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## **ABSTRACT**

COVID-19 is a global phenomenon that has an adverse effect both on public health and on economic activity of nations. Surrounded by lots of uncertainties; policymakers and international businesses are facing challenges to address the impacts of COVID-19 and the clothing and textile (C&T) industry is not an exception. Given that traditional risk management fails to address the unprecedented risks with high consequences and a lack of prior research on how multinationals have responded to the crisis, the main objective of this exploratory research is to discover the impact of COVID-19 on the multinationals participating in the global value chain (GVC) of the C&T industry and the strategies currently adopted by them to mitigate the effects. The resource dependency theory (RDT), resource-based view (RBV), and dynamic capability view (DCV) provides a theoretical framework in this study. In order to address the research question, secondary data were collected from newspapers, trade journals, reports, industry magazines, etc. Based on a qualitative thematic and content analysis, the study develops a conceptual framework that illustrates the impact of COVID-19 in different value chain segments and the strategies adopted by multinationals to mitigate them, and the ripple effects of them within the GVC. The study provides significant insights to the actionable strategies during the times of crisis and contributes to the existing literature of risk management and GVC.

**Keywords: COVID-19, impact, strategies, GVC, multinationals in C&T industry.**

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# 1. INTRODUCTION

## 1.1 Background of the research

In today's world, advancement in transport and technology, deregulation of international trade, liberalization, and increase in contract manufacturers and specialist suppliers have made the international business extremely beneficial, consequently leading to an increase in interaction and integration between businesses, the government, and different people from different parts of the world. This rising global interconnectedness has been widened, deepened, and sped up by globalization. Hence, a shift from highly internalized or vertically integrated activities to an international fragmentation of activities or functions can be manifested, leading to a 'global factory' or Global Value Chains (GVCs). According to Alon & Bretas (2021), globalization flow comprises movement of four components: products, information, money, and people. At the aggregate level, the interconnectedness is manifested in the movement of foreign direct investment (FDI) and global trade in intermediate goods and services; and at the micro level, GVC is represented through the interconnectedness between the various chain activities performed and governed by various firms in different countries (Strange, 2020). In combination, Gereffi (2020) stated that "GVCs link the macro-level of international trade, investment trade, investment, and finance with the meso-level of national and regional economies, and the micro-level of local suppliers, communities, and workers" (p.289). Further, Gereffi (2020) explains that GVCs are characterized by different governance structures, division in labor, combination of multiple factors like country conditions, company strategies, technology shifts, or government policies, and uneven value distribution (smile curve of value creation).

Participation in GVC gives cost advantages through sourcing of cheap inputs, intermediate goods and services, and cheap labor; reduces unsystematic risks as well as provide greater resilience to supply chain disruptions and increases consumers' value and experience due to variety in the products provided from foreign sources (Barbieri et. al, 2020; Strange, 2020). In contrast, GVC is challenged with various problems. GVC incurs additional costs like higher transportation costs, extended delivery times, and greater complexity (Strange, 2020). The interconnectedness of firms led to a more complex value chain, increasing the dependency ratio in the global value chain (GVC) and vulnerable to disruptions like financial crisis, terrorism, and pandemic.

The global pandemic has reflected the weakness of the GVC model in doing business across the world. First, the people involved in the distribution of goods and expatriate staff engaged in the management of foreign operations are directly impacted. Second, international travels are restricted along with the need for health checkups and social distancing that creates delays in operations, logistics, and transaction costs. Likewise, many firms and countries encounter the shortage of key goods and services like pharmaceutical and medical equipment and devices. This shows that the higher the level of interconnectedness among different nations; the higher is the level of disruptions in various segments of the GVC. It is evident that the unpredicted Covid-19 that occurred in Wuhan city of China was not constrained within itself but rapidly spread out to global nations and disrupted several businesses in various sectors of the world. Last but not the least, businesses and governments are skeptical about free trade and foreign investment after the pandemic. (Strange, 2020). Hence, Strange (2020) pointed to three essential features of COVID-19. First, since it has been found in most of the countries, it is a global phenomenon. Second, the effect of pandemic is multidimensional. It has an adverse effect both on public health and on economic activity of nations. Third, it is contagious from health to economy through flow of capital, people, goods, and services in GVCs. And the policy responses to address one impact worsens the other.

Before the hit of Covid-19, globalization was already in a retreat through the introduction of nationalism and populism i.e., Brexit, trade war between the US and China, and new and integrated technological changes; and now the trend is set to accelerate. According to The Economist (2020), “Even before the pandemic, globalization was in trouble because the open system of trade that had dominated the world economy for decades had been damaged by the financial crash and the China-American trade war. Now it is reeling from its third body-blow in a dozen years as lockdowns have sealed borders and disrupted commerce”.

## **1.2 Problem Statement**

Currently, the world is surrounded with lots of uncertainties that bring challenges to the traditional risk management approaches which are mainly focused on the identification and anticipation of uncertain outcomes. The emerging risks such as terrorism, cyber security, financial crisis and pandemic are low probability and high consequences risks which traditional risk

management fails to identify and mitigate. These emerging risks set several challenges to the conventional approach to risk management: “ 1.they often lack the a priori evidence that would render them predictable to any degree; 2. they are sufficiently large, in terms of the damage that they cause, to trigger further hazards or crises further down the timeline; and 3. their origin, evolution and final scale and form are frequently unknown, such that they represent an emerging, ill-understood and ill-defined set of risks that need to be dealt with.” (Smith & Fischbacher; 2009).

Rise of several emergent risks and uncertainties in the global business has led to the evolution of process, techniques, and capabilities in risk management. That is managers, policy makers, face difficulties applying strategies they use in managing the traditional risk to manage the emerging risk. Businesses are continuously exposed to unpredictable risk with huge consequences, with the emerging risk such as Covid-19 crisis. It is important for business managers and policymakers to learn and come up with new strategies in order to guide the firm or organization through such unpredictable and undesirable situations. Several researchers have suggested resilience as the appropriate strategy to deal with the low probability, high consequences risk like pandemic. Hendricks and Singhal (2005b), for example, state that it is critical for firms to develop and enhance resiliency in the supply chains and request researchers to investigate the business strategies that develop resilience. However, research gaps have been noted by Hendricks et al. (2008) that there is a lack of empirical evidence to examine which strategies limit the probability and severity of disruptions.

Although some firms in the GVC and institutions have developed coping strategies to fight the effects of the crisis, most are still struggling to overcome the shock of the pandemic. From the viewpoint of international business, there is a critical need to address the impact of this outbreak and formulate various coping strategies in order to survive and overcome this present crisis and other possible crises in future. Kano & Oh (2020) also mentioned that more attention is needed in analyzing GVC performance and reliability in the fast-changing environment. Qin et al. (2020) addressed that few studies have discussed the impact of the pandemic on the open economy and global value chains. Currently, the emphasis of GPN is on intra-network risks and ignores the inter- and extra- network risks. There is a need for `a robust discussion of extra-network risks, or the types of complex multifaceted risks and their reach associated with globalization and global production networks and the ways in which these rebound on GPNs` (Bryson & Vanchan, 2020; p. 375). Hence, our research objectives are to understand the impact of Covid 19 on the

multinational firms participating in GVC, and possible strategies which have been used to mitigate or cope with the Covid-19.

### **1.3 Research question**

In this paper, we will be addressing the strategies multinational firms have used to mitigate the effects of COVID-19 in an interconnected world and be able to attract benefits from internationalization. In doing so we will seek to answer the following research question.

1. What is the impact of COVID-19 on multinational firms that participate in the GVC in international business?
2. What strategies have multinational firms participating in GVC adopted to mitigate the effects of COVID-19?

### **1.4 Study aim and objectives**

The aim of this research is to outline the impact of COVID-19 on the multinational firms involved in GVCs. We will be focusing mainly on the demand shock and supply shock caused by COVID-19 on the multinational companies (MNCs) participating in the GVC. Also, our research objective is to understand the kinds of strategies multinational firms involved in GVCs have adapted in response to the effects of COVID-19. For this purpose, we will be emphasizing on the upstream and downstream activities in GVCs. COVID-19 has impacted the MNCs participating in GVCs by creating enormous uncertainty, increased velocity of change, and these changes have been thorough and throughout across all firms and all countries simultaneously (Marinova, 2020). In effect, it has challenged the traditional approach to management of risk, multinational firms have not been able to use traditional risk management to respond to high velocity change happening in every aspect in international business. This has brought forward the importance of resilience in risk management (Eduardsen, 2020).

Moreover, this research will try to combine the fragmented aspects like GVC, impacts of emerging risks and strategies together which is exceedingly rare in the current research papers. This research could be helpful to businesses and governments to manage the current crisis and predict the upcoming risks. The strategies could not just be useful in mitigating the risk but also

turning the risks into opportunities. The research could be inspirational to future researchers to address other forms of emerging risks such as social and technology risks.

### **1.5 Structure of the study**

Our research paper is structured as follows: the first chapter deals with Introduction, problem formulation consisting of the two research questions, and the study aims and objectives. The second chapter consists of the literature review and theoretical background. The following chapter is about data collection and methodology where we present data collection methods, research design, process of data analysis and trustworthiness of our study. In the next chapter, the data is analysed through qualitative thematic and content analysis and the findings are presented along with the conceptual framework that we synthesized from the findings. In the discussion chapter, the findings are reflected, compared with the existing studies and contributions are made towards deeper understanding of the research question. The final chapter sums up the research paper followed by the limitations and implications of the study.

## **2. LITERATURE REVIEW**

The purpose of this chapter is to orient the reader with the comprehensive knowledge about the impacts of COVID 19 on the multinationals in the GVC and the strategies they have used in the time of crisis based on the previous studies and research. The literature review introduces the relevant concepts and theoretical background for the foundational base of our study. First of all, a general introduction about the GVC and COVID-19 have been provided. Next, resource dependency theory (RDT) has been defined in relation to the impact of COVID-19 caused due to the interconnectedness and interdependence nature of GVC. Then, the impact of COVID-19 on the multinational firms involved in GVC, focusing on the demand shock and the supply shock, according to the existing studies has been explained. Following section is covered by the understanding of the concepts of resource-based view (RBV) and dynamic capability view (DCV) in relation to the strategies adopted by the multinational firms during the time of crisis. Next, mitigating strategies adopted by multinational firms in GVC in the previous studies have been reviewed. Finally, for the ease of understanding the literature, a conceptual mapping is derived, and a priori conceptual framework has been formulated.

### **2.1 Global Value Chain (GVC)**

A global value chain is defined as “a full range of activities that firms and workers perform to bring a product from its conception to end use and beyond”. (Gereffi & Fernandez-Stark, 2011, p.4). The global value chain is a framework that was brought forth by Gary Gereffi to illustrate the inter connectivity of firms, governments, consumers, and workers, which also act as a means by which developing countries gain access into the ‘global economy’ and an all-important step for them moving towards and achieving development (Gereffi & Fernandez-Stark, 2011). As far back from the 1990s, the firms involved in international business were involved in outsourcing or relocating a part of their production and/or distribution activities to foreign suppliers and markets, which implies that, the GVC concept which explains the occurrence of ‘international fragmentation of the production process’, has been in use for as long as that (Barbieri et al., 2020, p. 169). This governance structure was the most efficient way to develop economic value and enhance economic efficiency, for example, the food industry (Verbeke, 2020, p.445).

Strange (2020) also mentioned that “...the contemporary global economy is highly interconnected through GVC. At the aggregate level, this interconnectedness is reflected in the flow of foreign direct investment (FDI) and the high (60%+) proportion of the global trade accounted for by cross-border trade in intermediate goods and services”. (p. 459). In addition, Fonseca & Azevedo (2020) talked about supply chain management and described it as “an umbrella construct that incorporates suppliers and network sourcing, and demand and value chain and integrated logistics management” (p. 427). Bryson & Vanchan (2020), in the same light but in other words described the interconnectivity of firms as a global production network (GPN), which explains the arrangement of the inter connectivity of firms. For example, “In the C&T industry, the supply chain is fragmented....97% of clothes sold in the United States are sewn abroad and imported. Fibbers are produced in India and yarns spun in China; fabrics are woven or knitted in Mexico before the final garment is sewn and shipped across continents”. (Zhao & Kim, 2021, p.159).

In a drive to seek efficiency through international fragmentation, the global value chain plays an important role as it is a platform for the development of strong relationships between firms in countries which can provide inputs for production as well as cheaper labour (Marinov, 2020; McMaster et al., 2020). Moreover, firms are looking for several ways in which they can minimise cost of production; by offshoring most of the production activities to less developed or emerging economies who offer raw materials at a cheaper rate and labor at low wages as compared to the advanced economies. Thus, cost effectiveness has acted as one of the main driving forces leading to the creation of GVC through the relocation of manufacturing activities from the USA and Europe to Mexico and other emerging economies (i.e., from Western to Eastern) (Barbieri et al., 2020). They also added that other reasons for GVC formation and involvement is geared towards the search of inputs high in quality (talent sourcing) and productivity which add value, and in search for downstream activities such as marketing (market expansion) and sales (closeness to sales point) and after sales activities (McMaster et al., 2020; Barbieri et al., 2020).

Gereffi & Fernandez-Stark (2011), went further to say that the GVC is also especially useful in assessing the various actors involved in a particular industry, in terms of the way they are structured and their dynamics, and paving a way to getting an understanding about the organization of ‘global industries’. Firms gain cost advantage getting included in the GVC, by gaining cheaper resources from abroad for their intermediate goods and services either through low labour cost or

good climatic conditions in the host country (Strange (2020)). It gives an all-inclusive view from top-down to bottom-up of the ‘global industries in a ‘sequence of value added’ by examining their ‘job description, technologies, standards, regulations, products, processes and markets in specific industries and places’. (Gereffi & Fernandez-Stark, 2011).

Understanding the pros and cons of globalization through the GVC framework has flagged a way in dealing with new industry realities and has also helped governments and institutions to ‘understand global industries’ and guiding them in the formulation of ‘new programs and policies to disseminate economic development (Gereffi & Fernandez-Stark, 2011). Moreover, firms involved in the global value chain are privileged to enjoy higher resilience when it comes to disruption in the supply chain as compared to firms who are reliant on their domestic value chains.

On the other hand, getting included in the GVC comes with some additional liabilities incurred by the firm through transportation cost, complexity, and longer time frame of delivery, also increasing vulnerability caused by exposure and complexity (Strange, 2020; Eduardsen, 2020). Bryson & Vanchan (2020) mentioned that even though there exists some “real tension between optimization of GPNs and creation of risk that ripple out across the globe”, the very first that has affected the world at large is the COVID-19 pandemic. Hayakawa & Mukunoki, (2020) mention that, since the beginning of the COVID-19 pandemic and ongoing, the GVC of the world at large has been greatly disrupted. Taking an example from China, the pandemic has caused disruptions especially at the supply side where the ‘Japan External Trade Organization (JETRO), a Mexican affiliate of a Japanese firm’, was compelled to fall back on the home country for provision of input resources due to delays and reduction of input supplies from China which affected their production and supply of the final goods. (Hayakawa & Mukunoki, 2020, p.1). Another example of the effects of the bad wind which came along with the COVID-19 pandemic, on the supply side, also caused the ‘Car Manufacturer Hyundai’ in Korea to put a pause on its production, on the 7th of February 2020, due to inadequate supply of inputs from China (Miroudot, 2020), hence, disrupting the total GVC network for that company and possibly others. This is what Slepnirov, (2020) mentioned as ‘chained globalization’, indicating the difficulty in decoupling companies and how deeply they depend on each other. The effect on one will certainly affect the other whether in the short run or in the long run.

The methodological exploration of GVC is done in four different basic dimensions; that is the input-output structure, the governance structure, the geographical structure, and the



institutional context. The input- output structure identifies the most important activities in the GVC and is usually indicated by a ‘a set of value boxes’ which is used in plotting the value added at various phases in the chain and providing information to researchers of particular interest. (Gereffi & Fernandez-Stark, 2011). The governance structure is related to the power and authority bestowed upon the firms, which are either “producer-driven chains”, or “buyer-driven chains”. Five structures concerning governance have been put forth that are hierarchy, captive relational market and modular which are measured using three variables; “the complexity of information between actors in the chain, how information for production can be codified, and the level of supplier competence”. (Frederick & Gereffi, 2009; Gereffi et al., 2005). The institutional structure sets to each stage of the value chain the layout of the policies and conditions for the international, national and local globalization. Finally, the geographical structure simply explains the dispersion of various activities in different parts of the world. (Gereffi & Fernandez-Stark 2011). Upgrading is also an aspect of the GVC which requires close attention. It involves a positive shift of firms in the value chain activities, product, and services. This can be done in four ways; process upgrading, product upgrading, functional upgrading, and chain (inter sectorial) upgrading. (Gereffi & Fernandez-Stark, 2011).

Recently, with the aim of reducing cost of production and distribution, gaining advantages in diversification, adding value, and focusing on the core abilities, MNCs, have moved from a form which was highly internalized (from the post WWII) to a more “focal form of today orchestrating its constellation of suppliers because market has changed” (Liesch & Welch 2019, p. 44). The increasing fragmentation of their value chain activities is due to the “gradual liberalization and deregulation of international trade and investment, the rapid development and penetration of information and communication technologies and the growth of contract manufactures and specialist suppliers”, which has increased the cost of internalization. (Eduardsen, 2020). There is an increasing intricacy and length of the supply chain in the global world of businesses (Blackhurst et al., 2011). In addition to gaining efficiency as a driving force GVC networking (Marinov, 2020), MNCs make use of their complex supply chain networks, which acts as an important variable paving a way for them to contend with these intricacies, by investing in tools needed for the introduction of flexibility and more activities in their operations (Miroudot, 2020). However, achieving efficiency and intensifying the complexity of the supply chain comes with an advanced level of risk, where the occurrence of disruptions of the flow (regular flow) of

goods and/or services affects the performance of actors in the GVC (Blackhurst et al., 2011). In times of crisis, GVC are highly exposed to risk because of the beginning of business inclinations for example a decrease in the life cycle of the product, inventory, lead time, suppliers, and the increasing use of 'long global supply chains (Richey et al., 2009). These disruptions experienced by firms in the GVC could be abrupt just like the COVID-19 pandemic, which was never predicted or imagined. It is the first major outbreak that has affected the world and its impacts felt on every domain, industry, and country (Fonseca & Azevedo, 2020). Verbeke (2020) explained that there are assertions by superior voices, that in response to the effects caused by the COVID-19 pandemic, there will be a change in every domain concerning the GVC and these situations he termed "the new normal" (Verbeke, 2020, p.444). He went further to describe the "new normal" as a "situation of radical change, consistent with a large exogenous shock experienced by firms and society at large". In these new developments and happening, that is the COVID-19 pandemic risk that undulated across the world, MNCs are trying to optimise their global networks (Bryson & Vanchan, 2020) and at the same time searching for survival strategies to limit the effects, bearing in mind that they cannot no escape from the effects. Being agile and responding rapidly to the shock will give them stability in their GVC (Verbeke, 2020). Institutions such as governments should therefore be able to carefully develop policies that will build and provide sustainable support to businesses and help them build a supply system which is more resilient and robust.

**Table 2.1 Literature analysis on keyword clusters for the nature, consequences and level of COVID-19**

<b>Catagories</b>	<b>Keywords</b>	<b>Authors</b>
<b><u>Nature of COVID-19</u></b>		
Multidimensional	<ul style="list-style-type: none"> <li>• Simultaneous</li> <li>• Multidimensional</li> <li>• Wide</li> </ul>	<ul style="list-style-type: none"> <li>• Marinova (2020)</li> <li>• Strange (2020)</li> <li>• Marinova (2020)</li> </ul>
Contagious	<ul style="list-style-type: none"> <li>• Global Phenomenon</li> <li>• Systemic</li> <li>• Highly infectious</li> <li>• High velocity</li> <li>• Contagious</li> <li>• Snowball</li> </ul>	<ul style="list-style-type: none"> <li>• Tan &amp;Enderwick (2006); Strange (2020)</li> <li>• Tan &amp;Enderwick (2006)</li> <li>• Abubakar (2020)</li> <li>• Parnell (2020); Marinova (2020)</li> <li>• Stange (2020)</li> <li>• Centeno et al. (2014); Goldin and Mariathan (2014); Van Der Vegt et al. (2015)</li> </ul>
Catalyst	<ul style="list-style-type: none"> <li>• Catalyst or accelerator</li> <li>• Trigger</li> </ul>	<ul style="list-style-type: none"> <li>• Pels (2020)</li> <li>• Barbieri et al. (2020)</li> </ul>
Deep	<ul style="list-style-type: none"> <li>• Profound</li> </ul>	<ul style="list-style-type: none"> <li>• Marinova (2020)</li> </ul>
Unpredictable	<ul style="list-style-type: none"> <li>• Sudden, unexpected, unpredictable</li> </ul>	<ul style="list-style-type: none"> <li>• Enderwick (2003), Marinova (2020); Fonseca &amp; Azevedo (2020); Ratten (2020)</li> </ul>
<b><u>Consequences of COVID-19</u></b>		
Measures to limit contagion	<ul style="list-style-type: none"> <li>• Social distancing, lockdown, border close</li> </ul>	<ul style="list-style-type: none"> <li>• Strange (2020)</li> </ul>
Change in government regulations	<ul style="list-style-type: none"> <li>• Restructuring</li> <li>• Interest of government</li> <li>• Reconfiguration (backshoring and nearshoring)</li> </ul>	<ul style="list-style-type: none"> <li>• Bryson &amp; Vanchan (2020)</li> <li>• Marinova (2020)</li> <li>• Barbieri et al. (2020)</li> <li>• Strange (2020); Marinov &amp; Marinova (2020)</li> </ul>

	<ul style="list-style-type: none"> <li>• Trade and investment barriers</li> </ul>	
<b><u>Level of impact</u></b>		
Levels	<ul style="list-style-type: none"> <li>• Regions, sectors, industries</li> </ul>	<ul style="list-style-type: none"> <li>• Enderwick (2003); Strange (2020)</li> </ul>

*(Source: Own construction)*

## 2.2 COVID-19

Tan & Enderwick (2006, p. 516) states, “globalization manifests itself as an increase in cross border movements of goods and services, capital and technology flows, tourist and business travel, and migration of people”. The decline in the trade and investment barrier, the growth of free trade agreements, and regional integrations has made this integration possible. However, connectivity and integration bring complexity and instability (Goldin & Mariathan; 2015) which has been manifested in the form of new environmental business threats like global terrorism, pandemic, financial crises, and computer viruses, all of which disrupts the firm’s operations (Tan & Enderwick, 2006). These threats are sudden, unexpected, unpredictable, and highly contagious with widespread effects but with disproportionate impacts on regions, sectors, and industries (Enderwick, 2003). Clearly, such risks are no longer country specific and instead are global and systemic, and capable of being perpetrated by individuals or small groups (Tan & Enderwick, 2006).

Covid-19 has revealed how the global interconnectedness and interdependence in the value chain works perfectly during normal times but is highly vulnerable to disruptions (Eduardsen, 2020). The highly infectious COVID-19 or Coronavirus is a severe acute respiratory syndrome (Abubakar A., 2020) that originated from a seafood wholesale market in Wuhan city, China in December 2019 as reported by the World Health Organization (WHO) and has spread rapidly with severe effects around the world. According to Parnell et al. (2020, p.1), “the coronavirus disease 2019 (COVID-19) lays bare the society we have created, centuries of global processes and the cultivated, networked society and its interdependent infrastructure architecture”. The virus spreads with high speed and the effective treatments are very few. As a result of which the governments

are forced to introduce social distancing, mandatory face masks usage or protective equipment, border close and lockdowns as the preventive measures. Also, the government helps in the regulation and facilitation of economic activity by acting as both facilitator of local and global GPNs and as core consumers (Bryson & Vanchan, 2020). The governments are caught to balance lives and livelihood (Strange, 2020). In other words, the state plays a role of 'national security' and 'human security' (Bryson & Vanchan, 2020). These regulations by the government play a vital role in restructuring economic forces, political forces, social forces, and investment forces. Therefore, COVID-19 can be seen as a catalyst or an accelerator of a process to change in an era that has already been in motion through debate between nationalism/protectionism and globalization for a few years (Pels, 2020). COVID-19 has not only brought change in an international business also in other sectors or levels like legal, economic, political, social and even individual level.

COVID-19 is an interesting phenomenon that "has led the world to a crisis that has grasped countries simultaneously in spite of geography, level of economic development or socio-political system; the blow was swift and hefty; the economic effects were instantaneous" (Marinova, 2020, p. 365). Simultaneously, all of a sudden, very deep and profound effects are the three characteristics of COVID-19 (Marinova, 2020). COVID-19 has caused a high velocity of change which forces managers to speed up their decisions, they do not have time to collect information needed for those decisions. At the same time, the world is highly interconnected and highly interdependent through GVCs. So, one of the impacts of COVID-19 on multinational firms involved in GVCs is that the changes are so quick that they cannot foresee them, predict them, and they have to act before understanding them. As Pels (2020, p. 23) puts "... we are in a state of 'being' that is a result of interrelationships and trying to predict its final forms is *just* as exercise. Given that processes are transversal... technological advances, while very important, are only a symptom. Changes will occur at the legal, political, economic, social, and individual level.... we must learn to live with uncertainty and volatility; we have to develop patience."

According to Strange (2020), the COVID-19 pandemic has three essential features. First, it is a global phenomenon that a virus that originated in a Chinese town, Wuhan, has been detected in most countries of the world. Second, the virus has a multidimensional effect. Not just public health but most of the economic activity has been adversely hit by the virus. The worst part is that the policy responses designed to address one impact further aggravate the other. For instance, when

the government increases the lockdowns and self-isolation to limit the infectious rate, it accelerates the impacts on economic activity. This makes the pandemic different from the financial crisis where potential remedies were easy to implement. Third, the pandemic is contagious not only from the public health point of view but also from the economic view. Due to the interconnectedness of a global economy through the GVC and international movement of the people, capital, goods and services; the virus is spreading rapidly. This rapid spread of the virus has had a profound effect on the ways in which the multinational firms have been able to move goods and services across national borders; and as GVCs depend on logistics on the movement of people and goods, the movement of people and goods have been negatively affected. For example, airlines have to restructure and move their focus on the transportation of goods. As a result, this critical event has actually forced companies participating in GVC to reconfigure what they do, their strategies and their business models. Basically, the impact on MNCs is nearshoring and backshoring which started before COVID-19 (Barbieri et al., 2020).

While the emergence of nationalism and populism and increasing attention toward social and environmental sustainability are the drivers reinforcing reconfiguration of GVC; COVID-19 has triggered the backshoring and nearshoring decision-making process (Barbieri et al., 2020). Sherman (2020) stated that “94% of the Fortune 1000 are seeing coronavirus supply chain disruptions”. Furthermore, Tonby & Woetzel (2020) highlighted that “we could see a massive restructuring of supply chains: production and sourcing may move closer to end users, and companies could localize or regionalize their supply chains.” With the consequent evolution of epidemic into a pandemic, businesses and policy makers realized their heavy dependence on China and India for certain products like surgical masks, gloves, disinfectants etc. In effect, multinational firms have considered relocating their operations either to their home country (national) or to the near locations (regional). However, the global spread of the virus has made it virtually unpredictable which regions would be least affected to seek for the suppliers or to outsource the activities (Magashazi, 2020). The role of policy makers emerges as a key in the nearshoring and backshoring decision of individual companies. For instance, Japanese government offers financial and fiscal assistance to the companies that aim to relocate their manufacturing activities from China either to their home country or to the other Asian countries; and so does the US government. The US has adapted a new regionalization approach by joining the advantages of the US, Mexico, and Canada to encourage backshoring. Depending on the degree of interest of the home state and

the degree of control by the home state, `the companies in the strategic economic sectors will be rather diverse in ownership, including domestic and foreign` (Marinova, 2020, p. 371). At the moment, it is evident that nation states are rechanneling their resources towards pharmaceutical companies to meet domestic demand, as well as to export where other nations may experience serious shortages.

The business communities and governments have understood that Covid-19 is not a one-off shock event, which generates a `temporary disturbance` (Javorcik, 2020). Rather it has snowballed or brought about devastating effects on businesses and economies across the world, including several multinational firms; it acts as a global systemic risk (Centeno et al., 2014; Goldin and Mariathasan, 2014; van der Vegt et al., 2015). In fact, such a global health crisis is an unpredictable event with severe consequences or a so-called `black swan event` (Fonseca & Azevedo, 2020; Ratten, 2020). “No regions of the world have not been impacted by the virus and there is no distinction between the developing and developed nations in terms of the effects of the virus” (World Health Organization, 2020). The quick progression of the virus has significantly impacted the multinationals operating internationally. Several businesses have shut down completely and many are considering reconfiguring their activities, large scale events have been cancelled, the tourism and hospitality sectors have been largely hit, and it’s hard to predict further consequences.

### **2.3 Resource Dependency Theory (RDT)**

Firms are interconnected and interdependent on each other through GVC. While GVC gives firms access to resources and capabilities, it also exposes firms to risks and uncertainties. Resource dependency theory (RDT) is relevant to explain the dependence between the upstream and downstream activities and the interdependence between the firms. Using the RDT, we are trying to understand the impact of Covid-19 on the multinational firms involved in GVC through the demand shock and supply shock. A firm relies on the suppliers for the raw materials and inputs for its production. However, due to disruptions in the supply chain, multinationals face the shortages of inputs, and the production is inefficient, this creates supply shock. Similarly, multinationals also rely on the customer’s demand to generate rent. However, there is a fall in the

income of consumers, disruption in the distribution and logistics, and a fall in market economy due to critical events like pandemic. As a result, there is a fall in demand leading to demand shock.

As Kedia et. al (2016) states “resource dependency theory is an externally focused perspective that recognises that firms are parts of open systems, and that the firm’s place in this broader system creates interdependencies that constrain behaviour” (p. 516). Today, organisations or businesses are “not autonomous, rather are constrained by a network of interdependencies with other organisations or businesses” and “when coupled with uncertainty about what the actions will be of those with which the organisations interdependent, leads to a situation in which survival and continued success are uncertain” (Kedia et. al, 2016, p. 516). This is the exact situation caused by the COVID-19 crisis. Due to interdependence between the firms across the world, the actions of or effects on one part of the value chain is impacting the whole GVC. For example, China has been the central manufacturing hub of many global business operations. The disruptions on China’s output have a reciprocal effect elsewhere through GVC. Many of the companies in the automotive, communication and machinery industries were hit hard because of their over reliance on the Chinese suppliers.

In the same light, Blackhurst et al. (2011) used the “the concept of negentropy” in the system theory, which means “organizational self-maintenance due to the presence of environmental inputs”, to explain the interdependence and connectivity of firms in order to continue the production of their goods and services. The system theory states that “as an open system, organizations rely on a steady flow of inputs that originates and are extracted from sources in the environment to sustain their operations”. They went further to explain that organisational environments vary and taking into consideration the firm’s environmental input as the supply chain of the firm, it is possible that the environmental input (supply chain) may have some disruptions in the flow of resources, just like the effect of COVID-19 on the supply chains of firms. Due to the dependency rate of firms on the supply of environmental inputs, these disruptions will bring about a great impact on the firms’ GVC and production flow. (Blackhurst et al., 2011).

Resource dependency theory explains that while interdependence has many advantages (i.e., cost advantage, high quality and value-added inputs, and greater markets) at the same time, it spreads the risk and uncertainties at the rapid speed with devastating effects among the businesses around the world. This raises the question if deglobalization or disconnectedness is better than globalisation or interconnectedness.



## **2.4 Impact of COVID-19 on MNCs participating in GVC**

The World Health Organization (WHO) declared COVID-19 as a pandemic, and it has its own share of impact on the global economy and especially posing a challenge in the health and business sectors. Presented as a huge systemic risk, with unpredictable events and uncertainties, it comes with varied impacts and consequences both positively and negatively. It has caused devastating consequences on economies and various businesses across the globe and has caused the GVCs of firms to be under close attention with worries related to how vulnerable they are. (Marinov & Marinova, 2020). As stated by Eduardsen (2020), that as long as the spread of the virus continues, the World Trade Organisation is expecting a decline in the global trade by 13 to 32 percent in 2020 with all countries witnessing a double decline in the numbers of trade volume. Recently with the increasing importance of the role of China in the global value chain of most countries, the disruption caused by the COVID-19 made the MNCs in these countries suffer, as China was unable to provide goods and services due to lock down measures taken to prevent the spread of the virus. It is important to note that the depth of the suffering depends on the closeness between the given MNCs in the specific country and Chinese GVC network (Qin et al., 2020). Even though risk faced by firms is mainly caused by the pandemic, the actual thing which initiates the effects are because of the changes in managing risk, demand shock, supply shock, and policy regulation (Baber & Ojala, 2020). These changes will be felt differently on the GVC of different MNCs, those who are seen as the leaders and main drivers of the GVC will turn to look for new customers and suppliers in order to lessen the effect of the pandemic while on the other hand it may lead to a discontinuity of business for some (Marinov & Marinova, 2020). These various policies which have been set by the governmental institutions to combat the spread of the virus have brought about a shock in the global demand and supply value chain (Strange, 2020; Baldwin & Tomiura, 2020). Marinov & Marinova (2020) also mentioned that countries whose economic system depends on their GVC network are and will experience possible consequences of back-shoring and reshoring their activities.

### **2.4.1 Supply shock**

Looking at the supply side of the shock, MNCs could face possible risk such as plant fires, natural disasters, “financial risks, political instability, cyber-attacks, quality issues with suppliers and delivery failure” (Miroudot, 2020, p.118). More like the SARS the COVID-19 virus has

primary, secondary, response generated, and long-term impacts (Tan & Enderwick, 2006) and the immediate impact was first felt by humans experiencing a huge catastrophe and suffering worldwide. In order to combat the effect of the virus, governments are compelled to take measures such as lockdowns, limiting travelling, restricting export and closing borders. (Marinov & Marinova, 2020). These restrictions have played a great role in obstructing the smooth functioning and effectiveness in operating the GVC, hindering the movement of people in charge of the distribution of physical goods and services. In like manner, interruptions at the borders caused by observing ‘social distancing’ and checks related to health issues, became so serious and brought about higher transaction costs, due to longer distance. From an institutional point of view, the COVID-19 caused the change of policies in emerging economies concerning free trade by imposing trade and investment barriers hence limiting their powers and authority by the advanced economy. For example, “policies by the US President (Donald Trump), the Australian PM, and the Japanese PM (Strange, 2020). These trade and investment barriers further increased the supply shocks among multinationals in the advanced economies.

Strange (2020) came up with some effects on the GVCs of firms. First, he mentioned that due to the restrictions on movements placed by the government, there will be a negative effect on productive activities since most employees are compelled to remain indoors, or work from home (it will be impossible for employees in sectors like the hospitality and retail, and service to work from home). He also mentioned that “suppliers of intermediate goods and services”, are also affected due to cancellations of orders and payment periods being extended. The effect of this situation will depend on the governance structure of the firm. (Strange, 2020). For example, the C&T industry experienced a great interruption in their supply chain causing complicated problems, that is they experienced a severe shortage in the manufacturing supply chain as China was the source and it was first hit by the virus and lockdown restrictions were placed. Even though some C&T companies have commenced operations in some parts, they still face problems related to shortages in labour force, raw materials and textile, and a rise in the cost of shipping and logistics. (Zhao & Kim, 2021). All of these have created a “negative supply shock” by the reduction of supply of goods and services, increasing cost of inputs, leading to low productivity of the final goods and services. (Eduardsen, 2020 & Hayakawa & Mukunoki, 2020).

#### **2.4.2 Demand shock**

Turning to the demand side of the shock and considering the fact that the final consumers are also part or actors in the GVC of firms, it is important to investigate how they react to the COVID-19 situation and how it affects that GVCs if firms. There is also a substantial shock on the demand side with the most part of the effects coming because of the disruptions in supply, limited internal operations (Slepniov, 2020). For example, this company found in Finland called Kyrö Distillery lay off employees due to limited demand for their product, alcohol drinks, also because of a lockdown which affected restaurants and bars in those countries importing the drinks. (Barber & Ojala, 2020). Strange (2020) mentioned that there is no doubt that due to the restrictions and new policies put in place, consumers' demand for a variety of products will vary as their buying and consumption format will change, most especially the demand for those goods which are not necessary to the consumer. Moreover, due to the rapid spread of the virus globally, vendors (in China, India and Bangladesh) were affected as they experienced great order cancellations and some orders were postponed. Therefore, MNCs within the business line that do not involve basic goods for consumers will be negatively affected and the demand for their products drops deeply. On the other hand, the shock is a win for other companies involved in for example “streaming services”, home delivery food services and eateries, online shopping stores, because they will experience a rise in the demand for their goods and services. The impacts of the COVID-19 pandemic are evident that it has and is still affecting all countries and all business sectors of the global economy, but as Zeshan (2020) mentions, the impact is mostly felt on the textile and clothing industry which is our main point of focus in this research paper.

**Table 2.2 Literature analysis on keyword clusters for the nature, consequences and level of COVID-19**

<b>Categories</b>	<b>Keywords</b>	<b>Authors</b>
<b>Demand Shock</b>		
Drop in demand	<ul style="list-style-type: none"> <li>• Limited demand for the product; Decline in global trade</li> </ul>	<ul style="list-style-type: none"> <li>• Barber &amp;Ojala (2020)</li> </ul>
Change in consumer preferences	<ul style="list-style-type: none"> <li>• Change in buying and consumption format</li> </ul>	<ul style="list-style-type: none"> <li>• Strange (2020)</li> </ul>

Order cancellation	<ul style="list-style-type: none"> <li>• Order cancellation and postpone; Payment delays</li> </ul>	<ul style="list-style-type: none"> <li>• Strange (2020)</li> </ul>
<b>Supply shock</b>		
Shortage in labour force	<ul style="list-style-type: none"> <li>• Hindering the movement of people</li> <li>• Limiting travelling</li> </ul>	<ul style="list-style-type: none"> <li>• Strange (2020)</li> <li>• Marinov &amp;Marinova (2020)</li> </ul>
Higher transaction cost	<ul style="list-style-type: none"> <li>• Increasing cost of inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Eduardsen (2020); Hayakawa &amp; Mukinoki (2020)</li> </ul>
Supple chain disruptions	<ul style="list-style-type: none"> <li>• Interruption on the supply chain; hinderance on supplies of intermediate goods and services; shortage in the manufacturing supply chain</li> <li>• Reduction of supply of goods and services; low productivity of final goods and services</li> </ul>	<ul style="list-style-type: none"> <li>• Strange (2020)</li> <li>• Eduardsen (2020); Hayakawa &amp; Mukinoki (2020)</li> </ul>

(Source: Own construction)

## 2.5 Resource based view (RBV)/ Dynamic capability view (DCV)

Firms have specific resources that they combine in a particular way using their dynamic capabilities in order to respond to environmental uncertainty or shocks. The resource-based view (RBV) and dynamic capability view (DCV) are relevant to this research to understand how companies are able to innovate, adapt, respond, and restructure using their resources and capabilities dynamically to the rapid changing environment or critical events in order to create and capture value when the system is adversely disrupted. Using these theories, we are trying to understand the effective strategies that multinational firms participating in GVC adopt to mitigate the effects of Covid-19.

One of the important theories in international business that explains why firms internationalize is resource-based view (RBV). RBV emphasizes the heterogeneity and imperfect mobility of resources and explains that firms having resources with VRIN attributes (valuable, rare, inimitable, and non-substitutable) provide competitive advantages. Globalization made it

possible for the firms to access the resources from an external environment which they do not possess internally. RBV emphasizes on the firm's internal factors and regards firms as a collection of resources and capabilities that may culminate in enhanced performance or competitiveness (Barney, 1991). Firms consist of resources (physical, financial, human), capabilities (firm's ability to utilize these resources for internal purposes), and competencies (firm's ability to combine and apply the capabilities for external purposes like marketing, product development). Both tangible (machinery, plants) and intangible (knowledge, skills) resources should be combined to create capabilities that determine firms' ability to tackle various internal and external opportunities and threats (Wernerfelt, 1984; Barney, 1991). Barney (1991) described three categories of resources that can create capabilities. First are the physical capital resources that are tangible assets like plant and machinery, inventory, technology. Second is the intangible assets such as training, education, skills, knowledge and experiences coming from human capital resources. Finally, organizational and interorganizational capital resources are the intangible assets like planning, coordinating and controlling that bring together the above tangible and intangible assets.

Firms having resources with VRIN attributes, that stands for valuable, rare, inimitable and non-substitutable, can generate and maintain superior long-term performance (Barney, 1991). Zhao & Kim (2021) based their study on the RBV framework to point out the resources for survival and growth strategies that are valuable for the clothing and textile industry. The RBV provides insights for "new venture success, manufacturing flexibilities and supply chain agility, e-commerce and e-supply chain resources and capabilities, and sustainable development and dynamic capabilities" (Zhao & Kim, 2021; p.160). According to Queiroz et al. (2020), the valuable resources include abilities to innovate product, operational flexibilities, timely and accurate information and sustainability, which is highly required to build resilience in the multinational firm's business model and strategies.

However, the key discussion in the field is that these factors are not static rather the factors should be looked at over time or through dynamic perspectives. It is important to look at these factors not just internally but in relation to the external environments. Hence, Teece et al. (1997) introduced dynamic capability view (DCV). Teece et al. (1997) argued that three main areas; processes, positions, and paths need to be focused to understand what is going on in the company to grasp the strengths and the weaknesses. Processes include internal and external coordination and integration of activities, routinization in organizational processes, learning through repetition

and experimentation, and reconfiguration and transformation. Competitiveness of a firm is determined through its assets' positions. It consists of technological assets, complementary assets, financial assets, and locational assets. Path includes path dependencies (firms' history determines future behavior), technological opportunities (the depth and width of technological opportunities rely on the amount and level of R&D activity). Finally, assessment of the processes, positions and paths determines what a firm can do and where it can go.

Teece et al. (1997) described the dynamic capability view as "the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments" (p.7). He went further to say that the "dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions" (p.7). Abubakar (2020) questioned if this theory fits into the current situation firms are facing now, caused by the Covid-19 pandemic. The dynamic capabilities answer this question by deploying three dynamic capabilities necessary to attain and conquer new challenges. Organizations and employees need the capabilities to learn quickly and to build strategic assets. New strategic assets such as capability, technology, and customer feedback must be integrated within the company as well as transforming and reconfiguring existing strategic assets". Abubakar (2020).

In times of crisis, with high degree of ambiguity and potential adverse impacts, new approaches should be adopted for survival and growth. A crisis can place various organizational future risks like economic risk, supply chain risk, human resources deficiency etc. and might compel firms to respond to the new unpredicted environmental challenges. Therefore, research has emphasized "the need for a more robust open organizational systems approach, considering the environment's influence and adopting a dynamic perspective to ensure the organizations' survival and success" (Fonseca & Azevedo, 2020; p.425).

The DCV provides a theoretical foundation to identify the resources that firms own and the different ways those resources in relation to external forces can be applied to create and capture value. And there is a key role of leaders and employees to "orchestrate the firm's capabilities, culture, employees, structure, metrics, incentives, and controls" (Moorman & Day, 2016; p. 12). The Economist noted that as the financial crisis of 2007-2009 highlighted the role of talented Chief Financial Officers (CFOs), the COVID-19 highlights the role of Chief Human Resources Officers (CHROs); "they must keep employees healthy, maintain their morale, oversee a vast remote-

working experiment, and as firms retrench, consider whether, when and how to lay workers off; their in-trays are bulging” (Caligiuri et al., 2020, p. 698). Carvalho et al. (2012) highlighted that MNCs should engrain resilience in the structure and design of GVCs and increase responsiveness through redundancy and flexibility in order to maintain organizations’ functionality and recover from the disruptions. In other words, MNCs can increase GVC resilience by maintaining the right balance between the redundancy and flexibility. Also, MNCs must reconfigure their GVCs and rethink their management to find a right balance between resilience and efficiency so that MNCs can respond to and recover from the low probability, high consequences critical events (Eduardsen, 2020). Hence, building resilience and reconfiguration of GVCs in response to the effects of Covid-19 requires access and leverage of proper resources and capabilities, and their use dynamically.

## **2.6 Strategies to mitigate the effects of COVID-19**

The international business has always been unpredictable and uncertain. As Bryan (2002, p.18) stated, “Globalization and technology are sweeping away the market and industry structures that have historically defined the nature of competition. The variables that can profoundly influence success and failure are too numerous to count. That makes it impossible to predict with any confidence, which markets a company will be serving or how its industry will be structured, even a few years hence”. Bryson & Vanchan (2020) pointed out that one of the challenges of global production network (GPN) theory is that GPN creates risks which lie beyond them. “The GPN literature is focused on understanding and optimizing cost capability ratios. The problem is that there is a real tension between optimization of GPNs and the creation of risks that ripple out across the globe” (Bryson & Vanchan, 2020, p. 534). Rise of several emergent risks and uncertainties in the global business has led to the evolution of process, techniques, and capabilities in risk management. The emerging risks such as terrorism, cyber security, financial crisis and pandemic are low probability and high consequences risks which traditional risk management fails to identify and mitigate. These emerging risks set several challenges to the conventional approach to risk management since they often lack a priori evidence (unpredictable), they have sufficiently large impacts that triggers further hazards and crisis, and their origin, evolution and final scale and form are frequently unknown representing an emerging, ill-understood and ill-defined set of risks that need to be dealt with.” (Smith & Fischbacher; 2009). Furthermore, due to the interconnected nature

of such risks, they snowball or trigger other problems. For instance, experts speculate that the COVID-19 crisis could give rise to a financial or economic crisis.

In situations where identifying and mitigating risks is difficult, strategies that focus solely on the efficiency and pay attention to cost structures are viewed as inflexible and are ineffective in responding to the changing and uncertain environment (Volberda, 1996). Moreover, the core competences that were once assumed to be a precondition for success are viewed as a risk of core rigidities. In such a situation, flexibility, responsiveness, adaptiveness, and a resilient approach could be effective (Tan & Enderwick, 2006; Smith & Fischbacher, 2009; Eduardsen, 2020). Mitigation and preparedness are key to eliminate and reduce the impacts caused by disasters, they lead to proactive crisis management (Richey et al., 2009). Further, Tan & Enderwick (2006) suggested diversification in sourcing and corporate strategy, as a shift from linear to contingent based planning and scenario-informed planning as responses to global phenomena like SARS. DCV gives an idea about how firms can build resilience in GVC. In relation to GVC, resilience refers to an “adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and functions” (Ponomarov & Holcomb, 2009, p. 131). Eduardsen (2020) emphasizes that MNCs that are highly dependent on GVC for their business operations will benefit by creating resilient VC through redundancy and flexibility to overcome the impacts of systemic risks like COVID-10 and maintain effective GVC at the same time. Also, right balance between efficiency and resilience is important while restructuring the GVC because excessive focus on efficiency results in GVCs that are vulnerable to disruptions and excessive focus on resilience lack competitiveness and is unprofitable (Eduarsen, 2020). Companies can reduce vulnerability to risks and disruptions by building a resilient supply network, which enables firms to absorb disruptions and return back to the stable conditions quickly and at the same time improve firms’ performance (Blackhurst et al., 2011; Zsidisin et al., 2005a). Sheffi and Rice (2005) emphasized on building a supply chain resilience as a strategic initiative because firms' existence is determined by the flow of goods through the supply network.

Blackhurst et al. (2011) employed RBV as a theoretical foundation, analyzed the data collected from seven firms in various industries and discovered a variety of factors that can enhance supply chain resiliency. The three main categories of resiliency enhancers are human capital resources, organizational and interorganizational capital resources, and physical capital



resources. Human capital enhancers involve knowledge and training of the employees, understanding cost and benefit of the supply chain management, and post disruption analysis. The organizational and interorganizational capital enhancers are centered around intangible assets, such as interactions within the firms and relationships between the focal firms and other firms within the supply chain. Those resources are communication network, cross functional risk management teams, predefined contingency plans, partnering with customs programs and developing port diversification plans, and developing supplier relationship management programs. Finally, the physical capital resources consist of tangible assets such as safety stock, visibility in the supply chain, monitoring systems and other predictive risk tools, monitoring risks at individual nodes, and ability to quickly redesign a supply chain.

Strange (2020) investigated the firm's strategies particularly with regard to the configuration of the GVCs in terms of the locations of the different activities and their governance. He looked into international diversification versus reshoring as location strategies, and internalization versus externalization as governance arrangements. It is already apparent that many firms are considering reshoring to build resilience in the GVC. Reshoring can be achieved either by backshoring the activities undertaken in foreign subsidiaries or by replacing overseas suppliers with the domestic suppliers. Reshoring shortens the supply chain and makes a firm less vulnerable to international disruptions, allows firms to be closer and responsive to the customer's needs and demands, however, reshoring makes firms vulnerable to domestic disruptions and restrictions and increases costs for making foreign sales. Likewise, internalization might have several benefits but also have additional costs, which could be reduced through externalization. Externalization allows firms to focus on core competences, gain scarce financial and managerial resources, gives flexibility to volatile output demand, and access cheaper and qualitative inputs. Strange (2020) concluded that most firms might consider routine risk assessment in future, however reshoring and internalization are not the appropriate strategies to overcome the risks from pandemic as it is a global phenomenon and domestic economies are not the exception of its impacts. Instead, externalization and international diversification would probably reduce the impact and help to build a resilient GVC by guarding against individual government policies to restrictions and lockdown. For risk management, it is essential that firms `switch from large production sites in a single location like China to small, but multiple facilities around the world, thereby creating a global network of manufacturing facilities` (Tan & Enderwick, 2006, p. 529).

Yet, many international businesses are considering the reconfiguration of GVC during and after COVID-19. Although reconfiguration of GVC through relocation of activities to other countries (either back shoring or nearshoring) under trend for some years due to several drivers (such as low-cost locations; technological advancement, trade ware, nationalism and populism, social and environmental sustainability); COVID-19 has accelerated it (Barbieri et. al, 2020). MNCs are either relocating their operations to their home country (back-shoring), relocating their operations to regional (nearshoring), or reshoring to other countries. For instance, Japanese central government developed an industrial policy to support relocation of manufacturing companies offshored from China either to their home country or other Asian countries. (Barbieri et. al, 2020). Recently, UNIDO reported that, lead governments of the developed nations have called for rethinking of the multinationals' approaches to international outsourcing so as to avoid future supply bottlenecks and increase supply chain resilience to disruptions (Verbeke, 2020). Using the 5W approach (Who, What, Why, Where, When), Barbieri et al. (2020) proposed a theoretical framework to analyze and classify the expected modes that would emerge as a result of back shoring or nearshoring. Four alternatives are identified: individual backshoring, individual nearshoring, joint backshoring, and joint nearshoring.

Bryson & Vanchan (2020) reflected that dual or multiple sourcing can be critical to risk management only when there is a balance between a production site near the core market and an over-reliance on facilities located in low-cost locations. They further added that substituting cheap labor with capital in a high labor cost location, and proximity to the core markets are important strategies to firm's cost control and optimization. The main point is creating and capturing value through non-cost-based forms of competitiveness, such as flexibility, reliability, proximity, resilience, and place-based affiliations. Bryson & Vanchan (2020) addressed several loopholes in the GPN framework in relation to value and risk. For instance, GPN emphasizes surplus value and economic rent but ignores the non-cost-based value. It focuses on intra network risk but ignores extra and inter-network risks. Hence, there is a need to unpack and analyze the concept of value as it changes over time, it should be a collective process. `A fundamental rethink is required that acknowledges the benefits, intra-, inter-, and extra-networks risks, and multiple values associated with deepening globalization` (Bryson & Vanchan, 2020, p. 536).

Zhao & Kim (2021) conducted a case study and extensive literature review on the GVC of the clothing and textile industry in order to develop a conceptual model to illustrate practices and

strategies adopted by firms in various value chain segments to respond COVID-19 pandemic. The selected C&T companies were responding to the public health emergency through PPE supplies. They discovered three major components in the global C&T value chain. They are 1. Design and product development, 2 sourcing and manufacturing, and 3. wholesale/retail distribution and consumers. Companies are using different strategies in each stage of the global C&T value chain. Product innovation is the key to new market opportunities, so, C&T companies design various masks, 'from embellished couture masks to masks with customized prints, develop antibacterial intimate wear to meet health and safety needs of customers and even develop new fabrics and garments with protective features` (Zhao & Kim, 2021; p. 162). Fashion relies on seasonal trends, however there is a fall in the seasonal designs since customers are working from home and their consumption patterns have changed. Instead, there is a rise in interest in loungewear, skincare, sportswear like yoga. So, companies are more attracted towards this segment of demand and assortment plans are important. Due to the high unemployment rate, C&T companies might consider paying attention to minimal and repurposed designs. Increase in consumer awareness of a healthy lifestyle will bring change in companies decision making regarding new investment in PPE. This will not just generate profit but will also establish brand image.

Regarding sourcing and manufacturing segment, sourcing diversification is accelerating because limited sourcing base and longer lead times creates vulnerability to disruptions. During catastrophic events in Japan and China, several Japanese companies applied a corporation-wide analysis approach of GVCs (including their process and supplier) and sourced the critical components from more than one supplier (Magashazi, 2020). In contrast, a study conducted by Jain et al., (2016) showed that during supply disruptions, supplier diversification leads to slow recovery, whereas long term relationships with a supplier lead to fast recovery. Miroudot (2020, p. 128) reviewed the risk management literature and highlighted that "The risk management literature has been looking at the resilience and robustness of supply chains for more than 20 years. It does not conclude that domestic production or shorter supply chains are the best way of addressing risks... it offers guidance on different strategies for robustness and resilience". Though some strategies might be common for resilience and robustness, they are different from each other. Firms that prefer resilience prefer to go through disruptions and minimize its effect. Therefore, they choose a single supplier and long-term relationship to build supply chain resilience. However, firms that prefer robustness choose diversified suppliers and redundancy, which is highly evident

in the medical supplies like face masks, ventilators, medicines in the current pandemic. Also, depending on the sectors, and the direct or indirect hit by the crisis; firms would choose resilience or robustness strategy.

During COVID-19 pandemic, international trade is occupied with uncertainties and C&T companies may need to pay more attention to them. C&T companies should be aware about the right entry time in the new market, make decisions about the type of PPE items they would be able to manufacture and sell, and be familiar with the quality concerns and certification issues (Zhao & Kim, 2021). Reshoring manufacturing and flexible capacity plans might be the strategies C&T companies would consider. Most of the US fashion companies are actively exploring “Made in the USA” sourcing opportunities to build flexibility, agility, and reduce sourcing risks (Lu, 2020). However, attention should be given to the reshoring decisions that does not involve only individual companies, but also a broader manufacturing network, otherwise the supply chain network is not resilient and would not be secure from future pandemic and supply chain disruption events (Barbieri et al., 2020).

In relation to wholesale/retail distribution and consumers, the shift in consumption patterns has brought change in the strategies of fashion companies. As mentioned above, product design and development has changed due to change in consumer’s needs (conscious about health and safety). Also, consumers are less interested in physical shopping so online shopping has boomed. They prefer one stop shopping and make sure that the retailers take necessary measures for their safety while shopping. Accelerating digital strategy and transformation throughout the GVC helps to support customers' shopping journey. Many companies are utilizing online platforms to promote sales, some partner with distributors to build online portfolios, and some are seeking partners actively to bring customers to visit their websites. Technological advancement is at peak during the COVID-19 since, majority of things are done remotely and virtually. So, this is a great time to build technological capabilities and be technologically resilient. Multinational firms from developed countries have invested vastly in robotics, and COVID-19 has further accelerated this process in the implementation of robots in production and distribution, making it less expensive for the developed nations (Marinov, 2020). The mass application of robotics has encouraged reshoring decisions for the multinationals from developed economies. Baber & Ojala (2020) applied five business model elements (Product/Service, Value Constellation, Finance Structure, Information Flow, and Decision-Making Structure) on recent developments in the digitized world

to better understand the change in business models due to the current pandemic. They concluded that firms should search innovative solutions and make radical changes in their business models to survive during the crisis. Also, they pointed out that dynamic cycles of adjustments to the business model elements is necessary since changes in business model elements may interact well with each other.

The ripple effects of COVID-19 have a profound impact on all the companies around the world, including Danish companies operating in China (Slepnirov, 2020). Covid-19 challenges are mainly related to 'limitations on internal operations, supply side disruptions and squeeze on demand in China and overseas', and most of the Danish companies in China found limitations on regular business operations as a major challenge (Slepnirov, 2020, p.332). In effect, Danish companies implemented remote work measures, on-site workforce protection measures, engaged with government officials, geographically dispersed the supply chain, and introduced digitalization. Moreover, it was found most of the Danish companies are optimistic about their activities and operations in China. Companies that have 'In China, For China' objectives apply a localization strategy, whereas companies that focus on overseas markets consider reducing their exposure to China.

External relations and sustainability are the two major topics that have been highlighted throughout the C&T value chain (Zhao & Kim, 2021). Sustainability related issues such as waste management, materialism, and irresponsible business practices are focused by most fashion companies. During the pandemic, the C & T industry has shown social responsibility by responding to the global demand of PPE (Meyers, 2020). Majumdar et al. (2020) suggested the incorporation of disruption risk sharing contracts into the social compliance to build a sustainable supply chain in the post COVID-19 scenario or in the future crisis.

When talking about GVC, along with value chain activities, value chain actors or stakeholders are equally important in strategy formulation. A business is affected by various stakeholders like regulators, employees, customers, suppliers, creditors, competitors, governments etc. Three entities- government, firm owner and employees are the basic pillars (Kashyap & Raghuvanshi; 2020). In the COVID-19 situation, the role of government and policy maker is highly evident and adds a question: 'how post COVID-19 reshoring decisions may be boosted by new industrial policies' (Barbieri et al., 2020). Numerous initiatives have been implemented and supported by governments from developed nations like the US, France, Spain, Japan to redesign

post COVID-19 GVC. However, it is equally important to evaluate the necessary infrastructure and other policies necessary to support such reshoring initiatives (Barbieri et al., 2020). Further, the lockdown introduced by governments of various countries has highly impacted the lives of people, employees, and business. In a case study of US medical supplies global value chain, Gereffi (2020) showed that the US shortage of N95 respirators during the COVID-19 pandemic is more of a policy failure than a market failure. Though government policies might have some negative impacts, government support programs during the pandemic like loans, grants, delay tax payment, short- term work schemes play a key role in supporting businesses. The government even helped to coordinate the local demands, secured the supply of key materials and provided health measures to the workers. Local community support is equally important to build local networks and reputations. (Zhao & Kim, 2021).

Likewise, internal stakeholders like the employees and managers play a vital role in managing the risks and enhancing the effectiveness. The pandemic has led to increased cross border distance problems due to ban on international travels and mobility. The pandemic has produced tremendous novelty and uncertainty which is affecting the mental health of the people (WTO, 2020). The novel way of working remotely, fear of global recession and unemployment are putting a lot of pressure on employees and are not able to work effectively, especially among the expatriates or who work internationally (Caligiuri et. al, 2020). In such a situation, the role and duties of human resource heads become critical to select employees with high tolerance of ambiguity, resilience and curiosity traits; train employees on cohesion and collaboration and provide support and encouragement. Large Brazilian firms emphasized on the human resources and their motivation and commitment as one of the measures to deal with COVID-19, by preserving the jobs and the morale of the workforce, maintaining close contacts with the employees, softening the burden of the employees through frozen layoffs, giving employee peace of mind, providing special care to elderly people and so on (Wood et al., 2020).

In the current COVID-19 crisis, several businesses are using different strategies to increase efficiency and to reduce the severity of disruptions. Firms have changed their business models through cooperation between competing firms (i.e through coopetition). During COVID-19 pandemic, different pharmaceutical companies from the United States, China, and Germany are working together by sharing knowledge and equipment to develop vaccines for COVID-19 and medical supplies like ventilators, masks etc. Coopetition could be a suitable business-to-business

strategy during COVID-19 outbreak for enhancing performance while there are risks associated with it if the partners turn untrustworthy (Crick & Crick, 2020).

Some large Brazilian companies reinforced customer relations, supplier relations as well as mutual support among competitors in order to deal with the effects of Covid-19 (Wood et al., 2020). For instance, the banks changed the terms for payment of loans and purchase on credit. Some companies take actions to protect their chains by providing credit, organizational advice, and providing IT infrastructure and training. The competing firms shared each other's experiences, showed joint actions to pressurize government initiatives, and conducted social actions jointly. The boards of directors play a greater responsibility in crisis management, and the firms shifted from anachronistic patterns of behavior to innovation and digitalization. Wood et al. (2020, p. 357) argued that "the core of company reactions to the crisis lies in managers' ability to realize the competitive factors in a comprehensive way and look for appropriate solutions to be implemented flexibly according to the unfolding phases of the crisis". For instance, in a company that successfully mitigates the effects of pandemic, managers believe that environmental factors favor the development of competitive advantage, and they articulate internal factors to take advantage of the context; and vice-versa in the case of 'wasted company'. Most successful companies view Covid-19 as an opportunity to innovate, build technological capabilities, and restructure their business.

The global crisis requires 'a collective response and more openness and cooperation among nations' and that 'this new kind of event is global and systemic, and accordingly warrants a broad and encompassing risk management approach' (Tan & Enderwick, 2006, p. 534). It is equally important to note that while COVID-19 has disrupted a lot of things, it has also provided an opportunity to evolve and innovate and firms can make use of it by developing innovative and entrepreneurial orientation.

**Table 2.3 Literature analysis on the keyword clusters for the demand shock and supply shock caused by COVID-19**

<b>Categories</b>	<b>Keywords</b>	<b>Authors</b>
Reconfiguration	<ul style="list-style-type: none"> <li>Reshoring (backshoring, replacing overseas suppliers with</li> </ul>	<ul style="list-style-type: none"> <li>Strange (2020)</li> <li>Barbieri et al. (2020)</li> <li>Zhao &amp; Kim (2021)</li> </ul>

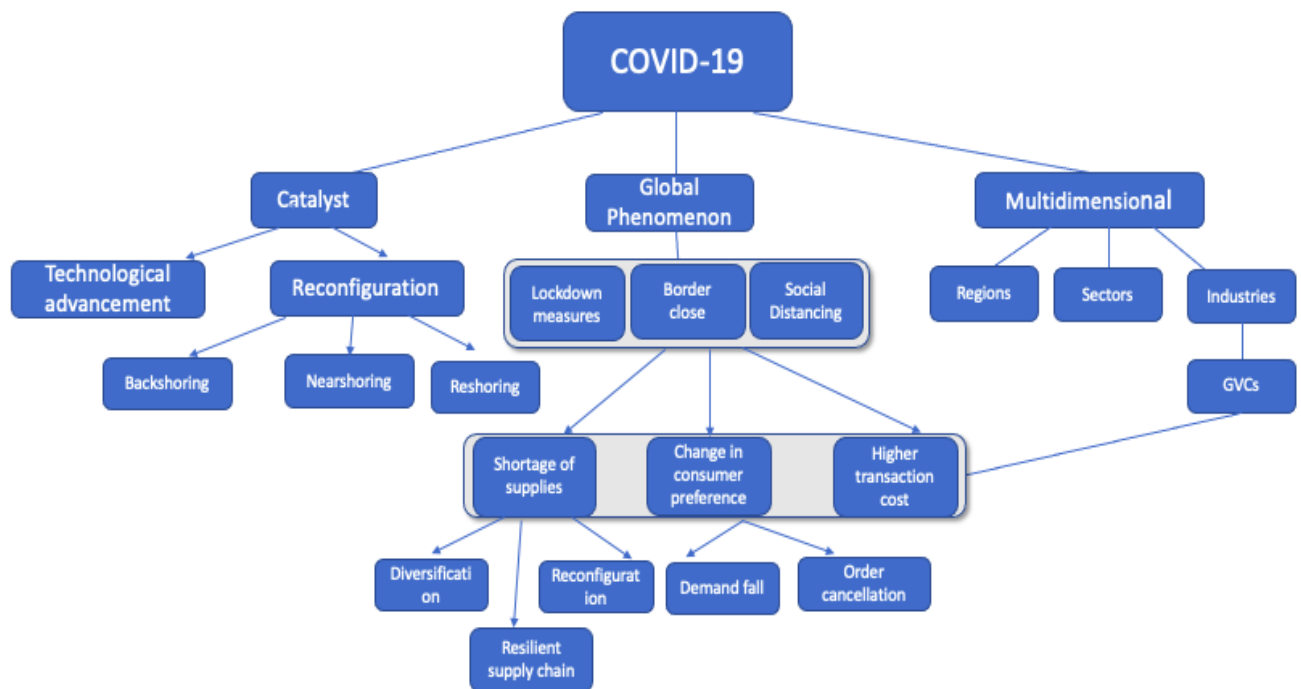
	domestic suppliers); Internalization <ul style="list-style-type: none"> <li>• Relocation of activities (backshoring or nearshoring)</li> <li>• Reshoring manufacturing</li> </ul>	
Diversification	<ul style="list-style-type: none"> <li>• Diversification in sourcing and corporate strategy</li> <li>• International diversification; Externalization</li> <li>• Dual or multiple sourcing</li> <li>• Sourcing Diversification</li> <li>• Geographically dispersed supply chain</li> </ul>	<ul style="list-style-type: none"> <li>• Tan &amp; Ederwick (2006)</li> <li>• Strange (2020)</li> <li>• Bryson &amp; Vachan (2020)</li> <li>• Zhao &amp; Kim (2021)</li> <li>• Slepnirov (2020)</li> </ul>
Resilience and robustness	<ul style="list-style-type: none"> <li>• Flexibility, responsiveness, adaptiveness</li> <li>• Mitigation and preparedness</li> <li>• Redundancy and flexibility</li> <li>• Resilient supply chain</li> </ul>	<ul style="list-style-type: none"> <li>• Tan &amp; Ederwick (2006); Smith &amp; Fischbacher (2009)</li> <li>• Richey et al. (2009)</li> <li>• Eduardsen (2020)</li> <li>• Blackhurst et al. (2011); Zsisisin et al (2005a); Sheffi &amp; Rice (2005)</li> </ul>
Digitalization, technological advancement and transformation	<ul style="list-style-type: none"> <li>• Accelerating digital strategy and transformation</li> <li>• Remote work measures, digitalization</li> <li>• Build technological capabilities; Robotics</li> </ul>	<ul style="list-style-type: none"> <li>• Zhao &amp; Kim (2021)</li> <li>• Slepnirov (2020); Wood et al. (2020)</li> <li>• Zhao &amp; Kim (2021)</li> </ul>
Internal and external relations	<ul style="list-style-type: none"> <li>• Engaged with government official</li> <li>• Governmental initiatives and support</li> <li>• Role of employees and managers</li> </ul>	<ul style="list-style-type: none"> <li>• Slepnirov (2020)</li> <li>• Barbieri (2020); Zhao &amp; Kim (2021)</li> <li>• Caligiuri et al. (2020)</li> <li>• Wood et al. (2020)</li> <li>• Crick &amp; Crick (2020)</li> </ul>



	<ul style="list-style-type: none"> <li>Human resources motivation and commitment</li> <li>Coopetition</li> </ul>	
Innovation	<ul style="list-style-type: none"> <li>Product innovation; minimal and repurposed designs</li> <li>Innovation</li> </ul>	<ul style="list-style-type: none"> <li>Zhao &amp; Kim (2021)</li> <li>Wood et al. (2020)</li> </ul>

(Source: Own construction)

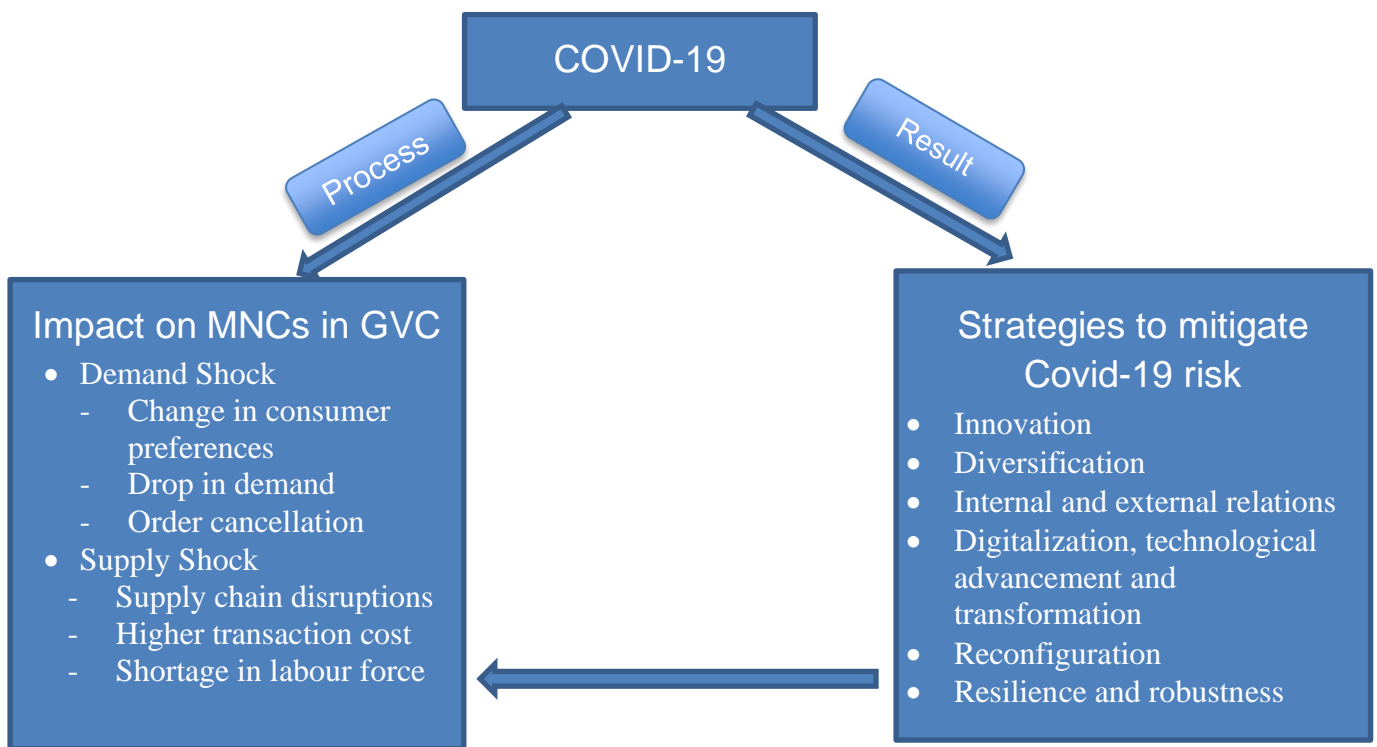
The above tables provide us with the keywords which is used to construct a conceptual mapping to make the readers easier to comprehend the literature review.



**Figure 2.1** An example to illustrate conceptual mapping (Source: Own construction)

The critical events lead to change both in the process and results. The change in the process could be either abrupt like Covid-19 or incremental. These events could lead to complete disruptions causing either continuity or discontinuity of multinational firms participating in the GVC. Based on this, Streeck and Thelen (2005) proposed a framework: “Process and Result of Change: Possible Consequent Actions”, that is helpful to understand the effects on MNCs and the changes they have been forced to make due to the Covid-19 crisis. From the above analysis, we

can see that multinational firms can either adapt to the current conditions (incremental process and continuity result), they can gradually transform (incremental process and discontinuity result), they can survive and return (abrupt process and continuity result), or they can break down and replace their activities (abrupt process and discontinuity result) (Marinova, 2020). Based on the literature review, some of the strategies are leverage resources and capabilities, reshoring and diversification, internal and external relations, digitalization and transformation, reconfiguration, repositioning, and sustainability. However, all the strategies may not be applicable to all the firms in all the industries, since the specifications are different.



**Figure 2.2 A Priori Conceptual Framework** (Source: Own construction)

The context in which these problems (impacts and strategies) will be studied is the multinational firms involved in the clothing and textile industry. The specifications of this industry and multinational firms are quite different from other industries and firms. Therefore, all the strategies that have been mentioned in the conceptual framework may not be applied to the

firms from this industry. Brief background about the clothing and textile industry has been explained below.

The Clothing and Textile (C &T) industry is a great example of global interconnectedness and interdependence since all its activities from inception to final consumption occurs in the global environment. A pink Zara shirt dress labelled `Made in Morocco` has a very complex production geography. `The fabric that primarily came from European trees is shipped to Egypt where they are spun into yarn. This yarn is then sent to China where it is woven into fabric. The fabric is then shipped to Spain where it is dyed into pink color (in this case). Then it is shipped to Morocco where the fabric is cut and sewn to make the dress. And finally, it is sent to Spain for packaging, from where it is distributed to Inditex stores in 93 countries` (Tokatli, 2015). The C&T industry is characterized in terms of its volatility, variety, complexity, and dynamism and its supply chain is full of uncertainty and unpredictability (especially in the times of Covid-19 crisis) (McMaster, 2020). The extreme fragmentation and globalization of the C & T industry has exposed the multinational firms to several types of risks and uncertainties. The main challenges for the C&T industry supply chain are the high demand volatility of customers, the dynamic market, and market uncertainty, which results either in overstocking or understocking (McMaster, 2020).

The global clothing and textile industry has a buyer driven value chain, which Gereffi (1994, p. 97) defined as “those industries in which large retailers, brand named merchandisers and trading companies play the pivotal role in setting up decentralized production networks in a variety of exporting countries”. The control over the flow of resources and the distribution of rewards in such value chains exist with the global buyers. Hence, global buyers are the lead firms. Fernandez-Stark et al. (2011) distinguished clothing and textile industry into four kinds of lead firms: *brand manufacturers* (own both brands and manufacturing facilities), *brand marketers* (owning and designing their brand but outsourcing the manufacturing), *specialty apparel retailers* (developing their own brands for selling in their own clothing chains), and finally *mass merchants* (developing private-label goods for sale in their own outlets without producing themselves). A key characteristic of the C & T industry is that most of the lead firms outsource the least profitable activities and own the most profitable segments like design and marketing. As a result, the value in the buyer driven C&T industry value chain is demonstrated by the so-called “smile curve” (Fernandez-Stark et al., 2011).

### **3. DATA AND METHODOLOGY**

After the review of the past studies done in the research topic, we get an overview of the impacts of COVID-19 on the multinationals involved in the GVC and the strategies they have used to overcome the effects. We also have the understanding of the theories (RDT and RBV/DCV) that are relevant to our research topic. Now the next step is to make a decision regarding appropriate methods for data collection and data analysis. Research methodology is a systematic way to solve the research problem. In the absence of proper methodology, the research objectives may not be achieved. This chapter will provide the reader with concrete understanding of the research design, applied method in the data collection and data analysis. For the purpose of achieving our research objective, we have specified the context upon which the research is conducted, that is a clothing and textile industry. Since, the C & T industry is a traditional industry that is highly globalized, interconnected and interdependent; the particular industry is very relevant for our study. Firstly, to get an understanding of the author's worldview, the philosophy of the research is described, followed by the research design. Next, the data collection method and process are explained. Then, the method of data analysis and the step wise process is described. Finally, the readers can find the trustworthiness of our study explained at the end of this chapter.

#### **3.1 Philosophy of the research**

Philosophy of the research or research paradigm is used to describe a researcher's worldview' (Mackenzie & Knipe, 2006). The worldview is the researcher's perspective or belief about the world the researcher lives in or wants to live in (Lather, 1986). According to Kivunja & Kuyini (2017), "research paradigm is a conceptual lens through which the researcher examines the methodological aspects of their research project to determine the research methods that will be used and how the data will be analysed" (p. 26).

Research paradigm is mainly divided into two parts: ontology and epistemology. Ontology examines the nature of reality, while epistemology examines how we can examine reality. Ontology addresses the question: what reality is and enables to examine underlying belief and assumptions as a researcher which is helpful to position researcher's thinking about the research problem, its significance, approach to answer the research question and understanding of the analysis and come up with the solution (Kivunja & Kuyini, 2017). The philosophy of this research paper is based on interpretivism or constructivism meaning that there are multiple realities, and

the reality is created by individuals in groups and is personal or in another word, it is socially constructed (Creswell, 2003). Epistemology refers to the base of knowledge- “its nature and forms and how it is acquired and communicated to other human beings” (Kivunja & Kuyini, 2017, p. 27). It addresses the question: how reality can be known. In this study, researchers believe that reality needs to be interpreted to discover the underlying meaning.

Combining ontology and epistemology gives the holistic idea about how the researcher views the world which is interpretivist in this research. The interpretivist paradigm concentrates on understanding the subjective world of human experience (Guba & Lincoln, 1989). This approach of research paradigm focuses on the interpretation of the individual’s understanding of the world around them. Hence, the reality in the interpretivist paradigm is socially constructed (Bogdan & Biklen, 1998) so it is also called constructivist paradigm. Such paradigm consists of subjectivist epistemology (researcher draws reality through their own thinking of data and cognitive processing of data among other individuals in a group) and a relativist ontology (there is no single reality and realities are explored through the interactions between the researchers) (Kivunja & Kuyini, 2017).

Following the interpretivist or constructivist paradigm, the research approach can be either qualitative or quantitative. Quantitative data are concerned with numbers and values and are mostly statistically analyzed. On the other hand, qualitative data are concerned with words and meanings, and are subjectively analyzed. However, given the type of research problem and following the realistic ontology and subjective epistemology; the appropriate research approach that is used in this research study is qualitative research.

### **3.2 Research Design**

Sekaran & Bougie (2013) defined a research design as “a blueprint for the collection, measurement, and analysis of data, based on the research questions of the study” (p. 95). Research design consists of various issues such as the purpose of the study, research strategy, study setting or location, extent of researcher interference, temporal aspects, and level of data analysis. In other words, research design plans the issues such as what, when, where, how much, by what means etc. to answer the research question. The purpose of research or nature of research can be exploratory, descriptive, or explanatory (Saunders et al., 2009). The research objective of this thesis is to identify the impacts of COVID-19 on multinationals involved in GVC of the C & T industry and

the strategies they have used to mitigate the impacts. Hence, the purpose of the study is exploratory because we are trying to describe the phenomenon and come up with a model or framework about the impacts and strategies. This research type is carried out when there is little knowledge about the problem and not much work has been done to address the research question, therefore as a researcher, using this method will require some substantial initial work to gain understanding of the problem, being able to evaluate the intensity of the problem and be familiar with the circumstances (Sekaran & Bougie, 2013). Moreover, using the exploratory research method gives an added advantage to the researcher, is very flexible and allows the researcher to accept changes with the progress of the work; it provides a base and assistance for the researcher to lay a foundation for future research and facilitates the process for other researchers who want to find out in details the cause of the problem in question (QuestionPro, 2021). Since our research problem and concerned question is a new and evolving situation, little work and knowledge is known about it. Through reviewing a few existing literatures, we gained some understanding of the problem and outcomes. It also paves a way and suggest future studies be carried out on this topic so as to gain more understanding. It is important to undertake exploratory research when there is a need for more information to develop a practical theoretical framework (Sekaran & Bougie, 2013). At the end of our research, we came up with a practical theoretical framework hence, we can argue that our research is exploratory research. Notwithstanding the advantage of using this research method there are some challenges. Since the data for exploratory research is collected through secondary means, there is a possibility that the information may be outdated, but in our case, this does not hold true as most of our data came from recent years publications and moreover, we are dealing with a very current situation, the Covid-19 pandemic. Secondly, using this method leads the writer to an open end, it is more often unsettled even though its findings lead to the correct flow of answering the research question (QuestionPro, 2021).

There are various forms of “logical reasoning” that can be used in either quantitative or qualitative data analysis (Reichert, 2014). The basis for all research is created using these forms of reasoning, therefore it is important that the researcher(s) specify which of them was used or is dominant in their research (Jaeger, 1998). It is also important to note that these are not concepts or data analysis tools, but forms of thinking in trying to connect and generate ideas (findings) during the research process (Reichert, 2014).

According to Barto (2017), inductive reasoning is used in research when one uses “patterns, trends observations and examples to make predictions. “Induction involves moving from the particular to the general as when making empirical observations about some phenomenon of interest and forming concepts and theories based on them” (Woiceshyn & Daellenbach, 2018, p. 185). That is using specific samples to make general conclusions about the research which could either be logically true but not realistically true (Barto, 2017). Armat (2018) added that the researcher’s mind at the start of the research is not totally empty, but they usually have the questions they are trying to answer (research question), the aim of the study, and some assumptions relevant to producing their analysis virtually. In carrying out our research, our mind was not totally empty from the start. We had two main research questions to help narrow down our research and try to make it specific. We had an aim which was to outline the mitigating strategies on the effect of COVID 19 used by MNCs involved in the GVC of the clothing and textile industry. We also made use of existing literature as patterns while using specific examples as observations from the data, developing concepts and theories based on them, hence concluded with some results which are general. Therefore, we can argue that in the course of the research we made use of inductive reasoning.

On the other hand, “deduction entails moving from the general to the particular...” (Woiceshyn & Daellenbach, 2018, p. 185). Deductive reasoning comes into play when the researcher “starts with proven or accepted information and applies it to draw a necessary conclusion” (Barto, 2017). When the research starts with a pre-existing knowledge or findings or theory to get to a specific conclusion, deductive reasoning is applied in the research (Armat, 2018). A deductive approach to analysing data is one which deals with meddling operations that are expressing truthfulness. In our research we argue that deductive reasoning was also used because we used pre-existing theories and previous research findings (the effects of Covid-19 on MNCs involved in the GVC and as well as mitigating effects) as a passport to draw specific conclusions on the C&T industry specifically. We also argue that since deductive reasoning deals with truthfulness of the product, our research claims some degree of truthfulness as explained in the trustworthiness of study, hence giving the deductive characteristics.

In this research, we have summarized the research topic based on the literature and studies conducted in the past which helped us to come up with a priori conceptual framework. However, exploring the empirical data and analyzing the ongoing impacts and strategies observed from the

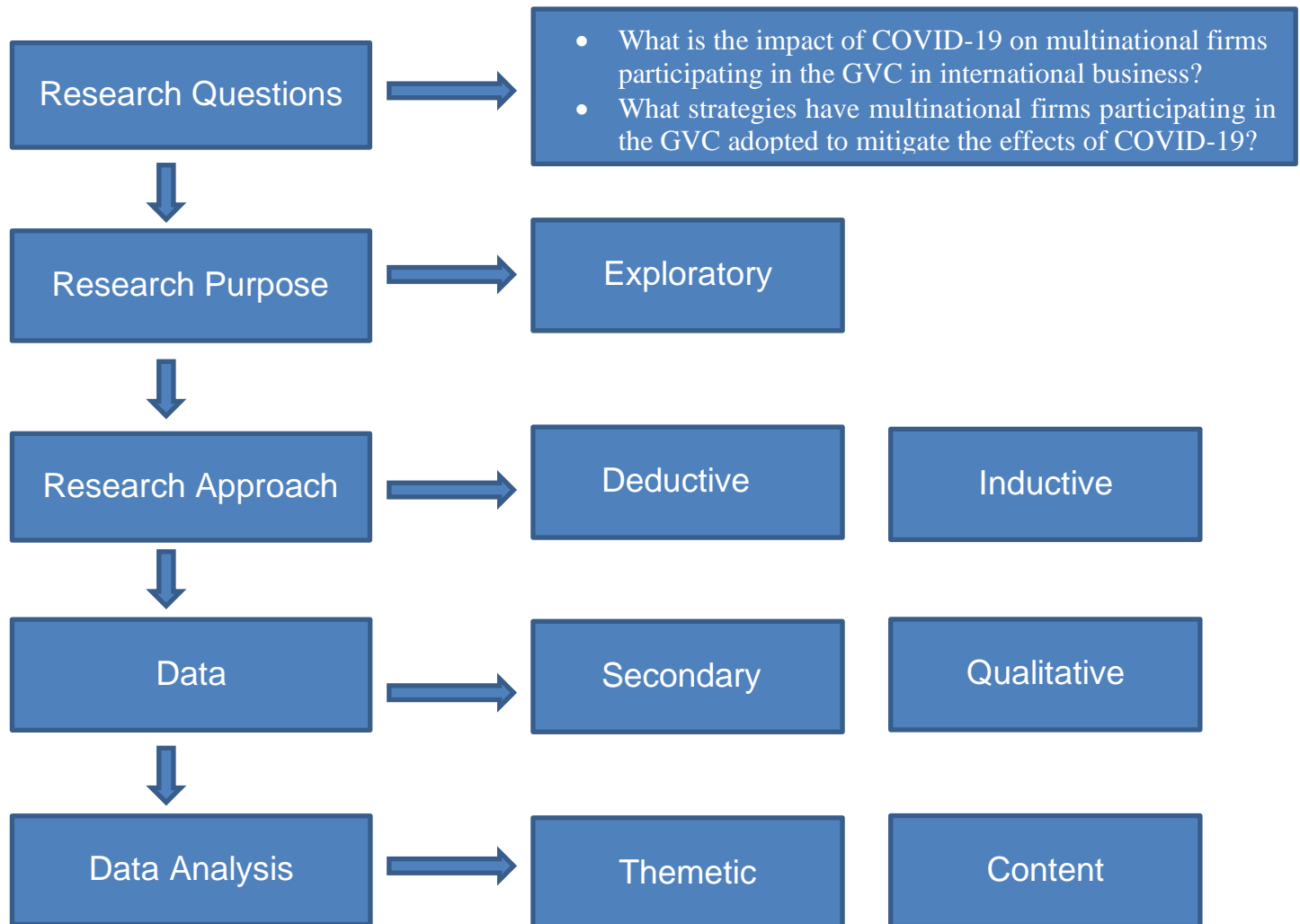
data helped to develop a posteriori framework by adding more to the priori one. Therefore, one can argue that the research approach is both inductive and deductive.

For the purpose of analysing the data, we employed a qualitative thematic analysis and a content analysis. According to Nowell, (2017), the thematic analysis method of research is all about “identifying, analysing, organising, describing, and reporting themes found within the data set” (p. 2). Looking at our research we have identified a common theme in the form of impacts and strategies MNCs used in mitigating the effect of the pandemic on their GVC network, then we analysed these findings in an organised manner by using the quotations from the data or by paraphrasing the extracts for ease of reading, and then we described the effects and strategies by segmenting the GVC network of MNCs in C&T industry and reporting the findings. We chose this method of analysis for a couple of reasons. “Firstly, the thematic is easy and simple to carry out as a beginner in the research field as compared to qualitative research. Secondly, the thematic analysis phase is highly tangible and flexible which can be changed for other studies and provides a rich and detailed yet complex account of data” (Javadi & Zarea, 2016; Nowell, 2017, p. 2). When using the thematic analysis steps, we were able to figure out the different perspectives of the various participants in the data highlighting their likenesses and producing unexpected insights. Obtaining a huge set of data and figuring how to handle, summarise and come out with rich and organised findings was all possible by using thematic analysis. Notwithstanding, thematic analysis has some drawbacks; it causes doubt in the mind of the researcher on how to carry out a thorough thematic analysis. Making claims of the use of language is not possible with thematic research. The flexible nature of this type of analysis can lead to irregularity and improper coherence in the process of deriving themes from data (Nowell, 2017).

Content analysis is done by coding categories of material, assigning parts of the material successfully and hence describing the data systematically (Schreier, 2013). Our research analysis was carried out using this method. After reviewing the various data sets, we came up with codes assigning each part of the data structure to its specific code then we went further to explain the finding in a systematic manner. Content analysis helps to bring the researcher close to the data, it deals with text which is direct information from communication, human thoughts, and the language they use can be easily understood using this method (Columbia University Mailman School of Public Health, 2020-21). Using content analysis is advantageous for the researcher because it helps to narrow down the material to a specific aspect which relates to the research question (Schreier,



2012). It is particularly helpful in analysing historical data over time. In relation to the type of material or data to which content analysis has been used to address, it can be flexible on one side but on the other side, the researcher may be faced with difficulties using context analysis if the data is not in a textual form. Moreover, segmenting the data and making it visual, data from online sources whose units go through various websites, and are hypertextual in their structure is also a challenge faced by researchers with this method (Schreier, 2012).



**Figure 3.1. Summary of the Research Design** (Source: Own Construction)

### 3.3 Data Collection

To achieve the research objectives, qualitative data were collected from the secondary source. Given the availability of data in secondary sources and the difficulty to gain primary data due to social distancing, quarantine measures during Covid-19; secondary qualitative data was found to be the appropriate data collection technique. The data sources include recently published newspaper articles, industrial magazine articles, trade journals, blogs, reports and videos. The data was diversified in the sense that it covered most of the geographics of the world like India, Nepal, China, Haiti, Vietnam, El Salvador, Kenya US, EU etc. which helped to understand the global impact of Covid-19 on the C & T industry. In total, 40 data were collected and analyzed through a thematic analysis and content analysis method. The list of data collected are presented in the table 3.1 below:

**Table 3.1. Data Profile**

S.No.	Author (Date)	Source	Name of the publication	Name of the article	Why (Focus)
1	Nandana et al. (16 April 2021)	Newspaper Article	Businessline; Chennai.	India Inc bracing for lockdown 2.0	Shortage of human resource management
2	not available (13 April, 2021)	Newspaper article	Asia News Monitor	Vietnam: Domestic garment and textile industry	Governmental policies in recovery
3	not available (15 February, 2021)	Newspaper article	Asia News Monitor.	Bangladesh: COVID: Bangladesh's textile industry hit hard by pandemic	Suppliers: how suppliers have been impacted due to fall in demand

4	Asia News Monitor (17 July, 2020).	Newspapers	Asia News Monitor Bangkok	Vietnam: Greater export opportunities beckon for textile and apparel industry in second half	Change in Demand for goods, change in consumer preferences, workers lost of jobs
5	Mandhana, Niharika; Myo, Myo. (13 July, 2020)	Newspaper	Wall Street Journal, Eastern edition; New York, N.Y.	World News: Asia's Garment Industry Hit By Pandemic	Effects on production
6	Madhvi Sally.(18 Mar 2020)	Newspaper	The Economic Times; New Delhi	Textile industry body seeks relief package to mitigate COVID-19 pandemic impact [Garments-Textiles]	Sale reduction
7	Cosgrove, Emma. (21 May, 2020)	Newsletter	Supply Chain Dive.	Canceled orders, delayed payments: How supplier collaboration could reverse apparel's nose dive	Sourcing, suppliers
8	Daphne Howland (30 April , 2020)	Newsletter	Retail Dive.	Apparel retailers are in trouble	Distribution; Retailers
9	Dar, Vaishali (24 May 2020)	Newspapers	Financial Express; New Delhi	Covid-19 effect: Time for Made-in-India tag to go global	Export, Loss of market share

10	Not available (24 June, 2020)	News paper	Asia News Monitor DW - Deutsche Welle	Bangladesh: Coronavirus disruptions deal severe blow to Bangladesh's garment industry	demand for goods and workers losing jobs
11	Bhavya Dilipkumar Chaliawala, Nehal (03 July 2020).	Newspapers	The Economic Times (Online); New Delhi [New Delhi].	Tirupur Textile Industry Helpless as Sewing Machines, Buttons from China Stuck at Ports [Covid-19 Impact: Pharma & Companies]	Distribution
12	Madhvi Sally.(18 Mar 2020)	Newspaper	The Economic Times; New Delhi [New Delhi].	Textile industry body seeks relief package to mitigate COVID-19 pandemic impact [Garments-Textiles]	Demand and Sales
13	Ganguly, Shramana (15 Apr 2020)	Newspaper:	The Economic Times; New Delhi [New Delhi]	Apparel shopping goes phut in COVID-19 crisis [Garments-Textiles]	Consumer preferences
14	not available (18 February, 2021)	Newspaper article	Asia News Monitor	Vietnam: Garment and textile exports increase market share in US	Exports; Suppliers
15	Varshney, Nitish (17 April, 2021)	Trade journal		Upskilling workforce is the right choice in post pandemic world	Upskilling workforce

16	Friedman, Arthur (17 February, 2021)	Trade journal	Sourcing Journal (Online)	Textile Innovation Leading to Virus- and Bacteria- Fighting Materials	Research and Development; Innovation
17	Jones, S. (2 February 2021)	Trade journal	Sourcing Journal (Online); New York.	Upstream Focus: CAMTEX's Patricia Figueroa on CAFTA, Remote Collaboration & Commitments	Suppliers: How suppliers are impacted and what strategies have been used.
18	Jasmin Malik Chua (11 June , 2020)	Trade journals	Sourcing Journal (Online); New York.	India Clothing Makers Shuttles Unit, Leaving 1200 Worker Unemployed	Layoffs, production, demand from customers
19	Fallon, James (April 21, 2020)	Trade journals	WWD.com; Los Angeles	COVID19 Crisis triggering Huge Losses in Textile, Apparel Sector	Workers
20	Chua, J.M. (8 September, 2020)	Trade journals	Sourcing Journal (Online); New York.	Could India Supplant China as the `World's Factory`?	Sourcing, reconfiguration
21	Nishimmura, Kate (2 June, 2020)	Trade journals	Sourcing Journal (Online); New York.	Nearly 70% of Garment Manufacturers Worried About COVID-19 Challenges	Challenges in the GSC

22	Dixit, Noyanika.(6 May, 2020)	Trade Journals	Apparel Resources; Mumbai.	Sustainable supply chains to lead the way for fashion post COVID-19	Production
23	MENA Report; London (19 Dec, 2020)	Trade Journal	MENA Report London	Haiti: IFC partners with ADIH to help garment industry in Haiti recover from COVID-19 and attract investments	export-oriented garment sector
24	Fallon, James (22 Apr, 2020)	Trade Journal	WWD.com; Los Angeles	Global Fashion Industry Calls for Government Action to Support Sector Fallon, James.WWD.com; Los Angeles	Manufacturers, workers
25	Friedman, Arthur. (22 June , 2020)	Trade Journal	Sourcing Journal (Online); New York	Global Fiber Prices Seen Remaining Under Pressure	Production and consumption
26	Kapner, S. (30 September, 2020)	Journal	The Wall Street Journal.	At Calvin Klein and Tommy Hilfiger, a new CEO adapts to how we shop now.	Demand changes
27	Beth Wright (18 December, 2020)	Magazine	Just-Style Magazine	How will Covid 19 shape Asian garment production?	Production

28	Beth Wright (9th April, 2021)	Magazine	Just-Style Magazine	2021 a "critical year" for EU textile and clothing industry	demand and production
29	McBain, Will (Apr, 2021)	Magazine	African Business	Ethiopia's textile sector battles against setbacks	Financial shock, workforce issues
30	Leonie Barrie (29 January, 2021)	Magazine	Just Style	Garment manufacturers remain hardest hit by Covid-19	Decrease in sales, workforce issues, cancellation of orders.
31	Wachira Kigotho (19 June 2020)	Magazine	Just Style	Kenya's sourcing sector reels from Covid-19 pandemic	Effect on supply of raw materials and production process
32	Emma Davis (7 January, 2021)	Magazine	Just Style	Which apparel sourcing factors matter the most?	Sourcing decisions by fashion industries
33	Newsdesk, Perct Scing.(10 Apr, 2020)	Magazine	Perfect Sourcing New Delhi	Covid 19 depleting apparel industry Can cause Losses worth USD2 billion in India's apparel industry	demand for goods

34	Sánchez, Diana.(30 Jul, 2020)	Blogs, Podcasts, & Websites	CE NAFTA 2.0 English, Mexico City: ContentEngine LLC, a Florida limited liability company.x	How China's textile industry is emerging from the pandemic .	Slow growth and development of the clothing industry
35	Wazir Advisors. (2021)	Annual Report	Annual Report: Indian Textile and Apparel Industry 2021	Annual Report: Indian Textile and Apparel Industry	Manufacturing, logistics, Retail, customers
36	GATSBY AFRICA /KMT(Kenya Markets Trust)/MSINGI (November 2020)	Report	Gastby	2020-covid-19-impact-and-response-gatsby-africa-kmt-msingi: The situation in East africa and our Response to dat	finance
37	H&M Group. (2020)	Report	H&M Group	H&M Group Sustainability performance report	
38	SAWTEE. (11 May 2020)	Report	SAWTEE	SPECIAL REPORT ON COVID-19 COVID-19 and Nepal A quick study of sectoral impacts and suggested way forward	Sourcing and Manufacturing;



39	Sagar Malviya (10 April 2021)	E paper	The Economic Times:	Levi's India back to growth, outpace most other Asian markets	Effects on demand and sales
40	not available (4 April, 2021)	Youtube videos	Business Insider	How NZ farmers shear 25,000 sheep in 10 days/Big Business.	Pile of stock

(Source: Own construction)

### 3.4 Data Analysis

Qualitative research is a valued research methodology used to generate the grounded knowledge in human experience (Sandelowski, 2004). However, the challenge of qualitative research lies in rigorous and methodical methods to gain trustworthy results (Nowell et al., 2017). Therefore, we have tried our best to make the research systematic and transparent to the readers while conducting, documenting, evaluating and reporting the data analysis. We have attempted to make the data analysis process practical, effective, rigorous, and insightful aiming to meet the trustworthiness criteria (credibility, transferability, conformability and dependability) set by Lincoln and Guba (1985). As mentioned above we have used the combination of thematic and content analysis in order to analyse the collected data. Both of the analysis methods are widely used in qualitative research; particularly thematic analysis is very common. Braun and Clarke (2006) argued that thematic analysis is the fundamental method for analyzing qualitative data which provides core skills to conduct other forms of analysis. It is not viewed as a separate method, rather assists researchers in analysis and is adjoined with other qualitative analysis. Thematic analysis is useful in identifying, analyzing, organizing, describing and reporting the themes found within a data set (Braun & Clarke, 2006). Similarly, qualitative content analysis systematically describes the meaning of the qualitative data (Mayring, 2004; Schreier, 2012) `by assigning successive parts of the material to the categories of a coding frame` (Schreier, 2013, p. 2).

In a qualitative research data collection, data analysis and report writing occur concurrently throughout the research process (Creswell, 2007). Therefore, our research had an iterative and reflective process which involved a back-and-forth process. Choosing qualitative data from the secondary source makes the analysis part quite difficult because they are not structured according to our research question. So, our first aim was to structure the data systematically that would make

the analysis easier and sensitive. First of all, we started with collecting the materials or data by examining every single part that is in any way relevant to our research question, as being systematic is one of the key features of qualitative content analysis (Schreier, 2013). To get familiarized with the data, we read through the entire data set carefully, have an understanding about the content of the data and what makes the data interesting to us. We used an excel spreadsheet to examine the raw data through systematic log in of all the raw data along with their details like source of data, title of data, author and date of publication, and the focus of the specific data which is relevant to our research that is presented in table 3.1.

In the next step, we coded the data to change the unstructured data into the sense making material. During coding, we highlighted the text in the data that would be of our interest and attached labels to relate them to the themes as described by Creswell (2014) to conduct coding in a systematic process. We even did peer debriefing to get an idea about possible patterns and coding to be done. The NVivo software program was used to sort and organize the large unstructured data. Using the software facilitated the team in coding the complex data effectively both individually and in a group. The individual text or extracts were coded into more than one theme if it fitted well in many. All sets of data were coded, analyzed and examined by both of the researchers which further enhanced the credibility of the data analysis. Memos were recorded for unusual types of data. For instance, one of the materials collected which was interesting to the phenomenon of study was a youtube video. Coding such material on NVivo was not possible, so it was recorded on memos and on excel spreadsheets.

The third step consisted of bringing together coded data extracts into themes. DeSantis and Ugarriza (2000) defined, “A theme is an abstract entity that brings meaning and identity to a recurrent experience and its variant manifestations. As such, a theme captures and unifies the nature and basis of the experience into a meaningful whole” (p. 362). In order to make the themes comprehensive to the research objective, we adopted the global value chain segmentation of the C & T industry by Zhao & Kim (2021) and divided it into three segments: 1. Design and Product Development 2. Sourcing and Manufacturing and 3. Wholesale/Retail Distribution and Consumers. At first the data collected were categorized according to the value chain segments and the drivers for the impacts in the excel sheet which can be seen in table 3.2. Then in the NVivo, these segmentations were further categorized into impacts and strategies which were our main research focus. In the process of developing themes for the two categories, at first, the themes were

generated deductively from the theoretical background (from the a priori conceptual framework). However, in the process of examining and coding the data, additional themes were identified from the data inductively. Hence, theme development consists of a combination of inductive and deductive approach. Figure 3.2 illustrates the themes used and how codes fit together on each theme.

**Table3.2 Categorization of data according to the value chain segments and drivers for impact.**

S.No.	Name of the article	Author and date	Focus on GVC segment	Drivers for impact
1	India Inc bracing for lockdown 2.0	Nandana et al. (16 April 2021)	Sourcing and Manufacturing	Imposition of lockdown due to COVID-19
2	Upskilling workforce is the right choice in post pandemic world	Varshney, Nitish (17 April, 2021)	Sourcing and Manufacturing	Rise of automation as a result of COVID-19 and lockdown, People are forced to work remotely.
3	Vietnam: Domestic garment and textile industry	not available (13 April, 2021)	Sourcing and Manufacturing	Closing of brands in the US market
4	Vietnam: Garment and textile exports increase market share in US	not available (18 February, 2021)	Sourcing and Manufacturing	Disruption in the supply chain, fall in demand and bankruptcy of fashion brands
5	Textile Innovation Leading to Virus- and Bacteria-Fighting Materials	Friedman, Arthur (17 February, 2021)	Wholesale /Retail Distribution and consumers	Spread of Coronavirus

6	Bangladesh: COVID: Bangladesh's textile industry hit hard by pandemic	not available (15 February, 2021)	Sourcing and Manufacturing	Drop in the worldwide customer demand and temporary closed stores.
7	Upstream Focus: CAMTEX's Patricia Figueroa on CAFTA, Remote Collaboration & Commitments	Jones, S. (2 February 2021)	Sourcing and Manufacturing	order cancellation and postpone due to fall in customer demand - working remotely due to travel restrictions
8	India Clothing Makers Shuttters Unit, Leaving 1200 Worker Unemployed	Jasmin Malik Chua ( 11 June, 2020)	Sourcing and Manufacturing	Lockdown in India - reduction and cancellation of orders from Western brands.
9	COVID19 Crisis triggering Huge Losses in Textile, Apparel Sector	Fallon, James (21 April , 2020)	Wholesale /Retail Distribution and consumers	Decrease in consumer demand due to quarantine measures.
10	Could India Supplant China as the `World's Factory`?	Chua, J.M. (8 September, 2020)	Sourcing and Manufacturing	Shift of sourcing from China to India
11	Which apparel sourcing factors matter the most?	Emma Davis (7 January, 2021)	Sourcing and Manufacturing	Sourcing decisions by fashion industries

12	Nearly 70% of Garment Manufacturers Worried About COVID-19 Challenges	Nishimmura, Kate (2 June, 2020)	Sourcing and Manufacturing	restriction in transportation, closure of stores, cancellation of orders, supply disruptions
13	Canceled orders, delayed payments: How supplier collaboration could reverse apparel's nose dive	Cosgrove, Emma. (21 May , 2020)	Sourcing and Manufacturing	Closure of retail stores
14	Apparel retailers are in trouble	Daphne Howland (30 April , 2020)	Wholesale /Retail Distribution and consumers	change in consumer preferences (free to wear more casual attire at work and special events). Working from home has limited workplace dress codes. - due to the economy humming, many opted to spend discretionary funds on other things, looking for discounts on apparel. Depression in the economy and layoffs have limited spending.

15	Sustainable supply chains to lead the way for fashion post COVID-19	Dixit, Noyanika.(6 May , 2020)	Sourcing and Manufacturing	<p>Most fashion brands find themselves completely paralysed due to the lockdowns, which leads to the consideration that post-virus supply chains will have to shrink to avoid essential products being stranded for months in distant ports in case such scenarios are repeated in the future.</p> <p>Hence, most brands are considering shifting base back to their countries instead of collecting bits and pieces from the world over. Additionally, instead of shipping to different countries from a singular location, brands are also looking at making production localised for different regions"</p>
16	Covid-19 effect: Time for Made-in-India tag to go global	Dar, Vaishali (24 May 2020)	Wholesale /Retail Distribution and consumers	Export, Loss of market share
17	Global Fashion Industry Calls for Government Action to Support Sector	Fallon, James (22 Apr , 2020)	Wholesale /Retail Distribution and consumers	Closure of stores worldwide for weeks due to measures taken to contain the spread of COVID-19

	Fallon, James.WWD.com; Los Angeles			
18	Global Fiber Prices Seen Remaining Under Pressure	Friedman, Arthur. (22 Jun , 2020)	Sourcing and Manufacturing, Wholesale/Retail Distribution and Consumers	The latest estimates from ICAC show global demand for cotton shrinking by around 12 percent, to about 22.9 million tons, during 2020. Falling demand, along with high production levels, is expected to put downward pressure on prices that could have lasting impact, Wolff said.
19	How will Covid 19 shape Asian garment production?	Beth Wright (18 December , 2020)	Sourcing and Manufacturing	Nearshoring and onshoring; production shift
20	2021 a "critical year" for EU textile and clothing industry	Beth Wright (9th April , 2021)	Sourcing and Manufacturing, Wholesale/Retail Distribution and Consumers	Recent turmoil in supply chain, including rising raw material prices and transport cost, and political turmoil in key sourcing countries
21	Covid 19 depleting apparel industry Can cause Losses worth USD2	Newsdesk, Perct Scing.(10 Apr, 2020)	Wholesale/Retail Distribution and Consumers	lockdowns across markets

	billion in India's apparel industry			
22	Vietnam: Greater export opportunities beckon for textile and apparel industry in second half	Asia News Monitor (17 July, 2020).	Sourcing and Manufacturing, Wholesale/Retail Distribution and Consumers	postponements, cancellations, delays in delivery, and payments
23	World News: Asia's Garment Industry Hit By Pandemic	Mandhana, Niharika; Myo, Myo. (13 July 2020)	Design and product development,	Pandemic
24	Textile industry body seeks relief package to mitigate COVID-19 pandemic impact [Garments-Textiles]	Madhvi Sally.(18 Mar 2020)	Wholesale /Retail Distribution and consumers Impacts	Due to the panic situation created by the outbreak of COVID-19, government's directions to close all the malls and retail outlets
25	Haiti : IFC partners with ADIH to help garment industry in Haiti recover from COVID-19 and attract investments	MENA Report; London (19 Dec, 2020)	Sourcing and Manufacturing	As a result of the pandemic and due to the sanitary emergency announced by the Haitian government



26	Bangladesh: Coronavirus disruptions deal severe blow to Bangladesh's garment industry	Not available (24 Jun, 2020)	Wholesale /Retail	Fall in demand for goods
27	How China's textile industry is emerging from the pandemic	Sánchez, Diana.(30 Jul , 2020)	Wholesale /Retail Distribution and consumers	cancellations, order cuts and defaults from its foreign customers
28	Tirupur Textile Industry Helpless as Sewing Machines, Buttons from China Stuck at Ports [Covid-19 Impact: Pharma & Companies]	Bhavya Dilipkumar Chaliawala, Nehal (03 July 2020).	Sourcing and Manufacturing	Orders were being delayed due to key accessories being held up at ports
29	Textile industry body seeks relief package to mitigate COVID-19 pandemic impact [Garments-Textiles]	Madhvi Sally.(18 Mar 2020)	Sourcing and manufacturing; Wholesales/Retail	Decrease in demand
30	Apparel shopping goes phut in COVID-19 crisis	Ganguly, Shramana (15 Apr 2020)	Design and Product Development	Fear of contracting the virus decrease inhouse shopping

	[Garments- Textiles]			
31	Annual Report: Indian Textile and Apparel Industry	Wazir Advisors. (2021)	Sourcing and Manufacturing, Wholesale/Retail Distribution and Consumers	Manufacturing shutdown, logistic suspended, Cancelled orders, slumps in physical retail sales
32	Ethiopia's textile sector battles against setbacks	McBain, Will (Apr 2021).	sourcing and manufacturing	close of factories, unemployment
33	2020-covid-19-impact-and-response-gatsby-africa-kmt-msingi: The situation in East africa and our Response to dat	GATSBY AFRICA /KMT(Kenya Markets Trust)/MSINGI (November 2020)	Sourcing and Manufacturing;	Order cancelation, Lockdown and closure of stores, reduction in prices of goods
34	Garment manufacturers remain hardest hit by Covid-19	Leonie Barrie (29 January, 2021)	Design and product development, sourcing and manufacturing,	unpaid wages, cancelled orders, change in consumer preference
35	H&M Group Sustainability performance report	H&M Group. (2020)	Wholesale, Retail, Sourcing and Manufacturing, Product Development	Closure of factories, Decrease in demand,

36	Kenya's sourcing sector reels from Covid-19 pandemic	Wachira Kigotho (19 June 2020)	Sourcing and Manufacturing	Closure of factories, unemployment, Shortage in supply
37	SPECIAL REPORT ON COVID-19 and Nepal A quick study of sectoral impacts and suggested way forward	SAWTEE. (11 May, 2020 )		Lockdown measures, shortage of workers, financial shock, cancellation of orders,
38	Levi's India back to growth, outpace most other Asian markets	Sagar Malviya (10 April 2021)	Wholesale /Retail Distribution and consumers	Lockdown measures, shortage of workers, financial shock, cancellation of orders,
39	At Calvin Klein and Tommy Hilfiger, a new CEO adapts to how we shop now.	Kapner, S. (30 September, 2020)	Wholesale /Retail Distribution and consumers	Change in consumers buying habits
40	How NZ farmers shear 25,000 sheep in 10 days/Big Business.	not available (4 April , 2021)	Sourcing and Manufacturing	Fall in demand and pile of stock

(Source: Own Construction)

The image displays two screenshots of the NVivo software interface, showing the coding framework. The interface includes a sidebar with navigation options and a main panel displaying a hierarchical tree of codes.

**Top Screenshot:**

- Navigation Sidebar:**
  - Quick Access
  - IMPORT
    - Data
      - Files
      - File Classifications
      - Externals
  - ORGANIZE
    - Coding
      - Codes
      - Relationships
      - Relationship Types
    - Cases
    - Notes
    - Sets
  - EXPLORE
    - Queries
    - Visualizations
    - Maps
    - Reports

- Main Panel:**
- Tabs: File, Home, Import, Create, Explore, Share, Modules
- Buttons: Clipboard, Item, Organize, Query, Visualize, Code, Autocode, Range Code, Uncode, Case Classification, File Classification
- Codes Table:**

Name	Files	Referenc	Created on
context background	1	2	19/04/2021 12:10
Design and Product Development	6	12	22/04/2021 23:11
Impacts	2	2	22/04/2021 23:17
Customer preferences	2	2	18/04/2021 21:39
Strategies	5	10	23/04/2021 01:12
R & D; Innovation	5	10	18/04/2021 21:10
Sourcing and manufacturing	2	3	22/04/2021 23:11
Impacts	28	72	23/04/2021 01:13
close of facilities	8	9	23/04/2021 01:40
decrease in production capacity	7	7	19/04/2021 09:32
financial shock	7	11	23/04/2021 01:44
logistics and transportation problems	5	5	23/04/2021 01:41
order cancellation	13	20	23/04/2021 01:16
pile of stock	2	2	23/04/2021 01:37
supply shortage	6	6	23/04/2021 01:47
workforce issues	11	12	23/04/2021 01:42
strategies	24	63	23/04/2021 01:13
Adjustment, creativity, resilient, flexibility, liquidity	7	15	18/04/2021 22:48

**Bottom Screenshot:**

- Navigation Sidebar:** (Same as top screenshot)
- Main Panel:**
  - Tabs: File, Home, Import, Create, Explore, Share, Modules
  - Buttons: Clipboard, Item, Organize, Query, Visualize, Code, Autocode, Range Code, Uncode, Case Classification, File Classification
  - Codes Table:**

Name	Files	Referenc	Created on
Adjustment, creativity, resilient, flexibility, liquidity	7	15	18/04/2021 22:48
Diversification	8	8	18/04/2021 23:03
Employee safety; Employee training and skill develop	3	9	18/04/2021 00:41
external relations	7	9	23/04/2021 01:56
layoffs	7	11	23/04/2021 01:32
Reconfiguration	3	10	18/04/2021 23:07
Reshoring	1	1	24/04/2021 11:19
Wholesale; retail; distribution and customer	26	69	22/04/2021 23:11
impacts'	21	44	23/04/2021 01:18
Close of major brands	8	10	18/04/2021 01:55
Consumer Preferences	2	4	03/05/2021 08:51
decrease in global demand	9	11	23/04/2021 01:22
financial shock	5	12	19/04/2021 14:31
Pile of stock	4	4	23/04/2021 01:37
strategies	12	25	23/04/2021 01:32
collaboration	9	18	23/04/2021 01:58
digitalization	3	5	18/04/2021 22:51
layoffs	1	2	23/04/2021 01:33

Figure 3.2 A screenshot of the coding framework in the Nvivo (Source:Nvivo)

The next step followed was reviewing the themes, which mainly focused on reviewing the extracts of codes on each theme or in other words analysing the content in order to summarize the emerging trends and topics adopted by multinationals in the C & T industry in the shadow of Covid-19. During this phase, emphasis had been given on if the themes reflect the meanings of the coded data set. Also, different themes were merged together if the extracts of the coded data on different themes give similar meaning and the extracts are limited in size. For instance, a theme called `external relations` in a sourcing and manufacturing segment is defined as the relationship between various organisations in mitigating the effects; and a theme called `governmental policies` is defined as the measures adopted by the government to overcome the impacts. Since, both themes are focused on mitigating the impacts of Covid-19 on multinationals involved in sourcing and manufacturing through joint efforts among various stakeholders; these themes were merged together with a theme name `external relations`. It also became evident that although the same text was coded in more than one code; it was more suitable in one theme than the other so, the texts were uncoded from some themes and even new codes were added if a relevant issue was identified in the text that was left to be covered. By the end of this phase, we had successfully defined the themes and figured out which codes fall under which theme so that it was ready to report. Finally, the themes were discussed narratively in the next chapter `Finding of analysis` to address the research question that had been raised.

### **3.5 Trustworthiness of the Study**

The trustworthiness of qualitative research is often questioned therefore, we have adopted the trustworthiness criteria suggested by Lincoln and Guba (1985) that comprises credibility, dependability, transferability, and conformability.

#### **3.5.1 Credibility**

Ensuring the outcome is real or proposing a question of “truth value” is the key criteria in both qualitative and quantitative research. The difference is the terms used. In quantitative research, validity is the ability to measure exactly what is intended to measure. Drost (2011) defined validity as the meaningfulness of research components. Likewise, in qualitative research, credibility is one of the important factors in establishing trustworthiness (Lincoln & Guba, 1985).

Credibility deals with the question “How congruent are the findings with reality?” (Merriam, 1998). Credibility emphasizes whether or not the findings are the representation of the original data (Lincoln & Guba, 1985). In this sense, credibility corresponds to internal validity and in this study, content validity is ensured. According to Sekaran & Bougie (2013), “content validity ensures that the measure includes an adequate and representative set of items that tap the construct” (p. 226). The content validity depends on the degree the scale items represent the domain of construct. The data collected in the present study is completely related to the content. In other words, the data collected is addressing the impacts of Covid-19 on multinationals in various global value segments of the C&T industry and the strategies that these corporations have used to overcome the impacts.

Credibility can be achieved by carrying out study in a way that ensures the trust of readers in the presented findings and by demonstrating the credibility in collecting the data, arranging and organising the data, analysing the data, and reporting the data. Since, Covid-19 and its impacts on various sectors are the critical topic in today’s date, we had some understanding regarding the phenomenon prior to the research through theoretical background, current news, reports from national and international organisations. This shows our ‘prolonged engagement’ with the topic and this might have influenced the choice of data collection source. Familiarizing with the issue from the current news and practical situation helped us to some extent to identify some of the realities, thus it can be assured that the collected data is the part of the reality. In addition, the data were collected from reliable sources like popular international and regional newspapers, fashion industry magazines, organisational reports, and trade journals from the university database. Also, the interviewed people in those secondary data were credible and reliable ones such as experts in the field, CEO and managing director of the organisation, consultant companies and so on. We ended our data collection process once we reached a saturation point meaning the more, we add the data, the more we find the content which shows credibility of our findings. The use of different data sources and the saturation point demonstrates triangulation (confirming the findings from various sources). Methodological triangulation had also been achieved by the use of systematic thematic and content analysis, use of NVivo program and excel spreadsheets. The data collection and data analysis process had been systematic, coherent as described in the above section.

We also tend to ensure credibility by the use of peer debriefing in the overall research process. Both of the researchers discussed the findings each found and related them to the research

question. Peer debriefing provided assurance to each other's work, helped in improving the inquiry and made the process as well as findings trustworthy. Moreover, we received comments and guidelines from our supervisor, in order words external support and validation to our work.

### **3.5.2 Dependability**

Lincoln and Guba (1985) argued that there can be no credibility without dependability, so, in practice the techniques used to achieve credibility demonstrated dependability to some extent. They also proposed several techniques to ensure dependability such as `overlap methods`, `stepwise replication` and `inquiry audit`. According to Miles et al. (2013), dependability addresses the issues of quality and integrity: Have things been done with reasonable care?`. It is concerned with consistency and stability along the entire research process. In order to achieve dependability, we tried to make the research process consistent, congruent especially along all the three value chain segments of the GVC. To make the research process, a detailed description of the stepwise process of data collection and data analysis had been provided in the above section. Also, we have included tables, figures and appendices that demonstrate the research design plan, data collection, categorisation process, and data analysis. There was a regular dialogue between the researchers along the whole research process regarding the research subject, methodology and planning of research design, coding frames, insights gathered through data analysis and the findings. The tasks performed by one researcher were examined and evaluated by the other and contradictions were discussed to come up with an agreement. Peer debriefing and peer evaluation build credibility and dependability.

### **3.5.3 Transferability**

Transferability is concerned with where the findings of the present research is transferable or applicable to other fields or contexts (Lincoln and Guba, 1985). According to Bitsch (2005), “researcher facilitates the transferability judgement by a potential user through `thick description` and purposeful sampling” (p.85). In the present study, we have explained in detail about the context of study (C&T industry), its specifics, the GVC and the multinationals in GVC of the industry. Every industry has its own characteristics which makes it difficult to apply the

same research methodology and design and gain similar results. Thus, it is hard to claim the transferability of the presented findings. However, we have provided thick descriptions regarding methodology and context in the prior chapters. Due to the limitation of studies and past literature on our research topic, it was hard to gain sufficient guidelines on the research methodology, design and analysis. So, we gathered as much secondary data as possible that is in any way relevant to our research interest until we reach the saturation point. The details about the data collection sources are presented in the final report. As Lincoln and Guba (1985) argued, “it is not the naturalist's task to provide an index of transferability, it is his or her responsibility to provide the database that makes transferability judgements possible on the part of potential appliers”.

#### **3.5.4 Confirmability**

Confirmability is concerned with objectivity, meaning the research findings are exempt from researcher’s biases. Tobin and Begley (2004) referred to confirmability as “concerned with establishing that data and interpretations of the findings are not figments of the inquirer’s imagination but are clearly derived from the data” (p. 392). Lincoln and Guba (1985) suggested that confirmability can be achieved through an audit trail, reflexive journal and triangulation. The quotes and citations mentioned in the findings of analysis showed that the findings were derived from the original data. Miles and Huberman (1994) stressed that one of the key criteria for confirmability is the acceptance of researcher’s own predispositions. For instance, we had adopted the segmentation of the GVC of C&T industry by Zhao and Kim (2021) and got some inspiration regarding data collection and analysis from the paper which we have acknowledged in the report. Further, summary of the research design demonstrated in the figure above and the detailed methodological description adds to confirmability of our findings.



## **4. FINDINGS OF ANALYSIS**

This chapter deals with the data analysis and the findings from them that are helpful in answering our research question. In order to address the impact of COVID-19 on the multinationals participating in the GVC of C&T industry, we have categorized the global C & T value chain into three major segments which has been adopted by Zhao & Kim (2021). They are: 1. Design and Product Development 2. Sourcing and Manufacturing 3. Wholesale/Retail Distribution and Consumers. The effects of COVID-19 on companies on each segment of the C&T value chain and their strategies to overcome the effects are discussed in the following section. At the end of this chapter, we came up with a posteriori framework that demonstrates the impacts of COVID-19 and the mitigating strategies used, which adds more to the priori framework and helps in the discussion in the next chapter. It should be noted that all the explanation in the text below (analysis and findings) is based on the data we have found and coded. We are using quotations in some places and sometimes the quotes have been paraphrased for ease of reading, however we provide examples in the Appendix 2 to show the relationship between different codes or categories and the quotes or extracts from our secondary data sources.

### **4.1 Design and Product Development**

#### **4.1.1 Impacts of COVID-19 on multinationals in Design and Product Development segment**

The coronavirus pandemic has affected the world in a rapid and concurrent manner leaving no sector untouched. The clothing and textile industry is one of the most touched. The UNCTAD economist examined the effects of COVID-19 on thirteen (13) industries in a report titled “Global trade impact of the Coronavirus (COVID-19),” and it showed that great effects were felt on the ‘textile and apparel’ industries found in “*EU with losses of \$538 million; Vietnam, \$207 million; Turkey, \$164.2 million; Hong Kong, \$107 million; Taiwan, \$102 million, and the U.S., \$80 million*” (Zarocostas, 2020). Along with getting improvements in the adaptability of the product, H&M Group reports that due to the pandemic a whole lot of sustainability programs were kept on hold, such as “garment collection programmes, some projects to scale innovative business model, finalising Circular product Development Guideline and microfibre strategy, and carrying out in-

person supplier factory assessment” (H&M Group, 2020). Below are the impacts of COVID-19 on multinational firms in the design and product development segment based on the data collected and analysed.

#### **4.1.1.1 Consumer Preferences**

The Covid-19 pandemic has caused a change in the desired clothes for consumers. Lockdown measures taken as a means to reduce the spread of the virus has made consumers change their choice of clothes. Calvin Klein and Tommy Hilfiger’s new CEO, Stefan Larsson was interviewed by a Journalist from the Wall Street Magazine, and he said in these “new normal” times, consumers are mostly interested in the sustainability of the product, and shopping casual dresses online (Kapner, 2020). Spanish sustainable textile technology provider Jeanologia’s founder, Enrique Silla said.

*“ Post COVID-19 crisis, consumers will be uncomfortable to touch and feel garments in retail stores anxious about who would have touched it before them ”.* (Ganguly, 2020)

As a result, the company is faced with a situation of redesigning according to the consumer's demand and satisfaction, considering that the customer is the king.

*“Faced with a whole new environment, the Chinese clothing industry has increasingly focused on the product in recent years. Efforts have been made to improve product adaptability based on changes in consumer demand, from various aspects such as technological, design, management and service innovation”* said Chen Dapeng, president of the National Confection Association of China and president of the Chic fashion fair. (Sánchez, 2020)

The Chinese clothing industry for example has faced difficulties leading to a fall in demand due to the changes in consumer preferences because of environmental changes, therefore compelling them to make improvements in the adaptability of the product to the new environment (Sánchez, 2020).

## **4.1.2 Strategies adopted by multinationals in Design and Product Development segment**

### **4.1.2.1 Research and Development, Innovation**

Even though some firms have fought the pandemic in various ways (for example the European textile apparel companies) the challenges faced by firms globally seems not to end, therefore just like the Eratex director-general Dirk Vantghem said, firms in the C&T industry have to come up with new innovations, designs, and developments so as to develop supply chains which will be more robust. As stated above, changes with fashion and taste, comes even with an increasing awareness of consumers concerning the type of clothes they desire. (Wright, 2021). By this the MNCs in the C&T industry are even more concerned and are moving richer into research and development, and innovation in order to produce clothes or materials which helps to prevent its consumers from infection and diseases (Friedman, 2021). One of the first ‘textile technology’ that has been proven to have fought against the effect of the COVID-19 was done by the ‘Swiss textile technology company called HeiQ Viroblock NP J03 (Friedman, 2021). By combining two mechanisms and using ingredients made from hundred percent cosmetic ingredients, they produced results which crushes over 99.99% of bacteria and any form of viruses proven by the test performed according to ‘ISO18184 and ISO20743 standards’ and it is highly considered now. From the results provided by HeiQ Viroblock NPJ03 one of the methods they use for treatment was by including the “results” during the manufacturing process of the textiles before it is presented as a finished product. Another method which can be used for the treatment is by spraying the finished product with a diluted air dry using air, as both procedures are very efficient in making the product an antimicrobial and antiviral product. (Friedman, 2021). As stated by the HeiQ co-founder and group CEO Carlo Centonze *“This makes our Swiss Technology Award-winning antimicrobial technology available for protecting more textiles and benefiting more people” which is the goal and hence gaining trust from the consumers leading to higher demands*” (Friedman, 2021).

In the same light, innovation in terms of management and services (the Chinese clothing industry) have been carried out to combat the effect of the pandemic with the aim of meeting customers demand firms are keenly considering the “fashion aesthetics, functionality and ecological environment” (Sánchez, 2020). Approved by the U.S. Environmental Protection

Agency (EPA), the Livinguard company came up with an innovation for textile which is “*effective against Gram negative and Gram-positive bacteria to the level of 100,000 times in 10 minutes, among the highest levels of defence against disease-causing pathogens.*”, it kills bacteria with approximately 99.99% efficiency (Friedman, 2021). Friedman (2021) continues to explain that with the aim of customer satisfaction, the founder and CEO of Livinguard, Sanjeev Swamy said that “*Unlocking the limitless possibilities of permanent hygiene and proactively improving the health and safety of the public is at the heart of Livinguard’s mission. We can now have self-disinfecting airplane seats, hospital & hotel linens, sports apparel, medical scrubs, footwear, uniforms, and carpeting. Essentially, any business or organization that uses textiles can effectively utilize our self-disinfecting technology*” (Friedman, 2021). Furthermore, to gain trust, assure the protection peace of mind of consumers, they have integrated newer antimicrobial technology in the production process of face masks, which allows the use of the product for equal to 210 times and the production of gloves which is safe to us for a period approximated to 30 times (Friedman, 2021). The Chargeurs’ senior director of innovation and design, also mentioned that with their commitment to encouraging innovation with the C&T industry, they are proud to partner with the ILHA as they bring their ‘Lainiere Performance Silver solution to the hospitality industry’. He continued by saying, “*With both hotel guests and staff focused on health and safety, fabrics that offer antimicrobial benefits are a key tool that hoteliers can use to improve on-site hygiene and provide the peace of mind travellers are looking for*” (Friedman, 2021). A new tech ozone-based sanitizing solution was developed by Enrique Salla’s team for sanitation and disinfection of products. She went further to justify their innovation by saying that “*only through sanitizing, brands will be able to speed up regaining consumers’ trust, guaranteeing the fast recovery of our industry*” (Ganguly, 2020).

From the above examples we can see that the simple act of precaution or preventive measure taken because of the innovation, affects the value chain segment which could lead to positive feedback, as consumers will feel safe and the demand for such commodities (such as bedsheets, towels by the hospitality industry) or services provided (by the hospitality industry) will increase.

## **4.2 Sourcing and Manufacturing**

### **4.2.1 Impacts of COVID-19 on multinationals in sourcing and manufacturing segment**

The sourcing and manufacturing segment of the global C&T value chain has been largely disrupted either due to the ripple effects from the downstream or directly from the lockdowns and restrictions. When COVID-19 was first discovered in China in January 2020 and went to lockdown, other nations like European countries, other Asian countries and the US faced the shortage of supplies for different industries as China was the major hub for sourcing and manufacturing for several industries and countries. Slowly, the virus spread all over the world and the supply shock shifted to the demand shock.

The C&T industry is one of the most globalized industries that is highly dependent on the low-cost developing countries for their sourcing and manufacturing of raw materials and inputs (China being the major supplier as well as a major market). Along with China; Bangladesh and Vietnam, and some emerging sourcing bases like Haiti, Cambodia and El Salvador are the major supplying economies of the C & T industry (Davis & Lu, 2021). Nevertheless, China remains the critical actor of the C & T supply chain, by supplying vital supplies and manufacturing high end goods, and being a major global market for several brands (McMaster et al., 2020). For instance, almost 70% of the woven fabrics in Bangladesh and 90% of fabrics in Myanmar are sourced from China (Aung & Paul, 2020). The largest garment manufacturing hub in India, Tirupur is dependent on China for 90% of its accessories like fasteners, buttons, sewing machines, needle lapel pins and textile materials (Dilipkumar & Chaliawala, 2020). So, although other nations were still open in the beginning of the virus, lockdowns in China and Italy (another major hub of supplies) completely disrupted the supply chain of the C & T industry. According to the data released by Sedex, which works to improve global supply chains, nearly 70% of the textile, footwear, and apparel manufacturing sectors expect a business crisis with significant and critical challenges (Nishimura, 2020). The effects are severe particularly in those suppliers where the whole region or countries heavily depend on the international retailers and the state fails to provide support to the unemployed workers and the businesses (Nishimura, 2020).

#### 4.2.1.1 Closure of facilities

Due to the national lockdowns, and reduction and cancellation of orders from the international buyers; manufacturers from the developing countries are compelled to shut down their facilities. According to the 2021 report from the Textile and Apparel industry in India, the impact of the Covid-19 pandemic led to complete cessation of activities of firms for approximately 2 to 3 months (Wazir Advisors, 2021). One of India's largest manufacturers and exporters of clothing, Gokaldas Exports whose clients are major international brands like Adidas, Nike and Marks & Spencer shut down its key facility in Karnataka as the customers reduced and cancelled their orders (Chua, 2020). In an interview to Asia News Monitor on 24 June 2020 in Bangladesh, Rubana Huq (an activist raising awareness about the bottom end of the global supply chain of textiles) said, *"Since March 2020 a number of 179 factories have been forced to shut down, and many are in the queue"*. She further added *"that European contractors are struggling, too, due to store closures caused by national lockdown measures, but says scrapping orders which causes financial losses for one party was 'unjust'"* (Asia News Monitor, 2020). BCG researchers wrote that factory closures give rise to a series of devastating results *"from inability to manufacture products, to difficult supplier selection, to mistrust across industry partners"* that makes the whole apparel industry supply chain difficult to rebound (Cosgrove, 2020). A similar effect was felt on the Ethiopian textile industry, closing down factories leading to loss in export to the sum of \$20 million in one day and also employees losing their jobs (McBain, 2021). While other industries in Kenya were driving to survive the pandemic, several (about 100 manufacturers) or more apparels were closing down their facilities in Mombasa, Nairobi, Machakos and Kisumu (Kigotho, 2020). As a result of lockdown measures, the Nepalese Textile and Garment industry are forced to close their doors; even though the Industry was not doing so well before the crisis, the effect of the crisis came as a pulling force to this action. The textile industry was unable to buy the raw materials necessary for production and also faced problems with worker shortages, making the garment industry which was originally operating at full capacity with output summing to 85% brought down to 5% as a result of lockdown (SAWTEE, 2020).

#### **4.2.1.2 Decrease in production capacity**

The European Apparel and Textile Confederation (Euratex) releasing its Quarterly Economic Update reported that *“Over the full year 2020, EU turnover fell by 9.3% in textiles and by 17.7% in clothing, compared with 2019. The crisis was particularly felt in the middle of the year, when production losses reached over 50%”* (Wright, 2021). Further, the International Cotton Advisory Committee (ICAC) reported that the global cotton market has been adversely impacted due to demand and supply shock caused by COVID -19 with the estimated global production decreased by 4% compared to 25.2 million ton initial estimation for the 2019-2020 season. Likewise, the global consumption for the same season is estimated at 23 million tons (Friedman, 2020).

The novel coronavirus has not just impacted the C & T globally and regionally, but it has adversely hit the national C & T industries as well. According to the Ministry of Industry and Trade (MOIT) Vietnam, in the first half of the 2020, the textile production will increase by below 3%, which is three times less than the previous year; while apparel production fall by approximately 5% compared to the figure of 2019 (Asia News Monitor, 2020). The Brazilian Textile and Apparel Industry Association (Abit) informed that the production of C & T companies declined due to pandemic, in effect many companies are forced to shift to producing masks and personal protective equipment (PPE) (Friedman, 2021). Gokaldas Exports lost 50% of its production capacity in the first quarter of 2020 when Indian government implemented a lockdown as a measure to control the Covid- 19 contagion (Chua, 2020).

#### **4.2.1.3 Financial Shock**

The businesses on C& T industry are worried about financial problems, debt, delayed payments and rise in inputs' price leading to a financial crisis. Businesses in developed countries get access to governmental support, debt; however, the developing nations are not able to do that, so the impact is even severe on those regions. In 2020, textile exports from South Asian nations plummeted by almost 17% (Asia, News Monitor, 2021). Suppliers are facing problems of bankruptcies and changes in payment terms; they are not able to generate cash even if they have orders to hand when insurance companies refuse to provide or extend export insurances, said Jason Kra, president of Li & Fung (Barrie, 2021). According to the report from the Nepalese Textile and Garment industry, losses in profits from the textile amount to NPR 70 million and in the garment

NPR 1 billion as of 27 April and Garment Association of Nepal (GAN) estimated a loss of approximately NPR 3 billion if the lockdown measures are not uplifted (SAWTEE, 2020). This was mainly due to order cancellations, lockdown measures put in place and hence not being able to export, low sales and consequently not being able to raise funds for bank loan repayment, payments of rents and payment of employee wages. (SAWTEE, 2020). Euratex General Secretary, Dirk Vantyghem said that *“The total turnover of the European textile and clothing industry has dropped by 50 to 60%, and in some sectors even more. For the whole year 2020, we expect a drop of 30%. This is a drop of 50 billion and is unprecedented”* (Asia News Monitor, 2020). On a survey conducted by International Finance Corporation (IFC) partnered with L’Association Industries d’Haiti (ADIH) among 33 firms from the export-oriented garment sector, they found that majority of respondents expected at least 30% reduction in their revenues in 2020 caused by the pandemic (MENA report, 2020). Moreover, renegotiations of payment by the customers and a reduction of prices of goods, also caused financial shock to suppliers. From a report on cotton, textile and apparel in East Africa, GATSBY AFRICA /KMT (Kenya Markets Trust)/MSINGI Report, due to order cancellations (as one of the impacts of Covid 19) some retailers and global brands had to do some renegotiations with the suppliers making the suppliers face “acute cash flow constraints”. It also mentioned that Tanzania, one of the countries in East Africa was faced with a situation of 32% reduction as compared to the previous season in its market price for cotton (Gatsby Africa, 2020).

#### **4.2.1.4 Logistics and transportation challenges**

Logistics and transportation play a vital role in the globalized C & T industry, for shipping the raw materials, intermediate goods and final products. The lockdown measures due to Covid-19 have caused logistics and transportation challenges both for suppliers and buyers (Nishimura, 2020). In the month of April and May 2020, the Indian Textile and Apparel industry faced a great decline of 50% in their net trade because of the commotion in their value chain caused by interrupted logistics and external trades which were frozen (Wazir Advisors, 2021). President of Li & Fung, Jason Kra said, *“Logistics is a big issue- the pandemic has caused a significant imbalance in the availability of shipping containers with a build-up in markets like the US, while China and other Asian countries do not have enough to meet demand.”* (Barrie, 2021). Likewise, Chen Dapeng, president of the national Confectioners Association of China and president of the



Chic fashion fair as well as MoIT Vietnam addressed that the problems of weak logistics and transportations have immense challenge on the exports in general and the development of the industry (Sanchez, 2020; Asia News Monitor, 2021).

#### **4.2.1.5 Order Cancellation**

Order cancellation and delayed payment have been the major reason behind developing countries' suppliers' and manufacturers' suffering during Covid-19. Leonie Barrie, an apparel analyst from GlobalData said "Global clothing supply chains have unraveled in just a few short weeks, as has the trust and goodwill between many buyers and manufacturers" (Cosgrove, 2020). *"On the other side of the equation, a Boston Consulting Group survey of 500 apparel suppliers in major apparel manufacturing countries found 86% of manufacturers have experienced order cancellations and 40% are struggling to pay employees due to COVID-19"*(Cosgrove, 2020). The wait and see strategy or go-slow strategy adopted by the brands and retailers have negatively affected the sourcing and manufacturing segment of the C & T industry (Asia News Monitor, 2021; Jones, 2021), with international as well as local customers being uncertain about the future and making cancellations for their orders (Wazir Advisors, 2021; Barrie, 2021).

Bangladesh's garment manufacturers have suffered a severe blow from the decrease in global demand, when big fashion brands cancelled their orders (Fallon, 2020). According to Bangladesh Garment and Manufacturers and Exporters Association (BGMEA) report during the first six months of COVID-19 outbreak, the orders worth \$ 3.18 billion have been cancelled, and more than 50% of the cancellations are from the European buyers said Huq (Asia News Monitor, 2020). Cosgrove (2020) called this "bullwhip effect"- when the demand drops, the blow moves to the supply chain and closer to the source. Along with order cancellations and postponements of orders, Indian apparel industry has faced 65% of apparel export payments stuck or delayed reaching a worth of \$2 billion (Newsdesk, 2020). Similarly, in Haiti, by June 2020, companies indicated that half of their orders were reduced or cancelled (MENA report, 2020). Same is the scenario in Vietnam textile and apparel industry that nose-dived up to 50% of orders during May, 2020 and the product price plummeted by 20% (Asia News Monitor, 2020). In addition, the impact of order cancellation was badly felt on the cotton, textile and apparel industry in East Africa. A report from the GATSBY AFRICA /KMT (Kenya Markets Trust)/MSINGI report states that 50% of the orders, at the time when the pandemic was at its peak was, cancelled by the retailers and

global brands with some who had already made payments and the orders had been shipped. This led to a great disruption of the supply chain as the customers did not pay for the goods leaving suppliers to incur heavy cost (on labour and transportation) and hence shortage of finance (Gatsby Africa, 2020).

#### **4.2.1.6 Pile of stock**

The demand fall, and cancellation of orders have resulted in the piling up of stock among suppliers and manufacturers. As mentioned by HKL Magu, Managing Director of Jyoti Apparels, the raw material is lying in the factories and the exporters are worried if they will be used especially when the orders are cancelled; and when the orders are placed, the fabrics might be of no use (Newsdesk, 2020). The logistics and transportation challenge has further complicated the problem of overstock. In the line, Raja Shanmugam, the president of the largest garment manufacturing hub in India named Tirupur said, *“Several tons of goods from China are stuck at the ports. Unless we find a solution to source from other markets- at similar costs- it could hurt the industry”* (Dilipkumar & Chaliawala, 2020). Likewise, the closure of clothing factories in China caused sheep farmers to stock with tons of wool in New Zealand and ultimately throw them away because they deteriorated after a year. The cost of shearing the sheep is more than the actual cost of the wool, so farmers are giving away sheep farming (Business Insider, 2021).

#### **4.2.1.7 Supply shortage**

Particularly during the initial phase of coronavirus, when it was detected in China and there was a lockdown, several firms faced shortage of raw materials and inputs for production. For instance, the study conducted by the IMF along with ADIH in Haiti confirmed that and stated, *“In the supply side, the study confirmed the difficulties manufacturers were facing in accessing raw materials...”* (MENA report, 2020). Majority of the members in the textile, footwear and apparel manufacturing sector in Sedex are anxious about the disruption in the supply of input materials, followed by logistics and transportation restrictions and cancellation and reduction of orders (Nishimura, 2020). The textile and garment production along with exports faced several problems arising from shortage of raw materials due to delay in shipment, postponements and cancellations of orders, and delayed payments (Asia News Monitor, 2020). The chief operations officer of the Kenya Private Sector Alliance (KEPSA) said due to over dependence of the Kenya's C&T industries on China (i.e., over 80%) for the supply of intermediate goods for production, the

disruption in the supply chain is badly felt (Kigotho,2020). The Nepalese Textile and Garment industry supply chain was interrupted as the importation of raw materials was not possible leading to supply shortage (SAWTEE, 2020). The supply shortage delays the production and delivery of clothing and textile products which is critical to the fashion industry that is seasonal based.

#### **4.2.1.8 Workforce Issues**

The cancellation of orders, closure of facilities, decrease in production capacity, and financial shocks have pressured the sourcing and manufacturing companies in the C & T industry to downsize their workforce, reduce the working hours and to cut down their wages in order to reduce their expenditure. The international labor organization (ILO) addressed the devastating effect of coronavirus on the workers and employers in all sectors with massive loss in outputs and jobs, particularly the C & T industry being the hardest hit (Fallon, 2020). In a research conducted by Sedex with the data collected from industry reports and the responsible sourcing platform members, mentioned *“the impact of Covid-19 on suppliers, attest that worker not receiving payment and eventually losing their jobs was a great issue”* (Barrie, 2021). In Bangladesh, the quarantine measures and order cancellation has negatively impacted 2.17 million workers, only 20% of the firms are able to continue wages payment for the 30 days under such a situation. In the apparel industry in Vietnam, the ILO estimated that 440,000 to 880,000 workers might face the reduction in the working hours. (Fallon, 2020). The shutdown of a major facility of Gokaldas Exports made 1200 workers unemployed (Chua, 2020). While some companies are facing labor surplus, some are also facing labor deficits. *“The lockdown is creating havoc for manufacturers of readymade garments. All the planning for production and sales have been disrupted. Many workers have already left for their hometowns and this is hampering production,”* said Rajesh Masand, President of Clothing Manufacturers Association of India (Nandana et al., 2021). The CEO of Financial Sector Deepening (FSD) Africa, Mark Napier said the effect of unemployment in Ethiopia was mainly due to the fact that most of the workers in the textile industry were women and they were not well paid. This poses serious problems in the industry. (McBain, 2021). In Kenya workforce issues were mainly related to the high rate at which jobs were lost, a number above 61,000 workers lost their jobs, said the Kenya National Bureau of Statics general director, Zachary Mwangi Chege (Kigotho, 2020). The report from the GATSBY AFRICA /KMT(Kenya Markets Trust)/MSINGI also added that in the month of June 40% that is 200,000 jobs were lost in the

export processing zone of Kenya due to the closure of factories which also affected workers productivity and speed (Gatsby Africa, 2020).

Even those who have managed to safeguard their jobs are facing the challenges of upgrading and upskilling. Rise of automated solutions in apparel industry is taking away the jobs of many operators (Varshney, 2021), and estimate has been made that nearly 80% of the sector's workforce that are women are possibly crowded out due to the need of technological upgrading and upskilling, since they are mostly unskilled or semiskilled workers (Wright, 2020). According to the 2020 State of Skills Survey, conducted by an apparel knowledge hub, MOTIF, around 43% of the department heads and middle management executives focused that budget and time are the two main training constraints, while 40% said the lack of or insufficient training is the major dissatisfaction (Varshney, 2021). Moreover, digitalization and remote working causes lack of interpersonal communication which is vital given the nature of industry. For instance, before Covid-19 validating the properties of garments used to take place in a single location but now it is a decentralization process (Jones, 2021).

The above discussion shows that Covid-19 has a ripple, wide and deep effects on the multinationals involved in the sourcing and manufacturing segment of the C & T industry due to the interconnected and interdependent nature of the various aspects within the value segment. Now, the strategies that these multinationals have used to overcome these effects are reviewed below.

#### **4.2.2 Strategies adopted by multinationals in the sourcing and manufacturing segment**

##### **4.2.2.1 Adjustment, creativity, and flexibility**

As Chinese apparel export companies encountered a significant drop in their turnover, they had moved from mass production to highly specialized production (Sanchez, 2020). They were more focused on product adaptability according to change in consumer demand from various aspects like technological, design, management, service innovation, and many more. They also paid attention to new generations of information technology through mass customization models and smart production factories that are adjustable, flexible and service oriented. These companies were not just overcoming the current challenges but were also prepared for the next transformation and upgrade. For example Mr. Chirico, chairman of Calvin Klein and Tommy Hilfiger stressed

*“The importance of flexibility. On the sourcing side, Stefan got us to push back decisions on quantities. We gave preliminary orders to the factories and followed up with more direction four weeks later. We also were able to cancel goods and redeploy into products that were selling”* (Kapner, 2020). Experts have even predicted that consolidation of manufacturers can be divided either into professionally technologically advanced producers or the producers incentivized toward renewed “race to the bottom” to attract buyers looking for cost reduction to compensate for loss incurred by pandemics (Wright, 2020). Jason Kra, president of Li & Fung highlighted that clothing factories are adjusting their sewing or manufacturing lines for the items that are in demand like antibacterial fabrics, personal protective equipment (PPE), and comfortable and reusable clothes (Barrie, 2021).

#### **4.2.2.2 Diversification**

The C&T manufacturers are creatively diversifying their products according to the “global demand pattern”, mostly focusing on medical textiles including PPE. For instance, Brazilian textile and apparel producers (Friedman, 2021); Indian garment manufacturers in Tirupur (Dilipkumar & Chaliawala, 2020); are shifting their production to facial masks and PPE to avoid closing of facilities. The chairman of the Apparel Export Promotion Council (AEPC); A. Sakthivel focused on Manmade fibers (MMF) that could be instrumental to India’s garment manufacturing future and also highlighted the need for extensive research and development into fiber bases and processing technologies for product diversification of MMF, collaboration with National Institute of Fashion Technology (NIFT) alumni to produce MMF garments, removal of anti-dumping duty on PTA (purified terephthalic acid) (Chua, 2020; Dar, 2020). The Director of the Shona EPZ, Isaac Maluki in an interview with Just-Style magazine said *“To survive, several clothing factories have been producing face masks and other Covid-19 personal protective equipment, as exports declined. “We have been hit hard by the Covid-19 outbreak and now we are trying to stay afloat by making aprons, surgical face masks and safety foot-wear”* (Kigotho,2020). Companies are not just considering product diversification, they are also shifting from wholesale geographic sourcing to diversification as reported by McKinsey (Cosgrove, 2020). On an interview, Patricia Figueroa, executive director of Chamber of the Textile, Clothing and Free Zones Industry of El Salvador (CAMTEX) emphasized that in order to survive or be resilient, manufacturers need to be more

diversified and adopt broad based business models that is less vulnerable to disruptions, they should avoid over concentration on a single supplier and client (Jones, 2021).

#### **4.2.2.3 Layoffs**

Due to the reduced consumer demand, cancellation of orders and lockdowns; textile, apparel and footwear suppliers are forced to furlough workers or reduce working hours. The data released by Sedex showed that 46% have taken reduction in shifts of employees as the mitigating strategy to effects of Covid-19. More than 56% of respondents claimed workforce surplus resulting from fall in demand, while only 30% stated workforce deficit (Nishimura, 2020). The president of Garments Exporters and Manufacturers Association (GEMA); Vijay Jindal wrote an open letter to Prime minister Narenadra Modi and state chief ministers stating, *“We humbly wish to inform that we are not in a position to pay wages for the month of April and May despite of our best intention”* (Chua, 2020). In the same light, a survey conducted by the Kenyan Private Sector Alliance indicated that with checks done on 2466 businesses, 81% of them were hardly hit with samples found in Kisumu, Mombasa and Nairobi. Companies like Investment Ltd, Simba Apparels Ltd, African Apparels, and New Wide Garments in the list of EPZ companies laid off workers temporarily. The Kenyan Textile and Tailors Workers Union chief shop steward, Meshack Mwangangi, mentioned that layoffs through temporal leave since the month of March, on industry workers from the apparels in the export processing zone, which was the main manufacturing export- oriented unit, was on an estimate of 40,000 workers. While in the clothing industry, an estimate of 45,500 workers were affected (Kigotho,2020).

#### **4.2.2.4 Employee safety, training and skill development**

Having various workforce related issues during Covid-19, companies are taking necessary measures such as supplying adequate PPE, following the high protocol to maintain employee safety, and even providing private transportation to limit the contagion (Jones, 2021). According to the results from the survey conducted by Sedex, *“Despite the difficulties in managing workforces due to demand, nearly all respondents said they were taking actions to prioritize staff safety and health through the crisis. Ninety-nine percent of businesses said they were using tactics like physical distancing, training, policy development and increased personal protective equipment to try to mitigate the virus’ spread.”* (Nishimura, 2020).

Whenever critical events take place, the unskilled or semiskilled workers are vulnerable to losing their jobs. According to MOTIF's survey, 90% of respondents described employee training and skill development as very important for the success of their business and workforce followed by 89% prioritizing sustainability practice and 87% strategic sourcing (Varshney, 2021). Automation is another reason that is making employees unemployed. Hence, technological upskilling and upgrading is the only solution. Business Development Manager of Alvanon, Jull Coleman emphasized the need for two types of training in an organization; internal training (focused on corporate culture and ethics), and cross functional training (focused on collaboration between and within various functions) (Varshney, 2021). Because the fashion industry is changing very rapidly, it is time to be innovative to fill the gaps in the skill sets, said Sheng Lu, Associate professor, Fashion & Apparel Studies, University of Delaware in `The Workforce of the Future`. US based Shimmy Technologies is committed to uplift the apparel technology through `Shimmy Upskill` project in countries like Bangladesh, Indonesia and USA to upskill digitally illiterate garment workers through video games as a learning environment (Varshney, 2021). Covid-19 is the right time to identify skill gaps in the organization and fulfill the gap with proper training and skill development for future disruptions preparedness.

#### **4.2.2.5 Reconfiguration**

High focus on efficiency and cost reduction are the main reasons behind the disruption in the supply chain (Eduardsen, 2020). As John Thorbeck, chairman of Chainge Capital said, "*The lowest cost of goods does not compensate for the high cost of uncertainty*" (Cosgrove, 2020). Thus, future production capacity is at risk and McKinsey sees two trends emerging from the pandemic; one is nearshoring to better balance risk, cost and flexibility in the supply, and the other is demand driven fashion supply chains for shorter lead times, transparency in shorter lot sizes and data driven decision making. President of the United States Fashion Industry Association, Julia Hughes said, "*In the financial crisis the rest of the world was not necessarily affected the same as we are. And right now, we have the global impact of the slowdown so that even for the companies that are diversified... there's really no place that you can move*". (Cosgrove, 2020)

In addition, brands and manufacturers are considering making production localized in different regions rather than shipping the products from a single location to different countries (Dixit, 2020; Cosgrove, 2020). For instance, French wool and textile manufacturer Chargeurs SA

shifted from fabrics and garment manufacturing to facial masks production to meet the country's demand. Further, the company is planning to move some of its new production lines to the US, Asian countries and South American factories instead of shipping them from France. (Dixit, 2020). Similarly, in an economic recovery plan, the European Union is calling for the manufacturing of critical components to the region to ensure a shorter supply chain. Some domestic garment producers from El Salvador that moved to Asia around two decades ago are considering value chain diversification and backshore some of its production line to home and to final consumers since the major market, the US, is closer to El Salvador (Jones, 2021). A Gartner survey of 260 global supply chain leaders in the months of February and March of 2020 showed that nearly 33% have shifted or are planning to shift their sourcing and manufacturing out from China (Chua, 2020). The trend shows that localization could be the new form of globalization after post-pandemic.

In the course of reconfiguration, some economies are trying to seize the opportunity to attract global brands. For instance, international brands Marc O'Polo, Carter's shifted its orders to India from China. Garment manufacturers in India are expecting a 25% spike in sourcing of apparel since apparel brands are reshoring from China. Managing Director of Apparel Export Promotion Council (AEPC) said, "Beating China is tough as they have the scale but looks like a beginning has been made this time. We will need a lot of support on labor, financial and infrastructure from the government". In addition, Prime minister Narendra Modi announced a stimulus package of \$273 billion to pursue factories leaving China to invest in India through smaller tariffs, cheaper labor, and a diversified portfolio less vulnerable to the future challenges raised by the critical events. (Chua, 2020).

#### **4.2.2.6 External relations**

The review of the collected data also showed the importance of external relations and collaboration among various actors in the value chain segments in fighting the effects of Covid-19. Appropriate policy responses by the national and international governments and organizations play a vital role. The government of Myanmar disclosed a stimulus package worth \$70 million targeting the garment and clothing industries; in Sri Lanka, the workers of those factories that were closed by the government orders are entitled to paid leave; in Cambodia, government instructed that 40% of their salary is provided by the employer and an additional 20% is offered by the government for the suspended worker (Fallon, 2020). Sheng Lu, associate professor, fashion and



apparel studies, called for more collaboration between the industry and educational institutes (Varshney, 2021). Also, Sakthivel called for a collaboration between NIFT and MMF companies to make it innovative and diversified. Similarly, IFC has supported Haiti's apparel industry to navigate through the impacts of pandemic, to secure jobs and investment in the apparel industry, innovate new apparel goods to export and attract new investments (MENA report, 2020). Vietnam is one of the countries whose garment and textile exports recovered quickly from the disruptions with a turnover of \$7.2 billion in the first quarter of this year and slight increment of 1.1 percent. The reason behind the quick recovery is the Free Trade Agreements such as the EU-Vietnam Free Trade Agreement (EVTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and Regional Comprehensive Economic Partnership (RCEP) (Asia News Monitor, 2021). In an expectation to increase India's export by 40% in 2020-21, government officials signaled a bilateral Free Trade Agreement and APEC even urged to review the current trade pacts to remove any disadvantages to help double apparel exports in three years (Chua, 2020). In the same light, in East Africa, the CTDP and Msingi have come up with a couple of ways to mitigate the impact on the industry. Firstly, they collected information from stakeholders about the problems faced throughout the value chain and hosted sessions with development partners associations and the government to develop a recovery plan. As concerns the prices for cotton in Tanzania, the CTDP provided technical help on how to get correct prices for cotton seeds and they also made awareness to all farmers about the unique pricing system. They provided financial help, handed in documentation to help firms handle cash flow issues (Gatsby Africa, 2020).

The government in their own way has sped up recovery plans and processes for some companies in this industry. Impacts such as *"the economic meltdown has affected global supply chains and markets, effectively causing difficulties in manufacturing and exporting of goods from our industrial estates in Nairobi, Mombasa and Kisumu"*, said Ukur Yatani, the Cabinet Secretary in Kenya. In response to the global pandemic of C & T companies in Kenya, the Government has supported the factories in EPZ by allowing them to sell all their products in the market as compared to the old restriction of 20%. This goes a long way to help them with tax issues and boost their operations and also handle extreme losses from operations (Kigotho, 2020). Across the world several countries have fight the effects of the crisis by extending liberal packages, for example the German government granted financial aid in order to improve the liquidity of the companies affected by the pandemic, to the sum of half trillion Euros, said Rajkumar the chairman of the CITI

in India. He went further to say that the Indian government can also do same ie they should “include cotton yarn and fabrics under Rebate of State and Central Taxes and Levies (RoSCTL), Interest Equalisation Scheme (IES) and Merchandise Exports from India Scheme (MEIS) benefits with immediate effect to prevent job losses for lakhs of people in the handloom, powerloom and spinning sectors”. He also mentioned that the government should increase soft loans for individual textile units as soon as the dues are cleared; increase benefits of IES to 5% and reduce the interest rate of banks to 3% for clothing and textile industries (Sally, 2020).

### **4.3 Wholesale/Retail Distribution and Consumers Segment**

#### **4.3.1 Impacts of COVID-19 on Wholesale /Retail Distribution and consumers Segment**

The negative effect of the pandemic did not leave the Wholesalers, retailers and consumers. Lockdown measures which lead to closure of shops, changes in consumer preferences and hence decrease in demand for products affected the smooth functioning of firms in this segment of the GVC. Details regarding the impacts of COVID-19 and the mitigating strategies will be seen in the paragraphs below.

##### **4.3.1.1 Close of Major Brands**

As a consequence of the sudden and unpredicted outbreak of the Covid-19 pandemic, there has been a great disruption in the GVC of C&T industries in the distribution and consumption segment. The hard hit of the virus in the early periods, increasing infection rate, policies set by the government, has led to the shutting down of most industries, reduction in physical sales in apparel retail shops and shutting down of retail outlets leaving companies at the edge, trying to decide whether to continue production or accept orders or postpone them (Cosgrove, 2020; Wazir Advisors, 2021). The H&M Group also reported impacts on their supply chain as a result of lockdown of factories and a decline in orders. They had planned to open more stores in the year 2020 but it was not realised, some were either cancelled or shut down permanently while refilling the others (H&M Group, 2020).

In addition, the international labour organisation (ILO) economist stated that the sustainability of enterprises is being threatened due to the shutting down of retail stores and

factories (Fallon, 2020). Looking at Vietnam's National Textile and Garment Group (Vinatex), the chairman made mention of the fact that a number greater than 10 major brands were closed (Asia News Monitor, 2021). Chen Depeng mentioned problems faced by companies *“The sudden outbreak of coronavirus has altered the usual pace and order of the clothing industry. Problems such as weak consumption, closed physical stores and logistics have created immense pressure and challenged the development of the industry”* (Sánchez, 2020). The shutting down of these stores and logistics further due to decrease in the demand for their product affected the export market such as the European Union and United States and in China (Chinese export market). The Export market of accessories and apparels in China from the period January to May in China faced a tremendous decline that is about US\$38.21 billion indicating a decrease of 22.8% compared with the previous year. A retail specialist Vince Tibone working at the property research firm Green Street Advisors, said that according to predictions made, approximately more than a half of the departmental stores depending on malls were expected to close by the year ending 2021 and it might take a period of up to 5 or 6 years to recover. Moreover, these departmental stores which were forced to temporarily shut down had led to the drop in their expectations leading to a fall in the workforces of the stores, hence a disruption in the GVC. This can also be seen in the case where the LBrands a parent company to Victoria's Secret, who was unable to carry out business, as stated on their agreement with Sycamore, *“to take a 55% majority stake in the lingerie brand for about \$525 million”*, caused by Victoria's Secret shutting down its stores and lay off of its workers and looking for other ways to maintain stability in the business in the course of this pandemic (Howland, 2020). Levis Strauss and Co a Denim maker also shut down its stores because they were performing below standards, taking back inventory from its Indian franchisees and relocating them online (Malviya,2021).

#### **4.3.1.2 Decrease in global demand**

The demand for goods in the C&T industry is also at risk since the outbreak of the Covid-19 pandemic. The impact was felt worldwide (particularly in the European nations and the United States) as the industry witnessed a great decline in the demand for clothes. Likewise, H&M group, according to their 2020 Sustainability Performance Report, at the close of the financial year, they incurred a decline in their net sales up to 18% (H&M Group, 2020). The Chairman of Confederation of Indian Textile Industry (CITI), T Rajkumar in a press conference said, *“The*

*spread of the virus in China and which later got spread to EU and USA has majorly impacted us as they are huge markets for Indian textile products...the demand for the textile products and also the domestic sales have come down to a grinding halt due to the panic situation created by the outbreak of COVID-19*” (Sally, 2020). This decline in demand further made firms incur losses and as well loss of jobs for some employees, therefore, causing a disruption in the GVC as producers also face a situation of stock piling (Asia News Monitor, 2020). Major brand from the Western part of the world (Adidas, Nike, Marks & Spencer, Gap) who are clients to Gokaldas Exports faced problem due to the decrease in the demand for its products by customers due to the consequences on the market caused by the pandemic (Chua, 2020). Also “*quarantine measures have suppressed consumer demand. In Bangladesh, order cancellations have led to lost revenue of about \$3 billion, affecting some 2.17 million workers.*” according to the ILO (Fallon, 2020). More to that a fall in the demand globally has led to an increased market competition. According to the CARE Ratings 2019, in the foreseeable future India will possibly lose its market for the readymade clothes to Bangladesh and Vietnam as a result of low competitiveness and s a free duty access by Bangladesh to EU (Dar, 2020). Following with the quarantine measures set in place leading to a more use of casual wear, with throbbing of the economy, having the liberty and time to wait for discount items before buying, and ‘working from home’ has all led to a fall in the global demand in the clothing and textile industry leading to a dip decline in sale hence reducing the income and possibly laying off job of some employees (Howland, 2020).

#### **4.3.1.3 Financial Shock**

The C&T industry is facing a lot more problems concerned with finances in the distribution and customer segment. The distributors of the final product must purchase it from the manufacturers before selling to the customers. All these transactions involve finances, but unfortunately the “the buyers are going bankrupt” and are unable to make payments, it immediately affects the supply and hence the whole production chain as the manufactures will not have enough funds to get the raw materials (Asia News Monitor, 2020). Just in case the cashflow was continuous the effects might be less as it will facilitate the bank funding (Newsdesk, 2020). Paying close attention to the statistics from the EU textile and clothing industry, they experienced a total turnover of approximately 50% to 60% and still expected a fall of 30% in 2020 (Asia News Monitor, 2020). Some reports have also talked about the global fall in the turnover of the clothing

industry. The MCKinsey report stated, *“the global fashion industry's profits endured a fall of 93%, with more than 10 major fashion brands going bankrupt and roughly 200,000 workers in the fashion supply chains in the US losing their jobs”* (Asia News Monitor, 2021). Due to increasing debt levels and little or no room to cut costs, some departmental stores in the C&T industry are put at a “worst position” as named by Credit Suisse, while some retailers are struggling to cut costs by laying off workers and sourcing by acquiring debt. For example, American Eagle took a \$400million debt and changed its CFO; while Ascena in an attempt to increase its cash flow to preserve its position and prevent the effects of the global pandemic took a debt of \$230 million. Some are gearing towards bankruptcy like the ‘J.C Penny, Lord& Taylor and Neiman Marcus, also the Urban Outfitters announced it is unable to pay rents in the month of April. The spending habits and gap which exist between the wealthy and middle and lower class might widen and possible effects of recession will still occur. Accumulated expenses coming from abandoned plans led Gap Inc to announce the offer of \$2,3 billion in bonds. (Howland, 2020).

#### **4.3.1.4 Pile of Stock**

Due to the low level of demand, inadequate finance and lockdown measures have caused the stock of goods to increase in the warehouse or at the port. With reference to McKinsey, the ‘US. Based business consultancy, *“Clothing surplus piles up. Many clothing retailers have seen their stocks pile up over the past year...the value of unsold clothing in stores and warehouses worldwide ranges from \$168-192 billion (140-160 billion), which is more than double the level seen before the pandemic”* (Asia News Monitor, 2021). Withholding goods and limiting their movements and those which have been successfully dispatched have not yet reached the final consumer, all caused by policies and lockdown measures taken to fight the spread of the virus, said Sakthivel. (Newsdesk, 2020). Meanwhile some firms like the Gap Inc, even though they face issues with stockpiling up they decided to produce and keep for sale the next upcoming years (Howland, 2020).

#### **4.3.1.5 Change in Consumer Preferences**

The development of the C&T industry is mostly based on the consumers’ demand and consumption of the product. The effect of Covid-19 has been felt in this segment as consumers have changed their preference, mostly negatively (Barrie, 2021) to protect themselves and the

society at large. Moreover, especially with the C&T the demand for the product will be intricately linked with the safety precautions and procedures, such as production of personal protective equipment, which have been used to overcome the spread of the virus. Considering the fact that the industry deals with products which are closely connected to the body, consumers may be hesitant to go inhouse shopping, apparently spending on apparel may not be the first option after lockdown measures have been uplifted, as Harminder Sahni, the management consultant of Wazir Advisors said. Founder of Jeanologia, a Spanish provider of sustainable textile technology added that consumers may not feel safe touching products with inhouse shopping as they are not sure about the precautionary measures and who has touched the product before (Shramana, 2020). This will lead to a fall in the demand, as stated in the released report by Wazir, named “Impact of COVID-19 Scenario on European and the US Apparel Market” that the EU and US combine might experience a fall in the consumption of apparels upto 40% to 45% that is \$308billion (Shramana, 2020, pg.1) due to increasing awareness and consciousness of the product (Dixit, 2020). In an interview between the Wall Street Journal and Mr Stefan Larsson, new CEO of Calvin Klein and Tommy Hilfiger, Mr Larsson stated that the pandemic has caused consumer preferences in relation to shopping habits and type of clothes are also changing in this new area, he calls “the new normal”. Consumers demand casual clothes more than clothes to go out (like parties, office outfit, dinner dates) and they have become comfortable with online shopping (Kapner, 2020; Ganguly, 2020) hence there is a need for improved digitalization and security. In the same line, management consultant of Wazir Advisors, Harminder Sahni said, *“Consumers may hesitate to go shopping apparels even after stores open after the lockdown”* and *“... Only through sanitizing, brands will be able to speed up regaining consumer’s trust, guaranteeing fast recovery of our industry”* said Jeanlogia’s founder, Enrique Silla. (Ganguly, 2020)

#### **4.3.2 Strategies adopted by multinationals in Wholesale/Retail Distribution and Consumers**

##### **4.3.2.1. Collaboration**

The Covid-19 pandemic has led to enormous impacts on the relationships and chains amongst firms which have been nurtured for many years of carrying out business. With the increasingly globalized nature of the world, firms depend on each other for survival. Due to the

pandemic this bond (trusted relationship) was threatened as almost every sector was hardly hit and consequences suffered all round. However, some firms escaped from this situation by communicating more and being open to each other, they maintained their financial strength while safeguarding their relationship (Sarah, 2021). In order to build a strong and resilient supply chain, buyers as well as suppliers need to collaborate, with buyers knowing the different difficulties suppliers face by their action, the buyers can act responsibly enough to respect purchasing agreements (Barrie, 2021). In the same light McKinsey suggested a strong collaboration by involving sellers into the planning and ordering process by supervising the data from sale and as well discuss perceptions together with the sellers and buyers and then they can evaluate the plan of the merchandise. Even if cancellations is one of the major management strategies used during the pandemic, large brands like H&M, Nike VF Corp Target and Inditex and PVH have accepted to “pay for existing orders and work with vendors to reschedule other orders”. The CEO of Inturn (an off-price channel and inventory management software company), Lazar added that “*it's understanding signals and understanding them in real time*” with the process of procurement being strongly linked to the inventory and sales data, C&T industries which are demand driven industries, need close collaboration within the industry (Cosgrove, 2020). In a survey, conducted by McKinsey, it was found that nearly 50% of the 116 purchasing organisations collaborated with the suppliers with the aim of reducing the cost of operations and inventory investment that are not sold out (Cosgrove, 2020). In conjunction with that, the email sent to Supply Chain Dive by the H&M spokesperson stated, “ *We are well aware that the suppliers, and their employees, are extremely vulnerable in this situation. We are in a close dialogue with several partners and industry stakeholders to see how we can and should support in this difficult situation and we aim for finding a joint industry solution involving several stakeholders*” (Cosgrove, 2020). Plus, the analysis made by the ILO showed that big brands in Bangladesh, like Kiabi, Inditex, H&M have committed to the payment of all orders in the process of production and those which have been completed (Fallon, 2020). In addition, the Swedish H&M joined the global call of the ILO where they are working together with trade unions to come up with needs such as social protection systems that the Covid 19 has made the need to highlight in several countries around the world. Coupled with that the H&M group attest in their 2020 Sustainability Performance Report that in collaborating with customers, suppliers, partners and coworkers, was key plug use in pulling through with the pandemic. They encouraged close collaboration between local teams and

colleagues, working towards a resilient supply chain by showing responsibility in their purchases, joining the call to action by the International Labour Organization (H&M Group, 2020). The recent interview with 16 garment industry experts by ILO found that due to the deterioration of social and environmental standards due to financial constraints caused by the pandemic, experts foresee “*a new and more forceful phase of industry collaboration to improve longer- term industry sustainability*” (Wright, 2020)

As a result of the great division caused by the pandemic between manufactures, experts say this may lead to a strengthening of manufactures. In the same light the connection between the buyer and supplier is expected to grow more and more and bring in an equality in the power dynamics leading to a partnership with equal rights. A co-founder of Better Buying, Masha Dickon stated that “*The way to get things faster and cheaper is to work together... [You] have got to really have a strong partnership with suppliers to be able to deliver and to do so quickly*”, encouraging the collaboration in the industry for better services and output (Wright, 2020). To build a supply chain which is much more resilient and robust, the CEO of Hong Kong Research Institute of Textiles and Apparel (HKRITA), Edwin Keh proposed that firms need “new tools to improve transparency, new commercial agreements, and new trading terms” taking into consideration that the trust between suppliers and buyers was first affected as a result of the pandemic (Barrie, 2021). Even though not proven to be effective, Sedex also mentioned that through actions of “reduced auditing, better forecasting, health measures for workers, supported wage payments and low-interest loans”, go a long way to offer help to suppliers and hence creating a collaborative bound between them (Nishimura, 2020).

#### **4.3.2.2 Digitalization**

Most companies in this industry still face global challenges despite the efforts that have been put in to regain stability and a robust supply chain. Even with the use of several strategies to overcome the effect of the pandemic on their GVC, Dirk Vantghem, the Eratex director general, went further to explain that to give assistance to these firms there is need for a new design and a framework which is modern. In order to do so, he said, “*Now is the time to design a modern framework to support these companies in their transition process. We need to focus on promoting innovation, offering support towards digitalisation, creating robust supply chains and ensure a level playing field*”. (Wright, 2021). Mr. Larsson, new CEO of Tommy Hilfiger and Calvin Klein



confirmed this saying that in order to improve the speed of their supply chain, and match consumers' demand with their products, there is a need for them to be e-commerce driven, more data-driven and slender. He also stated, *“We will go where the consumer is going. The biggest growth today is ecommerce and part of that is department-store websites. That is a good channel for us.”* (Kapner, 2020).

#### **4.3.2.3 Layoffs**

In regard to the impact of the Covid-19 pandemic, a fall in demand worldwide, leading to low sales and low turnover, has led to the laying off of workers. The firms use this strategy to overcome cost which comes from payment of employee wages. Likewise, the policies put in place by the government authorities due to the pandemic such as social distancing and forceful lockdown of the industry may lead to laying off of workers in order to downsize the unnecessary number and keep a good distance during working hours and overall. For example, the big brand Victoria Secret is trying to work its way out of the pandemic by laying off employees. *“That includes Victoria's Secret, whose parent, L Brands, is fighting in court to hang on to a deal with private equity firm Sycamore. The firm in February had agreed to take a 55% majority stake in the lingerie brand for about \$525 million, but says that, by shutting Victoria's Secret stores, furloughing workers and making other moves to stabilize during the pandemic (as most retail chains have done), L Brands failed to conduct business as dictated by their agreement”* (Howland, 2020).

## Synthesis

# COVID-19

## Impacts

## Strategies

Change in Consumer Preference

Design and Product Development

Research & Development; Innovation



- Closure of Facilities
- Decrease in Production capacity
- Financial shock
- Logistics and Transportation challenges
- Order cancellations
- Pile of Stock
- Supply shortage
- Workforce issues



- Closure of major brands
- Decrease in global demand.
- Financial shock
- Pile of stock
- Change in consumer preferences.

Sourcing and Manufacturing

Wholesale/Retail Distribution and Consumer

- Adjustment, Creativity and Flexibility
- Diversification
- Layoffs
- Employee safety, Training and Skill development
- Reconfiguration
- External Relations
- Sustainability



- Collaboration
- Digitalization
- Layoffs

Mitigating effects

**Figure 4.1 A posteriori conceptual framework** (Source: Own construction)

After the analysis of the data, we have synthesized a posteriori conceptual framework that has added more insights to a priori framework. COVID-19 has brought change in two ways; through various impacts on the business operation, and through change in business strategies to overcome those impacts. The above framework demonstrates the impacts of COVID-19 on multinationals involved in each segment of GVC and the necessary strategies they have used to mitigate the effects of COVID-19. As seen in the figure, the whole GVC of the C & T industry has been categorized into three segments: design and product development, sourcing and manufacturing, and wholesale/retail distribution and consumer. The findings of data analysis shows that COVID-19 has impacted different segments in different ways, and due to interdependent and interrelated nature of the GVC, the impact on one segment is triggered to the other segments. Similarly, it is evident from the findings that in order to mitigate the impacts of COVID-19, multinational firms participating in different segments of the GVC of C&T industry have used different strategies. And as the impacts are triggered along the VC, the strategies are also snowballed along the VC segments causing firms to adopt new strategies. Overall, the combination of strategies used in all the segments are helpful to overcome the effects of COVID-19 in the whole GVC, survive in this critical situation, and even grow and grab the opportunities. The figure also shows that it is difficult for a single firm in a single segment to survive and grow alone unless other firms in other segments can manage to do so because of the deep and wide effects of COVID-19. Thus, support and collaboration are a vital factor.

## **5. DISCUSSION**

As most of the studies outline and describe the impacts of COVID-19 on the GVC generally, the main contribution of our study is that we have attempted to explain in detail the impacts of COVID-19 in each segment of the GVC and the strategies that multinationals involved in each segment have used to overcome the effects. While trying to do that, it was evident from the analysis and findings that these impacts are not only limited to each segment, but they are triggered to other segments. Also, ripple effects were seen in similar ways on the strategies used by multinationals involved in various segments of the value chain to mitigate the effects of COVID-19. Most of these results have already been explained in the previous chapter, but in this chapter, we are trying to make the discussion more systematic and in depth by answering our research questions through relevant results, comparing and contrasting the results with the existing study and literature and finally mentioning the significance of our study. For the purpose of this chapter, we have divided the discussion chapter into three parts based on the value chain segmentation: design and product development, sourcing and manufacturing, and wholesale/retail distribution and consumers.

### **5.1 Design and Product Development**

The outbreak of the pandemic did not spare this segment of the GVC. Consumer's choice of clothes changed from outing wear to more casual clothes because they were compelled to stay indoors and most of them worked from home. Little gatherings, parties and having lunch or dinner dates in restaurants were some of the things that made customers demand for outing clothes, but all that changed because of restrictions. Our finding complements the study by Barber & Ojala (2020), Strange (2020), Zhao & Kim (2021) who mentioned that the actual driver for the effects is not the pandemic but change in demand (customer preferences), change in supply and change in managing risk. However, while the existing literature addresses the general effects of COVID-19 on the GVC, we have contributed by addressing the in depth effects of COVID-19 on each segment. In this case, change in customer preferences is the main driver of impact on the multinationals in the design and product development segment. As a result, MNCs responsible for designing and development of the product had to restructure or redesign their products to suit those of the consumers. For example, Calin Klein and Tommy Hilfiger acknowledged that the company

was faced with a challenge concerning consumer preferences and they had to redesign their production according to the consumer's demand (Kapner, 2020).

MNCs found in this segment of the GVC used research and development and innovation to mitigate the effect of the virus. Due to drastic change in consumer demand (Wright, 2021) MNCs had no choice but to put more effort researching and coming up with new ways of satisfying the customer who is the king. It is evident from our data that paying attention to the customers' demand helped to overcome the effects of COVID-19 on the multinationals in the design and product development segment. This finding is consistent with the study conducted by Zhao and Kim (2021) who mentioned product innovation that matches the consumer's consumption patterns as a suitable mitigation strategy. In addition, our findings show that since the C&T industry deals with goods intricately linked to the body, MNCs in this segment had to take proper precautions with the kind of fabric used and make sure various environmental precautions are taken (Sánchez, 2020). Some product innovation led to the production of chemicals used for the textile which killed bacteria (Friedman, 2021).

## **5.2 Sourcing and Manufacturing**

The findings of data analysis showed that the sourcing and manufacturing segment of the C&T industry's GVC has been impacted adversely by the COVID-19 compared to the other two segments. The reason could be due to the impacts snowballed from the downstream and due to the buyer driven value chain nature of the C&T industry. In the case of the C & T industry, the governance power and the high value remains with the lead firms which are the global buyers, retailers and merchandisers (Gereffi, 1994). Thus, it could be argued that the severe impact of COVID-19 on this segment is due to the transfer of the losses to the upstream segments by the downstream ones. This interconnectedness and interdependence between the upstream and downstream are explained by resource dependency theory. The fall in global demand due to lockdown measures and change in consumer preferences forced the retailers and global brands to cut down the orders and delay their payments, which ultimately affected the suppliers and producers giving them a financial shock and loss in production and employees layoffs. This was evident in our findings where Cosgrove (2020) called this "bullwhip effect". The impacts become worse when the suppliers depend heavily on the international buyers and the national government

from the low-cost developing countries are not capable or fail to provide support to the workers and businesses during the crisis (Nishimura, 2020). One of the McKinsey analysts wrote, *“It is in the developing world, where healthcare systems are often inadequate and poverty is rife, that people will be hit the hardest. For workers in low cost sourcing and fashion manufacturing hubs such as Bangladesh, India, Cambodia, Honduras and Ethiopia, extended periods of unemployment will mean hunger and disease”*. (Cosgrove, 2020)

From the existing studies and our findings, we realized that the impact of COVID-19 on the GVC of the C & T industry is driven by both demand shock and supply shock. In respect to the sourcing and manufacturing segment, the major drivers are lockdown measures, reduction and cancellation of orders, delayed payments, transportation and logistics challenges. These drivers have caused several impacts on the sourcing and manufacturing segment which are interconnected with each other. When the COVID-19 was discovered as a global pandemic and lockdown measures were implemented in China, several nations experienced shortage of supplies as China was the major hub for sourcing and manufacturing. As the virus spread to other parts of the world, this supply shock shifted to demand shock. The economic recession, unemployment and uncertainty led to change in consumer demand and preferences. The fall in demand made the retailers close their stores and cancel their orders. Hence, the major impact on this segment is caused by the order cancellation from international buyers and retailers. This whole process of ripple effects clearly shows that the effect on one segment is not limited to itself. In fact, when it snowballs to another segment and when the multinationals involved in one segment make certain strategic decisions like order cancellation by wholesale/retail distribution, it has even deeper and wider effects on other segments like sourcing and manufacturing in this case. For instance, order cancellation by international buyers gave rise to several problems to the multinationals in the sourcing and manufacturing segment like financial shock, pile of stock, layoffs of employees, and closure of facilities.

The chairman of the Apparel Export Promotion Council (AEPC). A. Sakthivel mentioned, *“With lockdowns across markets, foreign buyers are postponing orders, and asking for hefty discounts. Goods in transit are also not moving. Those already dispatched are also finding no takers on various foreign ports.”* (Newsdesk, 2020)

In the same light, HKL Magu, Managing Director of Jyoti Apparels said,  
*“We are in a big dilemma as so what would happen in future. Labor has already moved to their homes, machines are not running, orders are being cancelled and shipments are on hold. How are we going to pay to our workers is a big question?”* (Newsdesk, 2020).

Even Goldin and Mariathan (2015) have emphasized that connectivity and integration bring complexity and instability which has been manifested in the form of new environmental business threats like COVID-19 pandemic which has caused threats and challenges to multinational companies. Our findings are consistent with the study conducted by Baber and Ojala (2020) who have addressed that the actual cause is not pandemic but the demand and supply shock and the new policy regulations.

In order to limit the contagion of the virus, governments of various nations are compelled to take measures like lockdowns, travel limitations, export restrictions and border close (Marinov & Marinova, 2020). These measures have hindered the smooth functioning of GVC by restraining the flow of goods, capital and people. It is evident from the findings that the lockdown measures have led to closure of facilities, decrease in production, financial shock, logistic challenges and shortage of supply and workforce issues. According to Kenyan Private Sector Alliance (KPSA), *“more than 80% of the clothing and textile manufacturers that have relied on the intermediate goods from China have been adversely affected by supply chain disruptions caused by the pandemic”* (Kigotho, 2020).

The president of the National Confectioners Association of China and president of the Chic fashion fair; Chen Dapeng, described the situation of Chinese clothing industry by saying,

*“ ... problems such as weak consumption, closed physical stores and logistics have created immense pressure and challenged the development of the industry. China’s apparel exports decreased by 22.8% from previous year and encountered a significant decrease in workload, and some companies had to compensate with rest and rotation; some smaller export companies face tremendous pressure to survive.”* (Sanchez, 2020).

The findings also show that manufacturers are facing financial problems, debt, delayed payments and bankruptcy which has forced many of them to cut down the number of employees, reduction in workers' payment and reduction in working hours. Another factor that has affected sourcing and manufacturing both positively and negatively is the rise of automation. Rise of automation has provided opportunities to upgrade the business digitally, minimize the transaction cost and make the work easier and faster. On the other hand, automation has enhanced challenges among workers especially among women and unskilled workers. They have to upgrade themselves to technological knowledge and gain or train themselves with the new skills. The findings are consistent with the study conducted by Strange (2020) that explained negative effects on productive activities of employees by working remotely. Consistently, Strange (2020), Zhao & Kim (2021) and Hyankawa & Mukunoki (2020) have addressed the negative impacts of supply shortage and lockdown measures on the productivity and efficiency of the multinationals involved in the sourcing and manufacturing segment.

This discussion shows that lockdown measures and order cancellation are the main drivers that caused several impacts on sourcing and manufacturing such as pile of stock, closure of facilities, financial shock, transportation and logistics challenge, supply shortage and workforce issues. These impacts are interconnected among each other and give rise to other impacts on other segments.

Along with the impacts, the second research question we are attempting to answer in this study is the strategies that have been adopted by multinational firms participating in GVC to mitigate the effects of COVID-19. In this section, we are dealing with strategies used by multinationals involved in the sourcing and manufacturing segments. Findings show that multinationals in the sourcing and manufacturing have been using several strategies during COVID-19 either by using the existing resources and capabilities dynamically or by adopting new resources in order to innovate, adjust, adapt, restructure to the rapidly changing environment and critical events. This has been explained by RBV and DCV. Some of the strategies used in this segment are due to the ripple effects of the impact and strategies used in other segments. For instance, the change in customer preferences mainly affected the design and product development segment and wholesale/retail distribution and consumer's segment. However, this caused clothing manufacturers to diversify their product portfolios to facial masks and PPE, and manufacture



fabrics and clothes with antibacterial properties. Once again, this supports our main argument about the ripple effects of impacts and strategies.

It was evident from the findings that most of the C&T companies are demand driven, so they tried to adjust and adapt to the changing global demand by shifting towards PPE and facial masks, aprons, safety footwear and some even focused on Manmade fibers (MMF). Companies not only used product diversification but also adopted geographical diversification to avoid overreliance on single suppliers and vulnerability to disruptions. Past studies (Tan & Enderwick, 2006; Strange, 2020; Magashazi, 2020; Zhao & Kim, 2021) have also suggested that diversification in sourcing would probably reduce the impact of pandemics and help to build resilience. However, Jain et al. (2016) showed that supplier diversification led to slow recovery in contrary to long term relationship with a single supplier

John Thorbeck, chairman of Chainge Capital said, *“The lowest cost of goods does not compensate for the high cost of uncertainty”* (Cosgrove, 2020). Consistently, Barya & Vanchan (2020) mentioned, it is important to maintain balance between risk and reward, and control cost with non-price based forms of competitiveness like nearness to core market, flexibility, high speed, and customer’s value. As a result, our study findings show that since not a single nation is free from the effects of COVID-19, there is no place where companies can move; therefore, McKinsey sees nearshoring as an emerging trend (Cosgrove, 2020). One of the McKinsey analysts said,

*“ Fashion players need to remap their sourcing mix to better balance risk, cost and flexibility of supply.... We should expect to see more localized to regional sourcing”*. (Cosgrove, 2020)

It is also evident that several countries and regional unions are calling for the rethink of their supply chain and governments are even incentivizing the companies to reshore or nearshore the manufacturing plants. While some studies have shown that reshoring strategy increases supply chain resilience to disruptions (Barbieri et al., 2020; Verbeke, 2020); some studies (Miroudot, 2020; Strange, 2020) rejected that domestic production or shorter supply chains best addresses the risk as it is a global phenomenon and domestic economies are not an exception to its impacts.

Both reshoring and diversification strategies have been evident from the findings, however the two strategies are contradicting with each other as suggested by the above discussion and the

existing literature. Reshoring provides flexibility, shorter supply chain, resilience to supply chain disruptions, however, it makes companies vulnerable to domestic disruptions and cost of internationalization is high. In contrast, diversification provides the opportunity to switch from one supplier to another in case of disruption; however, when the disruption is a global phenomenon like COVID-19, it is not possible. Also, diversification provides cost advantage, flexibility and access to strategic assets, however it is vulnerable to disruptions. Hence, it is difficult to choose one over the other. We accept the reflection by Eduardsen, 2020 which is to make a right balance between efficiency and resilience which helps multinationals to build resilient supply chains, provide flexibility, and enhance firm's efficiency and performance. Moreover, supply chain is not resilient unless the reshoring of a single firm takes place without its broader manufacturing network (Barbieri et al., 2020) since, GVC is interconnected and interdependent.

Likewise, a drastic strategy, employee layoffs were also adopted by multinationals in sourcing and manufacturing segments. The order cancellation, closure of facilities, and financial shock pressured the firms to reduce the working hours, cut off the payments and even furlough workers. However, it was also evident that the manufacturers took necessary measures to prevent the contagion in the workplace. Those employees who were successful in safeguarding their jobs had further challenges to upgrade themselves technologically, and with new normal. For this purpose, companies, different national and international organisations are working jointly. Thus, external relations with governments, educational institutions, consulting firms, and other organisations have been effective in overcoming the impacts of COVID-19. Existing studies (Wood et al., 2020; Zhao & Kim, 2020; Barbieri et al., 2020) supported the importance of internal and external relations in risk management.

### **5.3 Wholesale/retail distribution and consumer**

This segment of the GVC deals with sellers of the final product and the consumers directly. Taking into consideration and keeping in mind that the C&T industry is buyer-driven, from our findings, we realised that most of the impact of Covid-19 felt on this segment is mostly related to demand shock. The resources dependency theory which proposed that firms are interconnected and interdependent on each other through GVC, assisted us in explaining the interconnectedness of MNCs involved in the GVC of C&T industry and how the impact on one segment leads to

another. In the case of the Wholesale/Retail Distribution and Customer segment, the impact on either suppliers or producers will most certainly, directly, or indirectly affect the outcome of this segment. As a result of the pandemic the MNCs concerned with the Wholesale/Retail and Consumer segment (according to our segmentation) of the GVC, faced a major impact due to consumers' change in preferences. Consumers preferences towards the type of clothes they purchase and their shopping habits. Their demand for casual wear increased since they were mostly indoors due to lockdown measures, and they proved to be more comfortable with shopping online than in house due to the fear of contracting the virus. Just as Mr Larsson (the new CEO of Tommy Hilfiger and Calvin Klein) in an interview with the Wall Street Journal, said

*“It starts with recognizing that [Covid-19, the illness caused by the new virus,] accelerated underlying consumer trends. Things that would have taken four to five years normally, now are taking one year. Consumers are moving to e-commerce, casual clothing, and sustainability. They won't go back to shopping the way they did before the pandemic. We need to position the company for the new normal.”* (Kapner, 2020).

In the same light the management of consultant of Wazi Advisors, Harminder Sahni said

*“Consumers may hesitate to go shopping for apparels even after stores open after the lockdown, anticipates management consultant Harminder Sahni of Wazir Advisors. "Sales are zero now. Even when the partial opening will start, apparel won't be the first category to be on the shopping list.”*. (Wazir Advisors, 2021)

Strange (2020) also mentioned that due to restrictions and lockdown measures put in place, consumers' demand for a variety of products will vary due to changes in their buying habits, making our findings correspond to the existing literature.

One other impact felt by MNCs in this segment was on the demand for products (demand shock). The global demand for apparel clothing and textile dropped drastically, due to lockdown measures, change in consumers preferences (Daphne, 2020; Sally, 2020). The Chairman of Confederation of Indian Textile Industry (CITI), T Rajkumar in a press conference said, *“The spread of the virus in China and which later got spread to EU and USA has majorly impacted us as they are huge markets for Indian textile products”* (Sally, 2020). Because of the fall in demand,

wholesalers and retailers could not place orders to the manufacturers because they did not have enough funds (financial shock) to purchase the products and hence causing manufacturers to again face another problem of pile of stock, this shows how interconnected these firms are as explained by the RDT. Again, the wholesalers/ retailers facing a drastic fall in demand with little or no income from sales are forced to lay off workers and lead to employees losing their jobs. The ILO stated,

*“quarantine measures have suppressed consumer demand. In Bangladesh, order cancellations have led to lost revenue of about \$3 billion, affecting some 2.17 million workers.”* (Fallon, 2020).

In line with our findings, from the literature review we saw cases of companies facing decrease in demand leading to lay off employees. For example, this company found in Finland called Kyrö Distillery lay off employees due to limited demand for their product, alcohol drinks, also because of a lockdown which affected restaurants and bars in those countries importing the drinks (Baber & Ojala, 2020).

Furthermore, our findings show that pile of stock was another problem encountered by MNCs in the wholesale/retail segment of the GVC in the C&T industry. The Covid-19 pandemic forced most governmental authorities to impose lock down measures to reduce the spread of the virus. Consumers were forced to stay indoors affecting the demand for products and shops were closed leading to pile of stock at the warehouses or at the port while transporting (Newsdesk, 2020). As reported by McKinsey, the ‘US. Based business consultancy’ *stock of clothing available in the warehouse as compared to the previous year before the pandemic, stretches from \$168-\$192 which is about 140 to 160 billion`* (Asia News Monitor,2021). This impact was not visible in our literature review hence contributing to the existing work. Piles of stock by MNCs in this segment will lead to a further decrease in demand for the finished product from the firms in the sourcing and manufacturing segment.

The finances of MNCs were also greatly affected by the hit of the Covid-19. MNCs faced financial turmoil as the rapid fall in demand for products led to low sales and hence low and inadequate income for survival. For some MNCs it led to bankruptcy, laying off workers and for others going in for huge loans was the option, putting them in increasing debt situations. For example,

According to a report published late last year by McKinsey, *“the global fashion industry's profits endured a fall of 93%, with more than 10 major fashion brands going bankrupt and roughly 200,000 workers in the fashion supply chains in the US losing their jobs”* (Asia News Monitor, 2021).

The newspaper article by Howland (2020) also reported that analysts have identified *“...JCPenney, Lord & Taylor and Neiman Marcus are expected to declare bankruptcy very soon. Even those that can hang on, however, are likely to end up permanently closing some locations...”*.

The financial shock felt by these MNCs will go a long way to affect manufactures and product and design suppliers of finished goods since cash flow will be cut short from flowing back at the point of distribution to the consumers.

MNCs involved in the wholesale and retail segment of the GVC in the C & T industry also faced a huge impact because of the Covid-19 pandemic leading to closure of major brands. Lockdown restriction decisions taken by governments to reduce the transmission of the virus contributed to the closure of sales outlets (wholesale and retail) in most parts of the world. In accord with the literature review, Strange (2020) mentioned the same effects felt by companies. The closing down of these businesses threatens the sustainability of the suppliers and hence manufactures of the products. For example, in the Vietnam's National Textile and Garment Group, 10 major brands were closed due to Covid 19 pandemic, and in China, among other things faced by MNCs in the C&T industry, closure of physical stores was one of the impacts of the pandemic (Sánchez, 2020).

Even though faced with hard, difficult, and confusing situations, MNCs and governing bodies still fought and found some ways to mitigate the effect of the pandemic. Now, we are going to discuss the strategies used by MNCs in the wholesale/retail distribution and consumer segment of the GVC of C&T industry.

From the findings, collaboration was seen as one of the great strategies firms used to reduce and fight out the effects of the virus. Suppliers collaborating with producers, customers as well as stakeholders, government institutions and organizations. Just as mentioned by Crick & Crick (2020), in the literature review, coopetition is one of the strategies firms have used to mitigate the

effect of the ‘new normal’. For instance, by reinforcing customer, supplier relationships as well as mutual support from competing firms, the Brazilian companies had to cooperate with each other (Wood et al., 2020). In the same light according to findings, and H&M Group Sustainability Performance Report 2020, collaboration with customers, suppliers, partners and co-workers, was key plug use in pulling through with the pandemic. They encouraged close collaboration between local teams and colleagues, working towards a resilient supply chain by showing responsibility in their purchases, joining the call to action by the International Labour Organization. Moreover, in collaborating with their stakeholders, they expected a faster recovery and even in the heat of the pandemic they were able to carry out some transformation in their business successfully (H&M Group, 2020).

Apart from collaboration, digitalization was also identified as means by which MNCs can use to mitigate the effect of the pandemic on their businesses. Just like Marinov (2020) said, a customer's shopping journey can be accelerated through digital strategy and transformation. With the use of online platforms to promote sales, building online portfolios and searching for partners who can bring customers to the websites of the business. Therefore, technological advancement is very important since most of the things are done remotely. Findings also show that through digitalization companies can create a robust supply chain and regain stability. New CEO of Tommy Hilfiger and Calvin Klein, Mr. Larsson said “We also have to become leaner and more data-driven. We need to increase the speed of our supply chain and cut lead times to better match what we sell with consumer demand” (Kapner, 2020).

Laying off workers was another way MNCs used in mitigating the effect of the virus. Due to decrease in demand, caused by lockdown measures which led to closure of brand stores and financial shocks, MNCs had to be forced to cut operation cost by laying off workers (Howland, 2020). There are both pros and cons to employee layoffs. Obviously, laying off employees helps to reduce the company’s cost which is important in the times of bankruptcy and financial shocks. However, there is a risk of losing skilled and qualified employees which is necessary for effective functioning of an organisation. Therefore, retaining the existing employees and skill development and training to the unskilled ones could be helpful depending on the available financial resources of the company. Very few studies discuss the layoffs strategy that companies are using during a pandemic, so, our findings have contributed to it.

Based on the above discussion, it is evident that while the existing literature mentioned the general implications of COVID-19 on the firms involved in GVC and also the general strategies to overcome them; our study has contributed to the literature by explaining the indepth or detailed effects of COVID-19 on the multinationals involved in various segments of the GVC and the mitigating strategies. Initially, we knew the impacts of COVID-19 on international business, on GVC on a general level; but now based on our research we have gained an in-depth understanding of the effects of COVID-19 and mitigating strategies. The division of the whole GVC into the three segments helped us to understand that the multinationals in the different parts of the GVC have been affected differently, however, the previous studies have not been able to capture that. Therefore, our contribution is to go beyond the general implication of COVID-19 and find all the aspects of concrete effects that previous research did not address. Very few research has mentioned the drivers behind the impacts of COVID-19, however, our study has found the main drivers for the impacts on each segment. For instance, change in consumer preference is the major driver for the impacts on the design and product development and the wholesale/retail distribution and consumers. In the sourcing and manufacturing segment, lockdown measures and cancellation of orders and delayed payments are the main drivers causing severe consequences. Also, the buyer driven VC nature of the C&T industry causes a hard hit on the multinationals in the sourcing and manufacturing segment. Moreover, we complemented the existing literature with the local effects from various parts of the world which helped to understand the impacts on a deeper and broader level. We were able to outline the effects with local specificity based on the data collected (although from a secondary source but reliable and diverse) which added value to our study. Our main contribution is the demonstration of the ripple effects of the COVID-19 and the strategies used along the value chain segments with the evidence from the data and the posteriori conceptual framework which was mostly in theory in the existing literature but rarely studied empirically. Hence, our study can be helpful to future researchers, practitioners, business managers and even policy makers which will be further discussed in the `implications` section.

## 6. CONCLUSION

Globalization has widened, deepened and sped up global interconnectedness leading to the introduction of GVC. This has increased both opportunities and challenges in international business. On the one hand, international business can get supply of cheaper and qualitative raw materials, skilled and qualified workers, venture into new markets, create wide business networks and so on. On the other hand, businesses are exposed to various types of risks and challenges such as political risk, transaction risk, economic risk, sociocultural risk and other emerging types of risks like financial crisis, wars, technological risks and pandemics. COVID-19 is a global phenomenon that has reflected the weakness of the GVC model. The critical event has triggered widespread disruptions of GVC in various segments across various nations of the world. Traditional risk management or crisis management has mainly focused on the identification and mitigation of risks. However, emerging risks like COVID-19 are unpredictable with high consequences that challenge conventional risk management. In effect, multinationals participating in various positions in the GVC face challenges to deal with the adverse effects of the COVID-19. Our study addressed this gap and attempted to outline the impacts of COVID-19 on the multinationals participating in the GVC and the strategies they have adopted to overcome them. The study was conducted in the context of C&T industry and secondary data from newspapers, trade journals, industry magazines, reports were collected and analysed through a qualitative thematic analysis and content analysis. Further, to make the study systematic, the whole GVC of the C&T industry was divided into three segments: Design and Product Development, Sourcing and Manufacturing, and Wholesale/Retail Distribution and Consumers. The findings of the study shows that COVID-19 significantly impacted multinationals participating in GVC. The adversity of the impact was diverse in various segments of the GVC, the suppliers and manufacturers being highly impacted due to the ripple effects of the impacts of COVID-19 and buyer driven value chain nature of the C&T industry.

The study found several impacts of COVID-19 on multinationals in each segment. The multinationals in the design and product development are mainly affected due to change in the consumer preferences (online shopping, sustainability, hygiene and sanitation). The multinationals in the sourcing and manufacturing segment are impacted by the ripple effects from the downstream, order cancellation and from the lockdown measures and restrictions. Order cancellation caused a pile of stock and financial shock. Lockdown measures caused closure of



facilities, decrease in production, logistics and transportation challenges, supply shortages. Rise of automation was another cause that triggered workforce issues. The multinationals in the wholesale/retail distribution and consumer segment were mainly affected by the change in consumer preferences and fall in demand which led to a pile of stock.

The findings also showed that multinationals in different segments adopted different strategies to mitigate the effects of COVID-19. In the design and product development segments, multinationals were focused on innovating new designs, materials that help to prevent infection and diseases. Some companies meet customer demand through innovation in terms of management and services considering “fashion aesthetics, functionality and ecological environment”. Companies in the sourcing and manufacturing segments adopted diverse strategies to combat the effects. Some companies diversified their production to meet up with the demand and supply of their products thereby producing medical and protective products. In order to stay in business, companies undertook reduction in shifts of employees and employee wages, and layoffs as a mitigating strategy to the impact of Covid-19. Manufacturers also adopted high protocol to maintain employee safety, skills development and provided private transportation to limit the contagion of the virus. While some producers adopted sourcing diversification strategy to avoid over reliance on a single supplier and to reduce the vulnerability due to disruptions; others adopted reconfiguration to better balance risk, cost, flexibility in supply, and demand driven fashion supply chains for shorter lead times. External relations with government, national and international organizations were also adopted. The role of government and their policies played a vital role in the recovery of the businesses and the workers. Finally, in the Wholesale/retail distribution and consumer segment, multinationals adopted collaboration among the suppliers and manufactures to combat the impact of COVID-19. Some multinationals were compelled to downsize the employees to reduce their costs. Digital transformation and innovation have been adopted by many companies which not just helped to overcome the effects but also made them prepared for future digital international business.

The study concludes that the impact of COVID-19 on the multinationals in the GVC of C&T industry is significant which is caused either due to a direct hit by the pandemic or due to ripple effects of the impacts from one segment to another. Due to interconnectedness and interdependence nature of the GVC, the impacts are not limited to a single segment. Further, when the impacts from one segment are snowballed to other segments the effect is deeper and wider.

The same goes with the strategies adopted to mitigate the impact of COVID-19. The strategies adopted are linked among each other in the VC segments.

## **Limitations**

This section comprises our research constraints and the advice or suggestions to the future researchers coming from the reflections to our study to make their study richer and clearer. Particularly, we are emphasizing on the add ons that would complement the research and create deeper understanding on the impacts of COVID-19 on multinational firms and their mitigating strategies. The limitations consisted of the challenges and obstacles that the researcher encountered. In the course of this study, a number of setbacks were encountered. First of all, the complex nature of Covid-19 pandemic which has left many firms with unresolved issues served as a challenge in locating which specific impact to a strategy. Time constraints were a major problem which led to difficulties to collect data from multinationals (even from their websites). Regular lockdowns imposed made it difficult to collect current information from industries as the information was not regularly updated. It was difficult for the researcher to have access to some relevant documents such as companies' financial statements and personnel information. This study also has some methodological limitations in that the study was limited to multinationals participating in GVC and specifically the textile industries. The geographical scope, although small, was also difficult to exhaust due to the COVID-19 pandemic. So, future researchers can consider conducting research in other or multiple industries. The study was limited to qualitative data only, but more work can be done on quantitative data analysis to get a deeper understanding. This may cause the findings not to be perfectly correct as errors may be made in data analysis. In addition, our study is based only on secondary data, however, the data are very recent, diverse, and contextual which helped us to uncover a lot of specific things. To complement it, fellow researchers can use primary data sources like case studies, interviews, and observations.

## **Implications**

The practical implication of this research will be of great worth to us being international business students. It has helped us in gaining knowledge about various concepts like multinationals in the GVC, impacts of emerging risk like COVID-19 on them, various mitigating strategies like robust and resilient supply chain, collaboration, digitalization, innovation etc especially, as the world has

become more and more a global village. To some extent, the study also gives an idea about the upcoming trends in international business after the post-covid like concept of reconfiguration, technological advancement, digitalization etc. Our findings and conceptual framework provide an understanding to managers how to overcome emerging risk (for example Covid-19 crises) and inspire them to discover their own survival strategies. The multinationals firms from the clothing and textile industry could be highly benefited from our study to understand the problems they are facing through COVID-19, to understand the pros and cons of the mitigating strategies and choose the best one. It also serves as a path for researchers to do detailed work on the impacts of Covid-19 on firms (case studies) and strategies they can use to overcome the specific impact.

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## Appendices

### Appendix 1: Contingency Table

Number	Title	Author (DATE)	Research Objective /Question	Theories/Model	Method	Context	Findings	Focus
1	The 2020 Covid-19 pandemic and global value chains	Roger Strange (2020)	To consider the medium-term impacts on firms strategies and in particular, the configuration of firm's global value chains (GVCs) once all pandemic related restrictions have been removed.	Not mentioned	conceptual, review	COVID 19 and GVC reconfiguration	The Covid-19 pandemic has a public health impacts as well as economic impacts as all countries have suffered supply and demand shocks to their national economies, and disruption to their international trade and investment flows. The widespread reshoring and/or internalization of GVC activities are unlikely to lead to greater resilience but may well necessitate substantial switching costs. Resilience will come from more rather than less, diversification involving more suppliers in more countries, thus guarding against individual governments which close their borders to international movement of people, capital, goods and services.	both impacts and strategies

2	An empirically derived framework of global supply resiliency	Blackhurst et al. (2011)	To help firms develop strategies to improve their resilience to supply chain disruptions.	<p><b>System theory</b> (As open systems, organisations rely on a steady flow of inputs that originate and are extracted from sources in the environment to sustain their operations which illustrates the system theory concept of negentropy-organisational self-maintenance due to the presence of environmental inputs. This ideal state of the system is altered when unexpected events (i.e disruptions) interrupt the normal flow of goods. The impact of disruptions on a system varies depending on the level of resiliency within the supply chain. The system theory has been coupled with the structure of a supply chain (entities such as suppliers, manufacturers, and warehouses connected by flows of materials to develop a framework to supply resiliency reducers.)</p> <p><b>Resource Based View (RBV)</b> (The RBV of the firms</p>	<p>- Data was gathered in two distinct phases; one is in depth investigation of a US based automobile manufacturers, and other is semi structured telephone interviews with executives at six firms in various industries. - The data collected from both phases were analyzed according to a three-step process. Step 1 consisted of first-level coding to summarize and describe the data. Step 2 consisted of pattern coding to reduce the data by grouping similar codes and descriptions. Step 3 consisted of arranging findings into empirical generalisations that explain why certain supply chain characteristics contribute or take away from supply resiliency.</p>	<p>US based automobile manufacturer and six firms in various industries (Pharmaceutical manufacturer, retailer 1, retailer 2, retailer 3, logistics provider 1, logistics provider 2)</p>	<p>The study developed a supply chain resilience framework based on six sets of empirical generalizations yielded in two major areas: supply resiliency enhancers and supply resiliency reducers. - Empirical generalizations based on the factors that reduce the impact of a disruptions and contribute to supply resiliency are: 1. Human capital enhancers (education and training, cost/benefit knowledge, post disruption feedback) are positively related to supply resiliency. 2. Organisational and interorganisational capital enhancers (communication protocols, cross-functional risk management teams, contingency plans, customs programs /port diversification plans, supplier relationship management) are positively related to supply resiliency. 3. Physical capital enhancers (safety stock, visibility tools, node monitoring / exception tools, redesign tools) are positively related to supply resiliency. - Empirical generalizations based on the factors that increase the impact of a disruptions and take away from supply resiliency are: 4. Flow activity reducers (number of nodes, stringent security and customs regulations, port/vessel capacity restrictions) are negatively related to supply resiliency. 5. Flow unit reducers (product complexity, stringent storage and quality requirements) are negatively related to supply resiliency 6. Source reducers (volatility of supplier's location, supplier capacity/ labour restrictions) are negatively related to supply resiliency.</p>	strategies to gain supply chain resiliency
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				<p>regards the firm as a collection of resources and capabilities that may culminate in enhanced performance. These capabilities which may be defined as complex interactions and coordination of people and other resources, as the mechanisms to mitigate the potential impact of a disruption and thus enhance supply resiliency. The interaction and coordination of three resource categories (Physical capital resources, human capital resources, and organisational and interorganisational capital resources) that Barney (1991) described are used to frame the supply chain resiliency enhancers.)</p>				
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3	COVID-19 and alternative conceptualisations of value and risk in GPN research	Bryson & Vanchan (2020)	To identify the key problems in globalisations relating to the conceptualisation of value, risk, localisation of production and national security protection by examining the activities of non firm actors- state on GPNs as companies respond to trade regulations and the COVID-19 pandemic.	Not mentioned	macro and micro level firm level data from company reports and corporate documents.	91 American, European and Asian transnational corporations	- Within the GPN literature, and across the geographical literature, there is an urgent need to unpack and analyse the concept of value as it changes over time, in different geographical contexts and between different actors, companies and people. What is required is an appreciation that value is a collective process. - One challenge for GPN theory to address is that global production networks create risks which lie beyond them. The GPN literature is focused on understanding and even enhancing the efficiency and effectiveness of GPN organisational platforms through exploring approaches to understanding and 'optimising cost-capability ratios'. The problem is that there is a real tension between optimisation of GPNs and the creation of risks that ripple out across the globe. - The challenge is that GPNs, and offshoring, come with many inter- and extra-network risks that have been largely ignored. The critical social science debate within geography needs to shift away from a more hagiographic style approach based on celebrating the dominance of GPNs as an organisational form to one in which there is an on-going critical reframing that accepts that a fundamental rethink is required that acknowledges the benefits, intra-, inter- and extra-network risks and multiple values associated with deepening globalisation. - The emphasis placed on surplus value and economic rent to the exclusion of all other forms of value in the GPN approach is a major constraint on the ability of GPN analysis to diagnose	problems with GPNs and how COVID-19 has helped to address them and how they could be overcome
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							intra and inter firm responses to COVID-19.	
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4	Responding to the COVID-19 Pandemic: Practices and Strategies of the Global Clothing and Textile Value Chain	Zhao & Kim (2021)	- To develop a conceptual model for the Clothing and Textile (C&T) industry to survive amidst the outbreak of a contagious respiratory disease and explore unique growth opportunities.	<p>-GVC Framework (GVC framework involves two main parts: value chain mapping and analysis. Value chain mapping focuses on geographical analysis in the supply chain. In the C&amp;AT industry, the supply chain is fragmented. Hence, the health and economic impacts of COVID-19 influence the whole C&amp;T industry through the international GVC. Value chain analysis emphasizes dynamic factors such as governance, institutions and interfirm relationships. It is important to understand the leading firm's strategies against the COVID-19 pandemic because of their significant roles and influence over the C&amp;T GVC.) - RBV (Firms can generate and maintain superior long-term performance by possessing unique, valuable, and hard-to-imitate resource. The valuable resources include abilities to innovate products,</p>	<p>- Literature review with qualitative content analysis (Data source include recently published academic papers, industrial magazine articles, consulting firms' reports, and government and organisation documents.) and - case study (four cases and five participants were identified for the case study. All cases were leading firms or key members in responding to this public health emergency and were able to provide valuable insights related to the global C&amp;T value chain.) - data were collected in July 2020 through semi structured interviews by phone or online conference tools. Triangulated with documentary information from internal company information such as product catalogues, company brochures, or information available on the internet.</p>	<p>- Company A (knitted underwear company) - Company B (wholesaler and retailer based in New York City) - Company C (a non-woven fabric producer) - Company D (an academic health system).</p>	<p>The conceptual model of practices and strategies implemented by the C&amp;T industry in response to the COVID-19 was developed. The global C&amp;T value chain was organised into three major components by using GVC mapping methodology: 1. Design and Product Development 2. Sourcing and Manufacturing, and 3. Wholesale / Retail Distribution and Consumers. Then, two main topics, external relations and sustainability, were highlighted throughout the C&amp;T value chain. Various strategies were discovered for each component based on the quotes from interview participants. Design and Product development requires product innovation, assortment plans, and minimal designs and repurpose designs. Sourcing and manufacturing consist of strategies like diversified sourcing, risk management in international trades, and reshoring manufacturing and flexible capacity plans. Wholesale/ retail distribution requires reacting to consumer's behaviour shift, digitalisation of wholesale/retail, and awareness of PPE consumption. Lastly, new normal situation was introduced to explore action plans and new directions; cross functional collaborations and coordination, acceleration of the use of digital, and industry consolidation and SMEs.</p>	Conceptual model of C&T GVC and strategies during and post COVID-19
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				operational flexibilities, timely and accurate information, and sustainability. RBV framework points out resource for survival and growth strategies that are valuable for the C&T industry. )				
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5	COVID- 19: outcomes for Global Supply Chains	Luis Miguel Fonseca, & Américo Lopes Azevedo. (2020).	(1) What are the contingency factors affecting Supply Chains in the complex COVID-19 operating environment? (2) How do these factors affect post-COVID-19 operating performance?	Just in Time and Lean Supply Chain; <b>Just in Time (JIT)</b> aims to eliminate non-valuable added activities, helping companies to reduce costs and improve operational performance, and was presented in works by Clutterbuck (1978), Schonberger (1982), and Shingo (1989), amongst others <b>Lean production or lean thinking</b> is based on the concept of achieving improvements in the most economical ways with an emphasis on “Muda” (waste) elimination The lean supply chain has a principle of inventory optimization. Optimal inventory levels are those that will allow for operational efficient and effective fulfilling of current customer demand patterns.	conceptual Review	Covid-19 and Global Supply Chain	<p>The first research question was ‘What are the contingency factors affecting Supply Chains in the complex COVID-19 operating environment?’</p> <p>This investigation suggests that the COVID- 19 contingency factors will significantly impact Supply Chain management and performance. Successful companies will focus on creating a new kind of sustainable operational performance with shorter and more resilient supply chains and risk management and business continuity plans. The acceleration of the end-to-end digital transformation, both on the demand and the supply side, means that consumers will have to adapt to the contact-free economy, less low-cost supply chains, and put additional emphasis on service levels. Moreover, Governments will reinforce the focus in the health sector supply chain and will increase spending in the health and social care sectors. The second research question was, “How do these factors affect the post-COVID-19 operating performance?” Eleven research propositions are presented to assess the possible influence of the COVID-19 pandemic on SC operating performance.</p>	factors affecting supply chain and post Covid-19 operations
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6	COVID-19 Shock and Global Value Chains: Is There a Substitute for China?	Qin, M., Liu, X., & Zhou, X. (2020).	1. What are the estimated economic consequences of the COVID-19 pandemic in China, specifically focusing on the countries and sectors in global value chain. 2. Can China can be substituted for in global production networks	not mentioned	Using trade-in value-added data from OECD and WTO	China	<p>This article discusses a possible impact of the COVID-19 outbreak in China on global value chains. Using trade-in value-added data from OECD and WTO, we illuminate how the production shock of China passes to other countries or regions through global value chains. It is shown that many countries or regions suffer from the production shock of China caused by COVID-19 and the impact mainly depends on how close a given country or region is linked to China on the global value chains. In general, the downstream countries/regions and industry sectors on GVC are influenced more than the upstream ones. Considering the wide range of influence and the extent of damage, it is convincing that China plays such an important role in GVC and cannot to be replaced</p>	
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7	Impacts Of Covid-19 On Global Value Chains	Hayakawa, K., & Mukunoki, H.	<p>To empirically investigate the impacts of COVID-19 on GVCs by examining bilateral trade in finished machinery products from January to June in both 2019 and 2020.</p> <p>To investigate three country scenarios to capture pandemic-related economic damage to the GVC: (1) a country that imports finished machinery products; (2) a country that exports finished machinery products; and (3) a country that exports machinery parts to the country exporting finished machinery products.</p>	not mentioned	<p>use the numbers of COVID-19 cases and deaths as measures of the impact of the pandemic, with data obtained from the European Centre for Disease Prevention and Control. These data were collected on a daily basis from reports from health authorities worldwide. We use the total number of cases and deaths from January to June in 2020. They used observed trade data to examine how the COVID-19 pandemic has disrupted trade of final goods through input–output linkage</p>	<p>First, COVID-19 did not have a significant effect on demand for finished machinery products in importing countries, whereas the finished machinery trade is significantly hurt by higher rates of COVID-19 infection in both countries exporting finished machinery products and countries exporting machinery parts to those countries. The impacts of COVID-19 are primarily on the supply side, affecting both the outputs and inputs that play a crucial role in machinery trade; the impacts on demand play a less significant role. In particular, we found that the supply chain effect has greater impact on the finished machinery trade compared with the output effect. Findings indicate that exports of final goods decrease if an exporting country imports inputs from countries more seriously affected by COVID-19.</p> <p>We have also confirmed that COVID-19 impacts on exporting countries have a significantly negative effect on their exports. From a quantitative viewpoint, the former supply chain effect was found to be larger than the latter output effect. In contrast, the COVID-19 impacts in importing countries do not have significant effects on trade. These results indicate that both the output effect and the supply chain effect play a key role in identifying the impacts of COVID-19 on trade in a world with increasing connectedness through GVCs.</p> <p>We also find that the negative effects of COVID-19 on exporting countries are smaller in intra-Asian trade.</p>	Impacts
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8	Managing supply chains in times of crisis: a review of literature and insights	Malini Natarajarathinam, Ismail Capar and Arunachalam Narayanan	The purpose of this paper is to review the literature to describe the current practices and research trends in managing supply chains in crisis. This paper also provides directions for future research in supply chain crisis management.	not mentioned	they used academic peer-reviewed journals and case publications in supply chain management literature			
9	Double-hit scenario of Covid-19 and global value chains	Muhammad Zeshan	What is the impact of the double-hit scenario of Covid-19 on the global value chains? It also identifies production losses in different sectors of the world economy.	not mentioned	The GTAP-VA model. The present study uses the GTAP database version 9. It combines the input-output tables of all the 140 countries/regions under analysis and links them through trade flows resulting in a global input-output table.		The simulation results indicate that the Covid-19 pandemic has a negative impact on all the sectors of the global economy. The most affected sectors comprise textiles and clothing, light manufacturing and heavy manufacturing, whereas the most affected countries/ regions include Oceania, Nepal, North America, EU_28 and MENA. The production losses in the global economy reduce the welfare level and the GDP worldwide. The highest losses are witnesses in EU_28 and North America (Fig. 2), where welfare and GDP losses are USD 1517 billion and 10% in EU_28, while the respective losses are 1433 billion and 10% in North America.	Impacts

10	Will the COVID-19 pandemic really change the governance of global value chains?	Alain Verbeke	To investigate if the COVID-19 pandemic will really change the governance of the Global value chain	not mentioned	conceptual review	Global supply chain	<p>The author brings out four research areas that are home rich literature on MNE and GVC governance and some possible testable hypothesis related to these four reserach areas respectively.</p> <p>1) <b>Investment in the intellegent and contracting safegurds:</b> One key testable hypothesis in the realm of bounded rationality reduction is that the size and diversity of MNE top management teams, and the usage of various intra-GVC coordination mechanism will oncrease to improve the firm's information processing capacity.</p> <p>2) <b>Levels of irrsversible investments abroad:</b> A key testtable hypothesis is that Lead firms aiming to reduce reliability problems, will be less inclined to invest in highly specific assets abroad, when these cannot be adequately insured or otherwise protected against future discriminatory governmment policies targeting foreign actors.</p> <p>3) <b>Relational contracting with key partners and ex post governance:</b> One key testable hypothesis is that MNEs will focus more on relational contracting and on the intricate details of ex post governance when dealing with reliable GVC partners (the expected reliability may be indicated, inter alia, by the length of the relationship and the number of linkages with that partner).</p> <p>4) <b>Levels of diversification:</b> The key testable hypothesis is that lead firms in GVCs as well as some of their partners will engage in higher product and industry diversification to reduce the possible ravaging effects of a future crisis on their core business.</p>	Impact on GVC
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11	Resilience versus robustness in global value chains: Some policy implications. COVID-19 and trade policy: Why turning inward won't work	Sébastien Miroudot1	This chapter reviews the relevant management and business literature and highlights evidence to show that the relationship between GVCs and resilience or robustness in the supply of inputs is more complicated than it looks.	not mentioned	Literature review	Global	The risk management literature has been looking at the resilience and robustness of supply chains for more than 20 years. It does not conclude that domestic production or shorter supply chains are the best way of addressing risks ... it offers guidance on different strategies for robustness and resilience. It is unrealistic to think that a country can maintain and sustain an industry with the production capacity required at the time of the crisis. Anticipation, preparation and international co-operation can achieve better results, when compared to isolated and silo-based strategies It concludes that it is a mistake to equate self-sufficiency with robustness – putting all the eggs in one basket is still not a good idea. It is also a mistake to focus on production location when the imperative is to radically scale up production of vital medical supplies	Strategies
12	COVID-19 induced emergent knowledge strategies	Constantin Bratianu and Ruxandra Bejinaru	This paper aims to analyze the characteristics of emergent knowledge strategies by comparing them with deliberate knowledge strategies and showing how people can develop such new kinds of strategies.	Knowledge strategy: knowledge is considered a strategic resource of firms for achieving their competitive advantage and bridging a strategic gap in the long-term perspective. A strategic gap implies a knowledge gap, which means a difference between what a firm should know in order to implement a strategy and what the firm does know.	comparative analysis of the deliberate and emergent knowledge strategies,	Global	They found out that the strategic knowledge gap is enormous, and the only way to navigate this crisis is to create emergent knowledge strategies. However, designing such strategies requires a different approach based on a new paradigm. The analysis is based on criteria like time perception, systems thinking, type of knowledge, type of changes, and complexity.	Strategies



13	Managing Threats in the Global Era: The Impact and Response to SARS	Wei-Jiat Tan & Peter Enderwick	This article examines the impact that SARS has had through means of a case study and builds on this to provide recommendations for how uncertainty may be managed in an increasingly globalized world.	not mentioned	Case study	Asia	The implication is that firms must put a higher premium on strategies that emphasize flexibility and responsiveness. Indeed, firms will find value in increasing diversification, whether this is in sourcing or in corporate strategy. Planning must also become less linear and more contingent-based, and in considering a range of possible future scenarios, firms will be in a better position to handle disruptions that increasingly cannot be predicted. Technology also appears to offer a possible solution as a risk-management device, and we are likely to see technologies such as video conferencing become a commonplace feature in offices of the future.	Strategies
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14	COVID-19 and Global Value Chains Reconfiguration of Activities across Borders	Paolo Barbieri, Albachiara Boffelli, Stefano Elia, Luciano Fratocchi, and Matteo Kalchschmidt	This chapter takes into account the different drivers underlying the relocation of second degree, by paying attention to the GVC level of analysis and by distinguishing among the different types of relocations. Then investigate the potential role of COVID-19 within this phenomenon, by concluding with policies for GVC reconfiguration.	not mentioned	conceptual review	Global	<p>A primary role is played by macroeconomic changes, such as the rise of new low-cost destinations, the international fluctuations of cost factors and comparative advantages that modify the relative attractiveness of countries. Another driver of GVCs reconfiguration is a general dissatisfaction over the advantages associated with offshoring in terms of, e.g., less-than-expected cost reduction or quality drawback. Another very effective driver underlying the back-reshoring and nearshoring of GVCs is a technological change. The emergence of nationalism and populism, e.g., the Brexit phenomenon, and the associated rise of protectionism and trade wars. The more effective driver fostering the backreshoring and near-shoring phenomena is the increasing attention toward social and environmental sustainability which is prompting firms to become more sensitive to these issues and, in several cases, to consider even green and social transformation of their business model in an attempt to improve their reputation and thus reinforce their competitive advantage. Therefore, policy makers aiming to develop pro-re-shoring initiatives should carefully evaluate how to make their initiatives successful by matching re-shoring policies consistent with others aimed to re-establish manufacturing and and secure appropriate infrastructures.</p>	Impacts and strategies
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15	COVID-19, Global Value Chains, Risk, and Resilience	Jonas Strømfeldt Eduardsen	The purpose of this chapter is therefore to reflect upon the impact of the pandemic on IB and draw lessons from this experience in terms of how to avoid or manage a similar event in the future. In particular, the chapter focuses on how MNCs should adjust their strategies with regard to the boundary and location decisions of value chain activities in order to increase GVC resilience	not mentioned	conceptual review	MNC in GVC	Resilience can be an important strategic weapon in anticipating unforeseen disruptive events, withstanding and responding to disruptions, and recovering from disruptions. Thus, MNCs are encouraged to balance efficiency considerations against risk and resilience concerns, as MNCs that invest in resilient GVCs will be best prepared to respond to and recover from unexpected critical events, such as epidemic outbreaks, natural disasters, trade wars, and strikes To do so, MNCs must reconfigure their GVCs and rethink their management in order to find the right balance between efficiency and resilience. An excessive focus on efficiency results in GVCs that are efficient under normal conditions, but vulnerable to disruptions, while an excessive focus on resilience creates unprofitable supply chains and causes MNCs to become uncompetitive.	Strategies
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16	Danish Companies in China during COVID-19 Staying Afloat and Post-Pandemic Trends	Dmitrij Slepnirov	The remainder of the chapter discusses the experiences of the companies during the outbreak and reflects on the emerging contours of a new normal in the international operations of Danish companies in the AC (After Coronavirus) era.	not mentioned	Survey of 71 Danish companies in China	Danish companies in China	Findings shows that limitations on working combined with supply and demand shocks meant that the companies were forced to rethink the old normal and try new things. These include new modes of operating a factory, new ways of planning and coordinating supply and demand, and new approaches to reaching their customers through e-channels or by developing a new product remotely using digital tools. Among those who see potential in the Chinese market, we are likely to see an increasing emphasis on localization and on 'In China, For China' strategy. For others, who focus on the markets outside China and only use it as an offshore low-cost destination for manufacturing, COVID-19 may be a turning point in the radical rethinking of their supply chain and reduced exposure to China. On the one hand, the period of COVID-19 in the minds of many is associated with distancing and isolation. On the other hand, it is also the period of intense communication and reliance on networks and innovation.	Impacts and strategies
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17	COVID-19 and Global Value Chains in South-East Asia and Singapore	Anikó Magasházi	This chapter reflects upon the emergence of global supply chains, global value chains, and production networks that were facilitated by the upsurge of cross-border foreign direct investments in the era of hyper-globalization.	not mentioned		South-East Asia and Singapore	<p>The author suggests that the positive effects of the new international division of labor, supply chain disruptions could spread swiftly across globally dispersed industries and actors, as shown by the impact of other crises, such as SARS in 2003, the floods in Thailand and the earthquake in Japan. The two years of the U.S.-China trade war have led to geographical reconfiguration of global supply chains to a relatively limited extent, while the COVID-19 pandemic is accelerating this process enormously due to its scale and scope. In this situation, national governments and other institutions have expanded their interaction with MNCs that are moving towards contingency planning and greater riskawareness in strategic planning. The chapter unfolds recent developments in South-East Asia and Singapore amidst the COVID-19 pandemic from the perspective of protecting strategic sectors embedded in the existing global value chains as well as from a micro-economic perspective related to the trends in the internationalization of firms.</p>	Impacts and strategies
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18	Large Firms and COVID-19: Insights from Brazil	Thomaz Wood Jr., Jorge Carneiro and Maria Tereza Leme Fleury	This chapter presents the new mindsets of firms in a country hit particularly hard by the COVID-19 pandemic, Brazil	<p>They used a typology by Caldas and Wood (2007), which considers two dimensions for the classification of firms: the external factors and internal factors.</p> <p>The former can be classified as favorable or unfavorable, and the latter as articulated or disarticulated. The typology allows speculation of possible movements of companies between the quadrants due to the impacts of COVID-19 on the competitive environment</p>	case study	Brazilian firms	<p>Executives of large firms operating in Brazil, both domestic and international, as well as from public administration bodies believe that the adaptations that many organizations made to deal with the COVID-19 crisis will most probably have long-lasting effects on numerous dimensions of business management. While the informants have acknowledged the utmost severity of the COVID-19 caused crisis, they have presented an overall positive outlook for the post-crisis prospects. The authors address the following dimensions: customer service and relations, labor relations, supply chain change, and redesigning of organizational culture. Agility, transparency, resilience, operational risk management, as well as evidence-based management, have been the buzz words coming to mind. New perspectives, attitudes and behaviors to running businesses should prove useful during and post the COVID-19 pandemic. At macro level, it is very likely that deglobalization may set in as governments and companies take radical safety measures to reduce hugely their dependency on foreign supplies and links</p>	Impacts and strategies
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19	Disrupting Globalization Prospects for States and Firms in International Business	Svetla Marinova	It is a conclusion of the book	not mentioned	The chapter makes a case for a better understanding of the new role of nation-state, international firms and strategic sectors, as well as access to resource and institutional capital in view of the upcoming regionalism around powerful pivots.		The author proposes that the COVID-19 pandemic could be regarded as a critical juncture setting an abrupt process of change the consequences of which are still to unfold, but which is redefining the world in terms of political, economic, technological, sociological, and moral perceptions. COVID-19 has shown the need for placing the life of people in the centre of international business with a thoughtful redefinition of its economic, psychological, sociological and environmental effects on individual, organization, ecosystem and societal levels	
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20	Risk management: rethinking fashion supply chain management for multinational corporations in light of the COVID-19 outbreak.	McMaster et al. (2020)	To study the implications of the 2020 COVID-19 pandemic on the supply chains of fashion multinational corporations	<p><b>lean supply chain management</b> (focus on cost minimization and waste elimination; Fast fashion grew dramatically in the 1990s by offshoring production to low-cost manufacturing countries such as Bangladesh, China, and India where lean supply strategies were executed to reduce wastage and improve cost efficiencies; applied to upstream) -</p> <p><b>Agile (flexible) supply chain management</b> (focus on immediate response to urgent deliveries and order fulfillment rates, applied to downstream; used to respond to the increase in volume and variety, change in customer preferences)</p>	Literature review	fashion industry	<p>- While lean supply chain management is primarily favored for its cost and waste reduction advantages, the structure is limited by the lack of supply chain transparency that results as well as the increasing demand volatility observed even before the COVID-19 outbreak. Although this problem might exist in the agile supply chain, agile supply chains combat this by focusing on enhancing communication and buyer-supplier relationships to improve information exchange. However, this structure also entails an associated increase in inventory and inventory costs. - The COVID-19 pandemic has caused supply and demand disruptions which have resonating effects on supply chain activities and management, indicating a need to build flexibility to mitigate epidemic and demand risks.</p>	supply chain disruptions and COVID-19
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## Appendix 2 : Screen shot with coding from NVivo

### Design and Product Development Segment

#### Impact

#### Consumer Preferences

The screenshot displays the NVivo software interface. On the left is a dark blue sidebar with navigation options: NVIVO, DATA CODING, Quick Access, IMPORT (Data, Files, File Classifications, Externals), ORGANIZE (Coding, Relationships, Relationship Types), Cases, Notes, Sets, EXPLORE (Queries, Visualizations, Maps), and Reports.

The main window is divided into two panes. The left pane shows a hierarchical codebook structure with columns for Name, Files, and References. The right pane shows a text excerpt with applied codes and their coverage percentages.

Name	Files	References
context background	1	2
Design and Product Development	6	12
Impacts	2	2
Customer preferences	2	2
Strategies	5	10
R & D; Innovation	5	10
Sourcing and manufacturing	2	3
Impacts	28	72
close of facilities	8	9
decrease in production	7	7
financial shock	7	11
logistics and transport	5	5
order cancellation	13	20
pile of stock	2	2
supply shortage	6	6
workforce issues	11	12
strategies	24	63

The right pane shows a text excerpt with applied codes and their coverage percentages:

<Files\At Calvin Klein and Tommy Hilfiger, a New CEO Adapts to How We Shop Now - WSJ> - § 1 reference coded [2.05% Coverage]

Reference 1 - 2.05% Coverage

It starts with recognizing that [Covid-19, the illness caused by the new virus,] accelerated underlying consumer trends. Things that would have taken four to five years normally, now are taking one year. Consumers are moving to e-commerce, casual clothing and sustainability. They won't go back to shopping the way they did before the pandemic. We need to position the company for the new normal.

<Files\How China's textile industry is emerging from the pandemic> - § 1 reference coded [1.80% Coverage]

Reference 1 - 1.80% Coverage

Faced with a whole new environment, the Chinese clothing industry has increasingly focused on the product in recent years. Efforts have been made to improve product adaptability based on changes in consumer demand, from various aspects such as technological, design, management and service innovation.

The bottom status bar shows: JMS 36 Items Files: 2 References: 2 Unfiltered. The bottom right corner shows a zoom level of 90%.

## Strategies

### Research & Development; Innovation

**Codes**

Name	Files	References
context background	1	2
Design and Product Development	6	12
Impacts	2	2
Customer preferences	2	2
Strategies	5	10
R & D; Innovation	5	10
Sourcing and manufacturing	2	3
Impacts	28	72
close of facilities	8	9
decrease in production	7	7
financial shock	7	11
logistics and transport	5	5
order cancellation	13	20
pile of stock	2	2
supply shortage	6	6
workforce issues	11	12
strategies	24	63

**References**

<Files\\2021 a critical year for EU textile and clothing industry> - \$ 1 reference coded [5.72% Coverage]

Reference 1 - 5.72% Coverage

"European textiles and apparel companies have shown great resilience and flexibility during this pandemic, but continue to face global challenges. Now is the time to design a modern framework to support these companies in their transition process. We need to focus on promoting innovation, offering support towards digitalisation, creating robust supply chains and ensure a level playing field," said Euratex director-general Dirk Vantghem.

<Files\\Apparel shopping goes phut in COVID-19 crisis> - \$ 1 reference coded [5.37% Coverage]

Reference 1 - 5.37% Coverage

Enrique Silla whose team is developing sanitisation solutions for the global apparel industry. Silla, who has developed an ozone-based technology for sanitisation and disinfecting face protection masks, says, "The world will not be the same after COVID-19. For the textile industry is very important to recover the trust of consumer. Only through sanitizing, brands will be able to speed up regaining consumers' trust, guaranteeing the fast recovery of our industry.

<Files\\How China's textile industry is emerging from the pandemic> - \$ 1 reference coded [2.68% Coverage]

Reference 1 - 2.68% Coverage

Faced with a whole new environment, the Chinese clothing industry has increasingly focused on the product in recent years. Efforts have been made to improve product adaptability based on changes in consumer demand, from various aspects such as technological, design, management and service innovation. Companies are actively taking into account fashion aesthetics, functionality and ecological and environmental protection to meet consumer demand.

**Summary**

**References**

**PDF**

In Codes

Code to collaboration (Codes\\Wholesale; retail; distribution and customer's strategies)

JMS 36 Items Files: 5 References: 10 Unfiltered

100%

## Sourcing and Manufacturing Segment

### Impacts

#### Close of Facilities

The screenshot displays the NVivo software interface. The left sidebar shows the project structure with 'Codes' expanded. The main window shows the 'Code' tab with a tree view of codes and a list of references for the 'close of facilities' code.

**Codes Tree View:**

Name	Files	References
context background	1	2
Design and Product Development	6	12
Impacts	2	2
Customer preferences	2	2
Strategies	5	10
R & D; Innovation	5	10
Sourcing and manufacturing	2	3
Impacts	28	72
close of facilities	8	9
decrease in production	7	7
financial shock	7	11
logistics and transport	5	5
order cancellation	13	20
pile of stock	2	2
supply shortage	6	6
workforce issues	11	12
strategies	24	63

**References for 'close of facilities':**

- <Files\Annual T and A Industry Report-2021> - \$ 1 reference coded [0.51% Coverage]
 

Reference 1 - 0.51% Coverage

Manufacturing Shutdown The industry faced a complete shutdown for around 2-3 months, while a few manufacturers who dedicated their production systems for PPE manufacturing were permitted to function. However, most of the units operated at suboptimal utilization levels for next several months.
- <Files\Bangladesh...Coronavirus disruptions deal severe blow to Bangladesh's garment industry> - \$ 1 reference coded [1.70% Coverage]
 

Reference 1 - 1.70% Coverage

Since March 2020 a number of 179 factories have been forced to shut down, and many are in the queue," says Huq. She acknowledges that European contractors are struggling, too, due to store closures caused by national lockdown measures, but says scrapping orders which causes financial losses for one party was "unjust
- <Files\Canceled orders, delayed payments, How supplier collaboration could reverse apparel's nose dive - Supply Chain Dive> - \$ 1 reference coded [1.20% Coverage]
 

Reference 1 - 1.20% Coverage

"Factory closures set off a series of devastating consequences from which the entire apparel industry supply chain will struggle to rebound – from inability to manufacture products, to difficult supplier selection, to mistrust across industry partners," wrote BCG researchers.
- <Files\Ethiopia's textile sector battles against setbacks> - \$ 1 reference coded [0.98% Coverage]
 

Reference 1 - 0.98% Coverage

**Bottom Bar:** JMS 36 Items Files: 8 References: 9 % Unfiltered

## Strategies

### Adjustment, creativity, and flexibility

The screenshot displays the NVivo software interface. On the left is a dark blue sidebar with navigation options: NVivo, DATA CODING..., Quick Access, IMPORT, Data (Files, File Classifications, Externals), ORGANIZE, Coding (Codes, Relationships, Relationship Types), Cases, Notes, Sets, EXPLORE, Queries, Visualizations (Maps), and Reports.

The main window is titled 'Codes' and features a search bar. Below it is a table listing codes and their associated file and reference counts:

Name	Files	References
close of facilities	8	9
decrease in production	7	7
financial shock	7	11
logistics and transport	5	5
order cancellation	13	20
pile of stock	2	2
supply shortage	6	6
workforce issues	11	12
strategies	24	63
Adjustment, creativity, resilient, flexibility, liquidity	7	15
Diversification	8	8
Employee safety; Empl	3	9
external relations	7	9
layoffs	7	11
Reconfiguration	3	10
Reshoring	1	1
Wholesale; retail; distribution and customer	26	69
impacts	21	44

The 'Adjustment, creativity, resilient, flexibility, liquidity' code is selected. The right pane shows the text from the selected code, including references to articles like 'Calvin Klein and Tommy Hilfiger, a New CEO Adapts to How We Shop Now - WSJ' and 'Could India Trade Journals: Supplant China as the 'World's Factory''.

At the bottom, the status bar indicates: JMS 36 Items Files: 7 References: 15 Unfiltered. The zoom level is set to 100%.

## Wholesale/Retail Distribution and Consumers Segment

### Impacts

#### Close of Major Brands







