

**RESEARCH ON NETWORK RELIABILITY
EVALUATION OF TEXTILE AND FASHION INDUSTRY
SUPPLY CHAIN UNDER SUPPLIER SUSTAINABILITY:
EVIDENCE FROM TEMPE GRUPO INDITEX (ZARA),
INDIA**

Research dissertation presented in partial fulfilment of the requirements
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06/09/2024

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I certify that the dissertation entitled : **Research On Network Reliability Evaluation Of Textile And Fashion Industry Supply Chain Under Supplier Sustainability: Evidence From Tempe Grupo Inditex (Zara), India** submitted for the degree of: **MSc in Procurement and Supply chain Management** is the result of the my own work and that where reference is made to the work of others, due acknowledgment is given.

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Dedication

This dissertation is dedicated to the managers of Tempe Grupo Inditex (Zara), whose invaluable insights and experiences were essential in investigating sustainable practices within the textile supply chain in India. I extend my sincere appreciation to my supervisor, Alessandra Vecchi, for her unwavering support, expert guidance, and encouragement throughout this research journey. My deepest thanks also go to my family and friends, whose constant support, patience, and motivation have been the cornerstone of this work. This research reflects your confidence in my abilities and commitment to sustainability. Thank you for being a continuous source of strength and inspiration.

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Abstract

The introduction of this research has an important effect on the supply chain management of the focused organization. This study plays a key role in its impact on the wider areas of corporate responsibility and sustainable development of the textile and fashion industry focusing on Zara, India. The facilitations and barriers of the incorporation of sustainability to meet the requirements of the consumers for highlighting the ethical practices of this company.

The literature review chapter of this dissertation helps to explore the procedures of managing the supply chain management of the focused organization in order to address its stock outages and demand fluctuations. Zara India efficiently assigns the inventory with the latest market trends by generating real-time data, agile logistics, and improved forecasting methods. This research sheds light on the strategic approaches of this company for monitoring product availability and reducing disruptions.

This paper aims at identifying the reliability and sustainability of “Tempe Grupo Inditex (Zara)”’s supply chain using Saunders’ Research Onion. It is both pragmatic in philosophy and inductive in approach to research and includes qualitative tools like interviews and case histories. The interview has been conducted by five personnel belonging to this sector in India. The thematic analysis is more elaborate in bringing out the features of the identified operational challenges in relation to this industrial supply chain practices in West Bengal, India, including recommendations for improvement.

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Chapter 1: Introduction

1.1 Overview

The textile industry has a multiple-tier supply chain structure similar to the one detailed in this case. It needs to be clarified from these issues which revolve around preserving the environment and ensuring efficiency. This paper aims to investigate the network reliability of the textile supply chain, especially Tempe Grupo Inditex (Zara) company in the Indian market context where sustainability issues play a pivotal role in the operations of the supply chain networks. As consumers from different parts of the world demand sustainable practices, big organizations such as Zara are pressured into practicing ESG (Moraes and Tivanka, 2020). In this paper, the author looks at supplier sustainability and its effect on the reliability of Zara's supply chain network in India in terms of supplier performance, lead times, and risk management. This study about Zara's operations and the relationship between sustainability and economic measures will enlighten readers before advancing towards explaining the impact of sustainable supply chain solutions on the reliability of the entire network (Şerbetcioğlu Hıçkiran, 2024). Thus, this case unveils the textile industry's problems and prospects but also lessons other industries interested in the duet Sustainability and Supply Chain Resilience could learn from.

Some specific research questions will be utilized in this study to achieve the overall objective. The overall objective of this study is to investigate the role of supplier sustainability practices in the dependability of Zara India's supply chain network. There is supplier sustainability, where ethical supplier selection, environmental impacts, and social responsibility are significant causal variables for supply chain reliability. In this case, the rise of the study is anchored on Zara India, which gives specific insights into practices, issues, and the resultant impacts within the Zara Company, a well-established international fashion cloth giant.

In terms of method, the work can be described as employing a qualitative research design. Apart from the literature review and case studies, Interviews of managers in Zara's supply chain will be used to understand the impact of supplier sustainability and its effects on supply network reliability (Sawant, 2023). The study uses qualitative research to analyze and compare the supply chain performance with sustainability factors like carbon consciousness, labor policies, lead time, frequency of stock out, and reliability.

Supply chain management theories and concepts, as well as theories from the literature on sustainability, were kept in mind while analyzing the research to have a conceptual lens to view the relationships between supplier sustainability activities and supply chain dependability (Abbasi, 2023). In this way, the research objectives are to utilize these perspectives and produce relevant knowledge on the determinants of optimal supplier relationships in fashion retail that would encourage sustainable and operational improvements.

1.2 Research purpose

The objective of this research is to assess the relevance of supplier sustainability to the reliability of the textile industry supply chain regarding Tempe Grupo Inditex (Zara) in India. The objective of the study is to identify and investigate correlations of sustainable practices with supply chain effectiveness, risk, and supply networks. This research aims to identify how Zara has delivered ESG criteria into its supplier network as a means of enhancing a firm's supply chain sustainability while offering recommendations for better supply chain preparedness to the textile industry and other related industries.

The study aims to examine the relationship between suppliers' sustenance measures and the stability of supply chain networks of the fashion retail industry, with particular reference to Zara India (El Ghoul, 2023). Not only that, the issue has come to the forefront for multinational companies due to the growing pressure from clients who expect that the services they are offered or the goods they purchase are provided through ethical supply chain management systems that take into consideration the environmental impact of the manufacturing processes and the components used throughout the globe. The fashion industry is highly volatile regarding the pace and frequency of style changes; it has complex and global supply chains, so it may have difficulty finding a balance between more sustainable initiatives while keeping operational risk levels reasonable (Worth, 2023).

Supplier sustainability issues, therefore, cover different areas of supplier operations and responsibilities in the areas of environmental, societal, and ethical responsibility, such as environmental conservation, managing carbon emissions, providing labor standards and a safe working environment, and proper procurement, among others (Zhang et al., 2023). Thus, it is necessary to comprehend how these practices relate to the company's supply chain reliability to evaluate these practices' performance and define the supply chain weaknesses of Zara India.

This would seek to identify the key issues and impediments surrounding the implementation of supplier sustainability strategies within the Zara India environment. There often needs to be a clear linear relationship between the growing incorporation of sustainable practices into the SCM and the ease of its implementation. Some risks are resistance to change from suppliers, increased costs when acquiring sustainable raw materials, difficulty in organizing logistics to buy sustainably harvested materials, and strict legal requirements that may hamper sourcing sustainably produced products (Van Assche and Narula, 2022).

Finally, the study offers theoretical advances in supply chain management and sustainability by formulating a holistic conceptual framework that identifies the relations between supplier sustainability activities and supply chain reliability performances (Tsfay and Herrlin, 2023). The study will develop theoretical propositions and hypotheses based on the relevant current literature in both fields. In this context, this theoretical framework is necessary to elaborate on how supplier sustainability contributes to supply chain reliability, thus contributing to the existing academic knowledge and offering guidance on practical approaches to Irish fashion retailers such as Zara India.

Consequently, this work aims to provide further insights into the relationship between supplier sustainability practices and the reliability of supply chain networks in fashion retail, specifically in Zara, India (Abdelamir and Egerup, 2023). Based on the presented comparison of the range of sustainability practices, investigation of implementation challenges, and conceptual development of the theoretical framework, the study is designed to possibly contribute a valuable source of insights for individuals interested in understanding and eventually overcoming the issues associated with effective advancement and incorporation of sustainability considerations into SCMPs.

1.3 Significance of the study

The contribution of this study helps in identifying what sustainability means or develops relative to supply chain reliability for Inditex clothing materials, in the context of its subsidiary, Tempe Grupo in India. Due to growing awareness of the climate and social costs involved in the global fashion industry, business corporations are forced within the theme for sustainability offenses and work processes without subtracting efficiency (Jha and Verma, 2022). Thus, this research fills a

gap by assessing the impact of these sustainability initiatives on the dependability of SC networks especially in the emerging economies region like India.

One of the most effective fast-brand cloth makers known for its flexible supply chain, the research revealed several strategic difficulties and gains in employing sustainability in the supply chain management-focused organization of this study. This paper aims to provide an improved understanding of how large brands like Zara implement eco-sustainability in supply networks that are embedded in a geographically diverse country like India where it has its operations. Thus understanding the relationships between supplier sustainability and the reliability of the given network will enable the firm to have insights into the risks involved, work on supplier relations, and effectively manage the supply chain of the firm (DiVito Leitheiser and Piller, 2022). The conclusions of the study will be useful not only for the textile industry but also for other areas that have similar issues. Informed by the outcomes of the current study, approaches to the accomplishment of sustainable procurement and manufacturing while strengthening supply chains for organizations internationally can be identified. The study findings can also be very useful to policymakers and members of industries through the provision of frameworks that could foster sustainable practice and, at the same time, ensure that the supply chain is strong. This research extends the supply chain sustainability literature and provides practical implications for organizations that seek to implement sustainable SCM (Zackariya, 2023). It accentuates the need to have an integrated approach to supply chain management where the aspect of sustainability and that of reliability form part of the same solution formula because as this work has pointed out, supply chain management is all about sustainability leading to reliability in the long run.

Apart from its contribution to the supply chain field, this study has good implications for the literature on corporate responsibility, and sustainable development. This study shows the methods and the areas of sustainability in supply chains could be valuable or risky for a firm, the configured research gives a guideline for those organizations interested in fulfilling customers' expectations together with a competitive edge (Pinto, 2023). It also brings to light factors that cut across the scope of sustainability as critical success factors aimed at the development of strong supply chains that are responsive to global factors including the impact of environmental and or socio-economic change that may occur from time to time (Medon, 2023). This research is timely and thus it provides useful insights for businesses, policymakers, and scholars who are interested in the prospect of sustainable supply chain management.

1.4 Research aim and objectives

Aim: The study aims to investigate whether sustainable practices can impact TEMPE GRUPO INDITEX (ZARA), INDIA dependability and consistency in the supply chain in West Bengal.

Objectives:

1. To identify the effects of sustainable practices on network reliability.
2. To identify the effects of sustainable practices on supply chain consistency.
3. To identify the challenges associated with implementing sustainable practices in the supply chain.
4. To identify the opportunities for improving network reliability through sustainable practices.
5. To develop a framework for evaluating the effect of sustainable practices on network reliability
6. To develop recommendations for TEMPE GRUPO INDITEX (ZARA), INDIA on how to improve network reliability through sustainable practices

1.5 Methodology

The research has followed the Saunders Research Framework that originated in the year 2007 and this is one of the most evident research frameworks that can help researchers to conduct the research effectively. The following research has utilised the ‘Pragmatism’ research philosophy in conducting the research in a significant manner. It has helped the researcher to conduct the entire research innovatively and find effective solutions to the research problems. The approach used in assessing the network reliability with regard to the sustainability of the fashion retail sector’s supply chain with a special emphasis on Zara is ‘Inductive’. It helps in the generation of theories with specific instances that have been observed in society. The research employs two distinctive research strategies; ‘Interview and Case Study’ to access qualitative data. This combined data collection technique excludes the potential of participant bias and the scope of inclusion of manipulated data. This research has adopted a ‘Mixed method’ approach that supports its aim to generate findings based on both existing and evidence-based practices on sustainable supply chains

and practical insights from the prime stakeholders of the field. A cross-sectional time horizon has been chosen which meant acquiring information on a single time point to determine the reliability and sustainability practices in the supply chain.

As mentioned above, Interviews and case study analyses are considered for qualitative data collection. Open-ended questions have been considered for the Interview with 5 managers of Zara. The in-depth interview process provided detailed information on several dimensions of supply chain reliability and sustainability and the qualitative part of the case studies has been used to gain a deeper understanding of participants' experiences. Case studies along with peer-reviewed articles and journals have been utilised as the secondary sources of data to gather more detailed insights into the research. The responses collected from the interviews have been evaluated significantly in this research which can be able to provide the scope for the broader research on the case studies. For qualitative data analysis 'Thematic method' has been followed. Since this methodology involves the assessment of the supply chain both its reliability and, hence, the opportunities to trace the main practices and problems of Zara's suppliers, it is also relevant. The use of this particular research design makes sure that there is an empirical foundation for the theories concerning fashion retail supply chains. The interview of this study includes the five most significant persons from the focused textile company of India. They are one supply chain manager, one general manager, one operations supervisor, one quality assessment supervisor, and one logistics and operations manager of Tempe Grupo Inditex (Zara).

1.6 Structure of the Study

In this opening chapter, of the Introduction the study's objectives, context, objectives, and rationale of the research on the network reliability evaluation in the supply chain of the textile industry's Zara India are described. This paper reviews the literature to comprehend the state of supply chain reliability and supplier sustainability and their implications on the fashion retail sector. The following research is a brief description of the research tenets, methodology, data collection, and analysis techniques. The section on Methodology involves the choices the researcher made in the conduct of this research, such as choosing to focus on Zara India and the types of data collection methods used in this study. In the following section of research findings and results, the study results are highlighted, synthesized, and analyzed using the identified research questions and objectives. This section of the final Reflections on the Findings and Recommended Related Studies, outlines the three main contributions of the present research, including its theoretical,

methodological, and practical implications; reviews the study's limitations; and makes several suggestions regarding the possible research directions.

Chapter 2: Literature Review

2.1 Overview

This chapter discussed on "Network reliability evaluation of textile and fashion industry supply chain under supplier sustainability." The first part of this chapter covers the sustainable practices of the textile sector are highlighted, along with various sections. This detailed formation has defined a practical context of the textile sector on which the fashion industry depends. The literature review chapter covers several important issues and challenges related to sustainable practices in the textile supply chain and emphasizes Environmental, social, and economic constructs. It explains how Sustainability that incorporates fabrics and materials like organic cotton and recycled polyester, energy-saving aspects, waste disposal, and water-saving features impacts the social, environmental, and ecological aspects. It also speaks about best practices related to labour rights, the safety of workers, social inclusion, supply chain management, and Sustainability. Long-term supplier relations, effective technological practices, and business concepts like leasing, recycling, etc., are also looked at from an economic point of view.

2.2 Sustainable Practices in Textile and Fashion Industry Supply Chains

2.2.1 Defining sustainable practices in the context of textile and fashion retail industry

The textile industry's sustainable practices concern the organizational and management of fashion sector measures to be enacted to not harm the environment and society and to maintain the business financially. Such practices include a comprehensive interaction with the complete supply chain, from acquiring raw materials to disposing of the final product. According to Vadakkepatt et al. (2020), Sustainable fashion and textile retail sustainability can generate positive returns that could benefit the entire affected, adopting sustainable consumption of the earth's resources and fairness to people. Sustainable practices in fashion and textile retail are still in contention. Warasthe et al. (2020), stated relevant sustainability practices and prerequisites help improve supply chain sustainability. It has been determined that manufacturers put greater emphasis on internal practices such as monitoring, whereas merchants prioritize external sustainability activities such as supplier development more. This helps overcome sustainability-related challenges regarding poor ecological and social standards within production procedures within the textile and apparel industry. On the other hand, Adamkiewicz et al. (2022) argued that '*sustainable fashion*' is an irrelevance as its very nature is about the rapid consumption and the fast fashion cycles. This

irrelevance reflects the need to reconsider the definition of Sustainability in the textile industry context.

2.2.2 Types of sustainable practices in supply chains

In analyzing this case, textile and fashion retail supply chains have increasingly adopted sustainable practices in three main dimensions of resources: '***environmental, social, and economic***' (Nayak et al., 2020). Environmental practices include the Application of Sustainability in fabrics and materials, such as the origination of certified organic cotton used in the production of sportswear apparel and mail products, reprocessed polyester used in the production of backpacks and accessories, reduction of energy usage in the production process on different apparels and accessories, and implementation of proper waste management system that takes practice of circular economy, and water conservation (Delate, Heller and Shade, 2020). Indeed, social practices aim to achieve fair labor conditions and wages, increase workplace safety, collaborate with and build up the communities of various supply chain members, and increase the transparency of supply chain operations. Economic methods focus on building long-term partnerships with suppliers, using efficient technologies, and implementing new ideas such as leasing and recycling. According to Wojciechowska (2021), most of these initiatives need more depth and be more efficient in addressing the core un-sustainability problems in fashion. On the other hand, Fung, Choi, and Liu (2019) evaluate the demand to consider different levels of analysis and more on system approaches for enhancing Sustainability in textile and fashion retail supply networks.

2.2.3 Current trends in sustainable textile and fashion retail

Several critical tendencies are developing the landscape of the sustainable fashion retail industry. The circular economy is becoming evident in the brands with an extended focus on product durability, reuse, and recycling. Consumers' awareness of information about the products they consume has urged more companies and producers to effectively provide resources and information about the supply chain and where food products come from. As per Abbate et al. (2023), from the initial stage to the end of the supply chain within the "textile, apparel, and fashion (TAF)" sectors significantly contribute to environmental pollution worldwide. The clothing manufacturing and transportation industries generate a lot of waste and considerable greenhouse gas emissions, taking advantage of cheap labour in underdeveloped nations. The effect of the

textile, garment, and fashion sectors on the climate, rights of people, and other issues is thus becoming increasingly well-known to stakeholders. These factors are forcing companies to reduce the harmful procedures that are included in their process that cause a negative impact on the environment. According to Bibri et al. (2023), Advancements such as '*blockchain, AI, and IoT*' are being implemented to increase sustainability performance and also to have the ability to track the execution of these performances. This trend stresses less on quantity and more on quality and rationality, resulting in long-lasting and enduring designs (Ribul et al., 2021). On the other hand, Furstenu et al. (2020) evaluate the possible trends and the positive representation of a movement towards Sustainability to handle the significant sustainability problems faced by the industry effectively.

2.3 Network Reliability in Textile and Fashion Retail Supply Chains

2.3.1 Concept of network reliability in supply chains

Network reliability in supply chain management can, therefore, be described as the capacity of a supply network to deliver a product or service within specification and at the expected time in the face of possible hitches or unpredictability (Aldrighetti et al., 2021). This factor is significant in the fashion retail context due to its dynamic nature and the necessity for responding to market signals as soon as possible. Hosseini and Ivanov (2019) develop the idea that before analyzing network reliability in the fashion retail context, it is necessary to understand that this concept is polysemantic and somewhat nuanced. It includes physical product flow, information flow, and flow of payment funds. This often complicates the efforts and objectives to achieve and sustain high network reliability.

2.3.2 Factors affecting network reliability in textile and fashion retail

Several key factors influence the network reliability in textile fashion retail supply chains. Supplier performances were established by the suppliers' reliability and capability, affecting total network reliability. Piprani et al. (2020), stated that supply chain disruptions within the textile industry play a major role that impacting network reliability. While prioritising resilience capability supply chain disruptions are a significant factor, with which brands are recently reconceptualizing supplier engagement and relationship strategies. Such a method of business provides a more complicated and expanded supply chain network that enhances operational performance. Demand volatility in fashion retailing is a dynamic process in which consumer behaviour involves the supply chain's

dependability (Kumar et al., 2020). In contrast, the information system of the quality and the integration in the supply chain impacts its coordination and responsiveness. Sertel (2023) stated that Sustainability, cost-effectiveness, and dependability to deliver within the promised time frame are essential in logistics operations. Coping and managing risks affect reliability, especially in areas of the supply chain, which establishes that reliability is affected by the capability for risk anticipation (Um and Han, 2020). These factors are distinctive and relatively significant with the interconnections of the specifically within the context of fashion retail and open another path for additional research.

2.3.3 Measuring and evaluating network reliability

Measuring and evaluating network reliability in fashion retail supply chains involves a range of metrics and approaches. On-time delivery performances establish the degree to which the organization delivers orders on the stipulated time (Dixit, Verma, and Tiwari, 2020). Order fill rate shows the degree to which customer orders are fulfilled by products shipped on the first attempt. Supply Chain cycle time assesses the general duration from when orders are placed to when they are delivered. Flexibility and responsiveness assess the degree to which the supply chain can learn and recover from disturbances (Choudhary et al., 2022). These crucial measures comprehensively estimate the principles of network reliability in the fashion retail business domain. In turn, they are traditional and sufficient measures for the rising comprehensiveness of supply chains for Sustainability.

2.4 Supply Chain Consistency in Textile and Fashion Retail

2.4.1 Defining Supply Chain Consistency

Supply chain stability in fashion retail can be defined as the consistency of the supply chain in providing products and services of similar quality, in a similar time and manner, in various channels and over a certain period (Jestratijevic, Rudd and Uanhoro, 2020). This concept includes dependability of activities, consistency of results, and regularity of performance in the supply chain web.

Irfan, Wang, and Akhtar (2019) explain that supply chain compatibility is a sustainable consistency of material, information, and financial flow for all the players involved in the supply chain.

Therefore, consistency in fashion retail means something entirely different because trends are crucial in this type of environment, and the demand for the product can be unpredictable.

According to Takan (2023), consistency means that all measures taken have been defined in advance and do not necessarily refer to immutability. Braun, Bieniusa, and Elberzhager (2021) state that the supply chain in fashion retail must be consistent, and flexibility is demanded to reconsider its functioning under market conditions while keeping such fundamental parameters as performance on the level.

2.4.2 Importance of consistency in textile and fashion retail supply chains

Consistency in fashion retail supply chains includes the critical continuity of functional and innovative products and fashion-lined garments with high perishability. According to Muñoz-Torres et al. (2021), consistent practice generates more potential to be more sustainable in nature. Consistency in resolving environmental challenges by the textile industry provides companies with more resilience in drawing sustainability. Thus, supply chain management can gain more momentum in expanding with better activities regarding environmental practices. The products need supply chain management because they control the stock outting, usually characterized by demand fluctuations (Chan et al., 2020). According to Guo, Sun, and Lam (2020), luxury fashion brands, for example, must be consistently premium. Customer Satisfaction shows that supply chain consistency affects customer satisfaction satisfactorily by guaranteeing consistency in the availability and quality of products (Wren, 2022).

2.4.3 Metrics for measuring supply chain consistency

Measuring supply chain consistency in fashion retail involves a range of metrics that capture various aspects of performance stability and reliability. On-time delivery rates can also be measured by their variance. Quality Consistency recommends monitoring the quality of products over time, reflecting the managed fashion through methods such as defect rates and customer returns (Yadav et al., 2022). Lead Time Stability underscores that in fashion retail, the lead times are best defined as stable and suggests the framework for evaluating the particular product lines and seasons.

Critics such as Han, Chong, and Li (2020) argue that even though these metrics deliver supply chain consistency in the fashion retail business, they do not capture the supply chain consistency.

While conducting the research, they came across the growing demand for more comprehensive measurement models that examine the specifics of the fashion business context. Kamble and Gunasekaran (2019) have highlighted that growth in the sustenance of fashion retail makes it compulsory for many firms to allow sustainability cognates within the consistency measures.

2.5 Impact of Sustainable Practices on Network Reliability

2.5.1 Relationship between sustainability and network reliability

As global markets are experiencing high levels of technological disruption and fluctuating customer preferences, supply network reliability is a critical competitive factor. From the viewpoint of Thorisdottir and Johannsdottir (2020), Sustainability advances the dependability of networks since it cultivates the ability of supply chains to adapt to disturbances. Environmental Sustainability mainly involves using power conservation and waste disposal, which helps minimize operational hazards and resource utilization. Social Sustainability helps to avoid the exploitation of workers and contributes to the local community building long-term and trustworthy supplier relationships. Economic Sustainability with optimized technologies and partnerships would optimize operational efficiency and mitigate disruption. Fashion companies that incorporate sustainability issues in their value chain can handle various risks that may come during the different stages of the value chain and thereby have strong stability and reliability even when there are shocks in the community and the markets.

2.5.2 Case studies demonstrating impact on reliability

In fashion industries, three fortunate case studies are described in this section, illustrating the impact of business sustainability and firm capability on firm performance. Reliability is also defined through such explanation. From the viewpoint of Wong and Ngai (2021), Company A has achieved waste minimization and efficient utilization of resources through the formulation of comprehensive environmental management systems. This improved their sustainability knowledge and further validated their reliability in the eyes of green consumers. The company has developed its economic competencies by strengthening the supply chain, cutting expenses, and enhancing its margins.

2.5.3 Potential trade-offs between Sustainability and reliability

Sustainability criteria are based on the TBL approach, which ideally highlights the ecological, social, and economic components that constitute a significant challenge for manufacturing persons engaged in sustainability-related actions. According to Kravchenko et al.(2020), the initial Application of these criteria to the development processes gives more chances to introduce enhancement and choose initiatives with the highest sustainability potentialities. However, the significant issues consist of selecting the criteria for measuring sustainability performance and dealing with the trade-offs arising from competitive ends.

Sacrifices have been made in cases where more than one sustainability factor cannot be achieved simultaneously. As Tamás Mizik and Gyarmati (2021) mentioned, environmental Sustainability involves limiting waste production, which could lead to higher production costs, thus compromising Economic Sustainability. In the same way, increasing social Sustainability, for instance, through better labor practices, might entail further costs, which impact the P&L in the short term. Such conflicts show that challenges are involved in achieving the triple bottom-line goals. While many organizations undertake trade-off analysis, there are gaps in current decision-making frameworks for sustainability measurement, which do not necessarily contain features that enable trade-off discussion. This gap reduces the feasibility of firms in managing conflicting objectives, as mentioned above.

2.6 Impact of Sustainable Practices on Supply Chain Consistency

2.6.1 Affect of Sustainability Initiatives Supply Chain Consistency

Sustainability initiatives can develop better supply chain consistency within the fashion sector and should be explained with the aim of proper practices and skilled management. It reveals that the concepts of sustainable practices are essential and beneficial to the supply chain consistency of products, especially in the context of apparel manufactured in developing countries. "Supply chain sustainability (SCS)" is a concept that literature has not theoretically justified or empirically validated on an integrative scale. However, the moderating role of SCS in conjunction with governance and the need to be adequately researched in the context of enhancing supply chain risk reduction performance is a significant gap in the literature. It also presents the construction and psychometric testing of a new scale for assessing SCS and provides insights into its impact on performance.

2.6.2 Examples from the textile and fashion retail sector

One of the examples that needs to be mentioned is the H&M Conscious Collection. With such environmentally-conscious steps as sourcing sustainable materials, H&M also increases supply chain clarity and accountability. Poddar (2021), reveals that leading fashion brands like Patagonia and H&M have become remarkable examples that have incorporated sustainability into the supply chain of the textile industry. It has been found that this initiative has provided the brand with more customer trust. However, they are far away from achieving “socio-economic sustainability” in terms of the mistreatment of workers, and unfair worker wages.

In the viewpoint of Czinkota et al. (2021), the information system that Walmart uses is a perfect illustration of how innovation in technology can improve supply chain reliability. This means that Walmart is able to exert more control over deliveries because of its ability to regulate the quantity and frequency of delivery. This centralization strategy is also particularly sustainable as it minimizes overproduction and, consequently, waste. In addition, such systems can make an appropriate choice of transportation ways, which will reduce the negative influence on the environment. The Walmart case perfectly illustrates how technology can be used as a solution toward the creation of a stable supply chain system.

According to Ece Nüket ÖNDOĞAN et al. (2022), Stella McCartney is the the brand that has always given a sense of direction towards using eco friendly fabrics like organic cottons or recycled polyester. Through adherence to ethical sourcing of products and supply chain integrity, McCartney has cultivated the reputation of reliability and quality. Such practices help in enhancing the supply chain reliability by reducing instances of material unavailability or controversies.

2.6.3 Balancing Sustainability and consistency in supply chains

One of the critical questions about sustainability management in the context of the fashion retail sector concerns the ability to maintain business stability in terms of supply chain relationships. Partnership in supply management also helps to minimize risks related to inadequate access to resources and shifts in regulation, thus ensuring a constant supply of resources and finished goods. The increasing implementation focus and meaning on Sustainability and supply chain management is more reliable than their traditional counterparts. Promoting and developing good relationships with suppliers, effectively preserving sustainable sourcing initiatives, and improving transparency can help fashion retail reduce risks in its sourcing operations while guaranteeing an adequate

supply of resources and products. This balance enables stability in operations while satisfying the emerging customer demands of responsible sourcing and environmentally conscious products for fashion to enhance the Sustainability of fashion businesses for the future.

2.7 Challenges in Implementing Sustainable Practices

2.7.1 Common barriers to sustainability implementation

Sustainable practices remain an issue of contention in the fashion industry, with several challenges. The first obstacle is the higher cost, especially when using sustainable materials and green technology. Eco-efficient solutions tend to be more costly than conventional products, presenting challenges concerning resource costs, particularly for start-up organizations. Another issue that needs to be addressed is how the increased supply chain transparency affects the company. The implementation of sustainability standards ensures compliance of suppliers and sub-suppliers; hence, the need for monitoring and verification systems could be more convenient and convenient.

As mentioned by Biela-Weyenberg(2023), Challenges to sustainable practices within the fashion and textile industry are endless. Many industries experience high initial costs associated with sustainable materials, technologies, and certifications. In addition, the dynamism based on trends contradicts the need for long-term cycles for sustainable production in the industry. It means that supply chains are long and most of them are very non-transparent, which makes the tracking of all materials and ethical labor through supply chain challenging. Furthermore, consumers may be unwilling to pay a price premium for sustainably-produced goods, amidst several market issues. The absence of more uniform sustainability measures and legal requirements adds to the challenges of assessing and enhancing the company's environmental and social impact.

Challenges to extending sustainable fashion include high start-up costs, intricate logistics of supply chains, and consumer relatability. Brand needs to keep their products affordable while using ecological material and hiring workers fairly. Moreover, lack of sustainability metrics' standardization hinders assessment and disclosure, thereby exacerbating the transparency issues. These barriers should be addressed through collaborative efforts of industries, government support, and consumer awareness.

2.7.2 Specific challenges in the fashion retail sector

The fashion retail business environment entails the following challenges associated with adopting sustainable banners for the business. The fashion retail sector requires various resources such as textiles and dyes in its value chain, degrading the environment (Niinimäki et al. 2020). There is also the need to be able to churn out products at the most minor pace and at a low cost. This is usually not good for the environment, but promoting supply chain transparency is effective. Some compliance with ethical sourcing producers in global operations is another challenge due to the different regulations and massive suppliers' network involved. Furthermore, the need for consumers to keep up with seasonal fashion trends and buy cheap clothes also serves as a challenge in promoting environmentally and socially responsible clothing. Addressing these issues needs systematic transformation and dedication to revolutionary ideas and processes involving stakeholders in the fashion supply chain.

As mentioned by Sharma and Narula (2020), the fashion and textile industry of India has its distinct set of problems when it comes to integrating sustainability. The bell shaped structure show that the informal sector which takes about 70% of the value admits the concealment of labor and environment indices. Lack of availability of clean technology and money restricts the use of sustainable practices. Also, gaps in infrastructure, including poorly designed facilities for the control of waste, lead to poor environmental conditions as well. Consumers give value to products that come in relatively cheap and thus producing these goods involves little heed to sustainable standards. In addition, the level of consumers' consciousness regarding sustainability in fashion is still low, thus affecting the demand for environmentally friendly goods. To tackle these issues, there must be collaborations from the policymakers, businesses, and customers.

This paper identified the following challenges as the key hindrances in the shift towards sustainability for the fashion and textile industry in India. The toughest issue is restrained by the relatively large shadow economy and unorganized sectors that hinder the provision and enforcement of labor and environmental regulation. Currently, many processes used in the industry indeed consume substantial amounts of water, so the industry's activities exacerbate the water scarcity problems, for example, growing cotton or dyeing textiles. Furthermore, there is still no efficient solution for the disposal of used textiles as the problem of recycling remains quite acute. Some threats that have an impact on the sustainability of the fashion industry include; consumer knowledge of green fashion and the high cost of green products, which are barriers to the market.

Besides, cost-competitiveness remains a dominant priority of the industry that pays inadequate attention to sustainability guidelines/regulations.

2.7.3 Strategies for overcoming implementation challenges

Some effective strategies could be adopted to handle the implementation challenges in the fashion sector. Ensuring the research activities through developing new sustainable materials cost implications in the long run reduction. Technological advancement and supply chain partnerships help improve the transparency of the entire supply chain, thus addressing ethical issues (Park and Li, 2021). Improving the sustainability position of business objectives and making consumers aware of the benefits of sustainable products can transform the demand. Working with other industry players and stakeholders to set up unified best practices regarding Sustainability and impacting policy also contributes to creating positive structural change. In the long run, it is essential to promote and uphold Sustainability in organizations by advancing leadership support and the active participation of employees so that organizations can sustain and remain profitable, socially responsible, and environmentally conscious.

2.8 Opportunities for Improving Network Reliability through Sustainable Practices

2.8.1 Innovative Sustainable Practices Enhancing Reliability

Various measures can be taken to increase the reliability of the primary network and reduce its environmental impact through solutions unique to fashion retail. For example, blockchain technology improves supply chain quality by ensuring that purchasing is done ethically and the chances of disruptions are prevented. Replacing energy from non-renewable sources with renewable sources is a way of reducing emissions and protecting facilities against unpredictable hikes in energy costs. In addition, improving delivery routes and packaging leads to less emissions while enriching delivery optimization. Consulting with suppliers to develop environmentally friendly products and work to prevent the depletion of scarce resources also enhances Sustainability and reliability. These sustainable initiatives increase the operations' reliability and respond to consumers' demand for sustainable fashion, thus creating long-term visibility and profitability in the apparel industry.

2.8.2 Technological advancements supporting Sustainability and reliability

Technological innovations significantly enhance Sustainability and reliability in different sectors, including fashion retail. Helo and Hao, (2021) mention that advanced technologies like AI help better supply chain management through innovations like predictive demand. This aspect helps reduce excess inventory or overstock, reducing wastage. Transparency is another level boosted by IoT sensors as they can monitor the origin and condition of goods in the supply chain and prevent unethical sourcing. A distributed ledger provides supporters with high security and a complete transaction history for increased reliability.

In the viewpoint of Ismworld.org. (2023), to overcome these challenges it is necessary for the government, industries and the consumer to come up with a joint effort to extend support to the promotion of sustainable fashion to make sustainable fashion the ultimate destination in India. Technology is a powerful medium in improving sustainability and reliability in the fashion and textile industry. The concept of block-chain is highly transparent making it useful in tracking materials and ethical practices in the supply chain. This helps in avoiding counterfeit products being sold in the market and the accountability of a product that was manufactured. In addition, big data and the application of artificial intelligence in determining when production demand will be high can also enhance production bearing in mind that these intelligent tools can also minimize wastage.

2.8.3 Future trends in sustainable supply chain management

The advancements in information technology and the expansion of the consumers' expectations about SSM are two trends that are likely to contribute to the future trends of sustainable supply chain management. From the viewpoint of Fontana et al.(2021), one trend is using a circular economy in developing products with a long life span that can be recycled. AI and machine learning capabilities will continue to enhance the future supply chain by processing a tremendous amount of data and making demand predictions for the supply chain. Integrating blockchain solutions remains significant in improving supply chain transparency and protecting against illegitimate actors and unsustainable practices.

People from different organizations will work together, and various stakeholders will create alliances with other organizations to promote sustainable management since there are issues of economies of scale and sharing of resources. However, there has been a shifting focus on social

Sustainability, labor rights, and social involvement. These trends suggest a transition towards systemic, integrated, and reciprocal approaches toward sustainability. Sustainability of the supply chain risk management practices to reduce the adverse effects on the surrounding environment and promote responsible and ethical logistics practices in supply networks within the global supply chain.

2.9 Conceptual Framework

2.9.1 Theoretical foundations

"Resource dependency theory (RDT)" is focused in the context of fashion and textile supply chains; the incorporation of Sustainability has become a pertinent topic for research and incorporation. This sub-process involves incorporating environmental and social responsibility into a business's self-interest to eliminate risks, increase the dependability of business processes, and respond to new consumer requirements (Gao et al., 2023). The conceptual frameworks for assessing the impacts of sustainability efforts on network availability are associated with various paradigms and frameworks that would be used when it is attempted to understand such complexities systematically.

"Dynamic capability view (DCV)" has incorporated the ability of an organization to change, improve, and develop in the given context (Pfajfar et al. 2024). For instance, when it is the face of regulatory transformations or when they have to respond to changes in the demand of consumers for sustainable products. This view is particularly relevant when evaluating the likelihood of sustainable practices as fashion retailers rebuild supply chain strength and integrity. In addition, as institutional theory postulates, organizations are institutions, and their actions are influenced by the institutional context: using eco-friendly standards to gain competitiveness.

2.9.2 Key variables: sustainable practices, network reliability, supply chain consistency

- Sustainable Practices: Sustainability in the fashion retail supply chain is a multifaceted approach, an umbrella of initiatives to reduce the negative environmental impact and promote ethical sourcing (Piñeiro et al. 2020). This includes using environmentally friendly materials, power and energy, and materials produced using fair labor practices, such as circular economy models.

- Network Reliability: System dependability refers to the degree of dependability that supply chains and their configurations offer in terms of service and reliability in various conditions (Amin Shahraki et al., 2020). This encompasses decreased interference, meeting delivery deadlines, and other matters relating to the supplier relationship, product and service delivery, and environmental factors.
- Supply Chain Consistency: Supply chain consistency entails having a steady and reliable supply chain system to guarantee that the products delivered to the consumers meet the required quality standards per the agreed time code. Besides the facility of control that sustainable practices bring to the organization, they also help reduce variability in the supply chain in sourcing, production, and distribution.

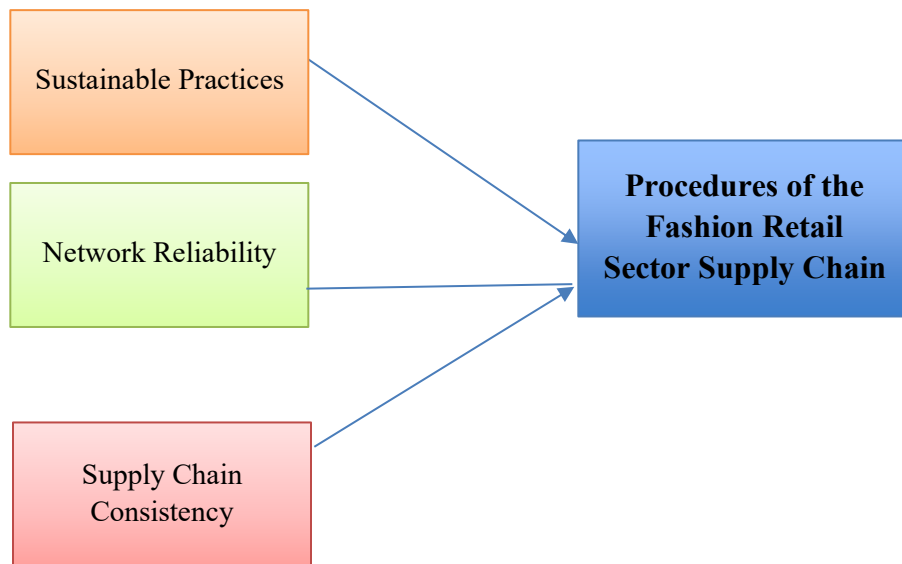


Figure 2.9: Conceptual Framework

(Source: self-developed)

2.9.3 Proposed model for evaluating the effect of sustainable practices on network reliability

A proposed model for evaluating the effect of sustainable practices on network reliability in fashion retail supply chains integrates several key components: A proposed model for assessing the impact of sustainable practices on network reliability in fashion retail supply chains integrates several key components:

Measurement of Sustainable Practices: Create a tool that would help measure the degree of Sustainability in supply chain management. This may include measures like reducing the carbon footprints, the efficiency with which wastes are managed, and how the combination of the suppliers has been environmental.

Analysis of Network Reliability: Apply quantitative measures, such as the delivery reliability index, inventory cycle time, and disruption, to compare the reliability performance of the supply chains.

Integration of Dynamic Capabilities: Assimilate the part of the paper that introduces the dynamic capability view of how fashion retailers can adapt and sustain a sustainability process.

Impact of Institutional Pressures: Examine the forces from institutions like regulatory commissions and consumers' demand and their impact on network reliability regarding the adoption and efficiency of sustainable practices.

2.9.4 Framework for assessing opportunities and challenges

The framework for evaluating opportunities and challenges in implementing sustainable practices in fashion retail supply chains includes:

Opportunities: Discover better situations like reduction of expenses with greater productiveness, better reputation and consumer loyalty, market access to customers aware of sustainability problems, and better insurance against unpredictable regulation or environmental changes.

Challenges: Some of these include the first costs of implementing sustainable technologies and raw materials, the issue of supply chain washiness, organizational cultures' reluctance to change, and the problem of synchronizing across global supply chain networks.

2.9.5 Application of the Framework to Tempe Grupo Inditex (zara), India

According to Miranda Encarnación, and Roldán, (2021), rapid fashion has changed the international apparel consumption pattern since the early 1990s, producing a diverse range of stylish yet cheap clothes. The pioneer and market leader in this model is Inditex, the mother company of Zara, which evolved into the world's largest fashion retail chain. Inditex staff comprised almost 180000 people, while the number of stores exceeded 7500 in 122 countries; the company's sales reached more than 28000 million euros by 2019. This article chronicles the Inditex company starting from its humble roots in the 1960s up to the present time and the following stages and factors define this company's success. As previously mentioned Inditex group which controls most of the Spanish firms has certain competitive strengths which include flexibility in altering with the ever-changing fashion fads and a well-developed distribution channel that has a role to play in the recent internationalization of fashion firms of Spanish origin. The company has also experienced some threats posed by global competition and advancement in e-commerce. This company's expansion of the firm Tempe Grupo Inditex into India is to start producing before Christmas in West Bengal, with the support offered by the government of the state which offers 100 Acres of concessional land and other support (F2F News Desk, 2023). This

expansion also indicates Inditex's utilization of global prospects as well as a method of sustaining competitiveness as well as responding to changes in the fashion market.

Reviewing the observations of India (2023), this can be illustrated by Tempe Grupo Inditex's recent entry into West Bengal which remains a continuation of this company's trends of seeking to consolidate its manufacturing networks across global regions and penetrate new markets. Inditex can capitalize on the existing opportunities within what is becoming a prominent textile market, which is in congruence with the fast fashion company's preference for fast product development and cheaper production at the time of setting up production in this country. Concessional land given by the state government of West Bengal also boosts Inditex's pledge to sustainable and profitable expansion into new territories. This move also outlines the company's flexibility to get through the tough competing forces in the export markets and ever-changing market forces within the fashion industry worldwide to stay rate ahead.

2.10 Zara's Supply Chain and Sustainability Practices in India

2.10.1 Overview of Zara's supply chain model in India

Following the overviews of Singh, (2020), the case analysis strives to ascertain how variables singular to Zara such as social network sites and supply chain support the company's growth. This company still occupies its niche through influencer marketing, social media presence, impressive stock replenishment, and timely response to the trending goods' demands at the same time as adopting a low level of traditional advertising. However, with increasing stiff market competition, this might change and Zara have to use more direct promotion. Both primary and secondary research data are employed in the study of these factors, thereby providing new information that entails an understanding of the customers' expectations and areas of potential improvements for sustaining Zara's supremacy in the fashion retail industry.

2.10.2 Current Sustainability Initiatives at Zara India

According to He, (2022), this article discusses how the firm manages to solve these problems with the help of IT technology and 3D digital tools to increase market value after the pandemic outbreak focusing on the analysis of the sustainability issues in the supply chain of Inditex-Zara. In the past the nature of Zara's fast fashion operation was not perceived as incongruent with bibliographic and media sensibilities, failure to change with the tide may compromise customer satisfaction.

Analyzing this company's data along with the data from other sources, the paper points to the possible changes in the company's supply chain scheme that are concerned with sustainability and internal strategy shifts to enhance the company's performance in the market.

2.10.3 Alignment with global Zara sustainability strategies

These initiatives align with Zara's international sustainability plans, which include minimizing environmental footprint, increasing supply chain traceability, and practicing decent work principles. Zara has made much effort to practice CSR internationally; its goal is to establish environmental and social concerns as an essential part of the organization's business strategy. This improves operational effectiveness in the competitive fashion industry.

2.11 Conclusion

The results show that SCS, directly and indirectly, improves supply chain reliability by managing various sustainability risks depending on the degree of sustainability governance. Incorporating high levels of SCS can only improve supply chain reliability if effective governance structures are established to make the most of adopting sustainable practices. For instance, a company may need to be more careful when using costly, environmentally friendly, and standard material, which is relatively cheaper but not ecologically friendly. These efforts complied with sustainability goals and fostered employee commitment and creativity to boost operational dependability and firm performance. The above examples indicate enhanced reliability and performance of the firm through business sustainability capabilities of environmental, economic, and organizational integration into the core business and competitive advantage.

Chapter 3: Methodology and Research Design

3.1 Overview

The research methodology chapter is assigned a perfect planning for the study in an in-depth process. In this section, the “research onion” assists in proceeding with a perfect strategical development in this study. “Saunders's model” is incorporated with this “research onion” to justify the entire methodological work for this research (Gul, 2019). All the strategies are clarified with philosophy, approach, design, method and data collection along with analysis. All these strategies help to frame the entire methodological system, which could make better analyses in further chapters. Here, all the layers are explained with respect to this study, which focuses on the reliability and sustainability of “Tempe Grupo Inditex (Zara)” 's supply chain in the fashion retailing industry.

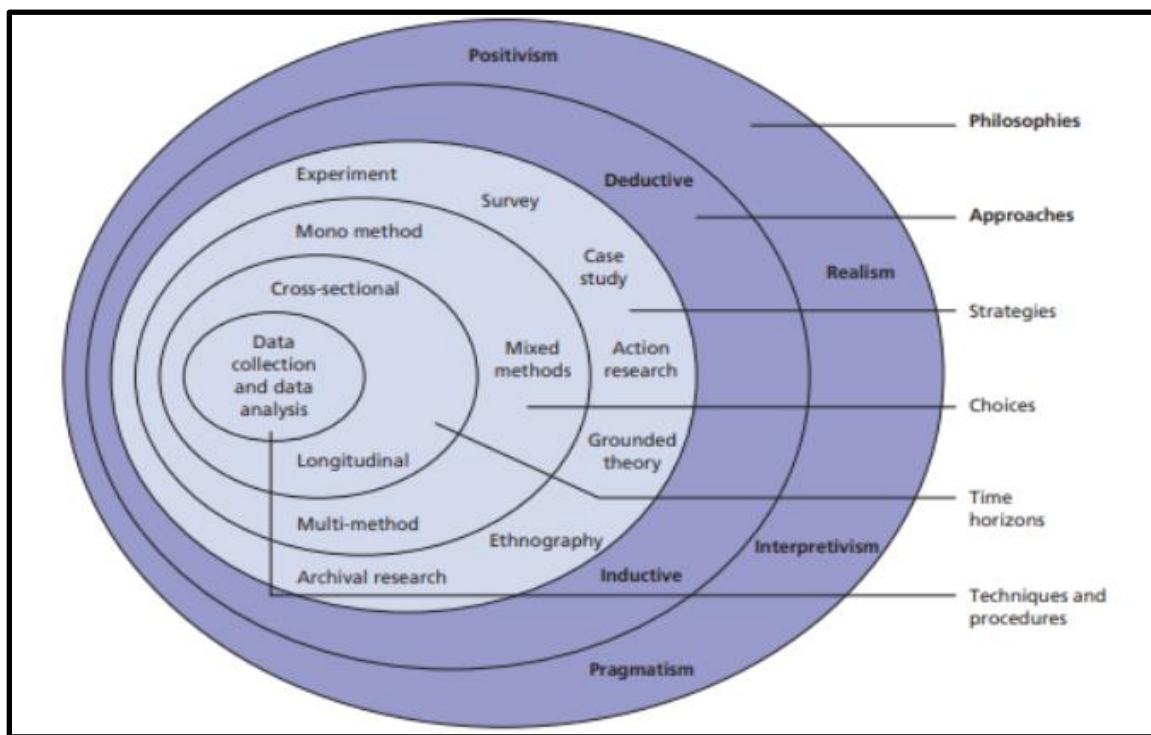


Figure 3.1: Research Onion

(Source:15 Writers, 2019)

The outermost layer of the Research Onion is the “research philosophy”. For this inquest, the philosophy, that has been used is “Pragmatism”, which is especially suitable for research aimed at

solving practical problems. “Pragmatism” focuses on the practical application of ideas through actions taken to test their validity and usefulness (Kelly, 2020). In this study, pragmatism has enabled me to address issues relevant to real life within “Tempe Grupo Inditex (Zara)”’s supply chain and to derive effective solutions from that. Moving inward, the next layer would be that of the research approach. The “Inductive approach” has been selected, which is most appropriate for developing theories from observed data. This has allowed the research, upon observing specific instances within “Tempe Grupo Inditex (Zara)” ’s supply chain, to develop theories related to network reliability and sustainability practices.

The “research strategy” layer includes the overall plan for answering the research questions. This study has implemented a combination of “Interviews” and “Case Study” strategies to collect qualitative data. Interviews with five people: Supply chain managers, general manager, Operation supervisor, Quality assessment supervisor, and Logistics and operating manager at Tempe Grupo Inditex (Zara) created detailed insight, nuanced into operational practices and challenges. At the layer of research choices, the “Mixed Method approach” is chosen. “Mixed method” translates to the integration of “qualitative and quantitative data” collection and analysis techniques (Nanthagopan, 2021). This “mixed-method approach” helps to reduce participant bias and limits the chance of manipulated data.

For the time horizon layer, a “Cross-Sectional” design has been chosen. This includes data collection at one point in time. In such a way, a “cross-sectional study” aids in the assessment of the current state of “Tempe Grupo Inditex (Zara)”’s supply chain practices concerning reliability and sustainability, without temporal changes interfering with the results. The innermost layer involves the specific techniques and procedures of data collection and analysis. For this study, “Thematic Analysis” has been used in order to analyze the qualitative data obtained from interviews and case studies. Open-ended questions in interviews ensured rich, detailed responses; case studies provided contextual depth.

3.2 Research Philosophy

The real-world investigation and observation of the phenomena based on the topic maintain proper employment of research philosophy. There are various categories of research philosophy realism, positivism, pragmatism, and interpretivism research philosophy which aid in better conduction of the entire study (Saliya, 2023).

There is a philosophical benefit to this type of philosophy in the collection of quantitative data related to supply chain reliability, such as delivery times, defect rates, and metrics of sustainability compliance. The researcher has chosen a “*pragmatism research*” philosophy for the perfect utilisation of this work. Pragmatism is a philosophy focusing on the finding of practical solutions for real-life issues. One of the basic tenets of this approach in assessing supply chain reliability under supplier sustainability is that mixed methods are appropriate in the examination of complex issues. That is to say, qualitative insights from the interviews have been combined with quantitative data so as to provide recommendations in terms of practice for their betterment. The real-world interaction can make a better working description, which is possible by employing “pragmatism research” work (Cheong et al. 2023). The pragmatism strategy has the perfect ability to gather information and understand major working phenomena based on the supply chain of “Tempe Grupo Inditex (Zara)”. This type of research assists in addressing the challenges based on the real nature and indication of the supply chain in the particular company by giving actioning investigation.

3.3 Research Approach

While the “deductive approach” tests the existing theory by “hypothesis-driven research”, the abductive approach comes up with new hypotheses based on surprising observations. “Realism and positivism” provide empirical data regarding performance metrics (Shaffer, 2020). “Pragmatism” provides practical solutions through mixed methods, and interpretivism discovers the stakeholder perceptions regarding supplier sustainability in the light of evaluating the reliability of the fashion retail sector's supply chain. All these philosophies combined give in-depth knowledge. The deductive approach relies upon the pre-existing theories and the abductive approach generates new hypotheses; neither has been chosen for the study. Basically, it was done so because the design of the study was to formulate actionable insights with observed data and practical solutions rather than theory testing of hypothesis generation.

The “inductive approach” has gained better consideration in this study through the processing of the theoretical frame, which ultimately completes with an in-depth discussion of the topic. The “inductive approach” is determined as the initiation of theories and forms a generalization approach for the work (Ní Dhíorbháin, 2022). This approach makes sense to the supply chain process in “Tempe grupo inditex (Zara)” and whether sustainable development has been

proceeding with following this strategy. This strategy assists in developing effective theories reliable to the supply chain and this could align suppliers' sustainability.

3.4 Methodological choice

The research strategy assists in managing the development of a perfect frame due to better analysis based on the major topic. “Action-oriented research” solves a certain problem through active collaboration with stakeholders (Ramnath Subbaraman et al. 2020). This, in turn, incorporates iterative cycles of planning, acting, observing, and reflection. Although this approach is the most effective in implementing changes and having an opportunity to observe their effects, it was not applied in this study because the primary goal is to understand and evaluate existing practices rather than intervene and bring about immediate changes. Moreover, “action-oriented research” is a long-term commitment and is very time-consuming; it would not have been possible within the scope and time constraints of the study.

3.5 Research Strategy

This study uses a qualitative approach to explore the key dynamics of the Tempe Grupo Inditex (Zara) supply chain, namely reliability and sustainability. In contrast to quantitative research, which consists of the collection and use of numerical data to make generalizations, qualitative research emphasizes description, description, and understanding of contexts (Wallwey and Kajfez, 2023). Qualitative research is especially appropriate for this investigation because of the highly nuanced and multilayered characteristics of supply chain management. Thus, the objective of this study is to identify details and underlying factors of reliability and sustainability in relation to specific cases of Zara’s supply chain within India.

This level of detail is crucial in the assessment of the opportunities and risks prevalent within the supply chain. Case studies offer a detailed and grounded view, so as to better analyse Tempe Grupo Inditex’s activities, strategies, and issues (Husband, 2020). The research must be of specific incidences to be able to understand the intricacies of the supply chain as it relate and interface with other variables. To supplement this, qualitative data includes interviews with Tempe Grupo Inditex employees. These interviews provide first-hand information about the company’s functioning, its issues and beliefs towards reliability and sustainability. Utilizing exploratory interviews with the main stakeholders in the supply chain can help the research reveal latent problems, understand their drivers, and focus on the people aspect within the chain.

Interviews and case studies are also a good way to collect data because they give detailed information about the investigated topic. In this case, the qualitative approach used in this study would be useful in giving an insight of the many factors that affect Zara’s supply chain and give a richer understanding of Zara’s supply chain than a quantitative study. Lastly, the aim of this study is about availing comprehensive and contextual knowledge about Zara’s supply chain that would be useful for future research and the enhancement of reliability and reliability of the supply chain.

3.4 Data Collection Process

Sources

The primary data has been collected from the participant's conducts through the interview process. This is maintained and justified through the secondary sources regarding the primary insights.

Interview Questions	Literature review
<p>Topic 1: “Sustainable Practices in Fashion Retail Supply Chains”</p> <p>Q.1 How does Tempe grupo inditex (zara) operationalize and achieve a measurable impact on environmental sustainability within its textile operations?</p>	<p>“According to Vadakkepatt et al. (2020), Sustainable fashion retail sustainability can generate positive returns that could benefit the entire affected, adopting sustainable consumption of the earth's resources and fairness to people.”</p>
<p>Q.2 What initiatives or practices does Tempe grupo inditex (zara) have in place to address the triple dimensions of sustainability in supply chain operations?</p>	<p>“In analyzing this case, fashion retail supply chains have increasingly adopted sustainable practices in three main dimensions of resources: <i>'environmental, social, and economic'</i> (Nayak et al., 2020).”</p>

<p>Topic 2: “Network Reliability in Fashion Retail Supply Chain”</p> <p>Q.3 How does Tempe grupo inditex (Zara) ensure any network in its supply chain is reliable, considering the problems associated with maintaining an ability to deliver a product or service in specification?</p>	<p>“Network reliability in supply chain management can, therefore, be described as the capacity of a supply network to deliver a product or service within specification and at the expected time in the face of possible hitches or unpredictability (Aldrighetti et al., 2021). ”</p>
<p>Q. 4 How has Tempe Grupo Inditex (Zara) been able to balance this volatility of demand and maintain reliable performance with such fluctuating consumer preferences and buying trends?</p>	<p>“Fluctuations in demand in fashion retailing are dynamic and consumers’ behaviour which affects the reliability of the supply chain (Kumar et al., 2020). ”</p>
<p>Topic 3: “Supply Chain Consistency in Fashion Retail”</p> <p>Q. 5 How has Tempe Grupo Inditex (Zara) been continuously feeding the supply chain with information about quality and timely deliveries via so many channels for such a long time?</p>	<p>“Supply chain stability in fashion retail can be defined as the consistency of the supply chain in providing products and services of similar quality, in a similar time and manner, in various channels and over a certain period (Jestratijevic, Rudd and Uanhoro, 2020).”</p>
<p>Q.6 How does Tempe grupo inditex (Zara) manage a supply chain of such products to handle stock outages and demand fluctuations?</p>	<p>“The products need supply chain management because they control the stock outing, usually characterized by demand fluctuations (Chan et al., 2020). ”</p>

Table 3.4: Major sources of the primary data

Access and Ethical Issues

The ethics of the study goes to prove that the quality and credibility of primary data sources have a great bearing on the reliability of research findings. In this research piece, interviews were done with the supply chain managers by rigorous selection of a pool of participants. Ensuring ethical standards is paramount which highlights all issues of confidentiality, privacy, and consent are the most important in-depth interviews (Lenton et al. 2021). The participants have been provided with a detailed document containing all the details of the research, including the topic, questions, objectives, expectations, and the time frame before the interviews.

To maintain the rights of participants and avoid any compromises to research validity, this research followed high ethical standards. People from Tempe Grupo Inditex (Zara) signed an informed consent form before interviews where they permitted to discuss personal information and record the conversations. The participants' identity and anonymity were protected by honoring confidentiality as a way of building trust. Interviews were conducted in a professional manner preserving participants' rights to self-determination and providing conditions that were favorable for discussion.

In an effort to complement primary data, case studies were integrated as they offer a wider perspective of the industry. All the peer-reviewed literature was carefully reviewed to ensure the triangulation of findings to make the research more reliable. As much as primary data enhanced the study, effort was made to assess the credibility of the sources and cite them appropriately. Collected through questionnaires, primary data enables research to retain its accuracy and credibility while providing valuable insights into network reliability in the supply chain of the fashion and textile industry under supplier sustainability.

3.5 Approach to Data Analysis

The “data analysis” is defined as analysing, interpreting and justifying all the major insights regarding the subject. From the viewpoint of Mölder et al. (2022), “qualitative and quantitative analyses” have been categorised within the data analysis process. In the “quantitative analysis”, factual knowledge is stated for the justification and this allows better consideration of major subjects. The fact-based and relevant work information with a “numerical approach” has created

perfection within the work based on supply chain and supplier sustainability in “Tempe grupo Inditex (Zara)” in West Bengal. This has not been employed in this work as this may not adorn descriptive work. Apart from this, the qualitative analysis was conducted with proper investigation and in-depth work to obtain major insights.

The obtained qualitative data through interviews conducted with supply chain managers has critically been assessed and then combined with the findings of secondary data, enabling wider and stronger conclusions. The “qualitative data analysis method” adopted for this study is the “Thematic Method”. This recognizes, examines, and reports on the patterns found within the information collected. “Thematic analysis” is useful in conducting this study as this might help in doing a critical review of these complexes (Ozuem et al.2022).

The choice of “qualitative analysis” in this piece of research work, more specifically the “thematic method”, is driven by the need to capture the depth and complexity of the obtained data. This “qualitative analysis” is the in-depth exploration of subjective experiences and views by supply chain managers something central to operational nuances and challenges. This would make it possible, informed by existing research, to pick up patterns and themes that otherwise remain hidden to quantitative methods alone, rich in detailed insights; all crucial toward the development of a deep understanding of the supply chain. The research will unfold as a quest for an in-depth understanding of certain practices, challenges, and views that exist along “Tempe grupo Inditex (Zara)”’s supply chain. Thus, "qualitative approaches" are especially relevant to, and hence have been developed in this study.

3.6 Conclusion

The Saunders Research Onion has helped to neatly design the methodology that will be adopted for the research to be used in assessing the supply chain reliability and sustainability of “Tempe grupo Inditex (Zara)”. Hence, the adoption of a pragmatic philosophy and an inductive approach combines only qualitative methods, such as the in-depth interview and the case study method, to drive home rich, contextual insights. Data that is qualitatively analyzed offers thematic and nuanced insights into operational challenges and practices. While quantitative methods have been dismissed as having a very limited capacity to capture insightful data, the chosen methodologies make sure that all dynamics of “Tempe grupo Inditex (Zara)” associated with supply chain flows

are comprehensively explored and finally endowed with actionable recommendations toward the enhancement of its reliability and sustainability.

Chapter 4: Findings and Analysis

Introduction

The supply chain risk management process, technology integration and reliability, and quality assurance of Zara are going to be examined in this chapter. The chapter also interviews some of the most important actors in the fast fashion business to understand how Zara keeps up a competitive advantage. The knowledge acquired also expounds various Zara tactics of supply chain manageability dependability, that is, diversifying risk, supplier development and advanced logistics, giving the knowledge acquired a detailed view of the company's handling of issues relating to operational reliability.

Analysis of Findings

Theme 1: Textile operationality and Impact of environmental sustainability on Tempe grupo Inditex (Zara)

By the findings from 'Respondent 1', it has been analysed that, Tempe Grupo Inditex (Zara) follows the aim to deliver sustainability and focus on being more sustainable with its products in the future. It is believed that the company will follow the roadmap for the near future too. The respondent provide that *"The company actively incorporates sustainable materials into its products, along with, prioritizing organic and recycled materials, aiming to reduce their environmental impact"* (Cui and Fan, 2021). Therefore, Tempe Grupo Inditex (Zara) focus on supply chain management and brand awareness being adaptive to the market transitions has helped the company to grow as a successful brand (Cui and Fan, 2021).

On the other hand, 'Respondent 2' claimed that Tempe Grupo Inditex (Zara) monitors the environmental standards and focuses on recycling and reusable products. The main aim of the company is to focus on reducing the adverse effect on the environment and provide eco-friendly products (Davis, 2019). Moreover, 'Respondent 3' provided that the company believes in reducing waste like water and focusing on the management of energy. Moreover, the company believes in a sustainable mode of business and setting long-term goals for the company. Emphasis is provided so that the company achieves zero net emissions by 2040 (Conti, 2019).

Therefore, the company believes in protecting biodiversity. 'Respondent 4' discusses that the products of the company go through different biodiversity tests therefore a check is always being

catered to maintain environmental standards. The goal of the company is to minimise unnecessary disposal and maintain operations within the supply chain focusing on sustainability (Live, 2023). The targeting marketing strategy of the company is to focus on sustainability across the supply chain. ‘Respondent 4’ provided ethical consideration is not only provided during production but also effectivity is maintained for logistics and awareness on packaging and delivery is maintained (He, 2022). He also discussed that “*Our focus remains on supply chain engagement for being sustainable and ethical*”. Therefore, the company’s strengthen to reduce carbon emissions against each shipment, the company plans to be more transparent and reduce emissions in the future as a long-term goal.

Theme 2: Fostering techniques by Tempe Grupo Inditex while addressing triple dimensions of sustainability

‘Respondent 1’ discussed that “*Tempe promotes circularity by aiming to use more sustainable raw materials in their production*”. Therefore, the company focuses on minimising environmental issues and aims to use eco-friendly raw materials for production. Thus, production is something where the company checks over a lot of purposes and implements effective Inditex standards for the environment. Reuse and recycling is something that the company focused on to reduce the usage of unnecessary waste and ineffective production of raw materials. On the other hand, ‘Respondent 2’ claimed that Tempe grupo Inditex (Zara) “*Tempe tries to maintain close relationships with a huge range of manufacturers across the globe*” where the suppliers are provided to follow strict Inditex mainly focusing on the human, labour rights and sustainability of the environment. Therefore, emphasis has been provided by the company on fast-growing fashion based on the sustainability of the environment (Sitaro, 2020).

‘Respondent 3’ stated that the company focuses on minimum wastage of water and effectiveness in providing worker rights. Moreover, the reduction of highly volatile chemical engagement is something the company looks after while focusing on increasing productivity (DFreight, 2023). Furthermore, ‘Respondent 4’ declares that “*The stable and sustainable supply chain is ensured by Inditex by gathering accurate knowledge about suppliers*”. The purpose of such an assessment is to optimise the standards of the products and keep them to be green (Candrianto *et al.*, 2024). As per ‘Respondent 5’, apart from the production procedures logistics and supply performance are also assessed to provide the best service in terms of sustainability identify the areas for improvement and create a better impact on the environment (López *et al.*, 2022).

Theme 3: Addressing the reliability of the supply chain considering the maintenance issues

Here the third question is based on the trustworthiness of the supply chain considering the maintenance issue in Zara. Zara is a business company that is a prominent player in the fashion industry (Li, Liu and Zhou, 2024). This company ensures that the dependability of this company's supply chain is based on a multifaceted approach that analyses the strategic and operational management of this company. Based on interview question 3 this part highlights each person's point of view who participates in the process of interview.

'Respondent 1' is a supply chain manager of the company Zara who claimed "*it is crucial for Zara to maintain reliability in their supply chain and management of supplies*". Adjoining to the opinion he also mentioned, that is important for that person is risk management, and this is connected to the over-dependence on one supplier or geographic region. Outsourcing of inventory distribution enables Zara to be prepared for future demand by forecasting the same (Kondo and Vicente, 2023). Based on the analysis of the supply chain manager interview manager answered that key issues that emerge are well handled through proper communication, and diverse and flexible relationships formed with the suppliers.

Here 'Respondent 2' is the general manager of this company. The general manager explained various strategic and operational supply chain risk management measures that have been executed by Zara to enhance the reliability of its supply chains. Hence, it should be analysed that, the company used many refined technologies to update its product stock and enhance the supply chain. Alternatively, Zara's Supplier Development programs assist the suppliers in building their capacity to address this company's requirements.

From an operating point of view 'Respondent 3' which is the operational supervisor, the operations supervisor talked about system improvements performed to minimise errors and operational hold-ups. This strategy of the company is based on the lean manufacturing method, which emphasises the reduction of waste and better use of resources. Based on the analysis he stated that "*it is important to control quality to ensure conformity in all aspects of the production cycle*". The operational supervisor also stated that they can prevent specific problems of the company which the company has been facing in the production process of this company's product.

'Respondent 4' is the quality assessment supervisor of the company Zara. Similarly, The quality assessment supervisor mentioned insufficient measures of supply chain dependability as the key

factor towards acknowledging the significance of strong quality security tools. Suppliers must meet the Zara requirement and to this end, high-quality standards of supplier ratings and periodic inspections are set up (Torrens Valles, 2023). Based on the analysis of this quality assessment supervisor answered the quality team is always trained and encouraged to update with specialization quality which is significant for the company.

‘Respondent 5’ is logistics and operating manager pointed towards the importance of logistics in maintaining stability in the supply chain. A good network of transportation, advanced technology used in storage, and timely delivery of the products is crucial for a company (Bhutta and Ahmad, 2021). According to the analysis of logistics and operating manager interviews having strong links with other supplier companies is essential for the company Zara to keep its service standard and based on the answers they extra carefulness strategies to maintain and protect the company from any potential problem.

Theme 4: Strategies by Tempe Grupo Inditex against the volatility of demand and reliability of consumer choice and fast-growing patterns

Here the third question is based on Strategies against the volatility of demand and reliability of consumer choice and fast-growing patterns in the company Zara. The company Zara variously balance its volatility of demand and maintains reliable performance which helps the company to maintain its position in the market (Teke, 2022).

Here ‘Respondent 1’ is the supply chain manager of the company Zara. the supply chain manager of the company Zara responded to this question by giving their opinion and saying that, Managing fluctuations in demand is always unavoidable. The company’s demand by employing a system of demand forecasting which can be past trends in the market. The supply chain manager thus answered “*It is, therefore, essential to bring on board our design and merchandising departments to ensure production is in synch with consumer demands*”.

Here ‘Respondent 2’ is the general manager of Zara. Specifically, the general manager of Zara explains “*Another supply chain issue that Zara has been able to handle effectively is that of demand fluctuations, and this has been done through practicing flexibilities*”. This process can be done by practising flexibility in the company and maintaining and handling all of these issues. Zara’s fast-fashion business model permits them the opportunity to promptly bring in new fashions and respond to shifts in consumer preferences (Liu, Huang and Pan, 2024). This can happen

through employing the latest tools in the business. The company has good contracts with the suppliers providing flexibility to adapt to changes in the business.

From an operating point of view 'Respondent 3', the operational manager has stated that the manager ensures observed to allow for meeting demand when it is high. Based on the analysis of the operational manager's answers they make a point of practising wasted manufacturing in the management of resources while cutting on the time taken to deliver products which is very significant for the accompany. The company Zara's employees occasionally interact with the supply chain team of this company which is very crucial for ensuring that the production of this company is well (Luz, Wreaves and Paschoalotto, 2021).

Here 'Respondent 4' is the quality assessment supervisor of the company Zara. Besides, the quality supervisor stated that they have the responsibility of maintaining the stability of the quality of the products of this company regardless of the high fluctuations of this company's product. Based on the analysis of the quality assessment supervisor answered it is clear that they always pay attention to the material quality of this company's product and they also pay attention to how the product of this company is being manufactured to ensure that no defects are noticed to affect the customers. This policy allows the company to have good quality control for all its products as well as easy adaptation of new designs and materials (Ha, 2021).

'Respondent 5' is logistics and operating manager pointed towards the importance of Demand volatility. This is needed because it to be integrated when it comes to managing the flow of goods in the company so that in the company time a string logistic platform can be maintained. Based on the analysis of logistics and operating manager point of view in the company logistics arranging over long distances is done using the latest transport management information systems to that can ensure the most efficient ways and delivery schedules which are used in the company. Based on this analysis logistics and the operating manager pointed out the importance of having effective and healthy relationships with logistics service providers because this can reduce delays in product delivery and help to fulfil other demands of customers.

Theme 5: Informative Strategies of Tempe Grupo Inditex (Zara) to maintain its effectiveness and deliveries within the supply chain

'Respondent 1' can update and make changes to the chain with new information with the help of a communication system for enhancing quality and timely delivery to the customers. The

respondent provided answer that *“We utilize Enterprise Resource Planning (ERP) platforms in maintaining the communication of the suppliers, distribution centers, and stores regarding the efficiency of product distribution”* (Song., 2021). Utilizing timely data making changes in the suppliers, and the schedule of audit systems become easier. SC’s strategic model can be implemented to analyse the market trends and do the needful according to the customer demand. Whereas ‘Respondent 2’ stated that effective communication is crucial for operating a business. A communicative strategy is required to implement the operational practices and Technological advancement. Sometimes complex IT systems were used to handle the Integrated Supply Chain Management (Qin., 2023). It is essential to monitor the quality of the delivered products, as this ensures high management of the supply chain system. To identify future problem prediction analysis and building good relationships with the suppliers are very important. The company needs to adopt several fast fashion strategies for maintaining the quality of the product systematically.

While ‘Respondent 3’ provide the necessity of the multi-recipient and multi-sender approach to the TM systems to ensure the qualitative delivery massures. The measurements are required to identify the pattern using real-time data. The information can be shared with the help of digital dashboards and convey the required practices. Discussions with the production teams, suppliers and distributors can help solve quality-related problems (Singh., 2020). ‘Respondent 4’ shares the knowledge about a quality management system for the delivery where *“Performance metrics consist of real-time tracking systems and data analysis to track and document issues with product quality and delivery at various supply chain levels”*. Therefore, it is essential to monitor the delivery rates and take the feedback of the customers to reduce the chances of misunderstanding. On the other hand, ‘Respondent 5’ clearly specifies that effective supply chain communication is required for the growth of the logistics management systems. Centralized data provides valuable information related to the quantity and quality of the delivered products. Suppliers and distribution centres can help analyse the quality standards and delivery schedules to promote the variability of the supply

Theme 6: Management policies regarding supply chain to hinder stock blackout and change in demand chains

The interview ‘Respondent 1’ highlights the dynamic system of outrage and demand fluctuation in the current sales for correct stock requisition. The respondent also stated that *“The proposed model of an agile supply chain helps in the fast replenishment and the ability to work in changes”*.

The analysis specifies that they have a good partnership with the supply chain and logistics partners. Hence, it can be analysed that, people implicated a centralised system to review and recheck the status of products in the corporate warehouse and branch stores (Jha *et al.*, 2021). This facilitated the requirements related to replenishing stocks and regulating the supply for the demands. This will reduce the difficulties related to the stock management.

On the other hand ‘Respondent 2’ Suggests developing a system to increase the stocks according to the demand in the supply chain. Also, the present stock data can be utilized to identify the patterns and trends to make necessary changes. The supply chain facilitates the company with restocking and versatile acquiring strategies (Singh., 2020). Maintaining a good relationship with the suppliers and logistics is very much needed to reduce the disruption. ‘Respondent 2’ shares that they can strongly control the firm's inventory and ongoing sales data and have the analysis of the variability regulations related to the operations.

Whereas ‘Respondent 3’ shares his experience by claiming “*We as an Operations Supervisor are responsible for dealing with stock outages and varying demands through stock status tracking and demand estimation at the operational department at this level of the organization*”. So, they are well-connected with the suppliers and distribution centres and give their opinion on the fast restocking process and if any changes are required. In this context, the workers accordingly look after the market changes and trends to align the stocks according to the demand rate of the customers (Li *et al.*, 2024). They keep the organization up to date by stocking up on new things according to the preferences and requirements of the customers.

While the ‘Responded 4’ monitors the stock and works on increasing the quality within the stipulated time. They mainly focus on maintaining the bond with the suppliers to get additional offers and best quality products in huge amounts. Hence, people analyse this problem to solve it quickly, which can help to increase the demand rates. To manage the demand rate they mainly focus on getting feedback and make changes in their strategies (Sanders *et al.*, 2020). They mainly deal with suppliers to fulfil the stock requirements based on the demands so that it will enhance their brand’s image and satisfy the customers for purchasing their demands. ‘Respondent 5’ mainly handles the stock outage, and demand changes in the market to provide timely data and changes needed. They work with the suppliers to handle the restocking and reorder systems. Also collaborate with different vendors to manage time. It can be evaluated that, people in the workplace also adopt some potential strategies to deal with unanticipated stocks in the market. Finally, the

respondent shared that *“We also employ proper distribution strategies to avoid unanticipated stock-outs”*.

Discussion

The present research work outlines the theoretical literature to understand the robustness of network reliability and the sustainability of supply chains within the textile and fashion industry, mainly Zara in India. Most of the respondents expounded on some aspects of sustainability both in Zara’s supply chain and practices they get to adapt that had propelled the company forward.

Sustainability Focus:

Regarding the factor of environmental concerns, all the respondents expressed satisfaction that Zara has changed its production policy to using sustainable resources, recycling, and working towards zero net emissions in 2040 (Conti, 2019). The company has long-term objectives aligned to sustainability and the protection of biodiversity as seen by the strategic map. For instance, ‘Respondent 1’ and ‘Respondent 3’ revealed that Zara performs strict quality control to ensure that it complies with the environmental regulations whereby the organization reuses, and where possible recycles many of the materials that it uses. This commitment is further supported by the company’s measures towards water conservation as well as the management of energy utilities as pointed out by ‘Respondent 3’. This focus on sustainability not only fits in international commitments to environmental concerns but also provides Zara with an opportunity to improve on its brand image as a sustainable firm (Cui and Fan, 2021).

The questions were mainly based on the trustworthiness of the supply chain considering the maintenance issue in Zara. Zara is a business company that is a major player in the fashion industry. Based on the awards it is ensured that the company Zara provides basic elements that contribute to the supply chain reliability. On the other hand, the Outsourcing of product distribution enables Zara to be prepared for future demand by forecasting the same (Ye, Hung Lau and Teo, 2021). Alternatively, the general manager of this company has explained that various strategic and operational supply chain risk management measures have been executed by Zara to enhance the reliability of its supply chains. Zara is based on the lean manufacturing method, which emphasises the reduction of waste and better use of resources (Maula, 2022). Additionally, the logistics and operating manager of Zara pointed towards the importance of logistics in maintaining

stability in the supply chain. The logistics and operating manager also stated that the company need to keep its service standard based on the answers.

Supply Chain Management:

By evaluating the case of Zara, the study establishes that supply chain management is significant to operations and sustainable development. Some of the responses included the application of higher technology such as ERP for linking suppliers, distribution centres and stores to enhance the issuing of products and sharing of information on the same at the right time. Both, Respondent 1 and Respondent 2 explained that SCM required the right approach to proper communication within the supply chain and notable use of IT in the control and maintenance of product quality and supply chain efficiency (Live, 2023). Real-time data as well as digital dashboards help Zara to make the right decisions, forecast potential issues, and develop good relationships with suppliers that are rather important for fast-fashion strategy.

Stock Management and Demand Adaptation:

The results also revolve around the organization of orders and supplies and the possibility for Zara to quickly respond to new market tendencies. When talking about the organization of the interactions, respondents observed that it is crucial to have a system that lets them control the status of products and refill if necessary to not let the company face the problem of stock-out that does not meet customers' needs. The problems require strong and effective relationships with suppliers mentioned by "Respondent 4" and "Respondent 5" as the key advantage that allows Zara to constantly buy qualitative production and promptly adjust to the fluctuations of the market. This kind of practice of stock management not only fits the model of the fast fashion of Zara but also helps the organization to sustain itself in the new environment of the fast fashion industry (Song., 2021).

Strategic Risk Management and Supply Chain Dependability:

As it emerged from the interview with Respondent 1, Zara's supply chain reliability management includes risk management strategies. The manager also emphasizes the fact that Zara does not wholly depend on a single supplier or geographical area – this notion is important to minimize the risks of the supply chain. Through outsourcing of inventory distribution, Zara strengthens itself on issues to do with demand prediction which may arise due to market changes (Sanders *et al.*, 2020).

The manager also underlines the significance of the communication and the relations with multiple suppliers, because these aspects enable Zara to respond quickly to threats and have a rather reliable supply chain.

Technological Integration and Supplier Development:

When assessing the reliability of Zara's supply chain, the general manager respondent 2 explained the use of advanced technologies and strategic supplier development programs. From the view of the general manager the above technologies help to update the stock of products in operation in real time. Furthermore, Zara's Supplier Development programs also have the purpose of nurturing its suppliers so that can meet Zara's requirements (Ha, 2021). Not only does this approach reinforce a competitive position in Zara's supply chain but also builds sound relations with suppliers that are essential in supporting reliability in a volatile market.

Quality Assurance and Logistics Optimization

The importance of Quality control and or logistics was supported by Respondents 4 & 5 and revealed crucial aspects in Zara's supply chain operation. The quality assessment supervisor says (Respondent 4) that Zara should maintain strict quality standards and perform check-ups often to guarantee that all suppliers conform to Zara's quality standards. Such focus on quality control reduces the chances of having a substandard product, thus maintaining product quality and quality of service to the clients. The role of the latest lean technologies in enhancing logistics operations is evident from the utterances of Respondent 5, a holder of the logistics and operating manager position with the company (Li *et al.*, 2024). Therefore by using modern transport management and properly partnering with logistics suppliers, Zara is able to minimize any form of hitches in the delivery time hence guaranteeing the supply chain reliability in the face of market fluctuations.

Hence, according to the final analysis, the research demonstrates that Zara successfully incorporates both sustainability and supply chain management strategies into its network, providing the necessary reliability to maintain flexibility and robustness in the organization. Eco-savvy production, integrated logistics, and ionized stock flow management profile as strong forces that shape the competitive advantage of the company in the Indian textile and fashion market (Jha *et al.*, 2021). From these observations, it can be deduced that Zara is a company of great standards in sustainability and operation, with the potential to adequately address the environmental and market requirements.

Conclusion

The conclusion drawn from this research is that Zara can maintain supply chain reliability due to strategic key risk management, supply chain technology and supply chain quality assurance. In the risk management aspect, Zara can manage the risks through diversification of suppliers, the adoption of sophisticated technologies as well as maintaining very high-quality standards. All these elements not only guarantee the company's readiness to satisfy the variations in demand but also contribute to increasing the business's stability and effectiveness in the sphere of its activity, making Zara even more successful in the sphere of fashion competition.

Chapter 5: Conclusion and Recommendations

5.1 Summary

The study briefly discusses the impact of the supply chain and management of organizations and focuses on analyzing the key responsibility and sustainable development towards the textile industry featuring Zara, India. The study aims to adopt a sustainable strategy for prioritizing customer demands and requirements. Chapter 1 discusses the network reliability of the textile supply chain, especially Tempe Grupo Inditex (Zara) company in the Indian market, where sustainability is a crucial issue identified in the operations of the supply chain networks. This chapter investigates how sustainability practices play a significant role in Zara India's Supply Chain. The study examines several challenges to promote sustainability and meet customer expectations to maintain the brand's reputation in the dynamic Indian market.

In Chapter 2 several literature reviews have been done. Literature reviews significantly help to analyse the current trends in the fashion and textile industry. The literature provides a description of network reliability in supply chains, measures to maintain the consistency, adopt strategies to balance supply chains and sustainability. Chapter 2 also addresses the issues faced by the brand such as stock outages, and fluctuating demand rates. The company preferred to utilize real-time data, and logistics and improvise their strategies to up reach their sales according to customer preferences in the Indian fashion market. Chapter 3 critically explains the reserch methodology. The study utilises Saunder's Reserach Onion framework to analyse the research approach, philosophy, data collection, and analysis method. The qualitative method has been used in the present study to analyse the market trends and customer preferences incorporating secondary data and Interviews. Interviews were taken with five industry personnel using some specific questions. Chapter 4 provides a brief description of the thematic analysis, which helps to identify the challenges to enhancing the sustainable practices and reliability of Zara's supply chain in the Indian market.

5.2 Linking with Objectives

Objective 1

The sustainable practice is a crucial thing to maintaining a corporate environment in a business. Vadakkepatt *et al.* (2020), provide a drastic image of sustainable practices in fashion and textile retail that will help to reduce carbon footprints, adopting strategies to promote eco-friendly

materials to reduce cost efficiency. In this context, the findings accordingly discuss the challenges regarding poor ecological and social standards which help to enhance the sustainable fashion within the brand. The literature review provides an analysis of different types of sustainable practices that enhance sustainability in textile and fashion retail supply networks. The study suggests that it is very important to analyse the current trends and value customer preferences according to the dynamic change of the Indian textile and fashion market.

Also, according to the review of literature, Fung, Choi, and Liu (2019) stated that, to engage with the customers Zara needs to focus on enhancing their ability to produce environment-friendly products, ensure loyal customers purchase from the brand and maintain consistency to the demand to implement smoother user-friendly experiences to the customers across the network. Accordingly, from the findings, respondent 1 said “*We utilize Enterprise Resource Planning (ERP) platforms in maintaining the communication of the suppliers, distribution centers, and stores regarding the efficiency of product distribution*”. Hence, it can be concluded that to promote sustainability practices the brand needs to invest in leveraging advanced technologies to track and manage the inventory measures to increase the consistency in the supply chain. To reduce the waste of resources the brand adopts strategies to manage challenges related to fast fashion in India. Hence in this way, with the analysis, the first objective has been appropriately achieved throughout the study.

Objective 2

According to Takan (2023), sustainable practices incorporate several positive impacts in maintaining consistency and reliability of the supply chain. Introducing environmentally friendly and socially responsible practices provides long-term stability in the supply chain. The findings, in this context, suggest that sustainable fashion and textile retail sustainability can generate positive returns that could benefit the entire affected, adopting sustainable consumption of the earth's resources and fairness to people. Sustainable practices like sourcing, waste reduction, and energy efficiency reduce the wastage of resources and avoidance of environmental regulations (Poddar, 2021). Sustainable practice helps to build stronger bonds with the suppliers and stakeholders to incorporate transparency across the network. This led to an increase in the reliability of Zara's supply chain and the disruption caused by several geopolitical events.

Park and Li, (2021), also evaluate several challenges caused by the shift to sustainable practices, that help to mitigate the challenges, and cost consumption. The findings accordingly introduce new technological advancements to implicate a sustainable environment across the supply chain. Adopting this strategy the brand can reduce the short-term effects, and avoid potential threats across the globe to achieve better sustainable practices in the supply chain over time. In this way, the second objective is fruitfully aligned with the present study to analyse the trends in Tempe Grupo Inditex, focusing on Zara, India.

Objective 3

To implement sustainable practices in the Fashion Textile Industry several challenges can be accrued in the complex process of monitoring and managing the dynamic supply chain network including small and medium enterprises. As mentioned by Sharma and Narula (2020), the literature reviews provide critical analysis to ensure and maintain the supply measures and sustainability standards, which can be difficult because of the dynamic levels of awareness, resources and commitments. The findings also examine several challenges in implementing a sustainable environment in the Fashion and Textile industry. Eco-proficient solutions tend to be more costly than conventional products, presenting challenges concerning resource costs, particularly for start-up organizations.

Sertel (2023), identifies several challenges related to the cost of incorporating sustainable practices. The brand should adopt strategies to enhance its ability to produce new collections to promote sustainable measures, also the brand needs to focus on prioritising suppliers' demands in reducing cost over environmental considerations. The demand and awareness of the customers towards sustainability affect the incentives of the company for maintaining sustainability standards across the supply chain. The findings substantially deliver the strategy to overcome the challenges related to different approaches like investments in technologies, customer demand and collaboration with the suppliers. Overall, in this way, the third objective drastically matches the findings of the present study.

Objective 4

As mentioned by Sharma and Narula (2020), the complex supply chain network of the global fashion brand Zara. This type of complex network can be difficult to deal with the complexity and handle the threats of environmental and social challenges. Different sustainable practices like

sourcing materials, responsible suppliers, and an eco-friendly environment help mitigate the effect of environmental regulations on Zara's supply chain. In this context, the findings suggest that different strategies can be adopted to increase the reliability of the complex network and reduce its environmental impact through solutions unique to fashion retail. Blockchain technology improves supply chain quality enables purchasing to be done ethically and the chances of disruptions (Wren, 2022). Since blockchain technology is so transparent, it may be used to trace goods and moral behaviour across the supply chain. This aids in preventing the sale of fake goods in the marketplace and ensures that the product that was made is accountable. Furthermore, the utilization of big data and artificial intelligence in forecasting peak production demand might improve productivity, especially since these sophisticated instruments can reduce waste.

Helo and Hao, (2021) review that the incorporation of logistics and distribution of energy resources reduce waste and enhance the ability of the brand to ensure global sustainable goals. The findings, in this context, suggest the brand builds a strong relationship with local suppliers to increase the capability towards a reliable supply chain measure. The sustainable practices not only improve the network reliability but also protect and enhance the brand's reputation to become a responsible and concerned company that ensures customer satisfaction while maintaining eco-friendly measures. With the implementation of the practice, Zara can grow a more loyal and trustworthy network that reduces the operation risk and ensures long-term profit for the future success of the brand. Hence, in this way, the fourth objective which intends to identify the opportunities for improving network reliability through sustainable practices is critically examined in the present study.

Objective 5 & 6

The following research is focused on enhancing network reliability for Tempe Grupo Inditex (Zara) in India with the help of sustainable practices. Fontana *et al.* (2021), explore how sustainability affects the supply chain reliability within the textile and fashion industry. This study, through qualitative methods using interviews, has defined how adopting sustainable practices can make Zara India's supply chain more secure. The findings indicate that Zara India integrates issues of sustainability into its operations in terms of carbon emission reduction, effective settings of waste, and maintaining environmental standards. These activities are found to influence supply chain reliability by reducing environmental risks and making operations stable.

The findings, in this context, reflect the institutional pressures that act to drive the adoption of sustainability practices and these drivers include demands for regulations and consumers' expectations (Um and Han, 2020). Some insightful conclusions have been drawn from this research work on sustainability, which enhances the supply chain reliability of Zara India. It addresses the challenges and opportunities associated with such sustainable practices, along with actionable recommendations. The suggestions would interlink and integrate sustainability into company operations, strengthening its supply chain and network reliability in conjunction with broader environmental and social goals. Hence, in this way, both objectives 5 and 6 were significantly evaluated in the present study defining the most possible recommendations as a whole.

5.3 Research Limitation

These limitations in the study exist because of reliance on qualitative data, especially interviews, which focus on the subjective points of view of the people to be interviewed, which more or less contains bias. Similarly, the sample size was very small as only five industry professionals were selected for this study. Therefore, generalizing from this research becomes very difficult. Moreover, its geographic confine within West Bengal, India, again constrains it to other contexts. Furthermore, the short duration of the study limited the period of data collection and analysis, hence diminishing the depth of choice of varying analyses. The study would have captured better and more solid insights if done over a longer period.

5.4 Research Scope

Such broadening of the scope of research into network reliability in the textile and fashion industry's supply chain, with a focus on supplier sustainability, gives a few promising avenues for future studies. Future research on the study could base and elaborate on the way global sustainability standards and regulatory frameworks have changed and their impact on the supply chain practices of leading fast fashion brands like Inditex (Zara). More approaches to advancing technologies like “blockchain and AI” could improve research transparency and accountability in the tracing of supplier sustainability.

Another critical area of investigation concerns the long-term effects on profitability and brand reputation that adopting sustainable practices has on fashion companies. The strategies of resilience against disruptions, for instance, “pandemics or geopolitical conflicts” with a focus on sustainable suppliers in developing countries, also pose an interesting research avenue. Such

studies could go a long way in setting the most suitable strategies that maintain harmony between the robustness of the supply chains and the element of sustainability for all fashion houses managing market cases around the globe but still maintaining ethical and environmental standards.

5.5 Recommendations

First of all, to overcome the mentioned limitations, it is suggested to increase the size of the target population and include a wider pool of employees in the sample to increase external validity. This makes the research less subjective and can offer a broad picture when using both qualitative and quantitative data. The extension of the study duration ensures that more data is collected and analyzed thus providing more information. Geographic variation may result from having participants from various regions or conducting comparative research in different areas may help enhance the generalisability of the findings. Lastly, integrating both qualitative and quantitative data sources would offer a more comprehensive and reliable viewpoint, greatly enhancing the validity of the study.

The research provides a testament to the future approaches to the study to boost the reliability and sustainability of the supply chains in the textile and fashion industries. These strategies are based on “advanced technologies, regional approaches, resilience, and collaborative approaches”. Firstly, there is a need for more incorporation of advanced digital technologies. Maintaining transparency in supplier monitoring concerning sustainable practices has been a recently emerging field of concern, especially because global supply chains have now become very complex and multi-tiered (Modgil *et al.*, 2020). This has made blockchain technology one of the most powerful, emerging solutions that can provide a decentralized, immutable ledger for each transaction, enhancing accountability concerning environmental and ethical standards.

Another key recommendation suggests developing and deploying regional strategies for global supply chains. Sustainability issues, as well as regulatory requirements, vary greatly across regions and consequently, companies will need to adopt a local approach in their strategies (Seroka-Stolka and Fijorek., 2020). For example, rights and facilities of labour, handling of water use, and disposal of waste have rapidly emerged as major challenges to companies in India like other widespread markets. Companies should collaborate with locally engaged suppliers in sustainable practices, offering capacity-building programs, technical assistance, and financial incentives.

The pandemic has shown the robustness of vulnerabilities within the global supply chain, especially in outsourcing and supply strategies in industries like fashion (Sitara, 2020). To mitigate these vulnerabilities, fashion brands must build resilience in their systems through strategies such as diversification of supplier bases, greater reliance on local sources of supply, and inventories of critical materials. Companies should also make and implement risk management tools in such a way that they can monitor the “geopolitical events, pandemics, and natural disasters” affecting the supply chains in real time (Manners-Bell, 2023). By balancing resilience with sustainability, the companies will be sure of the continuity of their operations without failing their environmental and ethical mandates.

The other major factor in effecting improvements in sustainability is collaboration throughout the supply chain. By this, it means that there is coordinated work that is done with all care and consideration, including the suppliers, manufacturers, NGOs, and government bodies supporting sustainability. For example, multi-stakeholder civil society initiatives could provide a platform to develop and adopt industry-wide sustainability standards that apply to all participants in a value chain. Future research should focus on comparing the effectiveness of sustainability initiatives between competitors in the fashion industry. An investigation of the strategies taken by most big brand names, such as “H&M, and Zara”, could shed some light on best practices and be used as reference benchmarks in the context of managing sustainable supply chains (Erhun *et al.*, 2021). Elements that this research may focus on include things like cost efficiency, scalability, and consumer perception, all of which would contribute to more general insights into effective strategies aimed at driving not only business but also sustainability.

Consumer behavior is also of key influence in the shaping of supply chain decisions. As consumers slowly demand transparency and ethical practices, this could provide a vantage point into understanding how the preferences of consumers weave down to influence the strategies of supply chains (Esper *et al.*, 2020). Studies could articulate if sustainability-oriented brands are competitive or if consumers are willing to pay more for ethically sourced products. Such findings would help businesses tune their sustainability messaging and align supply chain practices with consumer pressure as a whole.

5.6 Managerial Implications

By implementing the recommendations of this study, Zara India will be in a position to increase its efficiency and customer satisfaction levels. The focus should be made on sustainable supply

chain activities that can improve supply chain performance, reduce environmental effects, and increase an organization’s credibility. Adopting solutions such as ERP, blockchain and AI can enhance stock control and operational excellence (Feng and Ali, 2024). Managers should identify orient ways to expand sustainable practices at a reasonable cost and environmental cost by establishing good relations with the suppliers (Govindan *et al.*, 2021). Zara can thus satisfy customers’ needs, corresponding to fluctuations of the market, and enjoy stability if those practices are implemented. It also ensures that the fashion designer achieves its aims and objectives of the current and upcoming challenges that are set due to the increased demand for sustainable fashion clothing, which Zara fully embraces.

5.7 Summarization of info

<p>5.1 Summary</p>	<ul style="list-style-type: none"> • The study briefly discusses the impact of the supply chain and management of organizations and focuses on analyzing the key responsibility and sustainable development towards the textile industry featuring Zara, India.
<p>5.2 Linking with Objectives</p>	<ul style="list-style-type: none"> • Vadakkepatt et al. (2020), provide a drastic image of sustainable practices in fashion and textile retail that will help to reduce carbon footprints, adopting strategies to promote eco-friendly materials to reduce cost efficiency. Hence in this way, with the analysis, the first objective has been appropriately achieved throughout the study. • The findings, in this context, suggest that sustainable fashion and textile retail sustainability can generate positive returns that could benefit the entire affected, adopting sustainable consumption of the earth's resources and fairness to people. In this way, the second objective is fruitfully aligned with the present study to analyse the trends in Tempe Grupo Inditex, focusing on Zara, India. • As mentioned by Sharma and Narula (2020), the literature reviews provide critical analysis to ensure and maintain the supply measures and sustainability standards, which can be

	<p>difficult because of the dynamic levels of awareness, resources and commitments. Overall, in this way, the third objective drastically matches the findings of the present study.</p> <ul style="list-style-type: none"> • The findings, in this context, suggest the brand builds a strong relationship with local suppliers to increase the capability towards a reliable supply chain measure. Hence, in this way, the fourth objective which intends to identify the opportunities for improving network reliability through sustainable practices is critically examined in the present study. • Fontana et al. (2021), explore how sustainability affects the supply chain reliability within the textile and fashion industry. Hence, in this way, both objectives 5 and 6 were significantly evaluated in the present study defining the most possible recommendations as a whole.
<p>5.3 Research Limitation</p>	<p>These limitations in the study exist because of reliance on qualitative data, especially interviews, which focus on the subjective points of view of the people to be interviewed, which more or less contains bias. Similarly, the sample size was very small as only five industry professionals were selected for this study.</p>
<p>5.4 Research Scope</p>	<ul style="list-style-type: none"> • Future research on the study could base and elaborate on the way global sustainability standards and regulatory frameworks have changed and their impact on the supply chain practices of leading fast fashion brands like Inditex (Zara). • Another critical area of investigation concerns the long-term effects on profitability and brand reputation that adopting sustainable practices has on fashion companies.
<p>5.5 Recommendations</p>	<ul style="list-style-type: none"> • First of all, to overcome the mentioned limitations, it is suggested to increase the size of the target population and include a wider pool of employees in the sample to increase external validity.

	<ul style="list-style-type: none"> • Firstly, there is a need for more incorporation of advanced digital technologies. • Another key recommendation suggests developing and deploying regional strategies for global supply chains. • Future research should focus on comparing the effectiveness of sustainability initiatives between competitors in the fashion industry.
5.6 Managerial Implications	Managers should identify orient ways to expand sustainable practices at a reasonable cost and environmental cost by establishing good relations with the suppliers (Govindan et al., 2021).

Table 5.7: Summarization of Info from Chapter 5

(Source: Self-created)

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Appendix

Interview Transcript with questions:

<p>Interview question 1</p>	<p>How does Tempe grupo Inditex (Zara) operationalize and achieve a measurable impact on environmental sustainability within its textile operations?</p>
<p>Supply chain managers (Respondent 1)</p>	<p>We only purchase goods and services from suppliers who share our commitment to protecting the environment, we work with suppliers to minimize the amount of goods and services transported to us and the distance they must travel, and other strategies for reducing the amount of waste and emissions. The company actively incorporates sustainable materials into its products, along with, prioritizing organic and recycled materials, aiming to reduce their environmental impact. By using innovative fabrics, we contribute to more eco-friendly fashion approaches.</p>
<p>General manager (Respondent 2)</p>	<p>From the value chain, it is evident that Zara has embraced sustainable practices in every aspect of its functioning. We develop sustainable and environmentally friendly products through research and experimentation with new materials used in manufacturing; do embrace energy-efficient technology into our production processes; and lastly, monitor outcomes</p>

	<p>through indicators such as carbon emissions. In this context, I can say that recycling textiles has become one of the main priorities, which has become a great need to reduce environmental impact. We lead the way in commercializing recycled textiles, in addition to, ensuring that these materials match the quality of new ones. Additionally, we try to encourage customers to participate by providing in-store collection bins for old clothing and promoting upcycling.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>It implies that day-to-day management focuses on issues such as minimizing wastage, using water sparingly, and the like, for energy management. In regard to production processes, we look for ways to reduce the impact on the environment and always look for ways to make our production more efficient by following lean manufacturing methodology. We set long-term goals to achieve continuous sustainability. We have set ambitious targets for the upcoming years. Our ultimate goal is to achieve zero net emissions by 2040. Along with, reducing emissions by over fifty per cent across the entire product lifecycle, protecting biodiversity, and using preferred fibres with lower environmental impact.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>We provide information about the nature of our products and assess whether they adhere to environmental specifications. Various materials undergo testing, then defects are limited to preclude unnecessary disposal and work with vendors to improve environmentally friendly approaches. Our focus remains on supply chain engagement for being sustainable and ethical. We commit beyond our operations by actively engaging with the supply chain, focusing on worker well-being, responsible sourcing, and water reduction.</p>
<p>Logistics and operating</p>	<p>Logistics plays a critical role in sustainability, especially when it comes to ensuring that resources and materials are transported across various</p>

<p>manager (Respondent 5)</p>	<p>facilities as efficiently as possible. There have been improved transportation optimization, packaging, and effective reverse logistics programs so that there can be a low impact on the environment. Oh yes, it is important to know how many carbon emissions are associated with each shipment. Through our actions, we try to be more transparent. Zara is known for publishing sustainability reports from time to time, which include detailed insights into various achievements and practices. These reports also highlight the gains, losses, challenges, and efforts that have been put into achieving environmental sustainability.</p>
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Table 1

<p>Interview question 2</p>	<p>What initiatives or practices does Tempe grupo inditex (zara) have in place to address the triple dimensions of sustainability in supply chain operations?</p>
<p>Supply chain managers (Respondent 1)</p>	<p>You can trust us to always apply the highest standards of responsible sourcing and minimizing environmental impact by utilizing sustainable materials, avoiding unnecessary transport, and selecting the best suppliers. aims to use more sustainable raw materials in their footwear production. Tempe promotes circularity by aiming to use more sustainable raw materials in their production. This entails sourcing sustainable raw materials. This aligns with Inditex’s strategy of reuse and recycling and can also serve social and environmental needs as well.</p>
<p>General manager (Respondent 2)</p>	<p>In the context of maintaining supplier standards, Tempe tries to maintain close relationships with a huge range of manufacturers across the globe. It is ensured that suppliers are compliant with the strict standards of Inditex in terms of human rights, product safety, labour conditions, and environment-friendly practices. Pursuant to its strategies, Zara has sorted</p>

	<p>its goals into people, planet and profit. Training and development of workers, installation of advanced technologies to minimize environmental exploitation and assessment of social responsibility to minimize the social impact in order to foster growth in a sustainable manner.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>We give great importance to environmental conservation, minimizing wastage, and ethical treatment of workers. In this regard, we seek to optimize environmental preservation as much as possible while enhancing productivity. We also give a significant emphasis on energy efficiency standards, by engaging in activities that reduce harmful gas and chemical emissions in logistic and network activities. We have set a goal to reduce our own emissions by more than 50 per cent across our value chain distribution.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>It is also important for products to be ethical and environmentally correct and this is achieved through the following: Sustainability principles we adhere to include material traceability, saying no to certain chemicals, and ensuring fair treatment of workers. The stable and sustainable supply chain is ensured by Inditex by gathering accurate knowledge about suppliers. For this, we have to conduct a thorough assessment. This also actively helps our suppliers to optimize and improve quality standards.</p>
<p>Logistics and operating manager (Respondent 5)</p>	<p>Transportation and logistics are designed, packaging is minimised, and suppliers work together to be environmentally friendly. This results in optimal and sustainable fulfilment of logistics operations with low environmental impacts. We prioritize transparency by closely monitoring the supply chain. Collaborating with suppliers to ensure visibility into sourcing, production, and transportation processes helps</p>

	identify areas that require improvement. It ensures adherence to greater sustainability standards with positive environmental impacts.
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Table 2

Interview question 3	How does Tempe grupo inditex (zara) ensure any network in its supply chain is reliable, considering the problems associated with maintaining an ability to deliver a product or service in specification?
Supply chain managers (Respondent 1)	Indeed, it is crucial for Zara to maintain reliability in their supply chain and management of supplies. We accomplish this through a variety of strategies, including: First, it is imperative to carefully identify and choose our suppliers with reliability and quality deliverance. Second, we also practice sound risk management, the common practices with which are the avoidance of reliance on a single supplier or the area of operation. Third, we master accurate demand forecasts and distinctive inventory distribution patterns to meet future demand accurately. Last of all, there is clear and effective communication with suppliers, and we have versatile relationships allowing for the rapid identification and management of issues.
General manager (Respondent 2)	This paper examines how Zara has institutionalised supply chain reliability as a strategic anchor through specific strategic moves and overarching operational measures. Another crucial cost in supply chain management is to improve supply chain accuracy using enhanced technology by monitor the status of inventory and orders. Also, we focus on original developmental programs to strengthen suppliers so that they are better equipped to meet our requirements. By nurturing a positive organisational culture of ongoing improvement and flexibility, which is

	<p>an important tactics for managing mechanics of change and ensuring a sustainable supply chain.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>At the operational level, we aim at system enhancements that have reduced incidents of error or slowness in operations. Central to lean manufacturing approach is achieved through eliminating waste and improving on resource use. In addition, it is important to control quality to ensure conformity in all aspects of the production cycle. Some of the benefits of planning and control are such as the following; We can prevent specific problems, bottlenecks, and slowness in production processes areas by observing our production timetables and performance indicators and take corrective actions when necessary.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>Confecting depends highly on the quality assurance of the supply chain as a measure of its dependability. To ensure that a supplier meets our heightened requirements for quality, we set up high-quality standards and then make periodic checks. Also, we incorporate HHHK to ensure early detection of defects before they lead to product non-conformity and we also incorporate strict inspection processes into our company. The quality team is always trained and encouraged to update with specialization quality certifications and new quality risks and techniques in various industries.</p>
<p>Logistics and operating manager (Respondent 5)</p>	<p>The importance of good logistics can be defined as the fact that of a reliable supply chain. We seek the most efficient routes for carrying the products, incorporate the use of modern or state-of-art technology in storing the products, and develop strong and efficient means of transport to enable timely delivery of the products. Having strong links with other companies, which deliver and pick up merchandise, is also essential for keeping service standards. In addition, we have extra preparedness</p>

	<p>strategies to cope with unexpected interruptions, like floods or political crises. It may be considered that by a proper management of potential logistics risks we maintain supply chain dependable.</p>
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Table 3

<p>Interview question 4</p>	<p>How has Tempe grupo inditex (zara) been able to balance this volatility of demand and maintain reliable performance with such fluctuating consumer preferences and buying trends?</p>
<p>Supply chain managers (Respondent 1)</p>	<p>Managing fluctuations in demand is always inevitable Another contradiction is almost every company strives to achieve product differentiation. This we do through by employing systems on demand forecasting that incorporates the past trends in the market. Furthermore, our supply chain is a responsive network that works with several suppliers ready to meet our short notice on operational needs or fluctuations in demand. It is, therefore, essential to bring on board our design and merchandising departments to ensure production is in synch with consumer demands.</p>
<p>General manager (Respondent 2)</p>	<p>Another supply chain issue that Zara has been able to handle effectively is that of demand fluctuations, and this has been done through practicing flexibilities. Our fast-fashion business model allows the opportunity of promptly bring in new fashions and react to shift in shoppers’ preferences. By employing the latest tools of business intelligence, we are able to predict potential new trends which impact our inventory. Furthermore, our good contracts with the suppliers provide flexibility to</p>

	<p>adapt to changes in demand as we can quickly order supplies and materials to increase production.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>In my role as an operations supervisor, flexibility of production is another aspect, which I ensure is observed to allow for meeting demand when it is high. We make a point of practicing lean manufacturing in the management of resources while cutting on time taken to deliver our products. It is useful to cross-train our workforce because it prepares us for change in the production line demands. Occasional interaction with the supply chain team is crucial in ensuring that production is well coordinated with demand estimates.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>This paper also discusses our role in moderating the fluctuations in demand as follows: We mainly have the responsibility of maintaining the stability of the quality of the products regardless of the high fluctuations. One of the most mandated things that we pay attention to is material quality and how the product is being manufactured to ensure that no flaws are seen to affect the customers. This policy allows the company to have good quality control for all its products as well as easy adaptation of new designs and materials.</p>
<p>Logistics and operating manager (Respondent 5)</p>	<p>Demand volatility is another force that needs to be integrates when it comes to managing the flow of goods so that there is a strong logistics platform in place. Arranging logistics over long distances are done using the latest transport management information systems to ensure the most efficient routes and delivery schedules are used. It states how our warehouse functioning will change to accommodate fluctuations in inventory storage. It is therefore important to have effective and healthy relationships with logistics service providers in order to facilitate timely delivery and other demands from consumers</p>

Table 4

Interview question 5	How has Tempe Grupo Inditex (Zara) been continuously feeding the supply chain with information about quality and timely deliveries via so many channels for such a long time?
Supply chain manager (Respondent 1)	I make use of an efficient Supply Chain Management (SCM) communication system that updates the chain with real-time information on quality and timely deliveries at Tempe Grupo Inditex (Zara). We utilize Enterprise Resource Planning (ERP) platforms in maintaining the communication of the suppliers, distribution centers, and stores regarding the efficiency of product distribution. Thus, our strong partnership with suppliers, the schedule of audits, and also the usage of real-time monitoring instruments assist in sustaining high levels of commodity quality. Our SC strategic model is an agile system. It maximizes the capability of identifying market shifts and fulfilling customer needs by delivering quality products on time that fit Zara's brand of fast fashion.
General manager (Respondent 2)	I agree with the point that effective communication is paramount in today's operations and as a general manager at our organization. We use a well-coordinated communication strategy that involves the implementation of operational practices and advanced technology. We use complex IT systems to control all the main areas of the supply chain in Integrated Supply Chain Management. It is easy for us to monitor quality measures as well as the delivery of our products since all these aspects are well coordinated in one place. To have a long-lasting connection with suppliers and apply predictive analysis, it would be

	<p>possible to identify problems in advance. It helps to systematically maintain the quality and delivery requirements needed to accommodate the company's fast fashion strategy.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>The multi-recipient and multi-sender approach of the TM system for quality and delivery of information is practiced by an Operations Supervisor in this organization. We measure real-time production and logistics using data from the integrated IT structures in our company. All of the information is shared through digital dashboards and reports that are updated and conveyed to all the concerned parties. Planning with the production teams, suppliers and distributors helps us to quarantine any quality-related problems or any form of delay. The quality of our work is very high, and delivery time is fast to meet the demands of our retail business due to automating our processes and conducting daily or weekly checks.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>The work involves ensuring that quality and delivery information is constantly flowing through a quality management system as a Quality Assessment Supervisor at this organization. Performance metrics consist of real-time tracking systems and data analysis to track and document issues with product quality and delivery at various supply chain levels. Another reason is the constant monitoring of the quality of delivered goods, as well as the constant receipt of feedback from the suppliers and internal teams regarding potential mishaps. The reporting system also contains all the information. We need to make prompt changes and updates of information. This puts us in a position where we are always able to meet the quality of products and services that we offer. We also offer timely delivery of products to meet the set supply chain policies and procedures.</p>

<p>Logistics and operating manager (Respondent 5)</p>	<p>Well, it's clear that effective supply chain communication is crucial for the growth of logistics management systems, and this has been a key focus for Zara. One of the things they've done is to centralize their data, which provides valuable insights into both the quantity and quality of delivered products. By using this centralized information, suppliers and distribution centers are able to analyze quality standards and delivery schedules more effectively. This ongoing analysis is what promotes consistency in both quality and delivery timings, while also allowing for flexibility when necessary.</p>
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Table 5

<p>Interview question 6</p>	<p>How does Tempe Grupo Inditex (Zara) manage a supply chain of such products to handle stock outages and demand fluctuations?</p>
<p>Supply chain manager (Respondent 1)</p>	<p>We always prevent stock outages and fluctuating demand by employing a dynamic system. We also employ modern techniques in demand forecasts and the current sales to ensure correct stock requisition. The proposed model of an agile supply chain helps in the fast replenishment and the ability to work in changes. They report frequently to the suppliers and logistics partners to make quick responses. Our centralized inventory control system shows the current status of products in the corporate warehouse and branch stores. This allows for early actions to be taken to replenish stock and regulate the supply according to demand. This one minimizes certain interruptions and enhances the right stock movement throughout the institution.</p>
<p>General manager (Respondent 2)</p>	<p>In my case working as the General Manager at Tempe Grupo Inditex (Zara), stock outages and fluctuating demands are managed through a</p>

	<p>strategic and efficient supply chain system. Here the present stock data are analyzed in real-time to predict the demand patterns, and optimization is done to make the necessary changes. The outstanding supply chain facility propels immediate restocking and versatility in supply acquisition. The relationship with suppliers and logistics providers is excellent mainly because the speed of response to disruptions is increased. We have a strong control over firms inventory and ongoing sales data that can permit the firm to lock off the variability impacts on the operations.</p>
<p>Operation supervisor (Respondent 3)</p>	<p>We as an Operations Supervisor are responsible for dealing with stock outages and varying demands through stock status tracking and demand estimation at the operational department at this level of the organization. Thus, we are in close collaboration with suppliers and distribution centers, reacting to the changes as fast as possible for fast restocking. Along with this, it continues with adjusting orders so that stock is matched with current demand in the market.</p>
<p>Quality assessment supervisor (Respondent 4)</p>	<p>In my capacity as a Quality Assessment Supervisor, we monitor the stock thus increasing its quality on short notice. We maintain good relations with our suppliers. This is executed so that we can resolve any quality problems quickly that are likely to cause a rise in stock out or slow feedback and corrective actions to help in the management of fluctuations in demand.</p>
<p>Logistics and operations manager (Respondent 5)</p>	<p>For the capability of the Logistics and Operations Manager, stock outages and fluctuating demand are handled through timely availability of data and quick change management. We also constantly reorder and restock the items based on orders, and collaborate with vendors to obtain a mass of inventories in a shorter time. We also employ proper distribution strategies to avoid unanticipated stock-outs.</p>

Table 6

