet Nam to export its goods to the EU region eliminating 99% of all tariff lines for a period of 8 years since August of 2020.

Emerging Business Models

The fashion industry is stepping away from the 'make more, sell more' mindset, keeping in mind the changing consumer demands. New ways of doing business while integrating these demands are emerging and these promise to ride on the pillars of adapting to changing consumer trends and being environmentally mindful.

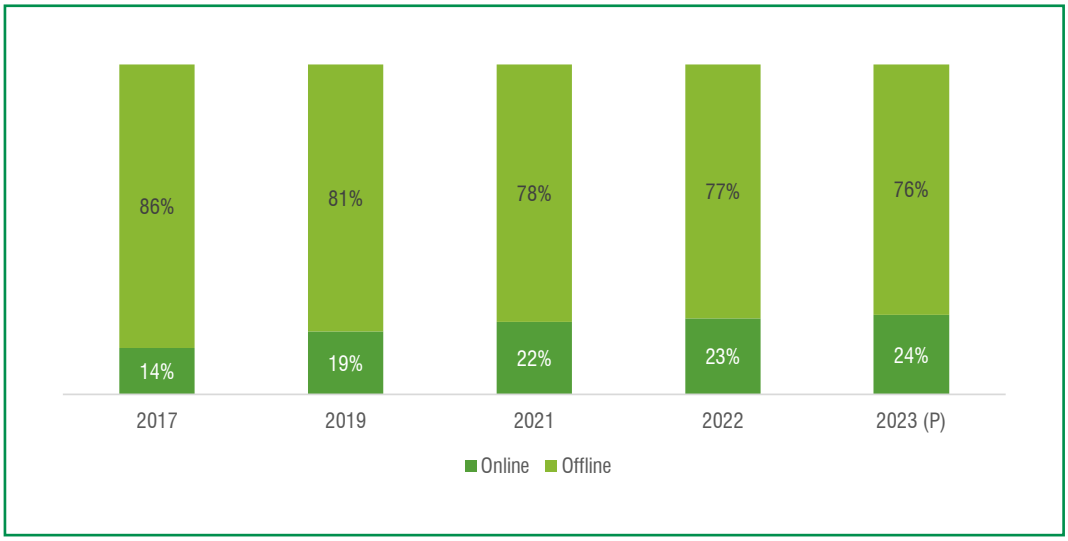
A few models that ascertain this changed approach are listed below:

1. RISE OF E-COMMERCE

The textile and apparel sector is witnessing a spurt in e-commerce due to the widespread internet penetration and changing buying patterns, giving consumers the benefit of browsing and purchasing products with just a few clicks. The players are able to reach out to consumers at all touch points and be ubiquitous in their virtual world. Based on consumer activity on e-commerce portals, data is collected and analysed in order to understand buying preferences and in turn offer them a personalized buying experience.

With a global market value of $759.5 billion in 2021, apparel, accessories, and footwear are the number one ecommerce sector in the world. It is expected to become a US$ 1 trillion market by 2025, growing at a CAGR of 7.2%.

Figure 11: *Channel Share of the Fashion Market*



Source: *Statista*

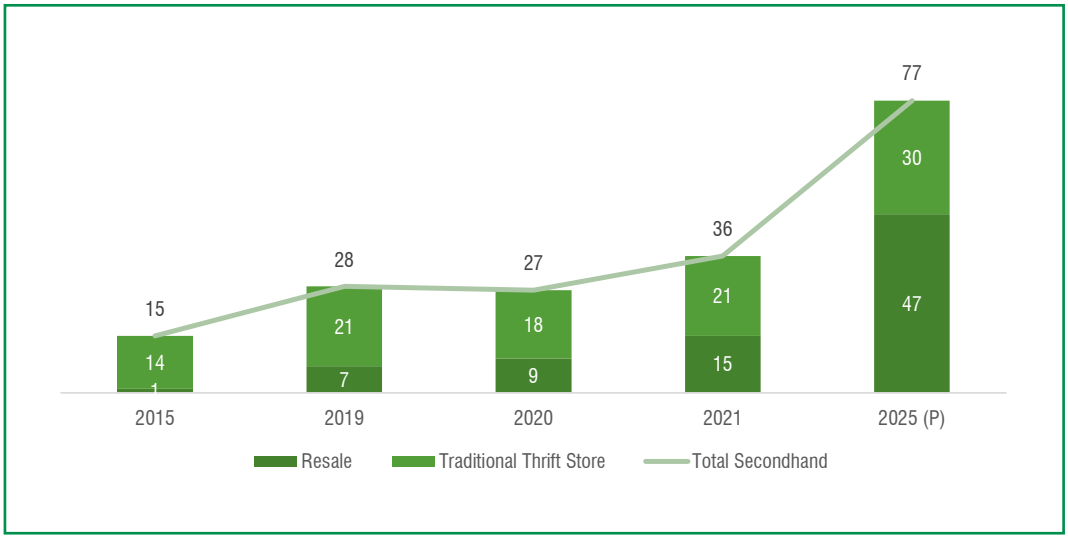
E-commerce is also witnessing an upsurge in the sustainability trend, which can range from business models to packaging products. The availability of environmentally friendly shipping options are also increasing. Climate-neutral shipping solutions are offered by DHL GoGreen, DPD Total Zero, or GLS ThinkGreen.

Packaging waste is also being reduced by the companies. For example, H&M has a shopping bag that turns into a clothes hanger. These bags not only consist of less material than the traditional plastic bag from H&M, but 80% of the paper used is also recycled.

2. GROWING TRACTION OF RECOMMERCE

ReCommerce, or reverse commerce, is the process of renting, reselling, or thrifting previously owned apparel through online or offline stores. Consumers' growing attention to sustainability issues is driving significant growth in the recommerce space, particularly online clothing resale. Gen Z and millennial customers are increasingly looking for brands that are transparent and focussed on sustainability, giving a push to the recommerce business model. Among the recommerce options available, resale is expected to grow 11x faster than traditional retail clothing sector by 2025.

Figure 12: *Growth of Recommerce Avenues Over the Years*



Source: *ThredUp.com*

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In order to cater to this need of the consumers, brands are also venturing into the recommerce space. Levi's launched Levi's Secondhand, a buy-back and resale program that lets customers purchase preowned Levi's apparel online and exchange items in-store for a gift card that can be used toward a future purchase. This helps the brand reclaim its own goods and authenticate them immediately, while strengthening its customer relationships at the same time.

3. COMMITMENT TO ESG APPROACH

Environmental, social and governance (ESG) commitments are becoming an important part of overall business strategies. Consumers and investors worldwide are keen on knowing what actions brands are taking to help stop and hopefully reverse the effect the textile and apparel industry has had on the environment. In response to this, companies across the fashion industry are stepping up their ESG initiatives which has made them place sustainability, social good and inclusion on the same pedestal as profitability and growth.

Sub-sector Diagnostics

Secondary research, field visits, virtual and physical consultations across enterprises, associations and educational/research institutes have highlighted the challenges that Viet Nam is struggling with in order to increase the production of technical textiles as well as augment their exports. To ensure that the strategy is efficient and precise, we are only considering the most critical challenges that need to be addressed. These challenges are detailed below based on ITC's SME Competitiveness Grid. The three pillars of the competitiveness grid are Compete, Connect and Change.

Compete

Compete assesses whether current production is efficient and meets market requirements. The competitiveness capacity of technical textiles sector in Viet Nam is undermined by several factors related to the sector's capabilities, institutional support and national environment. Compete includes factors like productivity, quantity, quality, cost, timelines, etc.

Compete
Firm Capabilities
Limited manufacturing capacity of SME technical textile players
Limited exposure of SMEs about technical textiles' export market development
Business Ecosystem
Capital intensive nature of several technical textile projects
National Environment
Lack of product standards & certifications
Lower credit access to SMEs
High interest rate on loans
Limited bandwidth of SMEs for evaluating and tapping new technical textiles business opportunities

Firm Capabilities

Limited manufacturing capacity of SME technical textile players: The SMEs in Viet Nam are more oriented towards manufacturing and exports of regular textile and apparel products. They cater to basic CMT operations with limited value addition. Viet Nam's contribution to the global technical textiles industry is negligible and the number of players involved in the production of high-tech textiles are also low. Out of this lot, the capacity of these SMEs manufacturing technical textiles is limited.

- Plan of action: Activities 3.1.1, 3.1.2, 3.1.3 and 3.4.6

Limited exposure of SMEs about technical textiles' export market development: The global textile and apparel industry is seeing a shift towards technical textiles and there is a huge potential for countries like Viet Nam to tap into this global market. However, the SMEs in the country do not have exposure to these changing market trends and lack knowledge about the potential of technical textiles globally. Viet Nam has the capability to expand its share of technical textiles exports in order to become a global leader in this segment and hence requires increased exposure about the exports market developments in this domain.

- Plan of action: Activities 1.1.2, 3.3.1, , 3.4.3, 3.4.4 and 3.4.5

Business Ecosystem

Capital intensive nature of several technical textile projects: Technological advancements form the backbone of the technical textiles industry. Leveraging these advancements can however, prove to be capital intensive in nature for several projects, especially ones that involve complex, cutting edge technologies. Production of some basic technical textile products may also require machinery upgradations, manpower training, etc. which can prove to be further capital intensive in nature.

- Plan of action: Activities 3.1.1, 3.1.2 and 3.1.3

National Environment

Lack of product standards and certifications: Standards and certifications are vital for Technical textiles as they are functional products. Viet Nam, with limited technical textiles capacities, will have to establish product standards and certifications to emerge as a global player. The standards and certification will assure that the quality of the produce is at par with the global levels of production.

- Plan of action: Activities 2.2.1 and 2.2.2

Lower credit access to SMEs: In order to set up production for technical textiles, SMEs need to upgrade their current machineries and train manpower to operate these and produce technology driven technical textiles. This requires capital which might or not might not be available to SMEs solely based on their current business. Hence, credit facilities are required by SMEs to venture into the technical textiles' domain.

- Plan of action: Activities 3.1.1, 3.1.2 and 3.1.3

High interest rate on loans: High interest rate on loans discourages SMEs and other key textile players to avail the facilities of bank loans to expand their production or venture into a new domain like the technical textiles.

- Plan of action: Activities 3.1.3

Limited bandwidth of SMEs for evaluating and tapping new technical textiles business opportunities: Viet Nam's exposure to the business of technical textiles is limited, especially for the SMEs trying to expand their horizons into this domain. This makes it very difficult for them to understand the market, and evaluate the current or potential opportunities. SMEs also do not have the bandwidth to assign a particular department focused on market research or hire a third party for the same.

- Plan of action: Activities 3.3.2, 3.3.3, 3.4.1, 3.4.4, 3.4.5 and 3.4.6

Connect

Connect is the connectivity dimension of competitiveness. To be competitive, enterprises must link to customers, businesses, institutions and be literate in information and communications technologies. It spans across supplier-manufacturer connect, cooperation among companies, ease of doing business, public-private collaborations, etc.

Connect
National Environment
Limited Information about opportunities in technical textiles segment
Limited domestic demand

National Environment

Limited information about opportunities in technical textiles segment: The novelty of the technical textiles' domain is not limited at the firm level. Viet Nam as a major exporting hub, has limited exposure towards the technical textile industry which comes with limited information about the market trends and the opportunities in the technical textiles segment globally.

- Plan of action: Activities 1.1.1, 1.1.2, 1.1.3, 1.2.1, 3.3.2,3.3.3, 3.4.1, 3.4.4 and 3.4.5

Limited domestic demand: The consumption of technical textiles in Viet Nam is limited as the exposure of the country towards this new domain is limited. Hence, the domestic demand for the same is not very high.

- Plan of action: Activities 3.4.2 and 3.4.6

Change

Change is the dynamic dimension of competitiveness. It assesses whether enterprises have the capacity to make human and financial investments and to adapt to fast-changing markets. Change includes financials, skills, innovations, etc.

Change
Firm Capabilities
Limited understanding and exposure to technical textiles
Lack of technical textiles' expertise and know-how
Resistance to switch to technical textiles segment
Business Ecosystem
Unavailability of technically qualified manpower
Non-existent technology, innovation and R&D culture in the country for technical textiles
Limited technical textiles R&D facilities in the country
Limited product testing infrastructure for technical textiles
Low investment in technical textiles sector

Firm Capabilities

Limited understanding and exposure to technical textiles: Even though the world is seeing a shift towards technical textiles and adapting the same at a very fast pace, the domain is very new for Viet Nam. Viet Nam currently has limited understanding and exposure towards this domain and is looking to expand its base in order to capture a larger share of the global technical textiles' market.

- Plan of action: Activities 1.1.1, 1.1.2, 1.1.3, 1.2.1, 3.3.1, 3.3.2,3.3.3, 3.4.1, 3.4.4 and 3.4.5

Lack of technical textiles' expertise and know-how: Firms in Viet Nam are focused on the basic textiles production and there is no to very little focus on the production of technical textiles in the country. The technical textiles' domain is very new for Viet Nam wherein they lack the expertise, experience and know-how of production unlike regular products with basic CMT operations and limited or no value addition.

- Plan of action: Activities 1.1.2, 1.2.1 and 3.3.2

Resistance to switch to technical textile segment: Viet Nam holds a significant position in the global textile and apparel industry, being the fifth largest global T&A exporter. Firms in Viet Nam produce basic textile and apparel products since many years now and are well versed with the industry. Technical textiles is an absolutely new domain for them to venture into, wherein their knowledge about the market size, growth rates, key players, etc. is very limited. Hence, there are apprehensions about the industry and resistance to switch to this segment.

- Plan of action: Activities 1.1.1, 1.1.2, 1.1.3 and 1.2.1

Business Ecosystem

Unavailability of technically qualified manpower: The manpower available in Viet Nam caters to the basic textile and apparel production. Due to the limited exposure of technical textiles in the country, the availability of technically qualified manpower is also limited.

- Plan of action: Activities 1.3.1, 1.3.2 and 3.3.4

Non-existent technology, innovation and R&D culture in the country for technical textiles: Viet Nam has a significant role in the trade dynamics of the global T&A industry. The country's exports have grown at a CAGR of 7% since 2015, making it pretty comfortable in its current production domain. There are limited efforts to diversify from their current offerings and the culture of technology, innovation and R&D is non-existent in the country for technical textiles.

- Plan of action: Activities 2.1.1 and 2.1.2

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Limited technical textiles R&D facilities in the country: Along with the non-existent technology, innovation and R&D culture in the country, there are no facilities with proper amenities to carry out research and development especially regarding the technical textile products.

- Plan of action: Activities 2.1.1 and 2.1.2

Limited product testing infrastructure for technical textiles: Technical textiles are products with special attributes which can be as simple as a quick dry t-shirt or as complex as a space suit. In both the cases, testing is a crucial element of the production process and hence, product testing infrastructure for technical textiles is required which is currently limited in Viet Nam.

- Plan of action: Activity 2.2.3

Low investment in technical textiles sector: Lack of knowledge of the technical textile domain and the potential opportunities it brings with itself for the Vietnamese T&A players to become leading global players, comes with a low interest in investing in the technical textiles sector in the country.

- Plan of action: Activities 3.1.1, 3.1.2, 3.1.3 and 3.2.1

The Way Forward

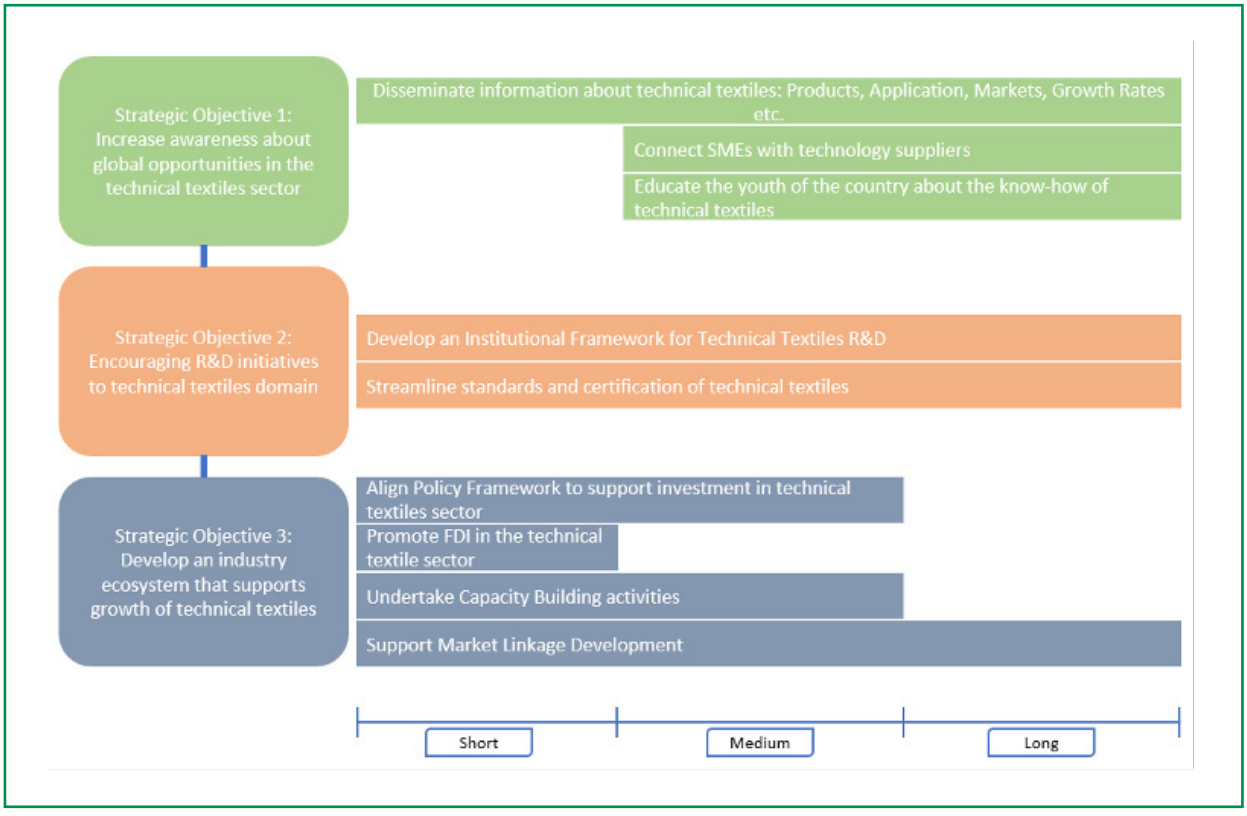
After the identification of the challenges faced by the Vietnamese technical textile industry, it is important to chalk out strategies to tackle these challenges. This section is based on the analysis of the competitiveness constraints based on consultation meetings across stakeholders, Viet Nam's national economic framework and its institutional landscape. The "way forward" lays down the key strategic framework of the NES comprising of strategic and operational objectives as well as the Plan of Action.

Strategic Objectives

To guide the implementation of the NES in the next five years, the strategy represented was agreed by stakeholders who participated in the consultation meeting for the design of this NES. It represents the ambitions of the country as well as a consensus among stakeholders over the role of production and exports of technical textiles in the Vietnamese economy in the coming future.

The sector strategy is structures around three strategic objectives. The implementation of the three strategic objectives will enable the government to secure some "quick-wins" – produce immediate and visible results with minimum resources. The three strategies are interlinked and mutually reinforcing so that progress in one component could feed into the others in the right policy environment.

Figure 13: *Strategic Framework of Technical Textiles Strategy – Viet Nam*



Source: *ITC Analysis*

STRATEGIC OBJECTIVE 1: INCREASE AWARENESS ABOUT OPPORTUNITIES IN THE TECHNICAL TEXTILES SECTOR GLOBALLY

The most crucial gap prevailing in the Vietnamese T&A industry is the limited exposure and understanding of the technical textiles sector – its growth, exports, etc. Hence, the foremost thing that needs to be done is to increase the awareness about this sector in the country. It is essential to spread information about technical textiles to all the stakeholders of the T&A industry. This will help them understand the shift towards these in the global industry, the growing markets, what products they can venture into, etc.

A number of initiatives are required at the operational level to address this challenge. These include:

1.1 Disseminate information about technical textiles: Products, Application, Markets, Growth Rates etc.: There is a requirement of a smooth information flow about technical textile industry, the products that fall under this category, their application across industries, market size and the potential growth rates of various sub-categories of technical textiles, etc. For the same, a Technical Textiles Information Cell (TTIC) should be developed which will serve as a one-stop solution for all the information required relating to technical textiles. Then, Associations like Agtek and research institutes like Hanoi Industrial Textile Garment University (HICT) and Viet Nam Textile Research Institute (VTRI) should conduct webinars and seminars so that the stakeholders are well versed with the nuances of this industry. In order to understand what is happening at the global level, interaction with the leading players is important. This should be done via study tours and exhibition visits.

1.2 Connecting SMEs with technology suppliers: It is also important that the SMEs in Viet Nam get the exposure of the technical textiles domain such that they want to venture into the same. They should be given the opportunity to interact with the leading global technical textiles machinery suppliers via B2B meetings. This can be supported by Ministry of Industry and Trade (MOIT), or organized by the Technical Textiles Information Cell.

1.3 Educating the youth of the country about the know-how of technical textiles: Education is a crucial factor that can help mould the knowledge base of the youth of the country. The focus of education related to the technical textiles-domain should not be just limited to the manpower indulged in the production, but also to students and faculties. A course on technical textiles should be introduced in the engineering colleges along with faculty development support and promotion in this domain. This can be carried out by the joint support of MOIT and the Ministry of Education and Training (MOET).

STRATEGIC OBJECTIVE 2: ENCOURAGE R&D INITIATIVES TO BOOST TECHNICAL TEXTILES PRODUCTION IN VIET NAM

For any industry to flourish, constant research and development in that industry is required. Especially in case of technical textiles, wherein advancements in technology that can be leveraged are taking place at an accelerated pace. Research and development will help Viet Nam better its production capabilities in the novel field of technical textiles and eventually come up with new products in the domain, few years down the lane.

2.1 Develop an Institutional Framework for Technical Textiles R&D: An institutional framework for R&D in the technical textiles sector can be developed with the establishment of a Technical Textiles Centre of Excellence (CoE) in partnership with international institutes which are currently working in this domain. This will help streamline and promote R&D as well as the production process. Setting up of research labs and institutions or augmenting the current infrastructure for the purpose of research and development should also be encouraged and incentivized.

2.2 Streamline standards and certification of technical textiles: It is important to streamline standards and certification of technical textiles. This can be done by establishing globally accepted product standards and certifications for Viet Nam followed by promoting the adoption of these developed standard. Incentives to set up testing labs for technical textiles should also be provided. This will aid in the production of quality technical textiles products which are at par with the global standards.

STRATEGIC OBJECTIVE 3: DEVELOP AN INDUSTRY ECOSYSTEM THAT SUPPORTS GROWTH OF TECHNICAL TEXTILES IN VIET NAM

When dissemination of information and encouraging R&D activities for the technical textiles sector are being carried out, it is crucial that an industry ecosystem be developed which supports the growth of technical textiles in Viet Nam. This will not only encourage expansion of technical textiles production but also help new players venture into this domain and begin their operations seamlessly.

3.1 Align Policy Framework to support investment in technical textiles sector: The very first step towards development of a favorable technical textiles ecosystem in Viet Nam should be to align the policy framework in order to support investment in the technical textiles sector. Subsidies for machinery upgradations that will be required to venture in the technical textiles domain or increasing production are required. Fiscal incentives such as tax breaks should also be provided for production of identified textile products like Medical Textiles which is of national importance and have domestic market potential as well as an export potential. Interest rate on loans for companies taking up technical textiles projects should also be subsidized so that more and more companies feel encouraged to invest in this industry.

3.2 Promote FDI in the technical textile sector: After the development of a favourable policy framework, key global players in the technical textiles domain should be identified. This should be followed by sensitizing them to invest in Viet Nam by showcasing the opportunities available in terms of manpower and infrastructure. A favorable policy framework will catalyze FDI in the sector.

3.3 Undertake Capacity Building activities: Once the investments start taking place, capacity building will become crucial for the Vietnamese technical textile industry. The capacity building activities will include, conducting of training programmes for Vietnamese companies and stakeholders regarding the overall ecosystem of the global industry. This should include supply chain management, custom procedures, sourcing strategies etc. Staff and worker training programmes for technical textiles production should also be implemented. Collaboration between SMEs to form co-operatives can help engage resources collectively for common activities and hence, should also be promoted. This will help with efficient utilization of resources as well as increase the management bandwidth. Under the capacity building activities, awareness about technical textile product standards and certifications should be created. An online repository of global standards and certifications as well as the requirements to obtain them should be maintained so that any stakeholder looking into venturing into this domain can easily access, view and understand them, and go in for certifications as and if required.

3.4 Support Market Linkage Development: Creating an efficient network in the technical textiles sector will require market linkage development. A study should be undertaken to identify the exact scope of different technical textile segments and products in the domestic and export markets so that the Vietnamese T&A industry moves towards the most attractive opportunities in the technical textiles domain. Domestic consumption of technical textiles should also be increased by prioritizing indigenously made technical textile products like Army uniforms, textiles for infrastructure development, etc.

Training programmes for businesses relating to export market development and capturing a larger share of the market should be conducted. An online portal should also be created for accessing all information relating to major buyers, global trade data, competing countries information, global trade fairs, etc. This will ease the flow of information and all the required information will be saved at one place which will later be easier to view, review and access. In order to scale up and popularize the Vietnamese technical textiles industry, it is also important that the technical textile players of the country foster their networks and gain knowledge through interactions with leading global players. For this it becomes vital to participate in international trade shows, exhibitions, workshops, conferences etc. and the same should be incentivized by extending financial support to SMEs for participation.

Sub-contracting opportunities through interaction between large exporters and SMEs should also be carried out for business expansion, especially for the SMEs venturing into this domain.

The global textile and apparel industry is shifting towards technical textiles and the applicability of these products is also ever increasing. Viet Nam being one of the largest exporters in the global T&A industry can leverage its production expertise and experience, and venture into basic technical textiles. There is a need to promote a positive mindset towards this domain and increase its attractiveness in Viet Nam. All of this starts with increasing the awareness about the technical textiles industry in the country, promoting R&D initiatives and building a sustainable and growth attracting ecosystem for the same. This will help Viet Nam tap the untapped technical textile market across the world and garner a larger share of the textile and apparel industry globally.

Photo: Links, pexels-pixabay-236748.jpg

Plan of Action

Strategic Objective 1: Increase awareness about opportunities in the technical textiles sector globally.			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
1.1 Disseminate information about technical textiles: Products, Application, Markets, Growth Rates etc.	1.1.1 To develop a Technical Textiles Information Cell (TTIC) as a one-stop solution for all information related to technical textiles.		Medium
	• Collection of information relating to the global technical textiles industry.	MOIT	Technical Textiles Information Centre fully operational.
	• Classification of information collected based on global leaders, potential markets, growth prospects, etc.		
	• Staffing of people for effective information flow.		
	• Promotion of TTIC.		
	This activity will help create a one-stop solution for all the information requirement about the technical textiles industry.		
	1.1.2 To conduct frequent webinars and seminars that crate awareness, interest and expertise around technical textiles.		Short
	• Inviting national and international subject matter experts, investors, technology suppliers, etc. to share their experiences.	Agtek, HICT, VTRI	At least five seminars are created.
	• Dissemination of information through PPTs, Videos, Audios about the technical textiles industry.		
	• Preparation of quarterly schedule for webinars and seminars and carry out promotional activities for the same.		
	This activity will help all the stakeholders of the industry become aware about technical textiles industry, its growth prospects and opportunities of investments.		
	1.1.3 To enhance the interaction of Vietnamese SMEs with global players via study tours & exhibition visits.		Medium
	• Identification of global players in the technical textiles' domain.	TTIC / MOIT	Five study tours organized. Fifty SMEs taken part in study tours.
	• Developing contact with these players.		
	• Keeping a tab on various exhibitions around the globe.		
	• Making information available to local players and encourage them to take part in study tours and exhibition visits.		
	This will help the stakeholders gain a global exposure and understand the nuances of the technical textile industry as well as gain from the experience of global players.		
1.2 Connecting SMEs with technology suppliers	1.2.1 To conducting B2B meetings between SMEs and leading global technical textiles machinery suppliers.		Medium
	• Identify leading global technical textiles machinery suppliers.	TTIC / MOIT	Ten B2B meetings organized. Five SMEs encouraged to try technical textiles production.
	• Identify SMEs that are interested to venture into technical textiles.		
	• Encourage other SMEs to consider technical textiles as a growth prospect.		
	• Connect Vietnamese SMEs and leading global technical textiles machinery suppliers for B2B meetings.		
	This activity will help the SMEs reach out to the technical textiles machinery suppliers at the global level and understand the machinery requirement of the technical textile industry and clarify doubts about the same if any. This can also increase the investment of SMEs in latest machinery.		

Strategic Objective 1: Increase awareness about opportunities in the technical textiles sector globally.			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
1.3 Educating the youth of the country about the know-how of technical textiles	1.3.1 To introduce a course on technical textiles in the main engineering colleges dealing with textiles related studies.		Medium
	• Develop course curriculum for a course on technical textiles in consultation with leading global engineering colleges and/or academicians.	MOET / MOIT	A course on technical textiles introduced in each textile engineering school.
	• Preparation of study material for the course.		
	• Recruit and train staff for the course.		
	• Take continuous feedback of industry to refine the course.		
	The technical manpower available in Viet Nam is limited. Introducing a course on technical textiles in the engineering colleges of Viet Nam will help train students who can propel the entire industry towards growth by taking on key positions in the technical textiles domain.		
	1.3.2 To support and promote faculty development in the technical textiles domain.		Medium
	• Develop training centres for faculty development in the technical textiles' domain.	MOET / MOIT	Ten faculty exchange programmes organized. A central repository of materials in the topic created. A central training centre created.
	• Create a repository of latest books, magazines, articles, etc. that can help introduce any latest advancements in the domain.		
	• Encourage faculties to take part in exhibitions, study tours, webinars and seminars.		
	• Introduce faculty exchange programmes in collaboration with international institutes.		
	Faculty development is key in educating the youth about the technical textiles industry and hence this activity will promote the growth of faculties and in turn students about technical textiles and encourage people to pursue the same.		

Strategic Objective 2: Encouraging R&D initiatives to boost technical textiles production in Viet Nam			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
2.1 Develop an Institutional Framework for Technical Textiles R&D	2.1.1 To partner with international institutes to establish a technical textiles Centre of Excellence(CoE).		Long
	• Make an exhaustive list of international institutes that deal with technical textiles.	MOIT	Ten international partnerships created. A central technical textiles Centre of Excellence created.
	• Reach out to the institutes for partnering in the establishment of technical textiles Centre of Excellence.		
	• Promote CoE so that SMEs and smaller players can easily reach out to it to seek support.		
	• Keep updating the list of institutes as well as the number of institutes partnering for CoE.		
	This activity will help create a platform which will encourage research and development in the technical textile domain in Viet Nam. Partnering with international institutes will help bring the global advancements to the country and encourage R&D activities.		
	2.1.2 To create incentives to set up research labs and institutions or augment the current infrastructure.		Long
	• Organize workshops for creating awareness about the importance of research labs in the technical textiles' domain.	MOIT	At least one research labs in the technical textiles' domain created and fully operational.
	• Create a platform wherein SMEs and large players can collaborate to set up research labs.		
	• Subsidize loans availed for setting up research labs and institutions or augmenting the current infrastructure.		
	• Launch schemes which promote the setting up of research labs.		
	• Provide other non-monetary incentives as required.		
	Research and development in the industry is extremely crucial to stay afloat. R&D is only possible with proper labs and research institutions which require investment. Hence, this activity will promote the setting up of research labs and institutes as well as augment the current infrastructure in order to stay updated.		
2.2 Streamlining standards and certification of technical textiles	2.2.1 To establish globally accepted product standards and certifications.		Long
	• Interact with global testing agencies to understand the current requirement in the technical textiles market.	CoE	At least one awareness programme created. Five national standards created.
	• Set up awareness programmes with the global testing agencies and Vietnamese technical textile players.		
	• Establish standards for Vietnamese technical textiles industry.		
	Streamlining of standard and certifications is yet another important aspect of entering into a new domain. This activity will help establish globally accepted product standards and certification for technical textiles production in Viet Nam so that the quality of products is at par with the global requirements and standards.		
	2.2.2 To promote the adoption of developed technical textiles standards among the SMEs.		Long
	• Organize standards and certification awareness workshops and coaching programmes.	MOIT	At least ten awareness workshops conducted. At least ten SMEs have adopted new technical textiles standards.
	• Encourage manufacturers to adopt the developed standards.		
	After establishment of global standards and certifications, they need to be promoted in order to make the stakeholders well aware about these and help them tweak their production in order to match the standards and get hold of the desired certifications.		
	2.2.3 To create incentives to set up testing labs for technical textiles.		Medium
	• Organize workshops for creating awareness about the importance of technical textiles testing labs.	MOIT	At least one testing lab for technical textiles created and fully operational.
	• Set up B2B meeting with Vietnamese players and global testing agencies.		
	• Launch schemes which promote the setting up of testing labs.		
	• Provide monetary and non-monetary incentives required for setting up testing labs.		
	Technical textiles are special textiles with enhanced functionalities. It is crucial that they are tested appropriately in order to make sure that their performance is as required, which could otherwise prove to be fatal in certain cases. Testing labs will also enhance the quality of production and therefore, incentives for setting up the same are required.		

Strategic Objective 3: Develop an industry ecosystem that supports growth of technical textiles in Viet Nam			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
3.1 Aligning Policy Framework to support investment in technical textiles sector	3.1.1 To provide capital subsidies for machinery upgradation required for the production of technical textiles.		Medium
	• Connect with leading global machinery suppliers.	MOIT	At least ten SMEs obtain cost reduction opportunities and upgrade their machinery.
	• Make an exhaustive list of new upgradations in the technical textiles' machinery.		
	• Develop schemes to provide capital subsidies for machinery upgradations for Vietnamese players especially SMEs.		
	Production of technical textiles cannot take place on the usual machinery used of textile or apparel production. Hence, making a shift towards technical textiles will require players to update their machinery. The cost of such upgradations are high and thus will require capital subsidies from the government.		
	3.1.2 To provide fiscal incentives such as tax breaks for production of identified technical textiles products such as Medical Textiles.		Medium
	• Design a financial support programme for a limited group of SMEs to develop medical textiles.	MOIT	At least one hundred SMEs benefit from the programme.
	The aim of this activity is to ensure that a group of SMEs pioneer the space of medical textiles.		
	3.1.3 To subsidize interest rates on loans availed by companies' technical textiles projects.		Medium
	• Design a tax incentive package to finance the scheme.	MOIT	The exchange rate offered to the SMEs in the sector is 30% lower than market ones.
	• Establish transparent and clear conditions under which the firms would qualify for the scheme. Possible criteria include SME size, nature of the projects, cost of the project, sustainability of the project, etc.		
	The aim of this activity is to expand the available sources of sustainable financing for SMEs involved in technical textiles.		
3.2 Promoting FDI in the technical textile sector	3.2.1 To identify key global players and sensitize them to invest in Viet Nam by showcasing the opportunities and a favourable policy framework.		Medium
	• Create a favourable policy framework which attracts FDI in Viet Nam especially in technical textiles.	MOIT	At least ten investors are identified. At least two investors make new investments.
	• Identify the leading global players in technical textiles domain.		
	• Connect with them to showcase the opportunities and favourable policy framework available in Viet Nam.		
	A favourable policy framework will help attract foreign investment in the country which will enhance the capabilities of technical textiles production by bringing in global expertise as well as technologically advanced machinery.		
3.3 Undertaking Capacity Building activities	3.3.1 To conduct training programmes for capacity building for Vietnamese companies/entrepreneurs in areas of supply chain management, customs procedures, sourcing strategy, etc.		Short
	• Organize a series of training programmes for SMEs in areas of supply chain management, customs procedures, sourcing strategy.	TTIC , MOIT, Agtek	A minimum of five training programmes for a hundred SMEs are delivered.
	The aim of this activity is to ensure that SME management possess the necessary knowledge and skills on supply chain management, and customs procedures.		
	3.3.2 To promote collaboration between SMEs to form co-operatives which can collectively engage resources for some common activities, thus, increasing the management bandwidth.		Medium
	• Establish a co-operative to collectively source resources.	MOIT, Agtek	A co-operative has been established and it is operational.
	The aim of this activity aims to reduce the operational costs for firms in the sector by enhancing collaboration.		

Strategic Objective 3: Develop an industry ecosystem that supports growth of technical textiles in Viet Nam			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
3.3 Undertaking Capacity Building activities	3.3.3 To create awareness of about technical textile products' standard and certifications and creating an online repository of global standards & certifications as well as requirements to obtain them.		Medium
	• Organize standards and certification awareness workshops and coaching programmes.	TTIC	An online repository is created and operational. At least ten workshops are organized.
	• Create online repository of global standards & certifications and requirements to take them.		
	This activity will be a one-stop solution for all the requirements of global standards and certifications of the technical textiles industry which will help augment the quality of technical textiles production in Viet Nam.		
	3.3.4 To implement staff and worker training programmes for technical textile products.		Medium
	• Map the current skill level of workforce in manufacturing units.	MOIT	At least ten training programmes are fully implemented.
	• Draw a comparative analysis between current and required skill level for technical textile production.		
	• Identify gaps and duplications in existing training programmes.		
	• Conduct training programmes to enhance the skill level of staff and workers.		
	There is a dearth of skilled manpower required for technical textiles production in Viet Nam. Hence, training of staff and workers engaged in the technical textile products becomes important. This activity will help conduct training programmes that will streamline the technical textiles production across the country by catering to the manpower requirement.		
3.4 Supporting Market Linkage Development	3.4.1 To undertake a study to identify the exact scope in individual technical textile products in domestic and export markets.		Short
	• Conduct a study on the global technical textiles industry: key markets, key buyers, competitors, etc.	MOIT	A study fully concluded and conclusions discussed and endorsed by the sector..
	• Conduct a study on individual technical textile products viz-a-viz Vietnamese technical textile market.		
	• Identify scope of each technical textile product and prioritize these products for future investments.		
	This activity will help determine the exact product and category that Viet Nam should venture into, considering factors like production capabilities, market size, growth potential, etc.		
	3.4.2 To prioritize indigenously made technical textile products for domestic consumption, e.g. army uniforms, textiles for infrastructure development, etc.		Medium
	• Establish a programme to identify all the procurement opportunities in the public and private sector for technical textile products.	MOIT	At least five local SMEs obtain domestic procurement contracts of technical textiles.
	3.4.3 To provide training programmes to businesses on various aspects of export market development.		Medium
	• Carry out regular research on the global technical textiles industry and the latest developments.	MOIT, Agtek	A minimum of ten workshops and training programmes are organized.
	• Organize workshops and training programmes for businesses relating to the developments in the technical textiles industry.		
	Since technical textiles is a novel sector that Viet Nam is looking forward to venture into, it is essential that businesses also be educated in various aspects of the export market like emerging trends, growth potential of different products, largest exporters and importers, latest business developments etc. This activity will help Vietnamese players to stay on top on recent developments in the industry and make changes in their process and infrastructure as required.		

Strategic Objective 3: Develop an industry ecosystem that supports growth of technical textiles in Viet Nam			
Operational Objective	Activities	Implementing Agency	Timeframe & Targets
3.4 Supporting Market Linkage Development	3.4.4 To create a dedicated portal to cover information including major buyers, global trade data, competing countries information, global trade fairs, etc.		Medium
	• Conduct out regular studies on the global technical textiles industry: key markets, key buyers, competitors, etc.	TTIC / MOIT	A central portal is created.
	• Keep track of latest developments in the technical textiles industry, globally and domestically.		
	• Create a dedicated portal for sharing of information found via studies conducted.		
	This activity will help create a repository of all the global market related information of technical textiles so that finding and retracing information is just one click away and is accessible to all the stakeholders across the country alike.		
	3.4.5 To provide financial support to SMEs for participation in International trade shows, exhibitions, workshops, conferences etc. for network development and knowledge gaining.		Long
	• Identification of upcoming international trade shows, exhibitions, workshops, conferences etc.	MOIT	At least fifty SMEs obtain financial support to participate in the events..
	• Encourage Vietnamese SMEs to participate in these events.		
	• Provide financial support for SMEs interested in taking part in such events.		
	Participation in International trade shows, exhibitions, workshops, conference, etc. will help Vietnamese SMEs develop global network and gain knowledge through interaction with global players and consumers at these events. Participation in such events can be cost intensive and hence, financial support for the same will encourage more and more SMEs to take part and broaden their technical textiles' horizon through first and interactions with global players across the technical textiles value chain.		
	3.4.6 To create of sub-contracting opportunities through interactions between large exporters and SMEs.		Long
	• Make an exhaust1ive list of SMEs in technical textiles production and their product mix.	MOIT, Agtek	At least ten SMEs obtain sub-contracting opportunities.
	• Conduct events for information exchange between SMEs and large exporters.		
	• Create an online portal where large exporters can list their sub-contracting requirements and SMEs can apply against the same.		
	This activity aims to create and promote the concept of subcontracting in the technical textiles domain which can prove to be mutually beneficial for the large players and SMEs by sharing business opportunities as well as expertise of production or catering to niche categories.		

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