



UNIVERSITY OF GOTHENBURG

SCHOOL OF BUSINESS, ECONOMICS AND LAW

Identifying the supply chain disruptions, risks and mitigation strategies of
fashion retailers due to the Covid-19 pandemic:
A case study of H&M

Master Degree Project in Logistics and Transport Management -

GM0560 V22

Spring 2022

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Acknowledgements

First and foremost, we would like to express our gratitude to our thesis supervisor Marta Gonzalez-Aregall at the School of Business, Economics and Law at the University of Gothenburg for her continuous support, guidance and constructive feedback throughout the research project and allowing us to express our suggestions.

We would also like to thank the interviewees from the case company that showed their willingness to participate in our study.

Lastly, we would like to thank all the members of the seminar group that read our research paper and gave us valuable insights and constructive feedback.

Abstract

With the rapid development and advancement of the fashion industry as well as the increasing popularity of fast fashion, fashion retailers have had to continually work towards improving their supply chain and keep up with unexpected changes in consumer demands. However, this also made way for negative effects and disruptions in the fashion supply chain. Common disruptions and strategies to mitigate them have been studied in the past. But with the onset of the Covid-19 pandemic, it called for newer strategies to be studied and implemented to bring improvement in the working of the supply chains, which has not been an easy task for fashion retailers and has resulted to be quite time consuming as well. This study aims to bring together existing literature on the risks, disruptions and mitigation strategies that have been used in the fashion industry before the Covid-19 pandemic and combine it with a qualitative case study of the fashion giant, H&M, to analyse how the company has worked at solving the unexpected disruptions. The study consists of primary information by means of interview and secondary information from books, journals and the company website. The results and contribution have shown that part of strategies explained by literature are adopted by the case company, although other strategies were considered with less intensity, giving space for the company to develop its own strategies based on events and experiences from the past.

Keywords: Fashion industry, fast fashion, retailers, supply chain, Covid-19, H&M, disruptions and mitigation strategies.

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1. Introduction

This chapter presents the background of the research paper and briefly introduces the issues faced by fashion retailers in general along with the problems faced by fashion retailers due to the onset of the Covid-19 pandemic. Further, the chapter also discusses the research purpose and research question of this paper.

1.1. Background

There is an ever-growing interest towards the concept of fashion today. The fashion industry has been continuously growing over the last few decades. With time, the changes in the dynamics seen in the fashion industry has led fashion retailers to look for more flexible and lower cost options when it comes to the quality, design and the speed to market aspects in order to remain in a profitable position in the highly demanding fashion market (Bhardwaj & Fairhurst, 2010). This has led to the development of the concept of fast fashion in the fashion industry. Fast fashion is a concept which is used to describe the trend of producing fashion rapidly to meet the market demands that changes quickly and continuously according to newer trends. This concept seems to be taking over the world. In recent years, clothing has moved from being a durable good to something of a daily purchase for consumers (Brydges, 2021). Hence, the system of fast fashion works by combining quick response techniques in the production and product design capabilities of a supply chain in order to make available the popular and trendy products that has caught the attention of consumers as the latest trend and also require manufacturers to use as much minimal production lead time as possible to keep up supply with the uncertainty in demand (Cachon & Swinney, 2011). The two key points here are those of “trends” and “quick response”. The latest trends are monitored by observing the consumer and industry tastes for any unexpected styles which can help to reduce design lead times. Whereas the short production and distribution lead times are often achieved by combining possible localised production, newer information systems that help to keep in check the inventory levels and replenish accordingly and speed up distribution methods, all of which can be successfully achieved through quick response techniques (Cachon & Swinney, 2011).

However, fast fashion has also paved the way for inexpensive clothes to be made, from using large quantities of natural resources and low-wages paid workers, all of which are only worn

and used for a short amount of time and then disposed of shortly after (Leslie et al., 2014). Though the fashion industry is seen to keep developing rapidly, it is also important to note that this development comes with negative effects such as high volumes of pollutants and dangerous emission of gases (Caniato et al., 2012; Nagurney and Yu, 2012; Macchion et al., 2017). In fact, the United Nations (2019) reports that the fashion industry is the second most polluting industry in the world. They point out that the emissions of carbon by the fashion industry is more than what is produced by all international flights and maritime shipping combined. Further, the United Nations (2019) states that the amount of water used to produce a single pair of jeans equals the amount of water an average person would consume over a period of seven years which indirectly implies that staying fashionable comes with a cost that is more than an actual price tag.

1.2. Research problem

Due to the continuous evolution of fast fashion, the fashion industry has always seen its due of issues. With the onset of the Corona Virus Disease 19 (Covid-19) pandemic¹, this industry has further been affected with unpredictable and rather significant effects. Though the effects of the pandemic were not immediate in the fashion industry, the problems of the pandemic did slowly creep in at an unexpected rate. Hence, the Covid-19 pandemic turned into a disruption that the industry did not anticipate on such a large scale. With lockdowns and restrictions that were placed by various countries to restrict the spread of the virus, due to direct contact among people, the demand for online shopping increased during this period. The Covid-19 pandemic has led consumers to live, work, communicate and shop differently. With a reduction in consumer demand at stores, lockdowns and restrictions to go outside, the retailers in the clothing sector needed to adapt their business models to fit their modified trading and selling processes to reach consumers in a manner that suited to the restrictions. Even with sales going down at stores, it gave retailers a way to improve their sales through online platforms. The online sales improved so much in a few months which retailers were only expecting to happen over a few years. This resulted in retailers investing more towards adopting new technologies, forming new partnerships and creating new business models that were better suited to fit both online platforms and the physical stores (Retail Economics, n.d).

¹*What started as an epidemic of pneumonia led to the discovery of the coronavirus in Wuhan, China in December 2019 and has since continued its spread of the virus all over the world. Covid-19 has infected and caused deaths of people around the world (Ciotti et al., 2020).*

In the fashion industry, Paris is often referred to as the ‘capital of fashion’ (Kurkdjian, 2020). Also, Europe has the Paris, London and Milan Fashion weeks that are deemed as three out of the four top Fashion Weeks in the world (FashionUnited, 2022). Europe, home to some of the world’s biggest and known fashion brands, has a strong apparels market that has seen continuous growth over the years (CBI, 2021). The European apparel import market was estimated to be around €127.4 billion in 2020, which showed a decrease from €146.9 billion in 2019, due to the onset of the pandemic. The value in 2020 was lower than ever seen between 2016 to 2019 (Figure 1).

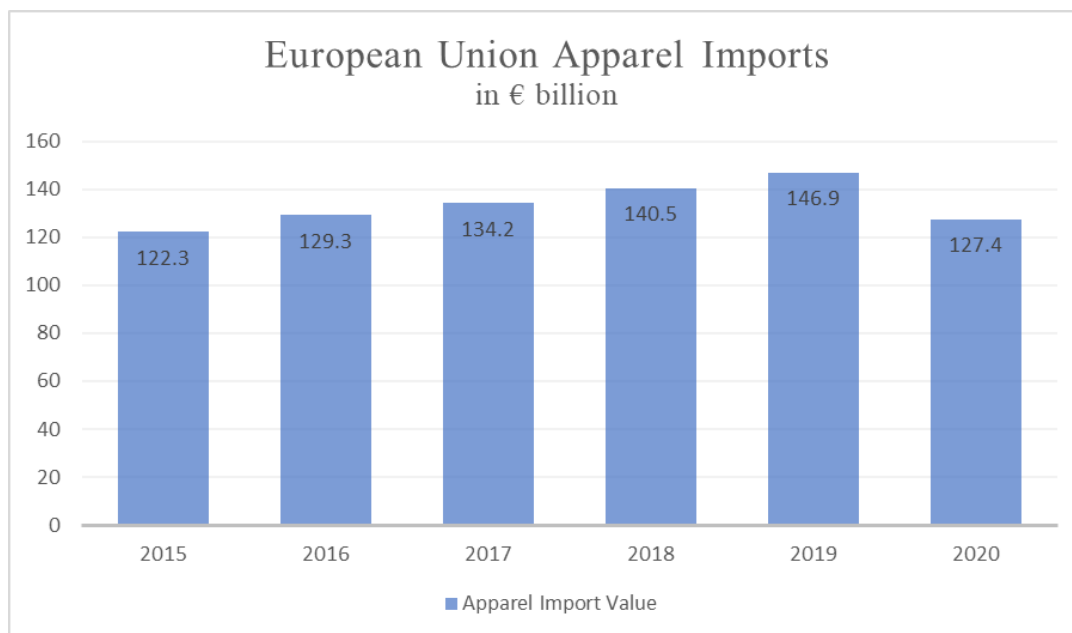


Figure 1: Comparing EU Apparel Import between 2015-2020 (Source: CBI, 2021).

At the same time, the EU is also a large re-exporter of apparels meaning that a large amount of the apparel imports within the EU are re-exports of apparels made in developing countries outside (CBI, 2021). The EU accounts for about 13% of the world’s apparel exports in 2020 worth €97 billion, ranking second to China. The apparel export of the EU kept rising at an average rate of 3% through 2016 to 2020 (Figure 2).

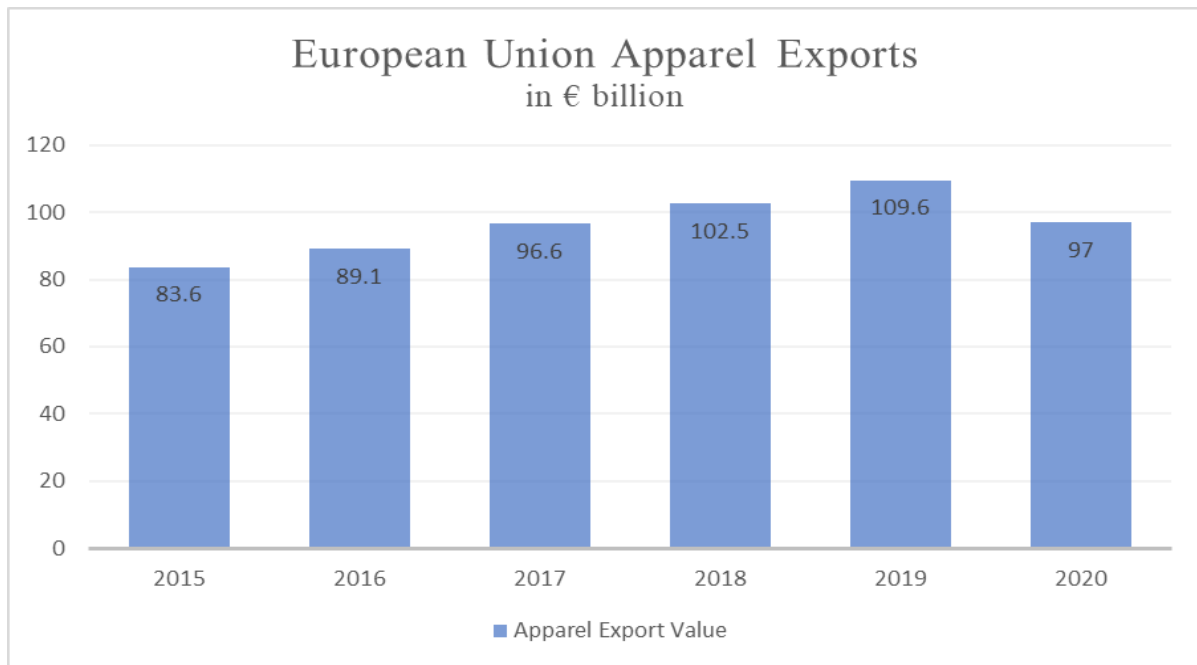


Figure 2: Comparing EU Apparel Exports between 2015-2020 (Source: CBI, 2021).

In the European apparel market, private consumption expenditure is really important (CBI, 2021). With the onset of the Covid-19 pandemic, money from consumers were directed towards essential goods as they did not have much disposable income for nonessential goods. And so the European private consumption expenditure had dropped in the years 2019 and early 2020 but has been picking up its pace since late 2020 (CBI, 2021).

One of the European multinational fashion retailers that ranks among the top fashion leaders in the global market in the fashion industry is Hennes & Mauritz AB (H&M). As per reports from the year 2020, H&M recorded sales of \$22.48 billion worldwide (Sato, 2021). The company provides affordable and sustainable fashion for everyone. H&M works hard at providing the best fashion and quality at affordable prices and works to keep up with the latest trends (Lee, 2016). Along with providing fashion, H&M continually works at being an environmentally conscious brand, running targeted advertisements according to the local market as well as running inclusive advertisements that showcases people with different looks, ethnic background, styles etc. in order to show customers that the company focuses on all-inclusivity (Lee, 2016). But this does not mean that the company has not faced its share of negative press, especially with the onset of the Covid-19 pandemic. Similar to all kinds of companies, H&M too has had to work at solving problems along their supply chain and working to adapt to the changing times brought along by the pandemic. With closing down stores, either temporarily or fully, in many markets and dismissing employees at the beginning

of the pandemic, H&M has faced criticisms time and time again (Thomas, 2020). Further, with continuing disruptions in its global supply chain during the pandemic, it has led to a shortage of goods, containers, storage and drivers to transport goods, which has in turn caused a spike in transportation costs (Ringstrom, 2021). Even then, the company continued to work towards making the situation better in many parts of their business. At a time when other apparel retailers were cancelling orders and delaying payments to garment suppliers, H&M assured their suppliers that they would take delivery of all the goods that were ordered and pay and honour the agreed upon payment terms (Mirdha, 2020). In March of 2022, the company put out a statement stating that they were able to end the previous year with sales that matched the same level as before the beginning of the pandemic and further began the new year with more initiatives to make an even stronger foundation for the company's long-term growth. These initiatives included steps towards increasing customer experiences such as broadening product assortments, integrating sales channels, continuing investment in infrastructure of technology and the supply chain as well as continuing towards having more sustainable materials and renewable energy (Smith, 2022).

Having observed the manner in which H&M has been able to cope with the Covid-19 pandemic in a great way, this research paper investigates further how the company has managed to remain successful through these difficult times which has been witnessed all over the world.

1.3. Research purpose and research questions

This research paper aims to study the disruptions faced by the fashion retail company, H&M in their supply chain due to the onset of the Covid-19 pandemic. By bringing together existing literature that talk about the disruptions, risks and mitigations strategies that have been seen in the fashion industry along with studying H&M's supply chain disruptions and mitigation strategies, this paper aims to recognise the differences observed before and after the onset of the Covid-19 pandemic. Therefore, the research questions for this paper are developed as follows:

- 1) *What are the supply chain disruptions faced by H&M with the onset of the Covid-19 pandemic?*
- 2) *What kind of mitigation strategies has H&M adopted to cope with the disruption of Covid-19?*

In order to answer the research questions, this study will begin by exploring the existing literature about the common disruptions, risks and mitigation strategies observed in the fashion retail industry and further look at how H&M has worked at solving the unexpected disruptions that happened with the onset of the Covid-19 pandemic and provide with suggestions on what could be improved more.

1.4. Delimitation

For the purpose of this research paper, the focus is directed towards studying the supply chain disruptions, negative effects, consequences and mitigation strategies that have been seen in the fashion industry due to the onset of the Covid-19 pandemic. Furthermore, the research will be limited to the results from the study of the case company, H&M. An interview was conducted for the purpose of information retrieval, which was limited to the logistics department of the company to understand in detail about the supply chain disruptions that the company faced along with the mitigation strategies that were adopted. With having a global presence, H&M would provide for understanding the methods that the company has used and adopted and remain the second largest fashion retailer in the world.

2. Literature review

The literature review chapter presents an overview of the previous research that is linked to the topic studied for this research paper. This chapter talks about the risks and negative effects of the supply chain disruptions, the consequences and mitigation strategies and introduces Covid-19 as a disruption. Further, the chapter also discusses how the fashion industry, fast fashion, supply chain and sustainability in the fashion industry are described in previous literature, along with the effects of the Covid-19 pandemic on the fashion industry.

2.1. Fashion industry and fast fashion

The fashion industry has constantly been changing in the recent decades, as well as its consumers' behaviour. With the popularity of fast fashion in the fashion industry, there is a constant need for retailers to meet consumer demands quicker than before. In the past, the design and production process required long lead times of six months between the designing of garment and delivery to retailers, which limited the abilities of manufacturers and retailers to satisfy consumer demand. Presently, with the advent of fast fashion tendencies, business models have changed to accommodate shorter lead times and restricted the design and distribution process to just 10 to 15 days (Supply Chain Management, 2014). Along with this, came the supply chain challenges that needed to be mitigated in order to meet the expectations of the fast fashion industry and its consumers.

2.2. Supply chain in the fashion industry

Supply chain is defined as all the processes that are involved in making and selling goods (Grimshaw, 2020). La Londe & Masters (1994) defines, in detail, that the supply chain is made up of the group of firms that passes materials forward until it can be used by an end consumer. The fashion supply chain, in specific, is described as consisting of the main actors and the activities that they perform (Abecassis-Moedas, 2006). The seven different types of actors involved in this supply chain are the raw materials manufacturers, yarn manufacturers, fabric makers, materials manufacturers, garment manufacturers, distributors, retailers and customers (Birtwistle et al., 2003). And the main activities performed by these actors are those of purchasing, product design, production, distribution and retailing (Graafland, 2002). The

supply chain has to work smoothly in order to meet every consumer demand. The present fast fashion industry needs to have agile, reactive and quick responsive supply chains (Alfieri et al., 2019). To guarantee the short lead time in a supply chain, while considering that the complexity of the supply chain is high and synchronised, it needs to be with zero operational delay as well. To make this possible, most fashion retailers adopt a vertical integration that permits quick decisions and a direct control over their operations, from product design and production to logistics that helps get products to consumers. (Kucukcay, 2018).

The fashion industry’s supply chain goes through many different processes (Martino et al., 2017), that are susceptible to disruptions. According to Martino et al. (2017), these processes happen at different phases of the fashion supply chain as shown in Table 1.

	Phases of the fashion supply chain	Processes involved
1	Pre-season - <i>this refers to all the activities that take place before the actual selling season begins</i>	<ul style="list-style-type: none"> ● Forecasting the market trends, ● Developing seasonal collections, ● Selecting the main assortment of clothing, ● Starting various sales campaigns and presenting new collections, ● Forwarding and launching orders, ● Procuring materials which need to be sent to various production plants, ● Receiving finished products, ● Delivering finished products to customers and to stores.
2	In-season - <i>refers to when the selling of the products is first recorded at stores until the end of the selling season</i>	<ul style="list-style-type: none"> ● Selling the actual products to the final customers.

3	<p>Post-season - <i>refers to the treatment of the unsold products from refurbishing to delivering these products to the factory outlets</i></p>	<ul style="list-style-type: none"> ● Receiving back unsold products from clients and stores, ● Refurbishing and pricing returned products to be sent to outlet stores and ● Finally, delivering these to outlet stores.
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Table 1: Phases of the fashion supply chain (source: Martino et al., 2017).

The fashion industry is required to have the ability to quickly identify customers' tastes and use this factor to bring out products that the consumers need, as well as introduce new products that would catch their interest. While offering a wider range of products to a large market is crucial, it is also equally important to reduce the time-to-market and logistics costs in order to not be affected too much by the change in trends and ending of seasons (Martino et al., 2017). Therefore, the 4 main targets that are used to study these factors are, namely:

- 1) Market driven orientation – where the supply chain is run by the real and current market needs (Walters, 2006), which steers away a little from the demand forecasts and focuses on the effectiveness of the supply chain (Martino et al., 2017). Achieving this target further depends on 2 other sub-targets which are the improvement of market sensitivity and attractiveness of brand;
- 2) Cost reduction – this looks into the efficiency of the supply chain activities. It aims to reduce the costs that are involved in the activities along the value chain. This category further has 2 sub-targets which are those of time management and material flow management;
- 3) Brand internationalisation and expansion of market – this particular target deals with entry and expansion into a new, foreign market which results in making decisions related to the retail and marketing structure and choosing products and services that are more appropriate to the new foreign market (Picot-Coupey et al., 2014);
- 4) Environmental sustainability – since concerns about the environment, its sustainability and corporate social responsibility is of great concern to consumers, the fashion industry takes this into consideration which has led to many companies to use recycled fabrics and monitor their environmental impact more carefully. Being a big source of environmental

pollutants led the fashion industry to take serious actions to adopt newer and cleaner ways of operation.

More often than not, to deliver affordable fast fashion products, the fashion industry has been accused of using cheaper, synthetic materials that are more widely available than natural materials. Synthetic materials such as polyester have been reported to be used in the global fibre production on a large scale. This material which is derived from non-renewable resources and needs a large amount of energy in order to be extracted and also emits significant amounts of by-products (Pucker, 2022). With the increasing number of problems that the fashion industry faced due to such polluting activities and being a catalyst for negative effects in the society, fashion retailers increasingly saw the importance of realising the importance of sustainable fashion and sustainability in their working practices.

2.2.1. Sustainability in the supply chain

Sustainability is defined as meeting peoples' present needs without compromising the needs of the future generations. It is an emerging topic that talks about the present and the future of the world we live in, by getting to know the environmental, social and economic consequences of people's actions (Robinson, n.d). Fashion consumers are becoming increasingly aware of the environmental protection, social responsibility and economic sustainability that needs to be implemented by fashion retailers (Yang et al., 2017). Unfortunately, the fashion industry has a tendency to consume natural resources along with the emission of greenhouse gases and other pollutants which poses a great threat to environmental sustainability. Adding to this, the fashion industry also sees plenty of human rights issues within the production process of clothing, such as forced labour, low wages, overtime of work without pay, child labour, health and safety hazards etc., which leads to serious social and economic sustainability challenges (Hiller Connell & Kozar, 2017).

United Nations (2019) states that due to increasing trends of fast fashion, it has been responsible for many negative environmental, social and economic impacts in the society. These economic, social and environmental challenges can be connected to the triple bottom line concept. The triple bottom line, as proposed by Elkington (1997), consists of the planet, people and profits as the three lines that are linked to sustainability and its issues. The triple bottom line gives a framework for measuring the performance of the economic, social and environmental elements of an organisation (Goel, 2010). With the triple bottom line, it helps sustainable corporations

to be capable of promoting more societal value and can help towards generating more stakeholder value. In short, incorporating a triple bottom line in the fashion industry helps towards building economic, social and environmental resources along with promoting sustainable livelihood (Hiller Connell & Kozar, 2017).

In the EU, the sustainable apparel (also called organic or eco-fashion) category has been growing in demand by consumers in recent years. These apparels are designed, made and produced responsibly and in an ethical manner with due consideration given to the social and environmental impact that may have (CBI, 2021). Some of the key factors that need to be met for the production and distribution of these sustainable apparel are having animal-friendly, CO₂ neutral and organic materials for production, having an ethical stand and fair pay for manufacturers and having nature-friendly packaging (CBI, 2021). In order to make sure that the products are sustainably sourced, consumers require certificates and labels to be provided as a proof that they are sustainable as well as fair trade apparels (CBI, 2021).

Retailers can help by acting as a middleman in the supply chain and help relevant groups of people along the supply chain to incorporate sustainability in their actions. Retailers can influence manufacturers by helping them to modify and change certain production processes to meet the social and environmental needs. They can also take actions to direct their business activities to influence various social and environmental sustainability developments such as improving their packaging, delivery, assortments etc. With improving and developing sustainability in retailing, retailers can work towards improving their internal operations to minimise emissions, effluents and wastage in their internal operations. Sustainable retailing should also consist of two main practices - green transportation by means of the movement of green products as well as green store operations that work towards reducing waste, recycling and conservation of energy. (Yang et al., 2017).

2.3. Risks and negative effects of supply chain disruptions

In order for supply chains to work efficiently, it has to be able to withstand disruptions. Supply chain disruptions takes place when events that are unanticipated and unplanned takes place that causes disruptions to the normal flow of goods and materials in a supply chain which, in effect, brings forward financial and operational risks for firms involved in the supply chain (Craighead

et al., 2007; Ellis et al., 2010). Solutions like having more inventory capacity, increasing capacity at various locations and making use of multiple suppliers might not always work out as being the most cost efficient for all supply chains. It is more important to have cost efficient solutions to manage any kinds of risks (Chopra and Sodhi, 2014).

Risks of supply chain can be a disruptive risk or recurrent risks. Disruptive risks are those when a disruption in one particular area of the supply chain can cause another subsequent disruption whereas recurrent risks are more independent of each other which can be managed with good supply chain management methods (Chopra and Sodhi, 2014). The risks or events that lead to any such supply chain disruptions have several negative effects on the entire supply chain as well as the operational and financial performance, as mentioned before, within the supply chain (Xu et al., 2020). Disruptions that take place in a supply chain can be due to natural calamities (eg. tsunamis, earthquakes, hurricanes, pandemics etc.), man-made problems (eg. strikes, terrorist attacks etc.) and legal disruptions (Ivanov et al., 2017; Kleindorfer & Saad, 2005; Ivanov, 2018; Hosseini et al., 2019). Such disruptions can cause problems within the structural dynamics of a supply chain and in turn cause a ripple effect. These effects should be controlled in order to reduce the effects of the disruptions on the supply chain (Xu et al., 2020). Dolgui, Ivanov and Sokolov (2018) refers to a control framework of this ripple effect. This framework has four main elements, as mentioned by Xu et al., (2020), which are namely of:

- Resilience - ie. adapting and preparing supply chains to respond to disruptions,
- Redundancy - having alternatives,
- Robustness - employing a proactive approach to maintain the performance and plans of the supply chain that was put together during the planning stage and
- Flexibility - of having a reactive approach which responds to disruptions to re-allocate inventories and capabilities.

It would also be more useful to classify the disruptions on certain other criteria such as on the basis of their mean and variance of occurrence frequency, supply chain life cycle, type of disturbance and managerial decisions. The importance of categorising these is to help in providing a direction to manage the disruption (Vakharia and Yenipazarli, 2009). The consequences of it can negatively affect a supply chain not just with short-term financial losses but also have long-term impacts that could last for months or even years (Baghersad and Zobel, 2020).

Further, Serai (2021b) lists and explains the major supply chain issues that can be seen in the fashion industry as follows:

Demand volatility – demand in the fashion industry is incredibly volatile and keeps changing without warning. The major problem that comes out of this demand volatility is that of cost losses. In today's modern world, with trends changing quickly, it would mean that retailers would be left with stocks that they have already paid for and which will have to be sold at a reduced price to customers.

Production volatility – unforeseen situations like natural calamities or even man-made disruptions like strikes can cause problems on production of products. This could lead to stock shortages which in turn would make customers turn to other alternatives to meet their needs and prefer other brands that serve their needs.

Transportation issues – issues of products not reaching their destination on time and not being able to meet consumer demands would have a significant impact on the fashion supply chain. One of the significant issues that the world witnessed recently related to transportation delay was that of a container ship blocking the Suez Canal in 2021. As this route is one of the busiest and vital routes for over 50 vessels to pass through every day, it led to many vessels to be stuck at sea for about six days until the container ship was dislodged (The Guardian, 2021).

Perishability issues – most fashion products have a life cycle that is shorter. In the traditional sense, fashion products would go through either the seasonal lifecycle or fashion lifecycle. This lasts over months. However, today's lifecycle of fashion products could be even for a mere few days.

Sustainability of supply chain and process transparency – over the years, it has grown immensely important for fashion brands to be transparent about their actions and impacts towards the environment and be open about their sustainability plans. This has required businesses to have strong strategies that make sure that their suppliers are meeting certain regulations and ethical conducts.

Lead times – with most fashion companies outsourcing their production to countries with lower wages, it brings a challenge of receiving products at the right time at stores without delays. And so, the supply chain would be constructed with a balance of reduced costs to time-to-

market of the fashion brand. Any disruption in this time plan would lead to not meeting demands of the consumers.

Managing cost types - it is important for the buying and procurement teams to choose their buying decisions based on total cost and not just cost per unit. While working with just cost per unit, external costs such as transportation costs, taxes of exports etc will not be considered that will be needed to get things from factories to their warehouses.

Raw material availability – with the increase of eco-consumers moving towards preferring more organic and sustainable fibres, if the raw material to meet this demand is not available, it could mean there would be a significant problem. And so, the decision of sourcing and seeing that the required raw material is available needs to be done quickly.

Supplier performance – it is important to make sure that the suppliers work hard and help them improve their operations if needed, in order to achieve better results for all. This could be by setting objectives that the suppliers need to achieve in a given time.

Fast fashion popularity - Fast fashion demands can place a great stress on the supply chain which can lead retailers to end up with an excess of products at the wrong time which might end up having to be sold at a discounted rate or at a loss. Using a hybrid supply chain model of both lean supply chain² and agile supply chain³ which could help a company's supply chain to be less vulnerable to the fast-moving product life cycle as well as get the most out of trends as and when they come around.

Forecasting accuracy - predicting what exactly to buy and sell is always a challenge. Forecasting decisions can only be made after considering several factors in the supply chain and the company business model in order to know what product orders to commit to and at what time. Again, a hybrid supply chain can be made use of. Otherwise, maybe by underproducing or by being conservative in a company's forecasting, they can market a particular product by saying it is "limited in supply" and in turn lead to increase in its demand and price.

² *Lean supply chain* - produces large volumes of products at a low cost. The main goal here is to provide the best outcome for the customer (Serai, 2021a).

³ *Agile supply chain* - produces and responds directly to demand and not according to forecasts in order to reduce the risk of over-producing (Serai, 2021a).

Reducing waste in the production process – while producing fashion, the amount of waste products that is sent to landfills, burnt or dumped on land or water is a big issue. If a particular business or their supplier is found to be contributing heavily to these kinds of waste disposals, this will be a cause of ruin of a businesses' reputation. This brings the importance of making sure that suppliers know how to improve their processes without producing much waste.

2.3.1. Disruption due to Covid-19 and its effect on the supply chain

Based on the disruption caused by the Covid-19 pandemic, it is possible to notice far-reaching problems in various sectors including the labour market, the financial, economic, and logistic sectors and others. Additionally, the pandemic crisis has affected the supply chain side, the operation and production of goods and services, as well as the demand side, as represented by the consumption of these goods and services. (Al-Mansour and Al-Ajmi, 2020).

Starting with the point of an unexpected inventory due to a low demand, it can be mentioned that the Covid-19 pandemic forced the closing down of commercial shops and hence, the demand for certain products did not follow as planned, thereby, having more inventory than expected. Chiaradio (2020) explains that due to the closing of physical stores and the lockdowns that were imposed on the population, many retailers had hundreds of pieces of apparel sitting in stores that will no longer be in season. In order to avoid extra costs, they needed to find solutions to manage or sell this inventory in order to make room for the next season's collection. Further on, it was also mentioned how some retailers handled their excess inventory dilemma during the Covid-19 crisis, by means of donating to charity, opening outlet stores, delivering to third-party stores, focusing more on e-commerce sales and offering employees a discount on their goods (Chiaradio, 2020).

Further, it was noticed that there was a consumer attitude change, which was caused by the lockdown imposed against the spread of Covid-19, as an increase in the purchase of food, beverages, hygiene items, and medicines as well as clothing. This behaviour occurred during the lockdown and has been widely confirmed worldwide. (Cruz-Cárdenas et al., 2021). Sheth (2020) goes on to say that if consumers cannot go to the store, the store comes to their home.

In the field of lack of raw material and spare parts, almost all sectors suffered. The Covid-19 pandemic forced employees to stay at home, due to the spread of the infection and the restrictions imposed by governments, which caused a stop in the production of parts, harvesting

of raw material, and in shipments. “In the fashion industry, manufacturers and suppliers cannot produce as much as they did pre-pandemic for reasons including worker shortages, and a lack of key components and raw materials.” (Fish, 2021). The result reverberated on the other side of the supply chain, forcing companies to slow down the production or to limit the number of purchased products of final consumers. Companies like Adidas and Nike were badly affected by local lockdowns in Vietnam that resulted in temporary pause to production there which was one of the main regions that the companies relied on for manufacturing sneakers and athletic apparel. (Fish, 2021).

2.4. Consequences of supply chain disruptions

Looking at the greater picture of the mass market that the fashion industry has, most supply chain activities have had to move their activities from countries that have high labour costs to countries that have a comparatively low labour cost, especially to Asia, Africa and parts of Europe (Graffland, 2002). This required retailers to opt for cheaper forms of transportation for the movement of these goods which would help to keep lower costs and gain higher profitability. The movement of supply chain activities to be outsourced has helped to achieve cost efficiency, as well as helped to get opportunities of market expansion, find better talent, get closer to points of sale and find more materials (Di Gregorio et al., 2009; Caniato et al., 2015). However, with unexpected disruptions or problems in outsourcing, it would mean that there will be a delay in getting these activities done.

Supply chain disruptions along with related operational and financial risks are the biggest concern that all types of companies face in today’s global competitive marketplace (Craighead et al., 2007). Some examples could be a demand change, unexpected inventory, supply shortages and reduced productivity (Accenture, n.d.). A change in consumer attitudes is common when a risk of demand disruption is noticed. Smith (2021) explains that demand disruption is an event that causes a sudden and significant change in customer demand patterns that exceeds the ability of the supply chain to respond. Both increases and decreases in demand can be considered to be disruptive. The demand for a certain product and/or service could change to a level never imagined or expected. In the past, we have had notable cases of shortage of basic products due to an unexpected high demand. The toilet paper shortage during the US energy crisis of the early 1970 (Lim, 2020) or the fuel shortage due the oil crisis of 1973 (Kettell, n.d.) are some examples to be remembered. Another relevant aspect about demand change is related to a reduction of labour income due a disruption, which results in low

consumption of basic materials relating to housing, food, medicines, and social services. (Al-Mansour and Al-Ajmi, 2020).

Operational problems could cause a lack of raw material and spare parts due to an interruption in the flow. Consequences are many such as production stoppage, late delivery to customers, increased production cost due a last-minute deal from a new supplier. (Islam, Rashed & Hasan, 2019). Operational problems could even cause an unexpected inventory of products due demand for certain articles was not the planned one. This occurs most on fashion articles or on specific seasonal products, such as Christmas and Easter. Messana (2021) says that seasonal items once stuck at factories or in ports have finally reached retailers, after the peak season, can still be useful (Messana, 2021). So, if the delivery products are delayed for some reason, the company will need to stock the products for the next season or sell them at a discount, which both will result in certain costs and losses for the company.

As mentioned previously, supply chain disruptions also cause financial consequences, combined or not with political tensions, resulting in an increase in oil prices. (Al-Mansour and Al-Ajmi, 2020). When the price of fuel goes up, carriers are required to increase their prices or take some losses. If the shipper is charged more to transport, the receiver is consequently charged more to make up for additional costs (DDC, 2019).

2.4.1. Consequences of supply chain disruptions due to Covid-19

For being a highly complex supply chain, the fashion industry was strongly impacted by the Covid-19 pandemic because of disruption of garment production due to having manufacturers in multiple countries that were forced to stop production or reduce capacity (ILO, n.d.). Another crucial negative point was the high dependence of outsourcing for garment production: In 2018, as much as 53.7 percent and 60.6 percent of East Asian and Southeast Asian countries' textile imports came from China, demonstrating how highly integrated Chinese manufactures are in global supply chains (WTO, 2019). Then, the delivery aspect was impacted too, with a big part of raw material, trims, accessories and finished goods imported exclusively from Asia, companies found themselves without material to run factories or products to place in stores due to stoppage of shipments.

The fashion industry needed to also face the reality of a change in consumer behaviours. According to the Sales Intelligence (2020) report, sportswear and clothing belonging to the

category of homeware and home office have been the most popular. On the other hand, the pandemic caused the largest decrease in party clothes, such as dresses (by 65%) or suits (by 74%). (Sales Intelligence, 2020). Those companies that noticed this tendency in advance, that follow a vertical model, which permits quick decisions and actions, had a certain advantage. Another challenge was the change of way of buying, from physical stores to e-commerce. Bilińska and Dewalska (2021) in their case study mentions “*E-commerce as the predominant business model of fast fashion retailers in the era of global COVID 19 pandemics*” demonstrating that e-commerce plays a fundamental role in the fast fashion industry. A “forced” digital adoption during the pandemic increased consumers' interest in safe and convenient online availability and pushed retailers to change their business models and introduce online channels solutions. (Bilińska and Dewalska, 2021).

However, transitioning to a better online presence did not come without its challenges. The efficiency and full usage of online platforms depended on consumers' age, access to technology, technological knowledge etc. In the European market, the question of whether the digital trend will continue even after the pandemic is still unknown. This will depend on behavioural shifts since the pandemic and intention of shopping for a longer time. The European apparel market has four main consumer types (Figure 3) that have emerged over the period of the pandemic which are digital embracers (30%), digital dabblers (18%), store reverters (24%) and store loyalists (28%) (Retail Economics, n.d). Even though the behaviour shift of some people to online were temporary due to health concerns or capacity restrictions at stores, over a third of European clothing consumers believe that their shopping habits will change permanently to online platforms even after the effect of the pandemic declines (Retail Economics, n.d).

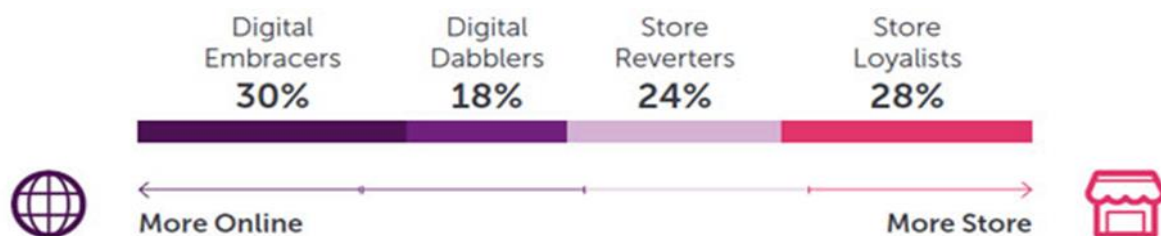


Figure 3: Main European apparel consumer types (Source: Retail Economics, n.d)

2.5. Mitigation strategies to manage supply chain disruptions

Based on supply chain disruptions faced over the decades, companies and experts drew strategies in order to mitigate the consequences and negative aspects caused by an eventual disruption. Norrman and Jansson (2004) explain that if a company cannot manage a risk by eliminating or minimising the consequences, it can prepare a contingency plan to know what to do if something happens. Tang (2006) published in the article “Robust strategies for mitigating supply chain” nine key features for companies to build a robust supply chain to mitigate the disruption, as listed below:

1. Postponement: allows the company to standardise part of the production in order to postpone the differentiation part. This brings a certain flexibility to the company to deal with unexpected supply chain disruptions;
2. Strategic stock: safety stock inventories of certain critical components to ensure that the supply chain can continue to function smoothly when facing a disruption in supply;
3. Flexible supply base: avoid sourcing from a unique supplier and encourage the company to have other options, in different regions, then mitigating the risk of local disruptions;
4. Make-and-buy: encourage companies to have part of the production in-house, avoiding the dependency of outsourced suppliers. Thus, ensuring part of production in case of a disruption in supply and leaving outsourced specific products only, not the majority;
5. Economic supply incentives: to gain the flexibility of shifting production among suppliers, the company can provide certain economic incentives to cultivate additional suppliers;
6. Flexible transportation: encourage companies to have different approaches:
 - Multi-modal transportation: to prevent the supply chain operations when disruptions occur in the ocean, in the air, etc;
 - Multi-carrier transportation: to ensure continuous flow of materials in the case of disruptions such as political disruptions or others;
 - Multiple routes: to avoid a complete shutdown, companies are considering alternative routes so as to ensure smooth material flows along the supply chains.

7. Revenue management via dynamic pricing and promotion: adopt dynamic pricing and promotion to manage demand when the supply of a particular product is disrupted;
8. Assortment planning: to influence consumer product choice and customer demand when certain products are facing supply disruptions;
9. Silent product rollover: it is a strategy when new products are introduced slowly into the market without any formal announcement. This, because substitutable products are very desirable for handling demand fluctuations when there is a supply or demand disruption.

During the last decades, there was a tendency of the majority of companies, in all sectors, to outsource part of the production or some of their services to developing countries, aiming to reduce cost, as these countries require lower wages to their workers. Since 2000, the revenue of the global outsourced services industry had been rising steadily, reaching a peak in 2011, after which it started losing ground. The disruption of Covid-19 and consequently the closing of borders, made the companies to re-think their outsourcing strategy. This meant that companies can follow a kind of “flexible supply base strategy” mentioned by Tang (2006), which are, the decrease of the dependency of outsourcing and considering the option of onshoring. (Kajjumba, et al., 2020).

2.5.1. Mitigation strategies adopted with the onset of Covid-19

In order to mitigate the impacts caused by disruption of garment production and disruptions from delivery aspects, some companies adopted both kinds of strategies of outsourcing and onshoring. *“Rather than outsourcing production of clothing with short shelf-life to Asia, as many clothing retailers want to do, most of the products offered by Zara are manufactured in firm-owned factories in Spain. However, items with a longer shelf-life are outsourced to low-cost suppliers, in Asian countries.”* (Holmes, n.d.). That way, the consequences of the pandemic disruption may not have been so hard for such similar companies as compared to those that depend exclusively from the Asian market.

For being a fairly new topic and broad, the consequences emerged by the Covid-19 pandemic and the mitigation strategies to confront it are still being studied and reported, which causes a lack of literature about the subject. So, there is a limitation in terms of literature review. On the other hand, some points from a practical way can be noticed, that will be covered further in this research as strategies adopted by companies in line with the Covid-19 pandemic disruptions.

3. Methods and methodology

This chapter presents the methodology and methods of this research paper and explains the relevance of the chosen methods and methodology. Also included in this chapter is an introduction of the case company that this research paper is based on.

Methodology refers to the study and analysis of the techniques used for the data production of a research (Abdul & Alharthi, 2016). Methodology is used to describe the overall approach taken while conducting research which includes the paradigms and theoretical approaches adopted whereas methods refer to the systematic modes, procedures and tools that have been used to collect the data linked to the research and analysis of the data collected (Mackenzie and Knipe, 2006).

3.1. Research paradigm

For conducting a research study, recognizing the research paradigm helps to attain a guide on how scientific research is to be done (Collis and Hussey, 2014). The two common research paradigms that are used in research studies are those of positivism and interpretivism.

The positivism paradigm originated from the natural sciences. This paradigm has its roots set in the philosophy of realism and hence works on the assumption that social reality is singular and objective (Collis and Hussey, 2014). In the natural world, there exists a cause-effect relationship among phenomena which can help to predict future results once established (Abdul & Alharthi, 2016). Therefore, the positivism method works on discovering explanatory theories that could be used to predict and understand social phenomena through several experimentations (Collis and Hussey, 2014).

Interpretivism works as a possible response to the criticisms towards the positivism paradigm, which was used more often in research (Grix, 2004; Collis and Hussey, 2014). Interpretivism lies in the assumption that social reality is in peoples' minds and is subjective and multiple (Collis and Hussey, 2014). This particular approach studies a situation from the perspective of the subject matter in order to understand and interpret the viewpoint of the subject that is being observed (Kivunja & Kuyini, 2017). Hence, interpretivism gives an interpretive understanding in a particular context of a social phenomenon (Collis and Hussey, 2014).

For the purpose of this research paper, an interpretivist approach is more appropriate, as the research aims to understand the point of view of the case company and so, will be adopted. This study does not depend on any numerical data to be retrieved to be carried out as a quantitative study. On the other hand, this study uses data collected by means of published texts and interviews which are characteristics of a qualitative study. Therefore, the paper takes the approach of a qualitative study and the interpretivist approach will help to interpret the various information and results that will be collected and presented in the following sections.

3.2. Research approach

Typically, the analysis approaches seen in a research study are those of deductive and inductive approaches. A deductive approach moves from a general view to a particular view, meaning that the approach starts from a theory, extracting the appropriate hypotheses from the theory, testing out the hypotheses and not changes, if any, to the theory (Locke, 2007; Nola and Sankey, 2007). On the other side, we have the inductive approach which moves in the opposite direction, ie. from something particular to general. This is done when an empirical observation is made about a particular phenomenon of interest and further theories and concepts are made on the basis of these observations (Locke, 2007).

And so, taking into consideration the nature of this paper, the research follows a deductive approach. It is categorised as deductive as this research was carried out by establishing the literature and theories present in the field of study in general initially and further investigated what was relevant to the results and if the theories were applicable to the subject of study.

3.2.1. Data description

It is important to specify the kind of data that will be used for this research. The two kinds of data are quantitative and qualitative. Research that is based on social phenomena that can be measured and so, associated with positivism is known as quantitative. Whereas research that makes use of the interpretivist approach of describing, translating and understanding the meaning of various social phenomena in the world is qualitative (Collis and Hussey, 2014). Using a qualitative approach allows research to explore new findings that are currently lacking in a field of study. And so, this study makes use of a qualitative approach as it is more appropriate when conducting interviews for the study. Using qualitative methods will help this study to get more detailed reasoning and explanations with this approach.

3.2.2. Case study

A case study is an approach which is used to study a single phenomenon or a case in its natural setting by means of using different tools and methods to gain an in-depth knowledge of the subject (Collis and Hussey, 2014). Yin (2003) defines case study in a more detailed and technical manner and points out that it is an empirical inquiry that is done to investigate and research about a contemporary phenomenon in real life and in its surroundings. Further, Yin (2003) also explains how a case study puts forth questions of “how” or “what” about a contemporary set of events which the researchers have no control over. With a case study, it is easier to get a detailed understanding about an event, person or process. And so, it is most appropriate to call this research paper a case study as it studies the fashion retail company H&M.

3.2.2.1. Company chosen for case study - H&M

This research paper focuses on a case study of H&M as it is the second largest fashion retailer in the world on accounts of its revenue and so, the company has a growing interest to be studied about. This fashion retailer, which has been involved in the fashion industry since the 1940s, runs on the agenda of making it possible for their customers all around the world to be able to express themselves by means of fashion and design. Also important for the company is to keep developing based on a continuous focus on sustainability and create profitable growth (H&M Group, 2022a). The company recorded an increase in its net sales in the year 2021 by 6% amounting to SEK 198,967 m (H&M Group, 2022c). As of November, 2021, the number of H&M stores that are operating worldwide amounted to 4,801 (H&M Group, 2022b). Over the years, H&M also took up ventures into several other subsidiary shops to offer even more options. Currently, H&M covers brands such as H&M, COS, Weekday, Monki, H&M HOME, & Other Stories, ARKET and Afound (H&M Group, 2022a).

3.2.2.2. History of H&M

The beginning of H&M dates back to the year 1947 when Erling Persson, a Swedish entrepreneur, opened his first shop named “Hennes” that sold women’s fashion wear in Västerås, Sweden. The idea to sell women’s fashion wear in a new way was born out of the inspiration that Persson found while on a road trip through the United States of America. The following years saw the opening of several Hennes stores in Sweden’s capital city, Stockholm

which kept the popularity of the brand growing at a high rate (H&M Group, 2022e). By 1968, the company acquired Mauritz Widforss, which was a retailer for fishing equipment and hunting apparel, also based in Stockholm, Sweden. This changed the name of the company to Hennes & Mauritz i.e., H&M. The company thus started selling men's and children's clothing which meant that the company now offered clothing for the entire family. By 1969, H&M already had 42 stores and started to grow internationally by showing its presence in Norway first, followed by Denmark, the United Kingdom and also Switzerland (H&M Group, 2022f). The 1980s saw a huge global expansion of the company and continued to expand on to other parts of Europe over the years. By the year 1998, H&M started to offer the option of online shopping, which first went online in the Sweden's market (H&M Group, 2022g).

In the year 2000, the company opened its first store in the west in New York which marked the start of the company's expansion outside of Europe. Soon after H&M opened its first stores in the east in Shanghai and Hong Kong in the year 2007 (H&M Group, 2022h). By the year 2013, the H&M Group had its stores in Europe, Asia, North America, South America, Africa, the Middle East and Australia (H&M Group, 2022i).

3.3. Data collection

The data sources for this study included the use of both primary and secondary forms of data. Primary data was retrieved by conducting semi-structured interviews through digital communication tools. The interview questions were sent in beforehand and further discussed in detail during the scheduled interview time. Secondary data was collected using previously published research works, journals, websites and scholarly articles.

3.3.1. Primary data

Primary data are those retrieved directly from an original source (Collis and Hussey, 2014). For this research, a semi-structured interview was conducted with two employees from the case company as a way to retrieve first-hand information. The interviewees were contacted and given a description of the research paper before agreeing to the interview. The interview was done by following an interview guide, which consisted of open-ended questions (Full interview guide can be found under Appendix 1). The aim of having open-ended questions is to allow the interviewee to give a longer and developed answer and not a brief or one-word answer (Collis and Hussey, 2014). With conducting a semi-structured interview, it opened up a possibility to

carry out a flexible interview in order to gain an opportunity to explore more questions if they appeared during the process and have a better discussion. Having a semi-structured interview also helps the respondents to speak more freely and open up and not feel restricted to a particular structure. The interview guide was sent to the interviewees beforehand for convenience of the interviewees and to make the time of the interview more efficient. The interview guide was developed with respect to the literature review carried out for this study. The questions were developed from the various sections to further have an ease in connecting to the literature review and compare accordingly.

3.3.2. Secondary data

Secondary forms of data are that information that are already existing in sources such as books, journals, publications, databases, websites etc. (Collis and Hussey, 2014). In this research paper, secondary data was retrieved by means of published articles, scientific books and journals, case-company's website, the company's annual reports and sustainability reports and other relevant web searches and websites. It is also important to mention that the annual reports and sustainability reports of the case company used for the purpose of this research paper were limited to those from the years 2019 to 2021 as it is more relevant in order to compare the information in the reports from immediately before and after the beginning of the Covid-19 pandemic. Other sources were also retrieved by searching on the database of Google Scholar and the University of Gothenburg's library database.

3.4. Validity

Validity in a qualitative study is not a single, fixed or universal concept but it is rather grounded and based on the intentions and processes of particular methodologies of different researches (Winter, 2000). In the past, researchers have argued that validity is not applicable to qualitative research. But, having said this, there also was a need to have a scale of measure of qualifying check for qualitative research. Creswell and Miller (2000) have put forth the idea that the validity in qualitative research is affected by the perception of what is valid in the eyes of the researcher of the study and the respective choice of paradigm. Therefore, this paper consists of a detailed literature and frameworks with the help of which relevant conclusions of the research question is made and validated.

3.5. Reliability

Reliability in research refers to the accuracy of the study which when compared to future studies will not have a significant difference in the findings (Collis & Hussey, 2014). The researcher needs to make sure that the evidence and the conclusions made based on this will stand strong under rigorous questioning. Therefore, in order for the results of a research to be reliable, the result should be able to be replicated if the study is carried out another time. And so, in this study, all the theoretical findings have been put under different themes and further the case company details from the interview conducted is provided.

3.6. Anonymity and confidentiality

Anonymity in a research study is given to assure the participants that their names will not be used or published in the research. Confidentiality is assuring the participants that the details they provide and which will be used for the research paper will not be traced back to the participants (Collis & Hussey, 2014). By providing the participants with an opportunity to remain anonymous and confidential, this may give increased honesty and openness in their responses during the interview and a greater freedom of expression (Collis & Hussey, 2014). As the interviewees requested to stay anonymous, an exception is made and they are referred to as interviewee 1 and interviewee 2. Because of this reason, no other information is disclosed about the participants other than that they work in the logistics department at H&M.

4. Results of the case study

This chapter presents the information retrieved from the interview applied to two H&M employees from the company's logistics department along with information from the company website and relevant company reports. The section presents the supply chain structure of the case company, importance of sustainability for the company as well as information about the disruptions and mitigation strategies adopted by the company before and after the start of the Covid-19 pandemic.

4.1. Supply chain structure of H&M

At H&M the different stages of a product, from being a raw material to becoming a finished product, passes through different suppliers until it finally reaches the store. These suppliers are classified into different tiers in the company's supply chain. Tiers are the different levels in a supply chain that are differentiated according to their closeness to the final product. The tiers are connected in a way that each tier does business with its immediately adjacent tier (H&M Group, 2022d). Although not all supply chain will look the same, a typical fashion supply chain for H&M looks like the following (H&M Group, 2022d):

- Tier 1 – this tier consists of product manufacture and process such as washing and dyeing garments, sewing, cutting and putting the finishing touches on garment. The companies in this tier are directly working and dealt with by the company.
- Tiers 2 to 4 – the companies in this tier work with component production and processing. This includes activities such as yarn spinning, knitting, weaving, dyeing and printing of fabric and yarn and lastly trimming.
- Tiers 4 to 6 – these tiers deal with the raw material production for the goods. This tier has the farms from where the cultivation and extraction of raw materials take place, feedstock, raw cotton processing or ginning, recycling raw materials and conversion and production of raw material by fibre producers.

After products go through all these tiers, they are directed towards traders or agents that further takes care of the warehousing, repacking etc. H&M continuously works towards improving their environmental and social performances which means they work with their suppliers in

order to manage their supply chain impacts. The company recognises that only with strong supplier relationships, can they be the most influential as well. And so, H&M works on building strong, long-term partnerships with suppliers that share a common vision with the company to develop a more sustainable industry (H&M Group, 2022d).

According to interviewee 1, buying goods from the suppliers depends on a hybrid notion of forecasted as well as real demands by the company. On one hand it takes time from buying goods from suppliers that are far away and for them to reach stores or online distribution centres according to seasons. On the other hand, the company also continuously looks at other options of buying closer to market and providing products quicker to meet existing trends quicker.

4.1.1. The importance of sustainability at H&M

During the interview, it was mentioned by interviewee 1 that their CEO, Helena Helmersson is “*pro-sustainability*”, meaning that the company continuously works with the sustainability aspects in all their work. In fact, the H&M Group Sustainability Report 2019 starts with a letter from the CEO, where she talks about placing sustainability at the core of the company’s business in order to provide the company with big opportunities to speed up the pace of change. To build a sustainable future, the company looked forward to finding newer ways to operate, develop new technologies that work in line with sustainability, establish new business models, new processes and new customer relationships. H&M continually works at making their business models more sustainable which helps in long-term growth as well as help in making a positive impact on the planet, people and profits. This includes creating better jobs, promoting inclusiveness and diversity of people, working towards becoming climate positive in the company’s entire value chain by 2040 and becoming a circular business (H&M Group, 2019). Interviewee 1 points out that they always work with the question of “*how can we be more circular?*”. Interviewee 1 goes on to say how when it comes to the logistics department at the company, if a product is broken and needs to be repaired, whether a returned product or otherwise, they look initially at how or if it can be fixed rather than scrapping it (Interviewee 1). And so, H&M continually works towards leading the change towards being more circular and being part of climate positive fashion and at the same time being an equal and fair business to all. They see the influence that the H&M Group has in the fashion industry and they aim to lead the way in making the industry better in the ways that they operate on the planet and prioritise giving value to people (H&M Group, 2019).

From the very beginning, H&M has been about making fashion available to everyone in an inexpensive way. The company still goes out of its way to make fashion accessible and enjoyable to all but as of recent years, there has also been pressure on the company to take into consideration the social and environmental factors that the planet is facing. This brought along the idea of re-imagining what growth of a company means in the present. It meant that innovation was important not only for materials and processes but also for business models and planning different methods to make fashion and design enjoyable to people in the present and in the future. This also meant that the company had to still prioritise its people and treat them fairly, support peoples' rights and highlight various diverse talents and views. Specially by enabling the company's customers to see first-hand about the company's actions and plans, it can help customers make informed and more sustainably conscious choices (H&M Group, 2019).

4.1.2. The sustainability goals during and after the Covid-19 pandemic

In the annual report of the H&M Group for the year 2020, the CEO letter talks about how in the year 2020, H&M did have a significant negative impact due to the Covid-19 pandemic. Although, it should also be mentioned that the beginning of 2020 was quite strong leading up from the positive trends from the year 2019. This meant that there were more new customers, more satisfied customers and an increase in the full price sales that continued from 2019 to the first quarter of 2020. This also meant that the profits had doubled from the previous year which helped to transform and invest more into going digital that in turn also helped to navigate through the challenges brought along by the pandemic on one end (H&M Group, 2020a). In 2021, H&M had continued its road to recovery from the decline in sales of the later part of 2020. Even with restrictions due to the pandemic, the company's customers continued their purchases and appreciated the company's efforts during the tough times. By the end of 2021, the company's sales were around the same as that before the beginning of the pandemic (H&M Group, 2021).

All through the time of the pandemic, H&M has not set aside its aim to become the best at sustainability. Even with delays and pauses of several important sustainability-related programs and activities that were to be carried out in 2020, the company has continuously adapted these activities to merge with newer guidelines of the post-pandemic world so that they

will be ready to resume its establishment in 2021. The company has advanced significantly in their sustainability agenda and the year 2020 has increasingly shown the company the importance of accelerating the work towards being more sustainable. The company aims to help in transforming the fashion industry to one that works with circularity and social justice. One of the key actions to transition into a more circular fashion future for H&M is to make available these sustainable products and services to their customers in an inspiring and affordable manner along with easy accessibility (H&M Group, 2020a). This will help to strengthen the company's relationship with their existing customers and even attract new customers to their products. During 2020, H&M has also been able to develop and bring about newer fabric recycling technology. The new innovations in this aspect will help H&M reach closer to their goal of using thirty percent of the recycled materials by the year 2025 (H&M Group, 2020a). In order to achieve the company's circular goals, they have built in the concept of circularity in their design processes as well as continue in their testing and scaling other materials such as made from textiles, plastic and agricultural wastes (H&M Group, 2020a).

Even with the challenged brought about by the onset of the pandemic, the company has increasingly worked at accelerating their works of sustainability in many areas such as revising and setting new goals, revising the company's wage strategy, further developing the ongoing works related to biodiversity, keeping up with the continuous company investments in innovation as well as trying out more circular business models (H&M Group, 2020b). Along with this, it was equally important to focus on building teamwork and partnerships in the company - this was applicable with the company's workers and colleagues, customers, partners and suppliers. Further priority was also directed towards employee and customer health, safety and well-being. Also, in order to support the company's suppliers and build a stronger supply chain, H&M joined the International Labour Organisation's program of Call to Action and kept at working with responsible purchasing practices (H&M Group, 2020b). H&M has also provided support to healthcare workers in different countries. They provided Sweden with 3 million long-sleeved aprons along with clothes needed for healthcare workers to use at work in order to limit the risk of contamination by using their own garments (H&M Group, 2020b).

The Annual and Sustainability Report of 2021 showed that the company had taken an important step to present the integration of sustainability into their business and consider it as integral for their company's development. With this, the company could concentrate on offering their customers the best combination of fashion, quality, price and sustainability (H&M Group,

2021a). The company's sustainability strategy directs them in the direction of leading the change towards a circular and climate positive fashion industry, leading the change and at the same time focusing on being a fair and equal company for all (Figure 4) (H&M Group, 2021b). The company strongly aims at enabling people to choose to live a sustainable lifestyle.



Figure 4: Three key ambitions of H&M's sustainability vision (Source: H&M Group, 2021b).

4.2. Supply chain disruptions faced by H&M

Whilst talking about disruption in the company's supply chain, interviewee 1 mentions that the main disruptions that the company faces, from the view of the logistics department, are those that occur at their warehouses. This could be by means of political strikes, floodings etc. The warehouses are not all operated by H&M. The company has appointed Third Party Logistics⁴ (3PLs) that are responsible for operating the warehouses. Because the company appoints these 3PLs, H&M also prepares itself by performing risk assessments of having these 3PLs working for them. And hence, the company makes a Business Continuity Plan⁵ (BCP) in order to be prepared for any disputes that might arise.

⁴ *Third Party Logistics - an external organisation that is used to perform all or part of a company's logistics related functions (Coyle et al., 2003).*

⁵ *BCP - aims to reduce or eliminate the impacts of any problem or disaster before it occurs (Cerullo & Cerullo, 2004).*

Another major disruption that interviewee 2 talks about is that of the current problem of increase in fuel prices. To tackle this, the company is looking at using electric vehicles (EVs). Even though the company does not own the fleet of EVs themselves, they are holding negotiations and collaborating with their carriers to come up with solutions that meet all of the company's goals as well.

For H&M, the company's goal is to meet customer promise (Interview 2, 2022). This means that the goods have to be taken from the warehouses to the customers in the shortest amount of time. This should be done while keeping in mind other factors such as environmental concerns, costs etc.

Another significant disruption that the company has faced and took time to recover from was that of the recent case of the cotton production in China⁶ where there was a boycott towards H&M regarding it (Interviewee 1, 2022). China is a big market for H&M and also directly affected the company's production sites that were present in China. Until an agreement to end the boycott could be made, the company had to source the raw materials they needed from other countries in order to not affect the production at other sites dramatically.

4.2.1. Supply chain disruptions due to Covid-19

With the onset of Covid-19, H&M was heavily affected with the strict lockdown happening in China as a lot of the productions for the company takes place in this country. Other than closing down production sites, they had also closed down harbours which made it difficult for garments to get out of China. At the same time, containers to ship garments became more expensive during the pandemic and also the company has faced a shortage of containers getting into the ships that are headed to other harbours. The receiving harbours have faced port congestion (Interviewee 1).

With the lockdowns implemented in the majority of markets due to the pandemic, the company has had to close down a number of stores as a majority of sales still took place in stores at the beginning of the pandemic. Having said this, *the positive side to the lockdown was that the company's online sales grew significantly and is still growing presently* (Interviewee 1). Along

⁶ In 2020, H&M announced that the company would no longer source cotton from Xinjiang due to concerns about using forced-labour practices in the region, which further escalated into further issues.

with the increase in online selling, the company also observed that more casual wear and sweat wears were being bought by customers than fancy garments.

4.3. Consequences of supply chain disruptions at H&M

Supply chain disruptions usually result in financial consequences to companies. With H&M being no different, in all disruptions faced, the disruptions came with financial challenges that needed to be dealt with. Some of the losses could be absorbed, others needed to be passed on to customers. In addition, another common effect caused by supply chain disruptions, operational consequences, was noticed by H&M. Most of them are related to service providers which the company does not have direct control of and what is left for the company to rearrange some steps of the supply chain in order to overcome these operational problems.

As already mentioned, for H&M, the company's goal is to meet customer promise (Interview 2, 2022). So, these consequences caused by a disruption need to be resolved quickly in order to not affect the customers, or, at least, affect them as little as possible. This means that the company needs to act fast and accurately.

4.3.1. Consequences of supply chain disruptions due to the onset of Covid-19

Due to the disruption caused by the Covid-19 pandemic, the company was impacted in many ways. One of these consequences was the increase of sea freight rates. It was noticed by the supply chain department that the value of sea freight transportation dramatically increased right after the pandemic announcement. It directly impacted the company financially as it is the main transport modal used by H&M. In order to reduce the impact, the logistics department needed to be proactive and concentrate its efforts on relationships with shipowners to negotiate good prices and coordinate wisely the maximum products when a good price is applied for a shipment. When a good price was not achieved, the company needed to absorb the extra costs since no other option was considered. (Interviewee 1, 2022).

Besides financial consequences, the company observed issues like shortage of containers and port congestion as well as closing down of harbours. As the supply disruption caused by the pandemic was worldwide, this caused an unbalance of exportation and importation, consequently a shortage of containers was felt in some parts of the world, mainly in Asia.

Another result of the pandemic were the lockdowns. Keeping employees in their houses to avoid the spread of the virus, resulted in port congestions and closing down of harbours. To contain both operational consequences, the company needed the efforts of the logistics department in order to strengthen existing relationships with shipowners, who were able to find ways to minimise such consequences and guarantee the garments and products be shipped. Finally, it was mentioned by interviewee 1 that, due to these actions, the company was not affected to a certain level to delay deliveries to stores as the logistics department worked hard with maintaining the relationships and mitigating at maximum the consequences. Also, it was mentioned that the company never considered switching part of the production to air freight modal, since that would go against the H&M principles of sustainability (Interviewee 1, 2022).

Another typical aspect noticed right after a supply chain disruption is a consumer attitude change. Despite consumer attitude not being part of the supply chain analysis (as it is more of an analysis done by the sales department), the logistics department realised a consumer attitude change in a point of view that the company has been selling more casual wear and street wear than fancy garments and social clothes. Another aspect noticed was a change of the channel where the products are sold. The online selling significantly grew with the onset of the pandemic and is still ongoing. (Interviewee 1, 2022). The company did not present numbers or statistics as this is part of their sales department and was not readily available to the logistics department.

4.4. Mitigation strategies to manage supply chain disruptions at H&M

The company recognizes that “speed and flexibility”, particularly in their supply chain, are two important factors that need to be considered which helps to deal with disruptions in the supply chain. This is mandatory in order to make sure to provide the best customer offerings as well as increase the availability of the company’s products in all channels. Technology-wise, the company is involved in artificial intelligence (AI), new logistics systems and high-tech logistics centres as part of making sure to have the right product in the right place at the right time along with having the right cost (H&M Group, 2020a). Also, within Europe, the company takes advantage of different ways of transportation. Road and sea are the most used modes of transport and air freight is avoided at most (H&M Group, 2019).

4.4.1. Mitigation strategies adopted with the onset of Covid-19

With China facing difficulties of having lockdowns due to the pandemic, many of H&M's production have been delayed. Although, having said this, interviewee 1 mentions that the company has not taken any big or dramatical decisions to produce on such a large scale elsewhere. Therefore, there has not been significant permanent changes when it comes to the production aspects. This was possible because the company counts on production in other countries of the world as well. China ranks first and accounts for about 34% of H&M's production, Vietnam and Bangladesh are second and third respectively, Ethiopia is the fourth. Those are the big countries that supply H&M with all their production. These countries supply H&M with a majority of their products. So, when China went into a strict lockdown, they could count on 3 other countries to supply the company (Interviewee 1, 2022). At the same time, the company also has made sure to keep the production costs in mind through all the disruptions of the pandemic.

Even with the increase in price of containers as well as shortage of containers, as mentioned before, H&M has been fortunate enough to maintain a good relationship with the international freight department. It made it possible for H&M to be able to have options of having containers on board different ships. With this, the company could make sure to reduce the use of air freight as much as possible which, again, comes in line with the company's commitment towards being sustainable (Interviewee 1, 2022). Therefore, the company stressed on the importance of maintaining their existing relationships and figuring out how to get their garments out to their warehouses.

H&M conducts risk assessments continuously every year in order to be prepared for the different risks they might face all over the company along with preparing different BCPs that fit their various departments such as logistics, sales etc. all possibilities of disruptions are considered during this process of risk assessment. *"The company was already working with this before Covid-19 hit us"*, as mentioned by interviewee 1. Other than strikes, floods etc as mentioned before, the company takes into account even bigger disruptions that could happen throughout the year and assess how likely it is to happen, grade them on the amount of impact it could have on the market and the company. Another important aspect that the company has is a dedicated group of people that works with the company's security, which further helps in creating the BCP that is perfectly suited for the company on all aspects (Interviewee 1, 2022).

When talking specifically about the Covid-19 pandemic, interviewee 1 goes on to say that even though the company had rated the likelihood of Covid-19 affecting the company on a large scale in the beginning, the company did not expect it to become a worldwide pandemic that it turned out to be. Hence, a lot of work had to be dedicated to deal with problems that H&M faced and would face moving forward. The company's BCPs were looked into again and revised accordingly. Specifically in the logistics department, when the company had to shift from delivering to stores and direct more to online deliveries. The BCPs in the company's logistics network had to be continuously revised and monitored accordingly. This also helped to quickly cater to different markets whereby if there was a lockdown in one place, the company could serve their markets from another warehouse, even from another country.

5. Analysis and Discussion

In this chapter an analysis of the theoretical framework and the results found are analysed and further discussed. First, how Covid-19 affected the supply chain of H&M is presented. Second, which of the literature review consequences and strategies were noticed and adopted by the company are observed, additionally with the existing mitigation methods of the company. Finally, how H&M positions sustainability in its supply chain is also explained.

5.1. Covid-19 as a disruption and its effects on the supply chain of H&M

In terms of disruption, it shows that H&M is always working in advance. For H&M, it is common to implement actions coupled with daily activities related to being prepared for the possibility of a supply chain disruption. This happens because the range of opportunities to reach the company is large as the supply chain is involved in many steps and sectors. As mentioned by Al-Mansour and Al-Ajmi (2020), causes of a disruption could come from the supply chain side or from the demand side. From a supply chain perspective, H&M recognizes its weakness especially at its warehouses and so, a lot of attention is paid to its warehouses, most of which are operated by 3PLs. Thus, the company works closely with 3PLs, in order to act immediately in times of a breach of contract or unusual actions taken by them. Also with 3PLs, H&M has been working with them to find solutions in order to be less impacted due the increase in fuel prices. As the company has a huge dependency on transport models moved by fuel, which are of sea and road transportation, a project to use more electric vehicles is in development.

Further from a supply chain perspective, recently H&M was hit by the boycott towards cotton production in China. Certainly, it was a disruption that the company didn't expect. Hence, the company took more time to recover from it than expected, particularly because the company was dealing with the country where H&M produces a lot of its products. Until an agreement was reached, the company needed to be supplied by manufacturing plants in other countries. It is a kind of disruption that was hard to predict, that H&M needed to be prepared for, in order to act fast to limit the impact in as minor a way as possible to its customers. From the demand side perspective, it will be addressed as consequences in the next section.

5.2. Consequences faced in the supply chain

The movements caused by Covid-19 disruptions reverberated in financial and operational consequences, common in any supply chain disruption, sourced by any aspect. Also, consumer attitudes change and customer's new behaviours are expected. H&M was impacted in all of these perspectives, by some in a softer way, others in a harsher way.

Due to the increase of sea freight rates, lack of containers and closed harbours, the company needed to concentrate its efforts to negotiate prices and space to ship the garments out. When this was not possible, the supply chain needed to be rearranged, in order to source part of the production from other countries that were not suffering with strict lockdown yet. It worked out in H&M's favour that the company had production possibilities in other countries, especially during the Covid-19 pandemic. Since, if the company concentrated its production majority in China alone, certainly it would have suffered hard consequences. To not have a high dependency of outsourcing productions or at least, not concentrate more than 50% in just one country, helped the company to recover rapidly from supply chain disruptions.

Finally, in terms of demand side perspective, H&M noticed, as expected in the face of any disruption, a change in consumer behaviour. But it was a change in a good way, as the company could take advantage from the increase of online sales in order to compensate for the decrease of in-store sales.

5.3. Mitigation strategies adopted to managing supply chain disruptions

Due to the high complexity of its supply chain, H&M is constantly looking for ways to mitigate disruptions in order to decrease risks and consequences that come with them. Some fashion retailers have been reducing the dependency of outsourcing productions, others have been adopting robust strategies such as those proposed by Tang (2006). H&M chose to incorporate the risks as part of its daily basis activities through their BCP. In this way, the company could map the disruptions, which sector would be affected and how big the impact would be. Then, the risks could be graded, taking in consideration the dimension of the impact and further the main goal of analysing how the company can continue to operate during these scenarios are planned out. So, the idea of a possible supply chain disruption is not new for H&M, in a certain way, the company was prepared to deal with potential supply chain disruptions as such caused by Covid-19.

Besides the BCP, other mitigation strategies are also adopted by the company. One of them is the fact that the company maintains suppliers in different countries, also in different continents to mitigate the risk of local disruptions. This has played an important role in negating the problems that came up with the strict lockdowns in China whereby the company still had three other countries that could supply H&M with goods. This strategy is very similar to the “Flexible supply base” written by Tang (2006), where the main idea is encouraging companies to have other options to source their productions, in order to not depend on a unique market. So, in the end, H&M did not notice a stoppage related to production and distribution. The company only needed to rearrange its supply chain.

In terms of transport, within Europe the company has the option of using different ways of transportation. This applies to part of the production, as well as for finished goods, from warehouses to warehouses and from warehouses to stores and final consumers. In a certain way, this is the strategy “Multi-modal transportation” written by Tang (2006). This strategy could be used by the company to face disruptions that occur in a certain modal way, also to deal with an increase of fuel and freight prices, in order to be less vulnerable to these variants.

Finally, H&M takes advantage to keep solid and trusting relationships with suppliers and service providers. This was evident when interviewee 1 stressed the importance of maintaining this relation in order to face the possible consequences caused by Covid-19. With market recognition and reliability, H&M could explain its limitations to shipowners, for example, and get some help to find ways to ship the garments out with a fair price.

5.4. Sustainability in the supply chain

H&M is increasingly aware of the importance of sustainability in terms of the environmental, social and economic perspectives in the industry. In fact, H&M makes sure to incorporate their sustainability initiatives that benefits people, planet and profits. This is connected to the triple bottom line as proposed by Elkington (1997), the only difference being that H&M continually works at making their actions better and not stopping at sub-par actions. This was observed with both the interview and the company’s various reports. The company’s business revolves around doing what’s right for its people, the environment and society they work in and also striving to run a profitable business and giving back to the society. H&M continuously works

at finding new ways of operating more efficiently and effectively, developing newer technologies that support sustainability and efficiency, have new business models and processes according to changing times and give importance to having new custom relationships. The company is increasingly focused on creating better jobs for people, creating an inclusive surrounding and behaviour as well as promoting diversity among people. As far as environmental sustainability is concerned, the company aims to become climate positive by the year 2040 in the whole of the company's value chain. H&M has developed newer fabric recycling technologies and also continues to test and scale other materials such that could be made from textiles, plastic and agricultural wastes.

With the pandemic, H&M did not hold back on its steps and actions towards sustainability. Rather, the company adapted their plans to the newer guidelines that were established due to the pandemic. The company continued to work with newer and adapted goals, new wage strategies for their employees, continued steps towards innovations and trying more circular business models. H&M has always been transparent to their customers and remains so, even in their sustainability aspects, providing the people with everything they need to know about their products. The company makes sure to do what's best for its customers as well as its partners and does not compromise on either side.

6. Conclusion

In this chapter, the report is concluded by summing up the main points that were observed. Further, the research questions are answered and the main findings of the research work is highlighted and its contribution for companies and academics.

6.1. Conclusion

Over the years the supply chain of the fast fashion industry became robust and complex, which aroused interest to better understand this chain and outline ways to mitigate possible disruptions. After the world faced something unprecedented by means of a worldwide scale disruption caused by the Covid-19 pandemic, companies started to search for existing strategies to incorporate on their plans of mitigating risks. In order to evidence which strategies existed and how companies could apply them, the curiosity to study a real case emerged. First, a survey of the theory was carried out, highlighting the most common disruptions, their risks and consequences, and then some mitigation strategies usually adopted. Second, it was presented how the Covid-19 pandemic hit the supply chain operations, mainly in the fashion retail industry. Third, the clothing company H&M was chosen to conduct the study, in order to analyse how the theory is applied in a real case. Finally, research was done, evidencing which strategies from theory are commonly applied, which needed to be adjusted and which are not functional, needing others to put in place.

This research looked at the following two questions:

- 1) *What are the supply chain disruptions faced by H&M with the onset of the Covid-19 pandemic?*
- 2) *What kind of mitigation strategies has H&M adopted to cope with the disruption of the Covid-19 pandemic?*

Through an interview and information obtained from reports published by the company, it was noticed that H&M was hit by disruption in its supply chain in the past, like the boycott towards the cotton production in China. In addition, what the company could learn from this challenge. Of course, the Covid-19 pandemic hit the company in a different way as it was in a worldwide dimension. So, the *first question* is answered by, as in any disruptions, the consequences and

negative effects were those constantly mentioned by authors in the literature; an increase of fuel and freight prices, lack of containers, port congestions as well as closed harbours. Also, a change in customers' consumption and behaviours were seen as other unexpected causes.

Further, once the disruptions were realised, mitigation strategies were taken into consideration and put into practice by the company, which answered the *second question*. An important point that must be highlighted is the fact that mitigating risks related to supply chain disruption is part of the daily basis of H&M through the BCP that, somehow, prepared the company to face a worldwide disruption such as caused by Covid-19 pandemic. Besides BCP, H&M handled well the consequences for having mitigation strategies like keeping suppliers in other countries, not exclusively dependent on China ie. their main supplier, and strengthening existing relationships with service providers. Lastly, H&M highlighted the importance of the efforts of other sectors inside the company to prevent disruptions.

Finally, the report achieves the goal of analysing existing literature on the risks, disruptions and mitigation strategies and connecting them with actions taken by H&M, a retailer of the fashion industry. The aim was to analyse how the company worked at solving the unexpected disruptions, like those that emerged with Covid-19 pandemic. To sum up, understanding the mitigation strategies existing in theory and how they are applied in a structure of a clothing retail company while facing a disruption were observed.

7. Recommendations and limitations

In this chapter the mitigation strategies that could be developed more by H&M to help with possible supply chain disruptions are advised as recommendations along with the limitations faced during the time of the research are mentioned.

7.1. Recommendations

The recommendation from a literature review point of view is that more about disruptions caused by Covid-19 pandemic should be researched and written in order to contribute for the future. From a company point of view, although H&M considers disruption risks on its daily basis, it is possible to notice some mitigation strategies less adopted by the company. Taking into account from a clothing retailer's perspective, some primary mitigation strategies should be incorporated. In terms of warehouses, as most of them are operated by 3PLs, the risk of a possible disruption caused by a breach of contract or strike is wide, also difficult to control and predict. It is a point that the company could improve by adopting a "multi-carrier transportation" strategy, avoiding to concentrate the management of its warehouses to a unique 3PL partner and so spreading the risks.

Another point that could be improved is related to suppliers. To have a huge dependency of outsourced suppliers it is risky front a worldwide disruption such as this one caused by Covid-19 pandemic. In order to mitigate it, a "Make-and-buy" strategy could be adopted, in order to have part of the production in-house and guarantee that some products could supply the stores even toward a disruption. This is a tendency already noticed in some clothes retails as a primary mitigation strategy. In the case of H&M, the company could invest and develop in having some suppliers inside Europe where it is easy to find alternative ways of transport in case of port congestion/closed down harbours or even as an alternative to the increase of sea freight rates. A lastly advice is that H&M could take advantage of actions taken by similar companies in the industry or even from the literature to improve its mitigation of risk plans.

7.2. Limitations

It is important to mention that some limitations were found during the research that, in a certain way, committed its further development. One of them was the difficulty to contact more people

inside the company in order to collect different perceptions of the subject. So, the research needed to be limited to the logistic department of the company only. Another aspect was the difficulty to contact similar retailers to know their actions in front of the Covid-19 disruptions with a purpose to have a comparison between them at a level of consequences felt and mitigation actions taken. So, for future researchers, it will be interesting to develop the report looking for these options as addition.

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9. Appendix

Appendix 1: Interview guide

Question	Aim
Can you tell us about the effects of “fast fashion” at your company?	To understand background of the case company
What would you say are the common disruptions that disturbs your supply chain generally?	To identify supply chain disruptions
What are the effects and subsequent consequences that the company has witnessed due to the disruptions?	Understand consequences of disruptions
Are there pre-set action plans or mitigation strategies to tackle the disruptions or is each case handled as and when they appear?	Overview of mitigation strategies
Has there been any big or significant event in the past that the company took time to recover from?	To identify supply chain disruptions
Does the company have a main warehouse from where all products are further distributed?	To understand supply chain structure
What types of transportation modes are used by the company?	To understand supply chain structure and sustainability importance
Does the company’s supply chain run on forecasted demands or current demands?	To observe market orientation of supply chain
What is done to reduce the cost of activities along the supply chain?	Observe cost reduction in the supply chain

What is the relevance of environmental sustainability at your company and what relevant actions have been taken to comply with it?	Understand sustainability importance
How did the onset of the pandemic mainly affect the company? Specifically, those effects related to the supply chain, company's production and operations	To identify supply chain disruptions
Were there changes that were noted in the consumer behaviour with the onset of the pandemic?	To understand consumer behaviour change
Were there any unexpected trends that the company observed during the pandemic?	To understand consumer behaviour change
Can you explain the different measures that have been taken to deal with the effects of the pandemic in the company's supply chain?	Overview of mitigation strategies
What are the company's future plans, in respect to coming out of the pandemic?	Long term goals and learnings