

# SUPPLY CHAIN RESTRUCTURING POST COVID

Abhilasha Singh<sup>1</sup>, Vinoth R<sup>2</sup>, Navanendra Singh<sup>3</sup>, Omkar Singh<sup>\*4</sup>

<sup>1,2,3,4</sup> Assistant Professor, Department of Fashion Technology, National Institute of Fashion Technology, Patna, India

**Abstract** - The supply chain comprises the full spectrum of manufacturing activities, encompassing actions performed at every stage, information exchange, the transformation of raw materials into usable resources, the deployment of human resources, and other factors crucial to the creation of the final product or service. Within the apparel sector, the supply chain is a complex network of processes involving the movement of resources among various stakeholders, sites, departments, and segments. However, the emergence of the coronavirus pandemic in 2020 brought the entire supply chain process to a halt. The implementation of lockdown measures in response posed significant obstacles for manufacturers, retailers, and suppliers alike. Reinstating the supply chain to its pre-pandemic condition presents a daunting challenge. Various companies are implementing diverse strategies to adapt their supply chains in light of these challenges. Our research aims to explore the intricacies of the supply chain in the apparel industry, examining its core principles and operations. Subsequently, we will analyze the disruptions caused by the COVID-19 pandemic and the approaches adopted by companies to tackle these issues through supply chain restructuring. Additionally, we will conduct a case study on Zara, a prominent fast fashion brand, to illustrate the strategies employed in reshaping its supply chain amidst the pandemic-induced disruptions.

**Index Terms** - Covid, Supply Chain, Apparel Industry, Restructuring, Sustainability

## 1 INTRODUCTION

A supply chain forms an extensive network that connects a company with its suppliers, facilitating the production and distribution of a product or service. This network includes multiple entities like manufacturers, suppliers, warehouses, transportation providers, distribution centers, and retailers. Essential to this chain are a variety of services such as product development, marketing, operations, distribution, financing, and customer service. It encompasses the entire journey of creating and delivering a product or service, starting from the procurement of raw materials and ending with the delivery of the final product or service to end-users.

The supply chain encompasses every facet of the manufacturing process, detailing the activities conducted at each stage, the exchange of relevant information, the conversion of raw materials into usable materials, the employment of human resources, and other crucial elements that contribute to the development of the final product or service. In strategic planning, a pivotal aspect of external analysis is the mapping of the supply chain. This practice is essential as it assists a company in defining its market position and charting its future direction.

Every phase of the supply chain delineates a separate sector, such as raw material extraction and manufacturing, offering insights into the participation of different stakeholders and the attractiveness or competitiveness of industries the company might contemplate entering in the future. The initial stage of the supply chain entails the sourcing and extraction of raw materials, succeeded by the distribution of these materials by a logistics provider to a wholesaler functioning as a supplier. Subsequently, the materials are dispatched to one or more manufacturers for refinement and processing into the ultimate product. Following this, the finalized product is transferred to a distributor, who then wholesales it before delivering it to retailers. Subsequently, customers acquire the merchandise from the retailer. The cycle continues as demand prompts the production of more raw materials, perpetuating the supply chain process.

### 1.1 Supply chain in Apparel industry

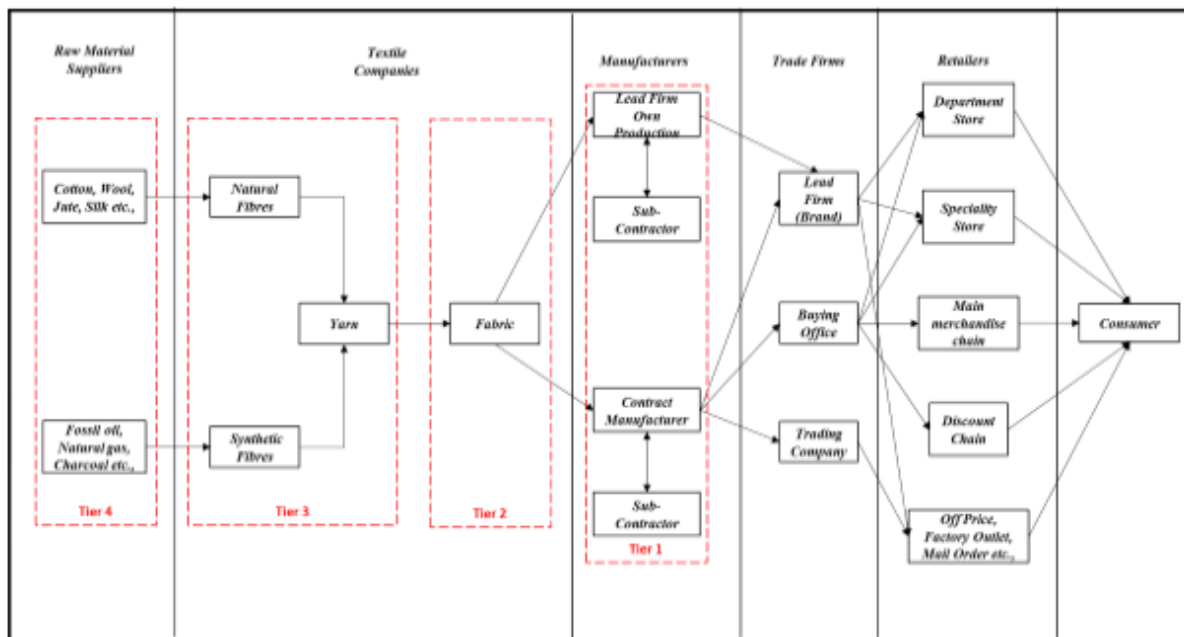
The apparel industry depends significantly on an effective supply chain to oversee the flow of both materials and information. This complex network entails the transfer of resources among stakeholders, locations, departments, and segments. From the viewpoint of an apparel company, the supply chain fundamentally revolves around acquiring raw materials, such as fabrics, at the lowest possible cost and manufacturing them within set schedules and budgetary limits to guarantee their timely availability for sale.

Every day, millions of garments are produced within this sector. Nevertheless, the industry faces notable hurdles, notably the rising expenses linked to garment production and the acquisition of both local and imported raw materials. Manufacturers serve both domestic and global markets, primarily emphasizing export-driven industrial-scale production. In the global export market, competition is intense, with countries such as China, Bangladesh, Vietnam, and India striving to provide competitive prices to garment buyers, thereby retaining significant export shares. This fierce competition highlights the necessity for apparel businesses to consistently enhance their supply chains to retain competitiveness in the global market.

There are different stages in apparel supply chain,

- Designing – This is the starting point where concepts and sales data merge to create new designs.
- Sourcing – The factory begins the process of acquiring raw materials.
- Production – Raw materials are converted into garments during this phase.
- Distribution – The finished goods are distributed to stores.
- Sales – Products are sold and purchased by end customers during this phase. <sup>1</sup>

Following this, there is a reverse cycle within the supply chain where the flow of information moves from the end customer back to the company. Both the material flow and information flow are illustrated below.



**Fig.1 Material and information flow in Supply chain**

The apparel manufacturing supply chain begins with the development of designs, which are then transformed into 2D patterns. These patterns are subsequently refined into 3D forms, with the manufacturer seeking approval from the buyer for large-scale production. Meanwhile, the essential raw materials for garment production are procured, marking the conclusion of the initial supply chain stages.

After the raw materials arrive, mass production begins, turning the materials into finished products. Following production, the finished garments undergo inspection, packaging, and preparation for shipment. The buyer or brand typically retrieves the finished goods from the manufacturer. For domestic market deliveries, the factory either sends the products to the brand's warehouse, or the buyer collects the ready-to-ship goods directly from the factory.

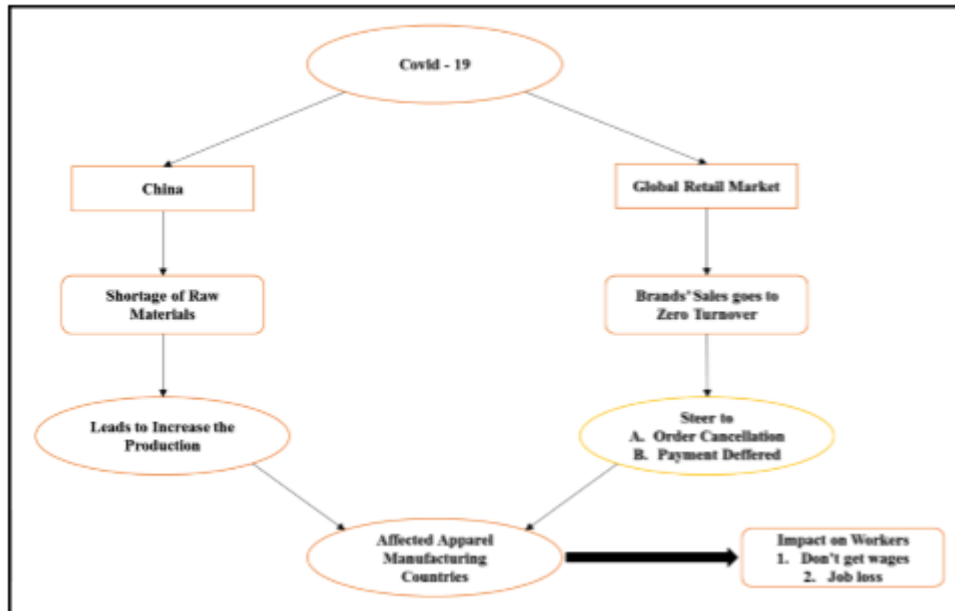
Following this, the goods are sent to designated distributors assigned to specific regions, eventually reaching retailers for sale, thus completing the material flow. Conversely, the flow of money moves in the opposite direction, with funds ultimately reaching suppliers. The exchange of information within this process is multifaceted, transmitted in both directions.

## 2 IMPACT OF COVID-19 ON APPAREL SUPPLY CHAIN

The emergence of the coronavirus pandemic led to a 3% decrease in global trade values in the first quarter of 2020. COVID-19 triggered the most significant economic downturn since World War II, affecting numerous sectors ranging from finance to hospitality. Industries with extensive global operations were particularly susceptible to the initial disruptions in the supply chain caused by COVID-19. Many developing nations serve as low-cost input providers within this structure. This article explores the challenges and hurdles encountered by some of these countries, especially those heavily reliant on textile and garment exports.

The outbreak of the COVID-19 pandemic resulted in a halt to production in China, swiftly followed by the closure of retail outlets worldwide. Retailers in Europe and the United States, which are the main destination markets for this sector, are persistently canceling orders, triggering anxiety in numerous sourcing countries. The Sustainable Textile of Asian Region (STAR) Network, representing producing associations from Bangladesh, Cambodia, China, Myanmar, Pakistan, and Vietnam, issued a joint statement on April 8, highlighting the escalating use of 'force majeure' clauses in contracts by shippers to suspend payments. During the pandemic, brands and retailers confront the challenge of weighing the impact of their purchasing decisions on workers and small businesses within the supply chain, underscoring the significance of honoring commitments to suppliers. The STAR Network urged global businesses to embrace a long-term strategy centered on corporate continuity, supply chain unity, and social sustainability, advocating for comprehensive support to business partners within the supply chain.<sup>1</sup>

The commencement of the lockdown in Wuhan in January 2020 disrupted the supply of raw garment materials from China. Moreover, the widespread spread of COVID-19 across nearly all countries and territories globally, especially in Europe and the Americas, exacerbated the situation. These continents are primary destinations for garment products. Lockdown measures enforced in various European regions in the second week of March 2020 led to a significant decrease in garment demand. COVID-19 has exposed various shortcomings, including major apparel brands canceling confirmed orders or delaying payments due to the pandemic. The global impact of COVID-19 has prompted a shift in consumer behavior, with a primary focus on purchasing necessities rather than non-essential items, affecting commodities worldwide.<sup>2</sup>



**Fig.2 Flow Chart Showing the Trickling-down Economic Impact in the Apparel Industry**

Source: [https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1009&context=tmd\\_major\\_papers](https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1009&context=tmd_major_papers)

### 3 RESTRUCTURING OF SUPPLY CHAIN

The economic upheaval triggered by the pandemic has exposed numerous weaknesses in supply systems and prompted inquiries into the sustainability of globalization. Managers globally should capitalize on this opportunity to reassess their supply networks, identify vulnerabilities, and implement measures to bolster resilience. Completely abandoning globalization is neither practical nor advisable; such a move would leave a gap that other companies, dedicated to maintaining global ties, would promptly exploit. Instead, leaders should seek ways to streamline their operations and gain a competitive advantage. Adopting a new vision that aligns with the realities of the current era is essential—one that harnesses global capabilities while enhancing resilience and mitigating the risks of future disruptions. With the pandemic receding, markets reopening, and consumers returning, companies are redirecting their attention towards domestic production across diverse sectors such as IT, automobile, and apparel. Nonetheless, the rising manufacturing costs alongside soaring unemployment rates underscore the importance of delivering products at competitive prices to satisfy consumer demand.

To attain these goals, manufacturers are increasingly relying on specialized suppliers and subcontractors who excel in specific areas but have multiple suppliers themselves. This decentralized structure provides flexibility and enables the integration of advanced technologies into manufacturing processes. Businesses must navigate the financial and operational hurdles brought about by the pandemic while remaining attuned to the needs of employees, customers, and suppliers.

Supply chain executives possess the opportunity to transform the considerable disruption and complexity into meaningful change by undertaking appropriate actions. A continuous cycle of risk assessment, sensing, analysis, configuration, and operation will optimize outcomes and effectively manage risks as they navigate the immediate aftermath of the pandemic and strategize for the future.

The ramifications of the COVID-19 pandemic extend well beyond immediate hurdles, shaping the future landscape of work and supply chain operations. Businesses must prioritize the cultivation of long-term resilience within their value chains to adeptly navigate forthcoming disruptions. This involves embracing holistic approaches to supply chain management, integrating ample flexibility to mitigate potential disruptions, and establishing robust frameworks that amalgamate responsive and resilient risk management practices.

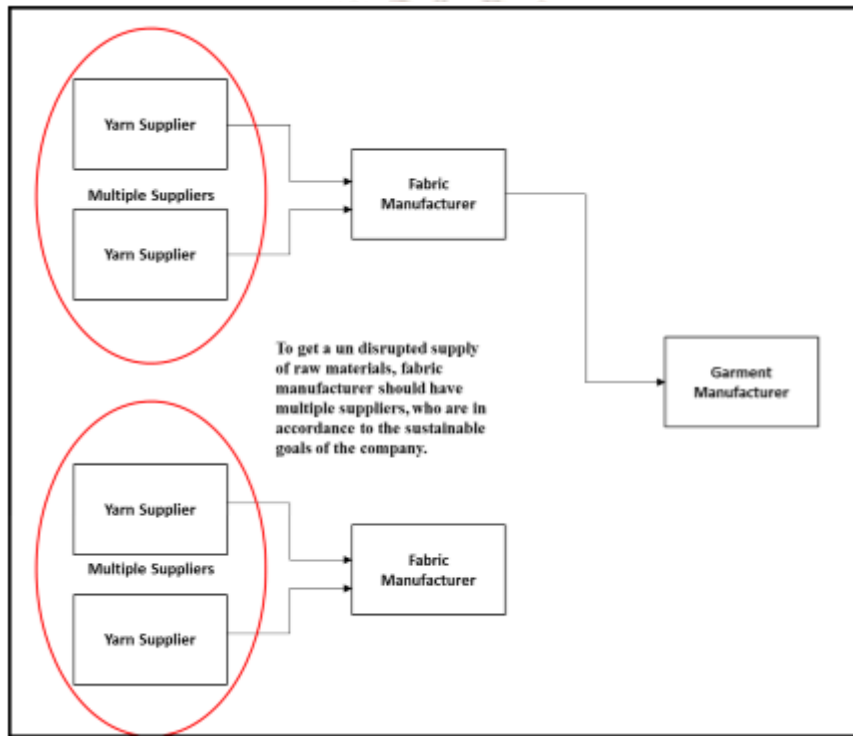
In this pursuit, harnessing technology-driven solutions is paramount, utilizing platforms that facilitate applied analytics, artificial intelligence, and machine learning to elevate operational efficiency and transparency throughout the supply chain. Over the long term, risk response mechanisms should become integral facets of standard business practices. The unprecedented disruption triggered by COVID-19 has led to notable operational and financial ramifications, prompting planners to confront numerous challenges such as demand fluctuations across segments, supplier shortages, inventory management complexities, and diminished productivity. Exacerbated by the inability to rely on traditional steady-state models, planners have been compelled to make real-time decisions grounded in dynamic data, assuming a central role in orchestrating the flow of information within the supply chain.

Here are five urgent supply chain priorities that demand attention:

- **Prioritize People:** Develop innovative strategies to support the health and productivity of planning staff.
- **Enhance Data-driven Visibility:** Utilize data analytics to optimize visibility into demand patterns, inventory levels, capacity constraints, supply chain status, and financial aspects.
- **Implement Demand Segmentation:** Conduct thorough analyses to effectively segment demand, identifying priority micro-segments for targeted focus.
- **Establish a Sales and Operations SWAT Team:** Create dedicated teams proficient in planning and execution to enable swift interventions and efficient response orchestration.

- Proactive Planning with Simulations: Anticipate potential surpluses and shortages by running simulations, facilitating proactive decision-making and providing actionable insights to enhance operational metrics.

The apparel supply chain stands out as one of the most competitive and complex industries, where even a minor disruption can set off a chain reaction of consequences. Such disruptions can extend lead times and lead to substantial delivery delays, resulting in significant losses. Establishing a robust and effective risk management model requires adherence to certain key conditions. Firstly, sourcing fabric from reliable and competent suppliers is essential. Timely fabric delivery directly influences lead times, thus minimizing delays. As a manufacturer, it's advisable to conduct the majority of apparel production in-house, with only essential operations outsourced. In the realm of fast fashion trends, activities like dyeing and printing can be postponed until after the sewing operation, providing more flexibility and responsiveness. Additionally, the company should internally manage warehouse operations and distribution. Involving external distributors introduces additional vulnerabilities in the supply chain, thereby heightening the risk of disruption. Adhering to these conditions enables apparel companies to more effectively manage risks and ensure the seamless functioning of their supply chains (Anika Gustafson, 2004).



**Fig.3 Suggested Supply Chain of Raw Material for undisrupted flow of materials**

### 3.1 Sustainable Apparel Supply Chain

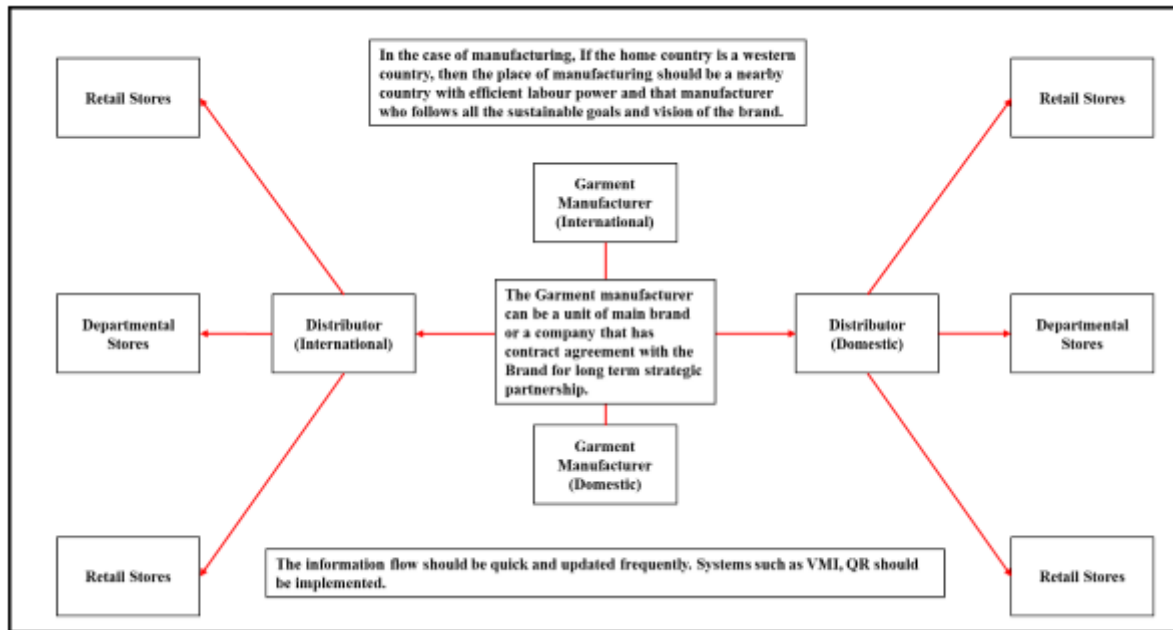
Building a sustainable supply chain in the realm of supply chain management requires collaborative efforts among its members, aiming not only for economic optimization but also addressing the consequential environmental impacts. In the apparel industry, sustainability presents a significant challenge. Fashion encompasses clothing, textiles, accessories, and more, and its supply chains feature capital-intensive processes like raw material procurement and infrastructure investment, alongside labor-intensive practices such as ensuring ethical working conditions and fair compensation. Furthermore, fashion supply chains carry substantial environmental implications, including carbon emissions and the management of polluted water.

Following the Covid-19 pandemic, companies and manufacturers have heightened their emphasis on establishing resilient and environmentally sustainable supply chains to mitigate risks and uncertainties. A sustainable strategy within this framework must align with the company's core purpose, translating into tangible guidelines for internal operations, material sourcing, supply chain management, and corporate social responsibility initiatives. Consequently, sustainability becomes synonymous with considerations of cost, lead time, and quality.

Suppliers are also encouraged to craft sustainability plans and work alongside brands to guarantee transparency and compute the overall return on investment. Placing sustainability as a priority over short-term shareholder value is crucial, with a dedication to honoring all stakeholders, including consumers, employees, suppliers, communities, and shareholders. Although some retailers may believe consumers are unwilling to pay more for sustainable goods, data demonstrates significant growth in sustainability-marketed products, underscoring consumer demand for eco-friendly options.

Transparency and sustainability within the apparel supply chain are imperative for brands to safeguard themselves from unforeseen risks and bolster their reputation. Brands need to be mindful of the broader impacts of their decisions on the environment and take proactive measures to mitigate negative consequences, such as the engagement of unapproved subcontractors. Similarly, suppliers must embrace practices that reduce their ecological footprint to ensure long-term sustainability and growth. As retailers increasingly aim to become responsible businesses, executives must meticulously assess the implications of their decisions, promoting open communication and forging strategic partnerships across the extended supply chain. Collaboration across the value chain is crucial for overcoming structural challenges and fostering positive change.

Upgrading outdated systems and harnessing technology to optimize the value of data insights are crucial measures in enhancing sustainability and efficiency within the garment industry. By integrating qualitative assessments with quantitative data analysis, substantial advancements can be made in establishing sustainable supply chains. Despite the challenges posed by the pandemic, it is crucial for companies to prioritize sustainability and invest in partnerships and technologies that foster resilience and environmental responsibility. By aligning shared visions and goals for sustainability throughout the supply chain, stakeholders can collaborate to build a more sustainable and self-sufficient fashion industry (Tsan-Ming Choi, 2018).



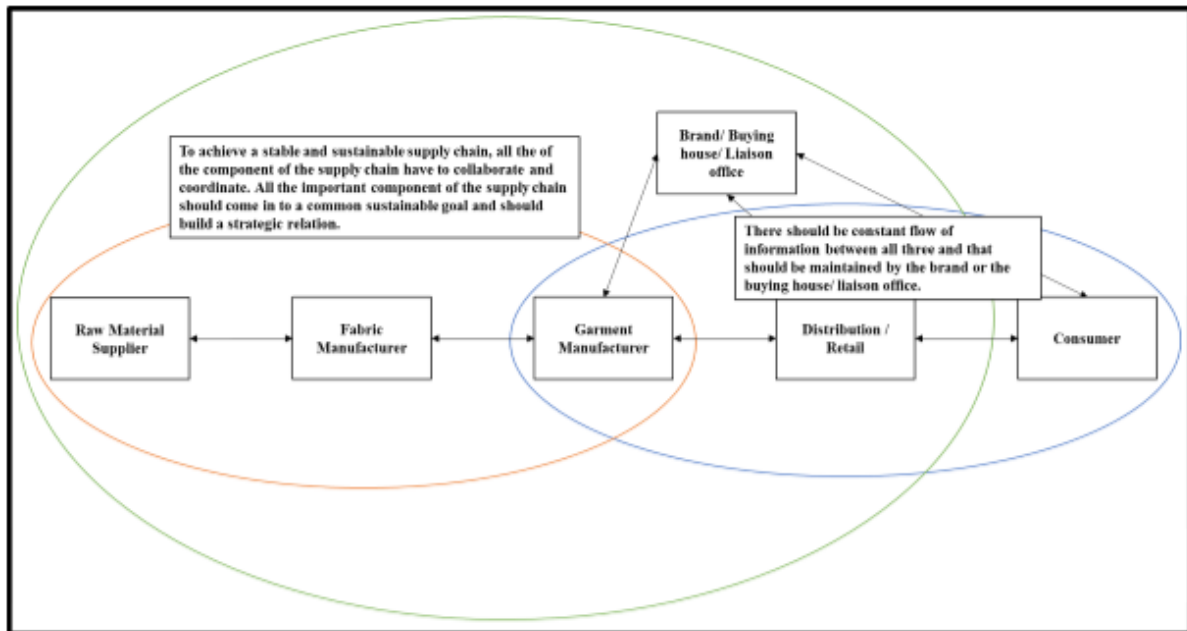
**Fig.4 Distribution network for efficient supply chain**

Indeed, a fashion supply chain is susceptible to unpredictable demand, underscoring the importance of enhancing its responsiveness to market fluctuations. Utilizing technologies such as sense and reply QR systems can contribute to the development of a sustainable fashion supply chain. Supply chain management plays a pivotal role in facilitating the forward and backward flow of products and commodities. Given the increasing concerns regarding environmental sustainability, managing end-of-season surplus products becomes imperative and is acknowledged as a cost. This has two significant implications. Firstly, fashion companies must establish formal business processes to handle end-of-life products (EOLPs). RFID technology and ERP systems, for instance, can offer significant benefits (Majumdar, 2021). Secondly, if participants in the supply chain identify that leftover products/components lead to substantial expenses, efforts should be made to dispose of them or reduce them. Information technologies play a crucial role in fashion supply chains, supporting various concepts mentioned above and gathering vast amounts of market data for improved forecasting. Indeed, ensuring the sustainability of any fashion supply chain requires effective use of data (such as customer data from social media and sales data from transaction records), and this necessitates the use of relevant information technology. In practice, it's encouraging to note that many major brands are adopting various key technologies. Sears, for example, has made significant investments in mobile applications and RFID technologies to realize its omni-channel retailing model.

Future success in this sector will hinge on mutual respect and trust among partners, alongside shared transparency throughout the supply chain. To achieve this goal, consider implementing the following actions:

- Foster stronger relationships through community initiatives, including education programs, grants, and fair trade practices.
- Enhance payment terms and access to financial and other services as a result of full transparency.
- Initiate collaborative planning and utilize value-added services offered by partners.

Although technology alone cannot solve the problem, it can enhance cooperation by facilitating data availability, improving communication, automating procedures, seamlessly exchanging ideas, accelerating onboarding, enhancing planning visibility, and increasing access to funds.



**Fig.5 Flow of Material and Information for reducing risk of disruption**

### 3.2 Building a Sustainable Supply Chain

To construct and maintain an efficient supply chain, a company must establish a set of sustainable goals and a vision. This necessitates collaboration from all partners, suppliers, and stakeholders to achieve it. For companies and suppliers to foster socially and environmentally responsible, efficient supply chains, they must adopt long-term sustainable goals. Companies must ensure that their first-tier suppliers also have well-defined long-term sustainable goals. Additionally, as part of their overall sustainable growth strategy, they should incorporate their second and third-tier suppliers. Companies should demonstrate a strong commitment to supplier diversity. They should conduct an annual survey of their first-tier suppliers to collect data on the sustainability performance of their lower-tier suppliers, as well as their own health, safety, labor, and environmental standards. Additionally, companies should map the connections and interdependencies in their supply networks, especially those at the lowest tier level, in partnership with their primary suppliers. This allows them to identify potentially risky lower-tier suppliers and collaborate with key suppliers to implement customized risk-mitigation initiatives as needed.

Companies should provide training and incentives to suppliers to encourage the implementation of sustainable practices within their organizations. Manufacturers should establish a platform for peer learning among their suppliers to facilitate a better understanding of sustainability practices. Collaborating on projects offers several advantages. It can help suppliers save time and money by enabling them to utilize a standardized self-assessment or audit process to meet the requirements of multiple clients and reduce redundancy. These programs may also draw more suppliers, particularly those serving numerous customers with similar sustainability requirements, as they are more inclined to participate. Collaboration can render sustainability projects more feasible since industry-wide training is sponsored by members. When corporations aid their first-tier suppliers in becoming full members of an industry association, these suppliers are obligated to adhere to industry standards, necessitating a review of the sustainability practices of their own suppliers (Villena & Gioia, 2020).

Indicators pertaining to meeting sustainability standards should be aligned with the framework's sustainability goals and objectives, reflecting the performance against sustainability criteria. These indicators should be transparent, providing clear insight into progress. Developing effective indicators requires time and may involve sacrifices. This approach often entails extensive data collection, monitoring from multiple sources, and repeating these processes at regular intervals. Ideally, indicators should possess the following characteristics:

- They accurately represent the process or function they are depicting.
- They are sensitive enough to detect changes over time and across different farming methods.
- They are measurable in terms of time, cost, and level of expertise required.
- They are comprehensible and applicable to end consumers.

A preliminary list of core indicators for sustainable products and their production may include the following elements:

- Energy and Resource Efficiency: Conservation of energy and resources during the manufacturing process, utilizing energy and materials that are best suited for the desired outcome.
- Environmental Impact: Minimization, elimination, or recycling of wastes and environmentally unfriendly by-products to protect the natural environment and human health.
- Economic Performance: Commitment to an open and participatory process of continuous evaluation and improvement, with a focus on long-term economic performance.
- Product Sustainability: Designing products and packaging to be safe and environmentally friendly throughout their entire life cycle, as well as ensuring that services follow the same principles.

Continuous monitoring of sustainability criteria is essential to address ambiguities surrounding the fulfillment of sustainability requirements. This includes understanding their impact on market development, their implications for sustainable supply chains, and their indirect effects on other markets and policies. For instance, a voluntary sustainability requirement might necessitate the host state's explicit confirmation that a project within its jurisdiction contributes to long-term development. Regular assessment and monitoring are crucial to ensure alignment with sustainability goals and objectives. Transparent monitoring of how sustainable supply chain standards are met is essential, ensuring that all relevant information is readily available and directly accessible to those affected by sustainability criteria and their implementation. Additionally, a significant amount of simplified information should be made available to the general audience to promote understanding and engagement (Pavlovskaja, 2014).

Evaluation criteria for selecting manufacturers:

Evaluation Criteria	Is it fulfilled	Remarks
Long term goal		
Energy and material use		
Natural environment		
Economic performance		
Products		
Interaction with first tier suppliers		
Maintaining the required certification and licences		
Social Impact		

Evaluation criteria for selecting suppliers:

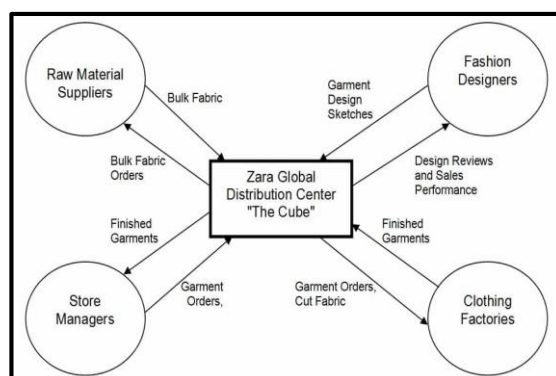
Evaluation Criteria	Is it fulfilled	Remarks
Long term goal		
Energy and material use		
Natural environment		
Economic performance		
Products		
Interaction with lower tier suppliers		
Maintaining the required certification and licenses		
Environmental Impact		

**4 CASE STUDY ON ZARA: HOW DID THEY OVERCOME THE CHALLENGES IN SUPPLY CHAIN POST COVID**

Zara, a clothing retailer owned by the Spanish textile company Inditex, was established in 1963. The brand offers a wide range of products, including clothing, shoes, accessories, cosmetics, swimsuits, and perfumes, catering to men, women, and children. The onset of the COVID-19 pandemic had a profound impact on Zara and the fast fashion sector as a whole. The company faced disruptions in its ability to distribute merchandise to stores due to lockdowns, an unprecedented challenge for the company.

Prior to the pandemic, Zara had exhibited strong financial performance with substantial daily sales and notable increases in inventory turnover. However, the global health crisis significantly affected its operations. Zara, known for its quick inventory turnover, faced unprecedented disruptions as the pandemic brought a halt or severe limitations to its distribution capabilities.

Zara, like many retailers, has a significant online presence in addition to its physical stores. The company accepts internet orders and provides worldwide shipping services, allowing customers to access its products from various locations. The challenges posed by the pandemic forced Zara to adapt and navigate through a unique set of circumstances in the fast-paced world of fashion retail. The pandemic has altered consumer purchasing patterns worldwide. Fashion retailers, including Zara, which started 2020 on solid footing, faced significant disruptions to their business. For some long-established retailers, the pandemic proved to be the final straw, leading to bankruptcy (Shabir, 2021).

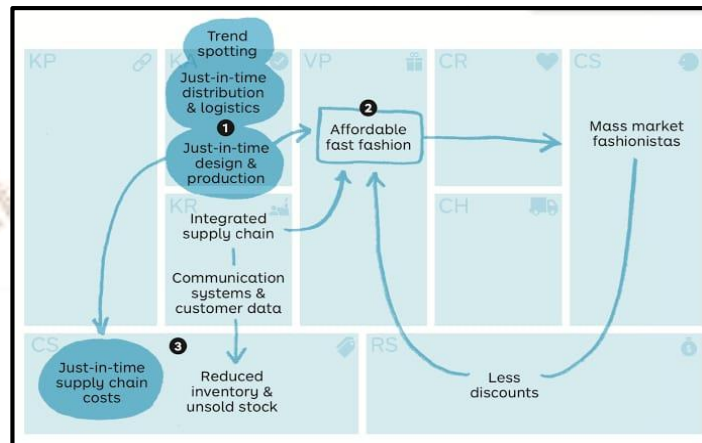


**Fig.6 Zara's Existing Supply Chain**

Source: <https://www.scmglobe.com/zara-clothing-company-supply-chain/>

During the pandemic, approximately 87 percent of Zara's physical stores were closed. However, despite the downturn in overall fashion sector sales, Zara experienced significant growth in online sales. This surge in online purchases served as a catalyst for the company's recovery, as consumers opted for online shopping to mitigate the risk of contracting COVID-19 in public spaces. Zara's ability to adapt to the shift towards online shopping restored customer trust and profitability. Zara benefits from a significant competitive advantage due to its international presence in over 86 countries. Offering high-quality products and attractive deals, the company has secured a considerable market share and garnered a large customer base.

In the third quarter of 2020, the group's online sales surged by 76 percent. Moreover, online visits saw a substantial increase, rising by 44 percent year over year to reach 3.4 billion in the first three quarters of 2020. Inditex projects that by the end of 2022, online sales will represent more than 25% of the company's total revenues (Shabir, 2021). To achieve their goal, Zara must adopt a technological approach and actively engage with their customers through various online platforms such as their online store, online forums, and social media. This approach will enable them to effectively connect with their target audience and enhance their online presence.



**Fig.7 Zara's Business Model**

Source: <https://www.strategyzer.com/business-model-examples/zara-business-model>

## 5 CONCLUSION

The supply chain in the apparel industry encompasses the network of connections between suppliers, manufacturers, brands, distributors, and customers, facilitating the flow of information and materials. It involves every aspect of manufacturing, encompassing all steps and stakeholders involved in the production process. In the apparel industry, raw materials such as fibers and yarns are transformed into finished garments, highlighting the complexity of processes involved.

Within manufacturers, brands, and suppliers, various departments collaborate to produce garments, creating an intricate web of interconnected processes. The apparel supply chain is global in nature, with components dispersed across the globe. The outbreak of the Covid-19 pandemic in early 2020 caused significant disruptions to the apparel supply chain, impacting production and distribution processes.

The production of apparel products came to a complete halt due to the lack of transportation for sourcing raw materials and diminished demand resulting from economic upheaval. As the pandemic subsided, production resumed, accompanied by significant changes in processes. Among the crucial aspects of the apparel supply chain, production and sourcing play pivotal roles. To ensure an uninterrupted flow, risk response must become an integral element of business-as-usual practices. This involves addressing concerns such as fluctuations in demand, supplier shortages, challenges in inventory placement, and reduced productivity through proactive measures and strategies.

To enhance the efficiency of the supply chain, it is essential to establish a central hub for controlling the flow of information. This hub will increase visibility by leveraging data to maximize insight into demand, inventory, capacity, supply, and financing across the entire ecosystem. Additionally, creating a dedicated sales and operations team can facilitate smoother operations and response coordination. Running simulations to anticipate potential surpluses and shortages is crucial for proactive planning. By doing so, the supply chain can better prepare for fluctuations in demand and optimize inventory management. Implementing a SWAT team—dedicated planning and execution teams—will enable swift interventions and efficient response orchestration in times of crisis or unforeseen events.

Achieving a sustainable supply chain in the context of supply chain management requires collaboration among supply chain members. This collaboration should not only focus on economic benefits but also take into account the environmental consequences associated with supply chain activities. By aligning optimization efforts with environmental sustainability goals, the supply chain can work towards long-term viability and resilience. To foster trust and facilitate open communication, brands and suppliers should prioritize strategic cross-tier partnerships across the extended supply chain and commit to increased transparency. The concept of "weak links" pertains to underperforming entities that fail to fulfill their responsibilities within the supply chain. Therefore, it is crucial to allocate resources judiciously and carefully select supply chain partners. By investing in strong partnerships and ensuring accountability at every level, brands and suppliers can enhance the efficiency and resilience of the supply chain.



**6 REFERENCES**

- [1] Peter Cheng, Yelin FU, Kin Keung Lai, “Supply Chain Management in Apparel Industry”, Available at: <https://apparelmagic.com/the-apparel-supply-chain-everything-you-need-to-know/> [Accessed 14 Apr. 2022].
- [2] UNCTAD, “Textile and garment supply chains in times of COVID-19: challenges for developing countries”. [online] Available at: <https://unctad.org/es/node/3024> [Accessed 14 Apr. 2022].
- [3] Ahsan, M, “Textile and Apparel Supply Chain during COVID 19: A Perspective Textile and Apparel Supply Chain during COVID 19: A Perspective from Bangladesh”, [online] Available at: [https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1009&context=tmd\\_major\\_papers](https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1009&context=tmd_major_papers).
- [4] Abhijit Majumdar, “Prioritising risk mitigation strategies. Sustainable Production and Consumption “, 2021.
- [5] Anika Gustafson, “A Time Efficient Supply Chain Model For an Apparel Company”, 2004.
- [6] Pavlovskaja, E., “Sustainability criteria: their indicators, control, and monitoring (with examples from biofuel sector)”. Environmental Sciences Europe, Springer Open Journal, 26(17), pp. 3-6.
- [7] Suheela Shabir, “Sustainable Retailing Performance of Zara”, Open Journal of Business and Management, 9(2021), pp. 1013-1029.
- [8] Tsan-Ming Choi, “Sustainable Fashion Supply Chain Management: A System of Systems Analysis”, IEEE Transactions On Engineering Management, 2008.
- [9] Villena, V. H. & Gioia, D. A., “Harvard Business Review”, [Online] Available at: <https://hbr.org/2020/03/a-more-sustainable-supply-chain>, 2020.

