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UNILEVER: POST-COVID IMPROVISATION IN SUPPLY CHAIN MANAGEMENT PROCESS

Thesis
CENTRIA UNIVERSITY OF APPLIED SCIENCES
Bachelor of Business Administration, International Business
September 2023

ABSTRACT

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Degree programme Bachelor of Business Administration, International Business		
Name of thesis POST-COVID IMPROVISATION IN SUPPLY CHAIN MANAGEMENT PROCESS		
Centria supervisor Paula Tornikoski		**Pages** 33 + 2
Instructor representing commissioning institution or company Wardah Malik		

This thesis is about the improvisation of the Unilever supply chain after the outbreak of COVID-19. The introduction discusses the company and the re-arrangement of the pattern of its supply chain during and after the pandemic. The questionnaire survey method has been used to fetch the population's responses. A total of 15 responses have been collected and analyzed which helped to understand how the supply chain structure was improvised and how Unilever used the agility process to respond to the changing circumstances quickly. This research thesis also discussed the whole process of overseeing the function of the supplier and a complete set of disciplinary procedures to amend their role if it contradicts the pre-set strategies and guidelines. Now Unilever is in a pre-emptive position to use the agility process to quickly respond to the changing circumstances and fix its supply chain and arrangements with the suppliers to quickly adapt to the changing demands and supply of the market.

Keywords
Inbound logistics, Outbound Logistics, Responsible Sourcing Policy (RSP), Supply Chain

CONTENTS

FIGURES

TABLES

1 INTRODUCTION

Authors of nineteenth century tried to explain the Supply Chain as a component of the management philosophy, the target group, the objective(s), and the broad means for achieving these objectives. The object of supply chain is the net-work of organizations and their corresponding departments which are coordinated through the linkages of up and down streams in different functions, operations, and activities that give rise to products and services in the hands of final consumers (Stadtler 2014:3-28). Apprehending a broader concept, a supply chain comprises of two or more separate legal entities which are linked together due to the flow of raw material, semi-finished products (services), information, and funds flow. These entities could be the parts manufacturers, components, end product, logistics-service providers, and the final consumer.

A network often not only deals within one chain but also deals with diversified chain flows within a perplex network consequent upon various customer orders to be dealt with simultaneously. In order to deal with such complexity, an organization concentrates only on one part of an overall supply chain. For example, if we look at the downstream of a supply chain an organization may be limited by the customers and then its customer onward and in the upstream the terminal is suppliers of suppliers.

Moreover, the supply chain terminology is also applicable to the companies having various sites sometimes with locations in different countries. Exchanging material, semi-finished products, information, and flow of finances for the multinational and global organization is really a difficult task and needs to be handled in a very organized manner. Since these different sites are part of one coordinated entity therefore the decision-making process by one single top-level management must be easier. In broader point of view a supply chain is also known as an *inter-organizational* supply chain, whereas *intra-organizational* supply chain concept is a narrower concept. An effective co-ordination of different functional units such as procurement, manufacturing, marketing, logistics, and finance is inevitable irrespective of the distinctions of inter-company and intra-company supply chain set-ups.

Now the objectives triggering all endeavors within supply chain are acknowledged as making

organization more and more competitive. The reason is that not a single unit of a corporation is deemed to be solely responsible to achieve products and services competitiveness but it is the whole chain which makes contribution in this regard. Therefore, regarding competition effectiveness, there is a shift from single companies to an effective supply chain. Now it is a win-win situation for each participant of the supply chain to achieve competitiveness in the long run whereas in the short run, this might not be the case for certain entities.

The two secrets of achieving competitiveness in supply chain is the closer integration of the participants and smooth flow of information, finances, material, semi-finished, and finished products & services (Bhatnagar and Sohal 2005:443-456.). Overcoming organizational barriers, aligning strategies andspeeding up flows along the supply chain are common subjects in this respect.

FIGURE 1: SUPPLY CHAIN PROCESS (ADAPTED FROM STUDENT PROJECTS)

In a nutshell, now we can define the terminology of supply chain as an integration and collection of inter-organizational and intra-organizational functions, activities, and units with the aim of flow of raw material, semi and finished products & services, financials, and information to achieve the competitive advantage against those supply chains existing and operating in the market in isolation of it.

Strictly speaking in terms of fast-moving consumer goods (FMCG), an overall supply chain is distributed into its two dimensions. One is before the manufacturing starts which is called inbound

logistics and second is after the semi-finished or finished product is ready for sale which is known as outbound logistics. There is a huge bunch of research in the logistics studies.

Incoming raw material received in an organizational production department goes through a process until converted into finished goods which is called inbound logistics. A production manager in-charge of inbound logistics monitors all phases of incoming resource flows requisitioned by the company to manufacture goods or services. For the cost and other effectiveness of inbound logistics it is imperative to manage supplier connections, negotiation, obtaining raw materials, price bargain, economic order quantity, buffer stocking, and fast delivery arrangements. Warehouse management is one of the significant parts of inbound logistics.

Two main components are the storage and transit. For the safe accessibility of the finished goods, it is unavoidable for the finished goods warehouse manager to maintain proper organization keeping in view the companies' policy such as first in first out (FIFO) or last in first out (LIFO). Moreover, proper organization in terms of maintaining a trade-off between overstocking and running out of stock and inability to quench the orders is also essential (Shakeri 2008:857-864).

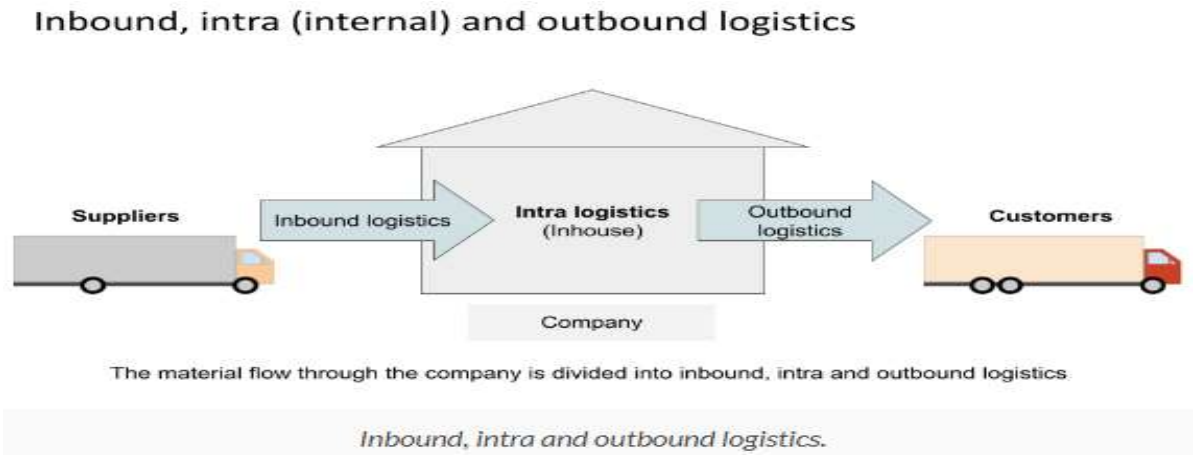

Figure 2: Inbound and Outbound Logistics (adopted from Logistiikan Maailma, 2023)

Due to the outbreak of the COVID-19 the demand and supply forces of global supply chain have adversely been affected. The supply had greatly been reduced and mismatched with the rising demand of different fast moving consumer goods which led to the price hikes. Since early February 2020, there was a continuous increase in the COVID-19 cases in Asia, Europe, and USA which resulted in the cross-border movement restrictions, quarantine, and lock-downs. Consequently, there was a massive decline in the global trade of FMCG ranging from 13% to 32% (Vo T.D. and Tran 2021:1-7). Most of the global supply chains (GSCs) especially the FMCG's chains were victimized by this unleashed

pandemic (Ivanov and Rozhkov 2020:1285-1301). The Global cost had direct proportion with the affected countries' number and secondly the lockdowns policies' spell. More over regarding cost the multi-dimensional influence of the pandemic was also the driving factor for the global cost (Guan, Wang, Hallegatte, Davis, Huo, Li, Bai, Lei, Xue, Coffman, and Cheng 2020:577-587). This pandemic has not only a consistent effect on different communities and countries but also threatened the supply chain resilience of almost all industries. The severest COVID-19 influence had been on the 94% of the fortune 1000 companies to COVID-19 (Rahman 2020:481-490). According to the Resilinc system the 1000 largest global supply chains owned more than 12000 service facilities in the areas of quarantine (Ivanov, 2020:387-407). According to the report by a data analytics firm Dun and Bradstreet (2020), 51000 organizations had direct suppliers and around five million companies had tier-two suppliers in Wuhan, China being the main origin of the Pandemic. There had been a major transformation in the traditional job environment & requirements and now the platform organizations are endeavouring with mobile and remote services, flexibility with working hours, and seeking across-the-board services (Nguyen, Joty, Wu, and Aw, 2020:1-4). Therefore, in a nutshell, we can say that after COVID-19 the transformational changes include an abrupt deployment of the resources by the government as well as the private sector to quench the changing demand situation. Consequently, the supply chain emerged with more agile behaviours and mindset at corporate and customer levels. There appeared to an increased supply chain risks to the traditional setup which gave rise to the establishment of consecrate risk management and risk mitigating policies with extensive accentuation on supply chain management. There was a rising concern among the masses for the shortage of the much-needed FMCG's and supply chain disruptions thereby causing a re-evaluation of the suppliers' footprints and regionalization of inventory so that the consumers are closer to the goods storage. Exploring new approaches and ways of supplying goods to the consumers such as working remotely and online ordering the result became the focus on capacity building by introducing online channels as well as embedding applications and expertise such as shared service centers, end-to-end planning, and automation for the sake of sustainability pacing up the societal push due to the enhanced threat of pandemic spread as a perceived shutdown benefit.

2 THEORETICAL FRAMEWORK

A theoretical framework forms part of the concepts, existing theories and explanation of the terminologies specific to the subject matter (Unilever's Supply chain) and its components (Varpio, Paradis, Uijtdehaage, and Young, 2020:989-994). The purpose of this chapter is to understand and demonstrate a thorough understanding of Unilever supply chain its participants and its post-COVID improvisation. It also includes all its relevant concepts which help to relate it to the broader knowledge of the field of study and also help to pave a way towards the development of an effective thesis. This theoretical framework has been established after gaining a comprehension regarding the Unilever's supply chain and suppliers management and its changes after the outbreak of the COVID-19.

2.1 Post COVID-19 impacts

The COVID-19 has worsened the situation for the companies and there is low visibility for the corporations (Chung, Abubakar-Waziri, Kalaiarasan, Adcock, Dilliway, Fang, Pain, Kumar, Ransome, Savolainen, and Bhavsar, 2022:1-6), and the whole delivery process has been severely being influenced which negatively affected the productivity and revenue. The inbound logistics, in particular, inflicted severe impacts due to the COVID-19, which triggered troubles on numerous areas.

COVID-19 has created such negative consequences globally for consumers, markets, social life, and market all over the world which were absolutely unpredictable. The last resort in such situation for the world, at large, was the lockdowns which restricted the mobility of people, reduced the business scopes, and turned the consumer behaviour who panicked to pile up the stock. Under such circumstances, the FMCG supply chain sustainability remained at stake.

Consequent upon the COVID-19, the anxiety among businesses and end consumers totally disturbed the consumption approaches has caused the market anomalies. There was a huge shortage of medicines, disinfectants, equipment, and basic foodstuffs. Once the supply chain pattern set, it is unable to respond to sudden deviations and shocks of market. Retailers experienced increasing errors, delays, and costs in getting their deliveries. Consequently, it became indispensable to adopt various safety measures for safe transportation which needed more time than usual thereby causing delays and

higher costs for supplies. Moreover, most of the people started working from home and consumers started placing their orders online for all types of products. Thus, Walmart e-retail sales increased by 74% in April 2020, whereas the e-retail sales for the specialty stores (drugs, food, beverages, etc.) in USA increased by 141% monthly of 2020 first quarter, while traditional outlets' turnover fell by 1-5%. Resultantly, the retailers started shutting down their stores, being the terminals of the FMCG supply chain, started downsizing, and accessed ginormous product returns. One of the major problems was the shortage of the farmers and laborers in the agriculture sector for the food productions and processing due to the workers restricted movements and isolations of ill workers. Moreover, the input raw materials became restricted for a lot of companies. In addition, input delivery is limited for many companies, especially the raw material supply from hotspot countries of COVID-19 pandemic. Many SMEs, being the supply chain actors and lacking diversity, had to maintain a threshold level of supplies failed to maintain their sustainability during COVID-19 shock times. Many supply chain actors, primarily SMEs who do not have the versatility needed to maintain an acceptable level of supply, are unable to contribute to the sustainability of the chain in times of shock. So finally, they had to leave the supply chain, being unable to challenge the viability of all other participants.

Therefore, the recent research accentuates the requirement to develop more elastic FMCG supply chain which could respond quickly and effectively to the market shocks. Therefore, currently it is unavoidable to design such a sustainable FMCG-supply chain which is less human dependent and is more flexible and transparent. With the changing market needs it is unavoidable to shift traditional supply chain to digital supply chain incorporating a flexible flow of information and apparent visibility from producer-consumer. A digital supply chain can be instituted by the use of an advanced internet of things (IoT) based technology which can integrate production, processes, and people within the FMCG supply chain.

IoT is interpreted as a schematic interconnection of computers, mechanical and digital devices which incorporates the capability to transform data without human involvement over a pre-defined network. Internet of things, being a digital platform, is centralized combination of data which is collected through the use of the advanced technologies, such as barcodes, RFID tags, wireless sensors (WS), artificial intelligence (AI), and cloud computing. Based on the obtained inputs, this system gathers data, analyses them, & helps to make timely and better decisions. Particularly, by the use of the IoT all the participants of the supply chain are inter-connected through the sensors installed at each necessary terminal such as material inventory point, transportation, manufacturing, and supply of end product point. Linked production and service processes information helps the whole process of supply

chain more responsive, efficient, and controlled over the entire supply system ranging from the manufacturer, retailer and the end consumer, making it highly transparent, sustainable, and above all better security and safety due to better product monitoring (Malik, Dedeoglu, Kanhere, and Jurdak, 2019:184-193)

Numerous research studies are now highlighting the importance of the latest IoT platforms in evolving supply chain management systems. This advanced and flexible system is now more secure, safe, profitable, productive, visible, transparent, helpful in real-time data-collection and sustainable for product placement, increasingly transparent for physical distribution (transport conditions, destinations, etc.) accessible to all the participants of supply chain, effective & efficient. surveillance for the storage conditions, accurate and timely responsive to the market and final customer requirements. Such an improved integrated, flexible, and accessible networking and information storage and availability to the entire chain based on overseeing all the whole process and activities of each participant leaves room for FMCG-supply chain management to make informed, business efficient, and timely decisions for an effective performance regarding the demands of a particular market (Končar, Grubor, Marić, Vučenović, and Vukmirović, 2020:7391).

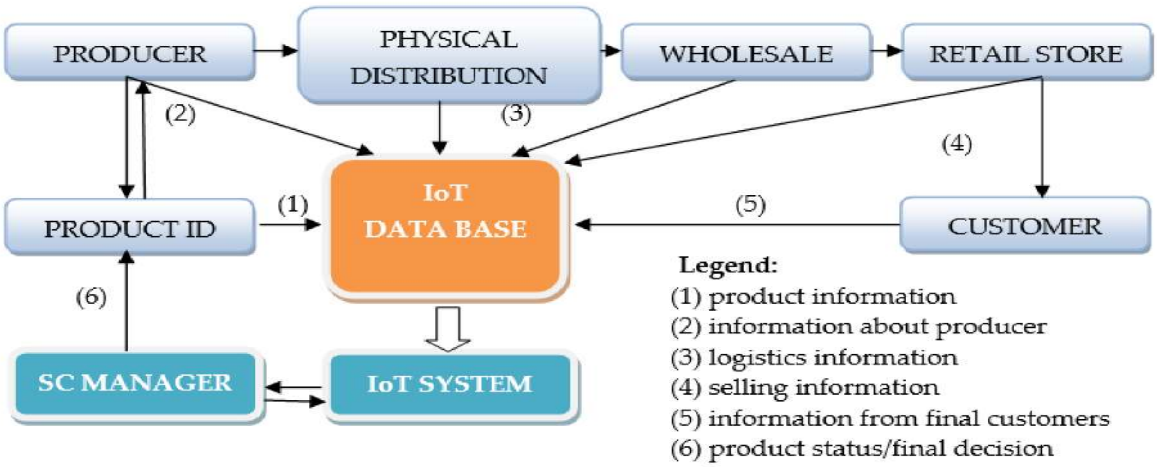

Figure 3: Internet of Things in Supply Chain (adapted from Končar, J., et al, 2020 p.7391)

2.2 Change in Behaviour

There are severe implications for the FMCG supply chains which requires more management of supply chain after the outbreak of the pandemic. Special provisions need to be made to update the logistics and other relevant activities to adjust with the future predicament (Hobbs 2020). Consequent upon the behavioural change and rising consumption of the basic FMCG in the market, there was a need to put

extra focus on manufacturing, procurement, and order processing. Real time FMCG demand and availability assessment of significantly high and low value items is a pre-requisite for the retailers. If price volatility, bottlenecks, and quantity ordered are not properly managed, there are likely to be high impacts on the revenue levels and streams. The changing customer needs have posed challenges which resulted into varying level of transformations in FMCG. The circumstances erupted due to COVID-19 caused a phenomenon of natural disruptions urging various FMCG organizations, viz., ITC, Proctor and Gamble, Unilever, and even the entire industry to re-engineer the processes and structures of their supply chain. There are huge prospectives when we look at the whole industry because it is at the verge of crossing 15 trillion dollars despite the major challenges it is facing. E-commerce growth coupled with traditional brick and mortar coupled with the growth of IoT is playing a catalytic role for the progression of this sector. The offline business also acted as supporters of backend players of the whole online system and E-commerce during lockdown period. The big shopping centres and mall were shifted to the hubs and networks of supply chains for a short period of time.

2.3 Panic Purchasing

COVID created a sense of panic among the consumers due to unprecedented change in the society status quo. The end-consumers felt the impact of emergency stock up of essentials during self-isolation. Therefore, observing the essential goods and commodities can provide first-hand knowledge of dealing with respect to the shelf life. For fastest moving goods with rather short shelf life, retailers have to tackle up the challenges of out-of-stock crisis due to unprecedented panic buying from consumers. Supply chain partners, therefore, should rework on the traditional processes in terms of planning, forecasting, replenishment of essential and low shelf-life products. Proper planning and assessment of consumer demand, logistics infrastructure, warehousing capabilities etc. are quintessential for managing the stockpile of critical FMCG items.

Retailers and partners should take certain steps to reduce the impact of panic buying and subsequent stockpiling activities by consumers. All the chances of future crisis need careful consideration. The understanding of the motivations behind such behaviours can also mitigate the negative effect of such behaviour at retail store level. However, putting a limit to purchases of critical items may deal with panic buying temporarily. But there is a need to explore the fundamental impact on the retail setups in case of chronic pandemic crisis and habitual panic buying (Hobbs, 2020:171-176).

2.4 Digitization and Disintermediation

Due to the crisis, the conventional retail seller in different shopping malls were severely affected, and there was a dire need to re-organize the partners and platform integrated on the supply chain. The outbreak of the coronavirus has compelled the FMCG manufacturers, suppliers, and distributors to go beyond their supply chain comfort zones. Because of the human resource lacking on different shifts, a lot of supply chain functions were put into halts. The intermediation of various supply chain players was removed and many of them were replaced with the digital nodes. Disintermediation has put digital supply chain on priority to ensure continuous supply of essential goods, viz., staples to households. Initially the digitization was proactive and revolutionary phenomenon but now it has become an indispensable and reactionary tool. Now most of the FMCG companies have developed quick and direct connections with the transportation companies.

The post-COVID catastrophe also accentuated on re-organizing the intermediary functions and the roles and responsibilities had to be re-assessed to deal with the upheaval. The objective of the retailers to shorten the supply chain by an active co-ordination with the distribution system was to make the supply chain more end consumer focused and established a new a peer-to-peer mechanism. The re-arrangement of supply chain with the inculcation of digitization models and applications to regulate the buying and consumption of groceries and FMCG's has given rise to a new mode of consumer behaviour. To cope up with such a shift it unavoidable to focus and mange procurement, logistic supports, third-party logistics, order completion, and customer support. COVID-19 played a catalytic role in the process of re-engineering and reshuffling supply chain strategies. It not only introduced the digitization but also caused a great shift of existing digital models of supply chains in for FMCG as well as industrial goods. Immediate and ginormous changes can be done by small coherent incremental changes. But for the long-term provisional solution, the overdue transformational shift is a pre-requisite in the traditional supply chains.

2.5 Resilient FMCG Supply Chain development

There was a need for the development of a design of supply chain which is resilient to the adaptive processes and corresponds to the external developments. Consequent upon the adverse influences on the unregulated distribution system the gigantic suppliers and retailers need to emphasize the customer preferences so that the supply chain could be kept intact. Most of the retailers want to keep their supply chain focused on their locality. Flexibility is the significant feature of the latest supply chain

model which makes the whole structure adaptable to altering conditions to meet unexpected circumstances (Huang, Li, Tsai, Chung, and Shih, 2014:1-15).

2.6 Retail Stakeholders Devolution

Continuous professional developments and awareness raising sessions for the employees, customers, and partners to deal with the pandemic could be an effective start. For FMCG retailers, compassionate and caring stakeholders' behaviour should be the significant part of the selling strategy. Organizations and partnering firms must hold the educating sessions for the in-house employees and external players including the distributors, suppliers, and partners. The regular oversight and monitoring of the workers in front end and health profiles of the clients being dealt with should update the rale time physical symptoms of the employees so that in case of any health impairment could timely be attended and treated with. The job related to the people exposure could be decided while considering the factors such as the immunity, age, and potential exposure-related aspects. An appropriate communication channels can be instituted by the supply chain stakeholders to minimize the end-consumer impact of panic purchasing (Hobbs, 2020:171-176).

Devolving power to the retail supply chain stakeholders was done by localization and regionalization. All the stakeholders jointly needed to re-evaluate the logistics decisions relating to the FMCG supplies such as handling, packaging, transportation, and warehousing. This was done by authorizing the partners and equipping the supply chain with the agile and efficient must be done to empower the partners and make the supply chain equipped with efficient and agile problem resolutions (Choi, 2020:1-23). Simultaneously, retailers could also search for the better and improved alternate supply chain, so that the lead time for the demand replenishment could be reduced. Close and constructive co-ordination with 3rd party logistics also assists in planning, and information sharing, thereby reinforcing the resilience process (Liu and Lee, 2018:5-21).

2.7 Planning for change in demand

While most of the sectors faced no or negligible demand most of the FMCG sectors faced multiple fluctuations in their demand such as delayed demand, exponentially high demand, and/or less demand. Rigid demand planning, single supply source, and conservative forecasting system can give rise to an adverse situation (Christopher, Lowson, and Peck, 2004:367-376). Planning for the demand and its fulfilment now is being done with more and more flexibility in the supply chain network with the IoT

(Internet of things). Necessary food items, hygiene and health care products and other nutrition items have been experienced as highly mobile in FMCG retail stores. There was an extreme recurrence in the demand of hand washers and the sanitizers. Consumers kept on looking for the products which were perceived to be featured with the sustainability and hygiene. Such consumer behaviours helped the supply chain players to anticipate the demand of the new offering. FMCG supply chain players should not under or overestimate the rigid overtones in the demand. In order to save the wastage of resources there is a need for real-time demand anticipation with added flexibility. Therefore, more resilient planning of demand can be done through optimal sourcing of goods.

FMCG retailers had to be very careful in their demand planning, forecasting, and replenishment dure to the varying level of short and long-term consumer behaviour shifts. Both essential and non-essential classified products were taken into consideration by setting up their priorities while assessing the suppliers and retailers' core competencies. End-to-end value chain players had to re-align and re-design their processes and operations either to increase or decrease the pace inventory movements.

2.8 Risk Management

Significant FMCG goods stock are now being managed on priority basis due to sudden panic stocking and purchasing behaviour. Consistent oversight of the risks related to the suppliers remained crucial during and after COVID because of an infinite list of private and store brands, global and national brands of FMCG goods. Companies must list down the key suppliers and should assess the weaknesses and strengths so that consistent retail requirements could be met. The significant approach could be to opt a consumption model which sustainably deals with the consumer goods. Aggregators, applications, and other identical service providers can be helpful to manage the suppliers and other risks of the Pandemic to uphold the sustainability of the existing FMCG supply chain models. There is transformation for all the supply chain players ranging from the producers to the consumers. In the business world after the pandemic there is a need to endeavour for the development of the sustainable and flexible supply chain models (Bai, Sarkis, Yin, and Dou, 2020:5893-5910). Supplier's risks can be mitigated with an appropriate optimization of suppliers' management on the basis of their behaviours, proneness and core competencies toward risk management. Indicators for the operations, inventories, orders and their fulfilments must be recorded on real time basis. High priority top-level brands had to be accommodated with the flexible lines while executing the manufacturing, packing and order completion. Co-ordinated communications and flexible plans for contingency had to be instituted into the system to handle any untoward and grave situations due to any distractions in the supply chain

disruptions. The intermediaries' roles should also be evaluated because they act as an interface between the smallest produces and interconnect their processes and actions to bring about grave provisional impact (De Sousa Jabbour, Jabbour, Hingley, Vilalta-Perdomo, Ramsden, and Twigg, 2020).

3 DATA ANALYSIS

Qualitative research helps to understand the behaviour and people's experience about the subject matter and conduct research on the data collected thereon (Nassaji 2015:129-132). There are two main approaches to collect data about the behaviour of selected population;

1- Interviewing
2- Survey analysis

In this research thesis, 15 people have been selected from Unilever PLC and their responses have been recorded. On the basis of the responses the company's supply chain pre and post COVID behaviour has been investigated and how it has expressed its agility towards automation after the outbreak of COVID. All the respondents were sent the questionnaire through emails by using the software Webropol. The reports were also generated through the Webropol and used to draw the analysis. The questions have been designed keeping in view the suppliers' behaviour, management, and a shift in the supply chain participants during and after the COVID-19. Four types of responses have been recorded for each question including "Strongly Disagree", "Disagree", "Agree", and "Strongly Agree". All the responses have been recorded in the tabular form and have been diagrammatically presented to grasp the quick idea of the responses.

3.1 Identification of the Alternative Suppliers to be Included in the Analysis

For the selection of the suppliers, it is inevitable for the manufacturer to keep the record of the suppliers intact in the files for the old and new suppliers (Venkatesh, Kang, Wang, Zhong, and Zhang, 2020:101896). The files for the supplier's information should include the following information;

1- the name of each supplier,
2- a list and prices of the materials from each of them,
3- the history of delivery regarding each supplier,
4- the record of quality for their supplies,
5- their overall desirability,
6- Any kind of previous conflict or litigation of with any of them with details, and

7- Suppliers' general information regarding their plants, manufacturing approach, and packing quality etc.

On the basis of all such details the suppliers' evaluation is undertaken and selection is done.

3.2 Identification of the Supplier Selection Criteria

The selection of the primary suppliers is undertaken on the basis of the healthy relationship among all the alternatives suppliers chosen from the available list of the suppliers. The best criteria for the selection of the supplier are the cost of the supplies, the quality of the material, and delivery turnaround. Other factors including the cultural conformance, their financial stability, technological capabilities, compatible co-ordination with top management, and location of manufacturing plants. The ideal supplier is the one that holds the best value and rating regarding all the features or criterion. This practice can be repeated by the company after regular interval whether or not the supplier has met the required level of rating for being selected. Moreover, the company might be required to develop the relationship with the new suppliers while fetching all the relevant information about the supplier (Khan and Ali 2021:1-30).

3.3 Unilever Policies for the Suppliers Management

Unilever's supplier code of conduct includes that their suppliers follow and respect the core principles of International Labor Organization (ILO), provide quality raw materials, follow the responsible selling and delivery practices, and discloses two types of quantitative data which demonstrate their responsible purchasing practices and responsibly manage the human trafficking and forced labour risks.

Unilever also take necessary actions for reporting grievances to an unbiased regulatory entity regarding suppliers' labour in the company's supply chain, existence of mechanism to co-ordinate with the supplier's labour, availability of data to the workers regarding the working operational mechanism, making sure that the working mechanism is trusted, and all the grievances are timely filed, addressed, and resolved (Sen, 2017).

Unilever also monitor their suppliers by making surprise visits, documents review, off-site workers interview, inspection of worker's housing and manufacturing plants. Company also takes the corrective actions for irregularities such as non-compliance which can be stop-working notices, censure notices, revision of policies, and supplementary pieces of training.

Regarding the responses to the questionnaire, Unilever depends on medium number of suppliers because half of the respondents agrees and half of them disagrees. This response is in comparison with the corporate level FMCG organizations such as the number of suppliers for Proctor and Gamble are more than 80000 whereas Unilever has more than 50000 suppliers.

Table 1: Suppliers Dependence

Unilever depends only on few suppliers?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	1	7	7	0

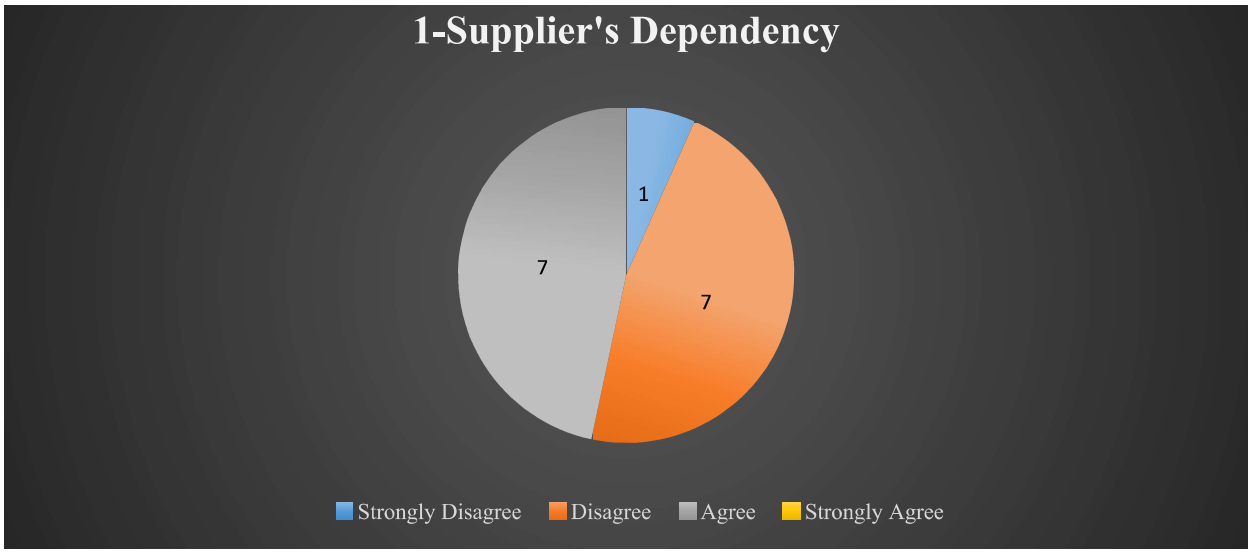

Figure 4: Suppliers' Dependency

Unilever depends on the quality of services while selecting the new suppliers. As mentioned earlier it considers cost, quality, and delivery turnaround for its choice of new supplier. In response to this question only 6 respondents believe that company does not care about the quality for the supplier's selections.

Table 2: Supplier's Selection Criteria

The only criteria for Unilever in selecting its supplier is the Quality of supplies?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	6	2	7

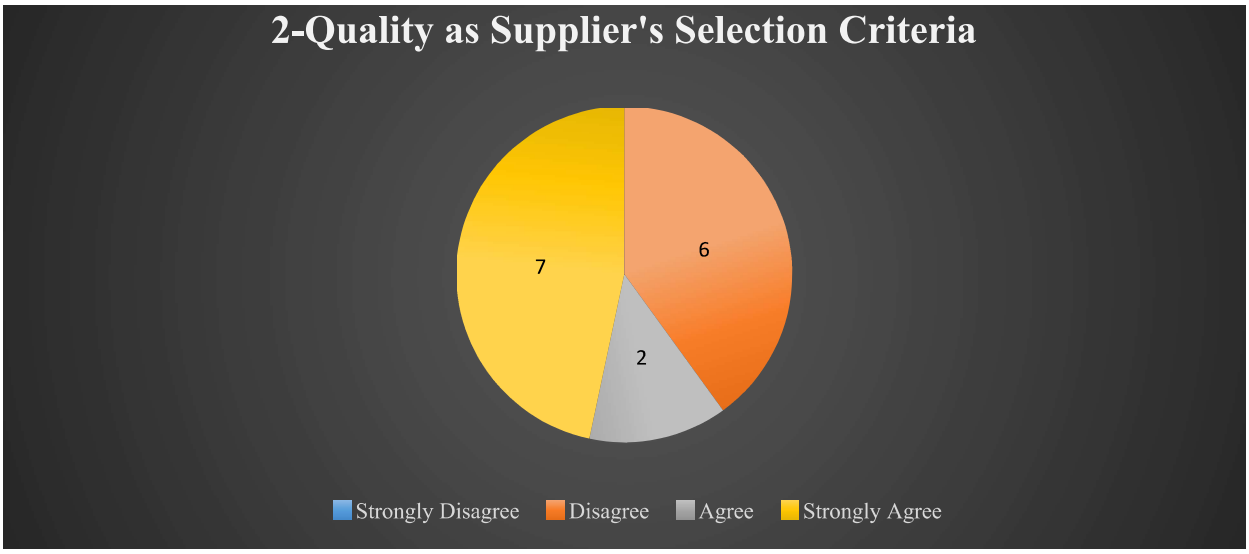

Figure 5: Supplier's Selection Criteria

Unilever has a complete and formal suppliers' management codes and policies which implies that it believes in the long-term relationship with the suppliers. Moreover, it has complete grievance and corrective action statutes indicating that it manages relationships with the suppliers (Wilshaw, Unger, Do Quynh, and Thu, 2013). Upon enquiring about the relationship with the suppliers the table and the figure below show that the respondents agree that Unilever believe in the long-term relationship with the suppliers. 14 out of the 15 respondents believe that Unilever maintains long-term relationship with the suppliers which evident from the fact that it is maintaining a comprehensive suppliers' managements policy.

Table 3: Suppliers' Long-term Relationship

Unilever believes in establishing long-term relationship with suppliers?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	1	0	8	6

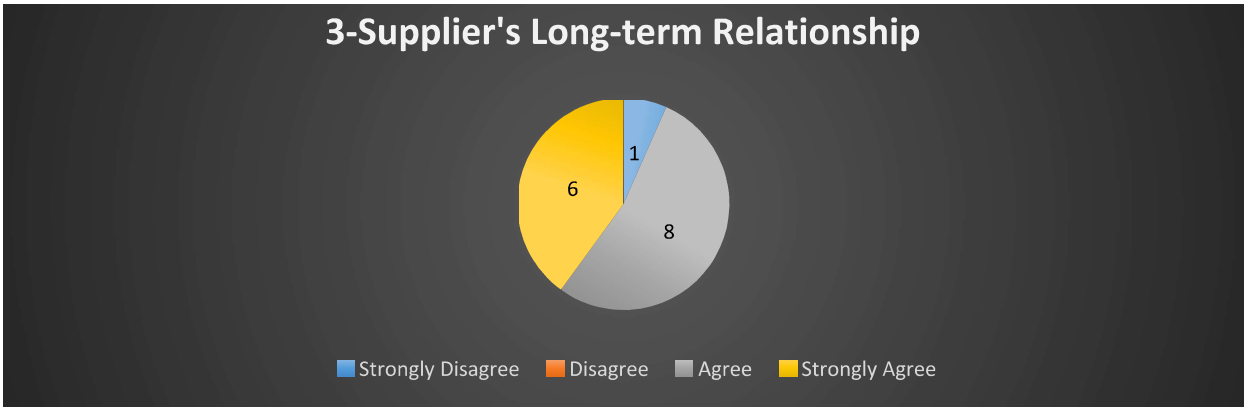

Figure 6: Suppliers' Long-term Relationship

As Unilever has a complete supplier management process and take notice of the irregularities by issuing notices and revision of policies which clearly indicates it has regular monitoring and inclination towards the resolution of any differences arising between them. From the table and the figure below, it can be seen that all the 15 responses are in favour of the fact that Unilever resolves any conflict arising with the suppliers and tries to resolve it constructively. 5 out of 15 strongly agree to this fact.

Table 4: Suppliers' Joint Issue Resolution

Unilever regularly resolves issues jointly with the suppliers?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	0	10	5

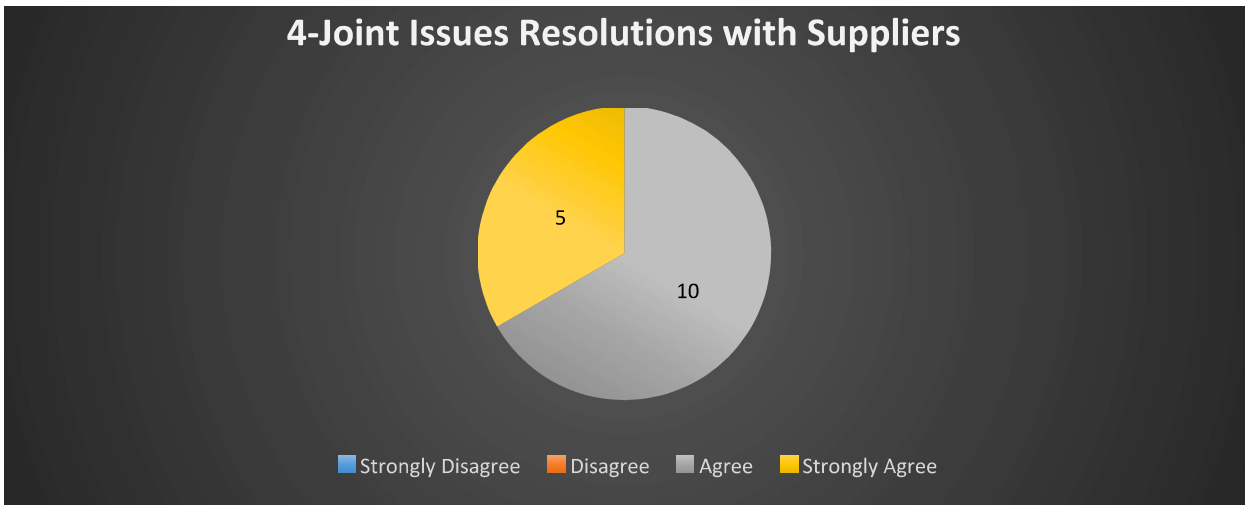

Figure 7: Suppliers' Joint Issue Resolution

According to the Unilever Responsible Sourcing Policy (RSP) Unilever can take appropriate action if it finds any of its supplier involving into the conflict of interest deliberately. Moreover, it also includes the requirements to become Unilever's supplier that it should be made aware of any government official, its representative, and political party's interest in the supplier's business. RSP has a complete set of guidelines titled as "Business is conducted lawfully and with Integrity" which governs the role of Unilever's suppliers and takes corrective action for any violation of the devised policies and rules (Paddock and Rao 2018:487). The table and the figure below show that 14 out of the 15 respondents believe that there is an active response from the Unilever management in case of any poor supplier's performance.

Table 5: Responding Poor Suppliers

Unilever is able to respond actively to poor suppliers' performances?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	1	10	4

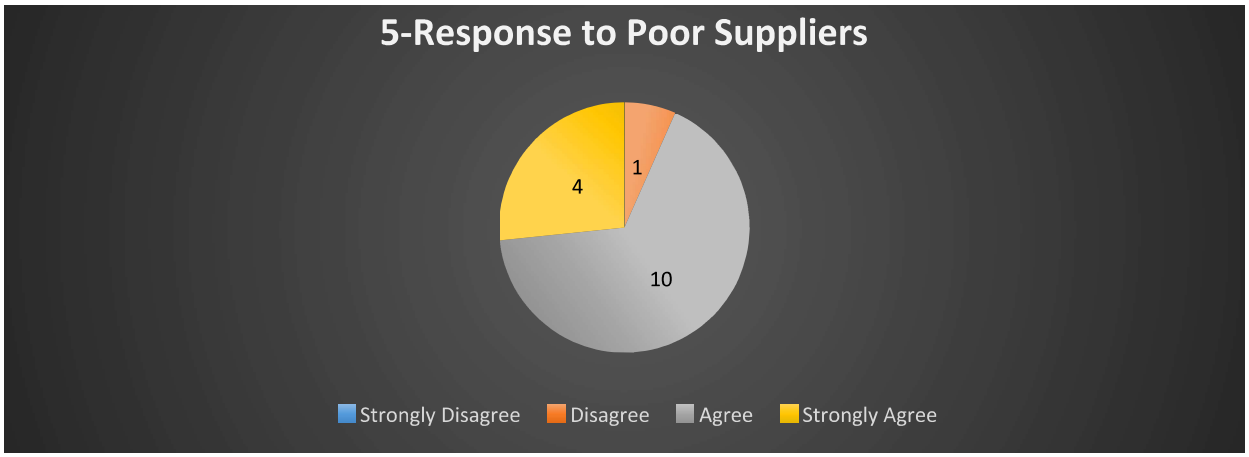

Figure 8: Responding Poor Suppliers

3.4 Unilever Economic Order Quantity

Economic Order Quantity is the optimal ordering quantity that enables an FMCG company to save its ordering and holding cost. Once the ordering quantity is calculated we can come up with the total cost of the ordering and holding which is the minimum hybrid cost of both (AGBOWO 2018). The formula for computing the EOQ is as under;

$$\text{Economic Order Quantity} = \sqrt{2 \times AR \times OC / CC}$$

Where AR = Annual Requirement

OC = Ordering Cost

CC = Carrying Cost or Holding Cost

The table below and the figure show that Unilever is using the EOQ model to optimize its inventory related costs.

Table 6: Economic Order Quantity

Unilever follows the policy of economic order quantity?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	1	10	4

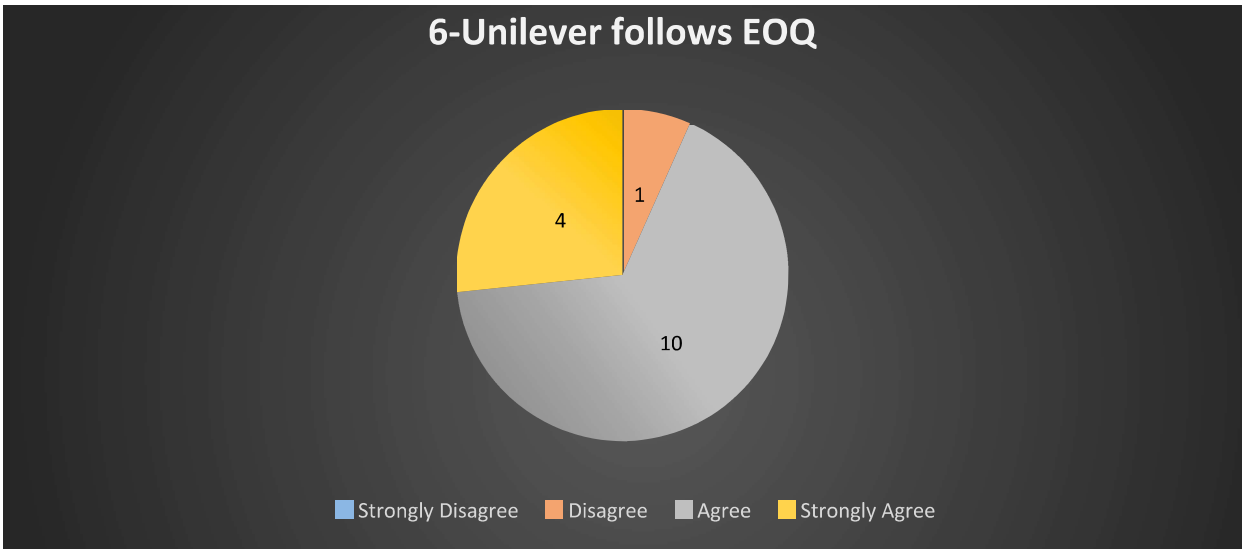

Figure 9: Economic Order Quantity

3.5 Unilever Customer Responses

In recent times it has become difficult to meet the consumer needs due to the variations of needs and diversified products features therefore, different companies are using different strategies to satisfy their consumers and one of the techniques is after sale services and quick response to the complaints and queries of the consumers. Now the companies are feeling the compelling needs for their survival to get themselves engaged into the programmes which can impact the consumers consumer decision making to buy their products. The sales promotion activities can be effective in this regard and can help to gain product awareness (Atubangira, 2019). This is where sales promotional activities are important. It will serve as a major tool in creating product awareness and condition the mind of a potential consumer to take eventual purchase decision. Unilever has a very quick response to its customers and believes in long-term relationship with its customers. From the table and figure below, it can be seen that 14 out of 15 respondents believe that it quickly responds to the customer's queries and complaints.

Table 7: Customer Response

Unilever has quick customer response time?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	1	8	6

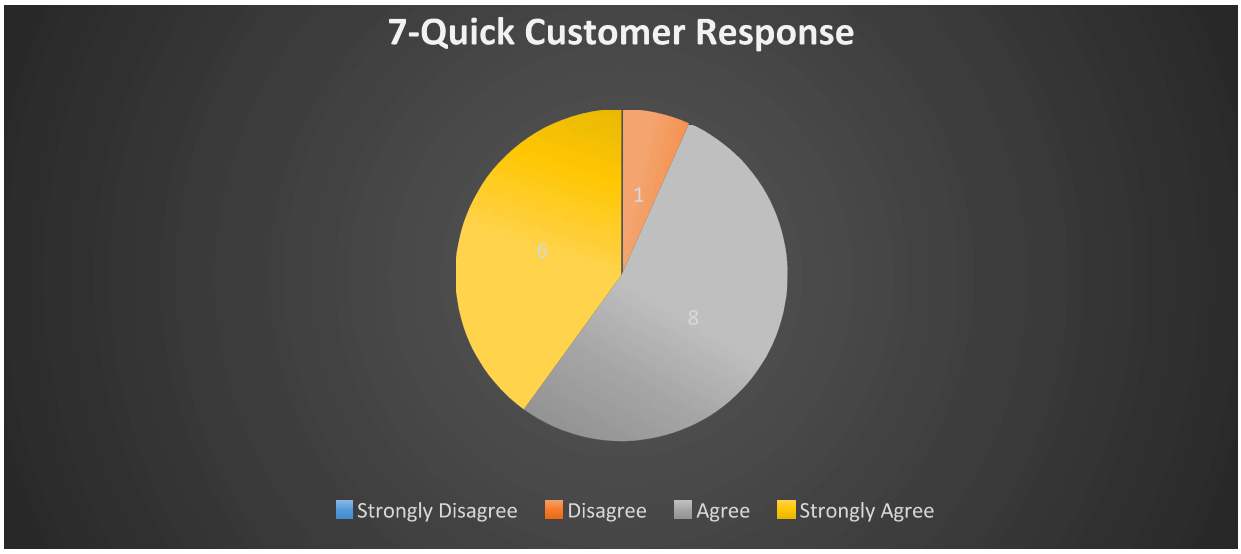

Figure 10: Customer Response

3.6 Co-ordination with Supply Chain Participants

Unilever has an active system of co-ordination with the supply chain participants. The information flows through out the supply chain members with accuracy, completeness, and adequacy (Mvubu, M., 2015). The manual of the Unilever Supply Chain includes a chapter, "The Connected Supply Chain" which exhibits the qualities of an effective supply chain in the following table;

Table 8: The Connected Supply Chain

Traits	Explanation
Agility & resilience	Unilever is always committed to the extend quality service therefore, they listen and gear timely actions to the signals to ensure the execution of rigorous and discipline responses.
Reshape asset and cost base	It is committed to the optimization of assets and cost base to achieve competitive growth.
Positive for people and planet	Objective of Sustainable living commonplace.
Future-fit talent	By making an investment in future fit abilities we are committed to add diversity and inclusivity in culture to develop world class supply chain.
Digital transformation	While exploiting data power and the technologies of 4th industrial revolution technologies we are shifting an end-to-end value chain in order to develop a competitive edge and sustainable supply chain.
Partner with purpose	It has exhibited its conviction to the purpose-led eco-system sustainability which reinforce market patronage for innovations, protect, and re-generate nature.

Table 8 above, table 9, and figure 11 below clearly indicate that Unilever has good timely co-ordination with all the members of the supply chain to achieve perfection as well as innovation with sustainability. 14 respondents vote in favour of this fact and 1 favour against it.

Table 9: Supply Chain Co-ordination

There is timely, accurate, complete, and adequate exchange of information between all supply chain participants?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	1	8	6

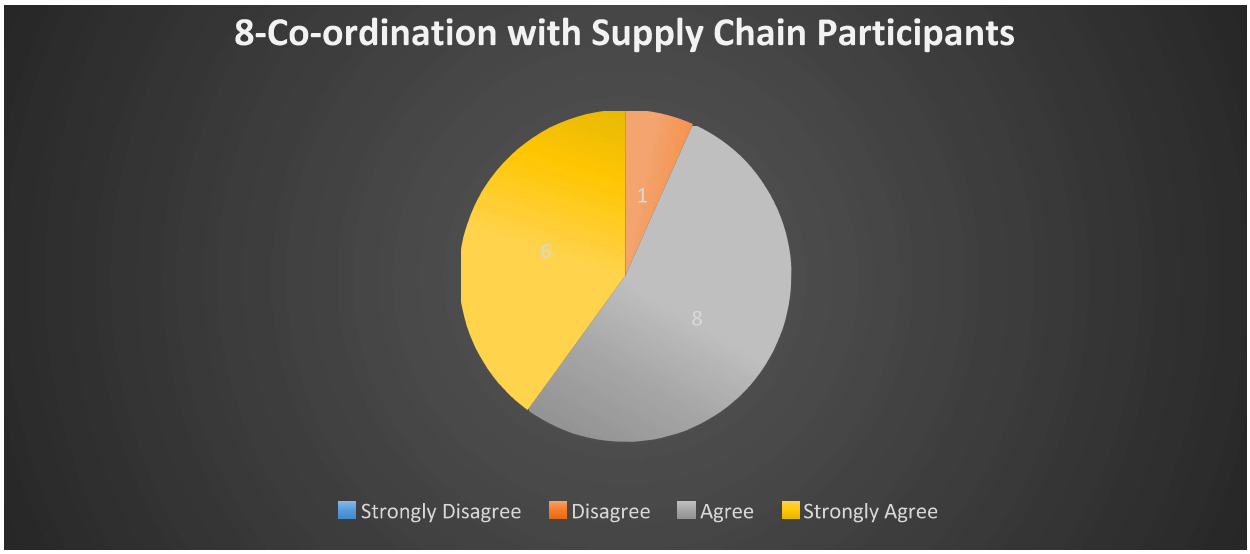

Figure 11: Supply Chain Co-ordination

3.7 Responses to the Seasonal Variations

Unilever, in their significant business strategy, believes that the winning businesses of tomorrow are always for those timely anticipating and responding to the massive market changes and endeavour to shape people's life globally (Chumket 2007). The businesses striving to capitalize the data power and biotechnology always achieve greatest success. 14 out of the 15 respondents believe in this fact that Unilever vigorously responds to the change in seasonal demand and market conditions which can be seen in the table and figure below.

Table 10: Demand Change Responses

Unilever vigorously respond to seasonal demand variations?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	1	8	6

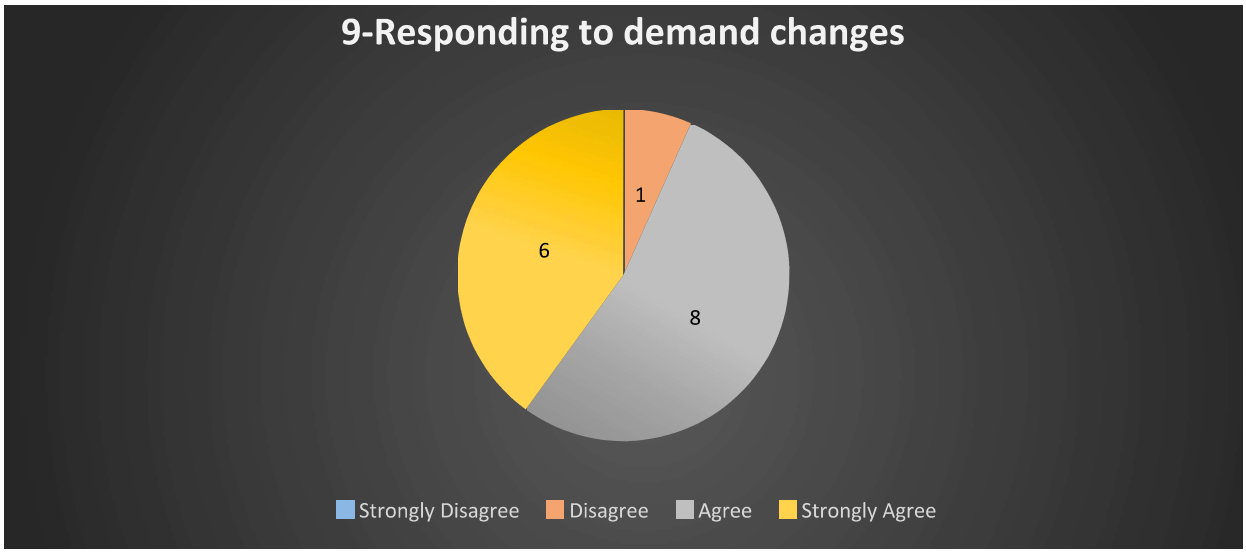

Figure 12: Demand Change Responses

3.8 Post-COVID Supply Chain

Unilever has a system of extracting real-time data of millions of products and thousands of suppliers through their wider data base network of co-ordination with big partners which comes out to be significantly valuable information and allow it to adjust to the changing conditions and circumstances and helps it to gain deeper insight to the value chain, thereby identifying loopholes and managing the potential risks. Therefore, according to the Ketchen and Craighead (2020) the firms having relatively low levels of big data analytics always underperform as compare to the firm having massive timely quantum of data analytics and such firm can better understand the behaviour, circumstances, and status of suppliers during and after the COVID-19 pandemic which helps the company to manage the raw material supply adversities (Pandey 2021: 34-43). The table and the figure below show that 13 out of the 15 respondents to the survey believe that Unilever uses the mapping process for supplier selection after COVID-19.

Table 11: Post Covid Supplier Selection

After COVID-19, Unilever has been following mapping process in supplier selection, depending upon risk and revenue?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	2	10	3

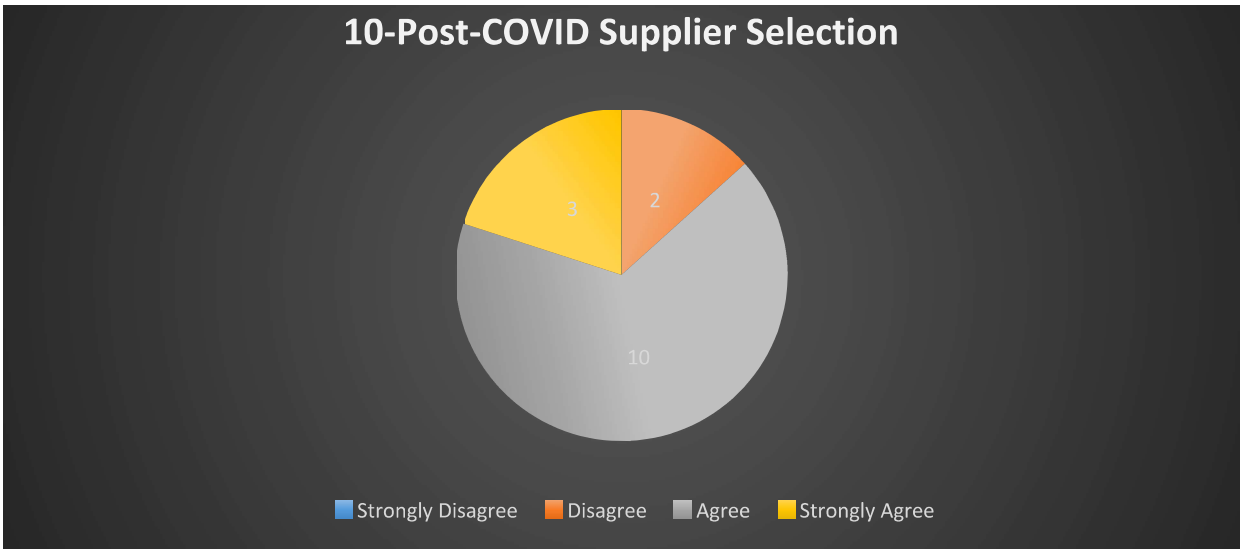

Figure 13: Post Covid Supplier Selection

3.9 Post COVID Digitization

According to the Unilever food solution fast tracked news, they were already having the digital transformation but it was fast tracked and was established in record pace with the achievements of four pillars including route to market by the creation of twenty-seven online shops, operators were shifted to the eCommerce platforms, digital sales where sales representatives were delegated the powers with a made-to-measure digital application which helps to enhance the productivity to access more operators, data hub which was created by consolidating all the researches and results which assisted all sales representatives with significant, intelligent, and at a glance customer view, and independent marketing where powers were devolved to the 54 markets to activate and send their independent campaigns which resulted in email trafficking of 14 million in numbers in a year compared to 4 million in the previous year with greater open and click through rates and having zero agency costs (Pandey 2021:34-43).

The table and the figure below show that 13 out of the 15 respondents agree to the fact that more than 50% of the businesses of Unilever has been digitally transformed.

Table 12: Post Covid Sale Transformation

More than 50% post-COVID sale of consumer goods shifted to online purchases?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	3	7	5

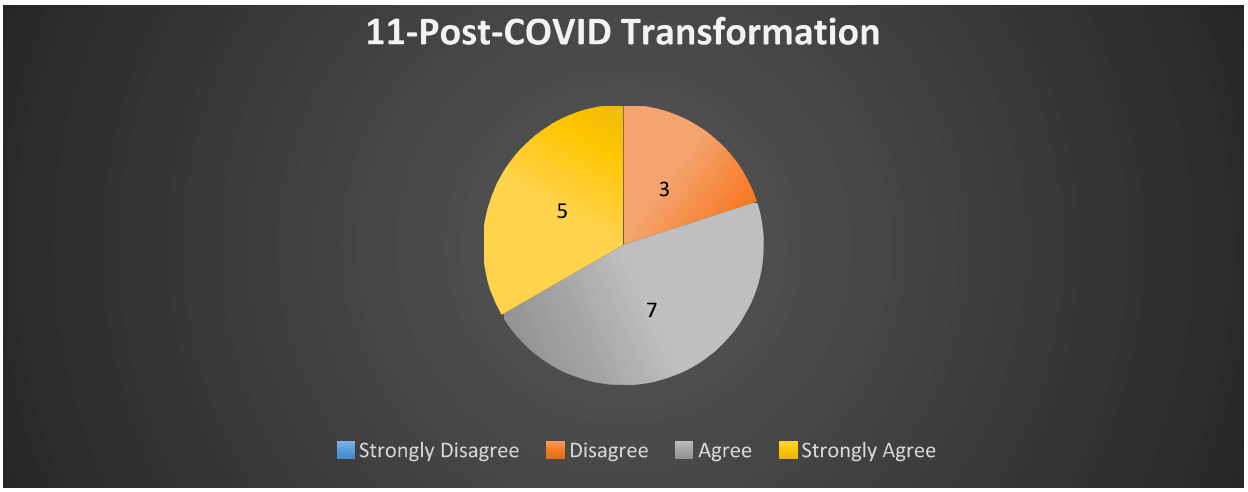

Figure 14: Post Covid Sale Transformation

The company had shifted to the online shops after the outbreak of the COVID 19 thereby digitizing the outbound logistics by the introduction of the applications and the software. All the 15 respondents believe that the company's outbound logistics were re-arranged after the outbreak of the COVID-19 and shifted to digitization of the demand side of the outbound logistics as shown in the following table and figure.

Table 13: Outbound Logistics

Unilever re-arranges the outbound logistics (demand side) by using software and applications after the outbreak of COVID-19?	Strongly Disagree	Disagree	Agree	Strongly Agree
Responses	0	0	11	4

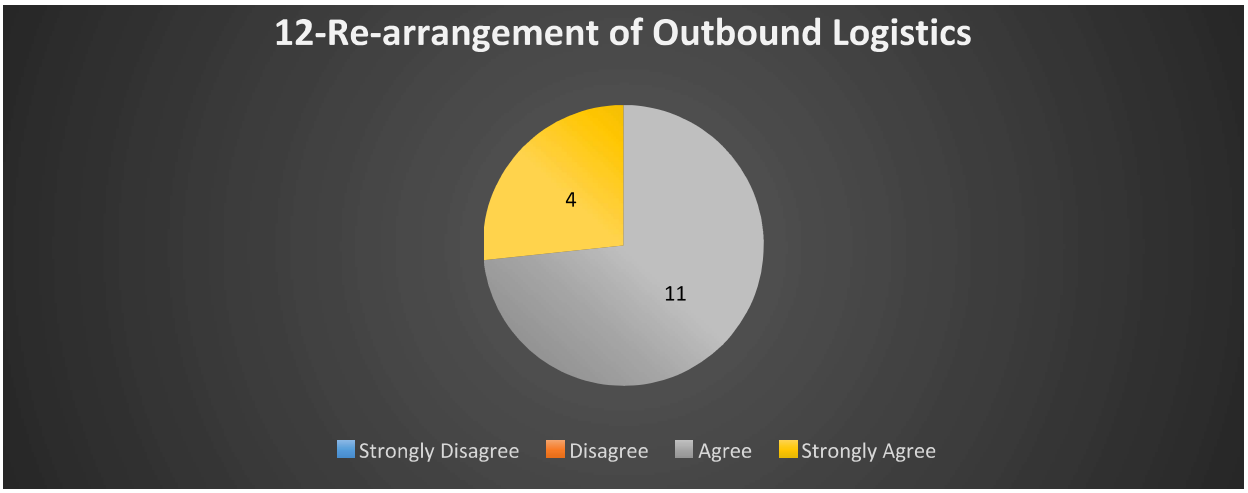

Figure 15: Outbound Logistics

3.10 Post-COVID Supply Chain Re-arrangements

According to Marc Engel, the Chief Supply Chain Office the outbreak of the COVID-19 has made the Unilever to encounter a series of stress tests. The national lockdowns have severely influenced the participants of global supply chain at all levels from production through to the distribution. The factory absenteeism and delivery drivers' shortages added fuel to the fire. Factor in demand had been swinging away from commercial consumers to the customer products, Engel told the Reuters on Wednesday in a conference titled as "Transforming Europe".

"Agility does trump forecast[ing]," CSCO said. "At the end of the day, every dollar we spent on agility has probably got a 10x return on every dollar spent on forecasting or scenario planning."

The very first test of this dogma appeared early in the epidemic when cleaning supplies demand went significantly up by around 600% in some cases. Company reduced its stock keeping unit (SKU) by 65% to deliver the company production lines.

"*A much simpler portfolio was required in order to make sure that we keep ourselves running*," Engel said.

For the forecasting purposes agility means shortening the planning cycle. The planning horizon has been shortened from 13 to four weeks. The meeting frequency reduced from weekly to daily. The customers' spendings and production volumes strayed away from the traditional trends therefore, the traditional artificial intelligence and baselines for demands were no longer applicable. The Chief Supply Chain Officer (CSCO) explained a firm and clear difference between resilience and agility in recent months.

"*Resilience is more around sourcing,*" Engel said.

Such as where to get the products from and how many markets do you search for that. But agility is in fact the capability to respond to the changing circumstances and market conditions. And this skill is used by the company to decide when to restore the SKU's on hold. The agility Engel explained it was due to the digitization that we could make agility possible and digitization was accelerated due to the pandemic. The company had been working through to connecting the supply chain to 20 billion devices which included the internet of things, data leverages, and process automation (Shen and Sun 2023: 359-383).

"*You know the digital transformation has been accelerated no-end through [COVID-19] and you do need an end-to-end digital transformation strategy to do all of this — also on the climate side*," Engel said.

Regarding the shortening of the supply chain and supply and demand shortages 14 out of the 15 respondents recorded "agree" and "strongly agree" responses and for post-COVID impacts setting new supply chain patterns without 100% restoration to its original trend 6 respondents recorded "agree" response and 8 persons recorded "strongly agree" response which can be seen in the following table and figure.

Table 14: Supply Chain Pattern

Questions Responses====>	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
COVID-19 has merged participants of inbound and outbound logistics and has shortened the chain?	0	1	11	3
Post COVID supply chain disruptions have caused the supply and demand shortages?	0	1	11	3
Post COVID recoveries left impacts on supply chain and led new patterns without its 100% pre-COVID restorations?	0	1	6	8

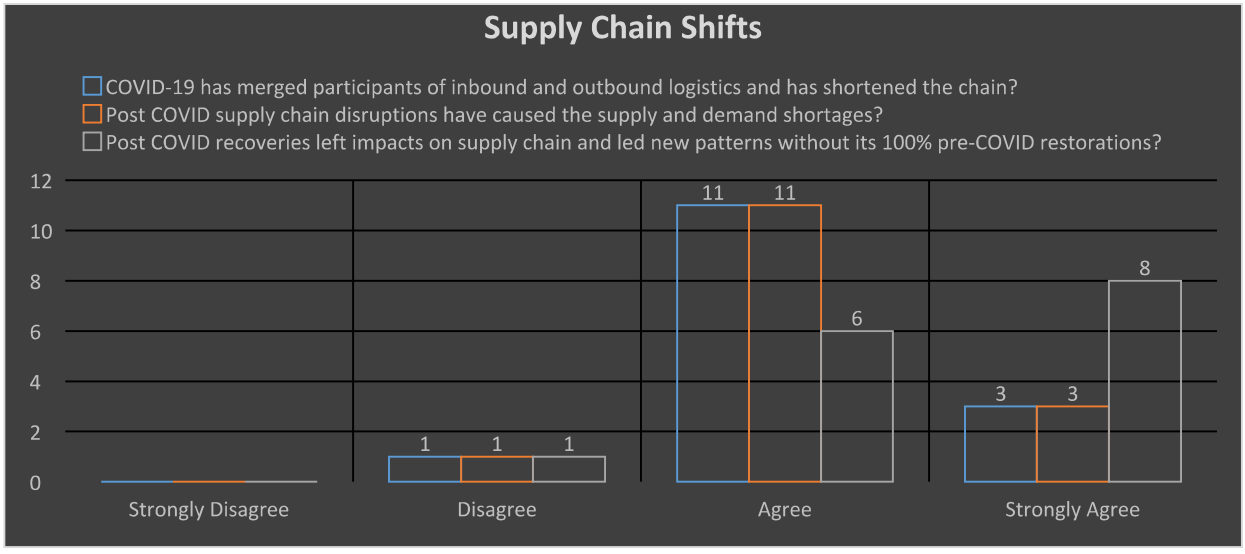

Figure 16: Supply Chain Pattern

4 CONCLUSION

Unilever has a very strong co-ordination with all the participants of the supply chain. It has established a complete mechanism and devised policies for regulating and overseeing their roles. Before the outbreak of COVID-19, Unilever was at the verge of digitizing of inbound and outbound logistics but the outbreak of the pandemic accelerated the process by under employing the agility process which resulted into a speedier and successful transformation into a digitized system. Now Unilever has a comprehensive database which pools the data from big suppliers and ginormous FMCG corporations which made the agility process successful. This database helps them to collect a real time data and to quickly respond to the changing circumstances. Consequently, their planning horizon changed from 13 weeks to 4 weeks, meeting schedule changed from weekly to daily, and the supply chain got connected with 20 billion devices causing the process automation, data leverages and internet of things.

Through the survey analysis it has been revealed that Unilever takes into consideration the quality of the suppliers' material and services as its selection base which serve as base for the long-term relationship. The responsible sourcing policy has been serving as a disciplinary policy which helps to monitor the suppliers and take appropriate action in case of any violation or dispute. Unilever has been using the economic order quantity for all its products. In a nutshell, Unilever's supply chain has been re-organized after the outbreak of COVID-19. Now the company has been following the strategy of agility which helps to quickly respond to the changing circumstances.

5 REFERENCES

AGBOWO, C.H., 2018. *AN APPRAISAL OF INVENTORY MANAGEMENT AND CONTROL IN MANUFACTURING FIRMS. A STUDY OF NIGERIA BREWERIES AND UNILEVER PLC* (Doctoral dissertation, Godfrey Okoye University).

Atubangira, N., 2019. Impact of risk management on customer satisfaction of Unilever (u) ltd, Kampala Uganda.

Bai, C., Sarkis, J., Yin, F. and Dou, Y., 2020. Sustainable supply chain flexibility and its relationship to circular economy-target performance. *International Journal of Production Research*, *58*(19), pp.5893-5910.

Bhatnagar, R. and Sohal, A.S., 2005. Supply chain competitiveness: measuring the impact of location factors, uncertainty and manufacturing practices. *Technovation*, *25*(5), pp.443-456.

Choi, T.M., 2020. Supply chain financing using blockchain: Impacts on supply chains selling fashionable products. *Annals of Operations Research*, pp.1-23.

Christopher, M., Lowson, R. and Peck, H., 2004. Creating agile supply chains in the fashion industry. *International Journal of Retail & Distribution Management*, *32*(8), pp.367-376.

Chumket, N., 2007. Forecast accuracy improvement for a highly competitive consumer product: a case study at Unilever Thai Trading Limited (FMCG).

Chung, K.F., Abubakar-Waziri, H., Kalaiarasan, G., Adcock, I.M., Dilliway, C., Fang, F., Pain, C., Kumar, P., Ransome, E., Savolainen, V. and Bhavsar, P., 2022. SARS-CoV2 and air pollution interactions: airborne transmission and COVID-19. *Molecular Frontiers Journal*, *6*(01n02), pp.1-6.

De Sousa Jabbour, A.B.L., Jabbour, C.J.C., Hingley, M., Vilalta-Perdomo, E.L., Ramsden, G. and Twigg, D., 2020. Sustainability of supply chains in the wake of the coronavirus (COVID-19/SARS-CoV-2) pandemic: lessons and trends. *Modern supply chain research and applications*, *2*(3), pp.117-122.

Guan, D., Wang, D., Hallegatte, S., Davis, S.J., Huo, J., Li, S., Bai, Y., Lei, T., Xue, Q., Coffman, D.M. and Cheng, D., 2020. Global supply-chain effects of COVID-19 control measures. *Nature human behaviour*, *4*(6), pp.577-587.

Hobbs, J.E., 2020. Food supply chains during the COVID 19 pandemic. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, *68*(2), pp.171-176.

Huang, C.L., Li, R.K., Tsai, C.H., Chung, Y.C. and Shih, C.H., 2014. A comparative study of pull and push production methods for supply chain resilience. *International Journal of Operations and Logistics Management*, *3*(1), pp.1-15.

Ivanov, D. and Rozhkov, M., 2020. Coordination of production and ordering policies under capacity disruption and product write-off risk: An analytical study with real-data based simulations of a fast-moving consumer goods company. *Annals of Operations Research*, *291*(1-2), pp.387-407.

Khan, A.U. and Ali, Y., 2021. Sustainable supplier selection for the cold supply chain (CSC) in the context of a developing country. *Environment, development and sustainability*, pp.1-30.

Končar, J., Grubor, A., Marić, R., Vučenović, S. and Vukmirović, G., 2020. Setbacks to IoT implementation in the function of FMCG supply chain sustainability during COVID-19 pandemic. *Sustainability*, *12*(18), p.7391.

Liu, C.L. and Lee, M.Y., 2018. Integration, supply chain resilience, and service performance in third-party logistics providers. *The international journal of logistics management*, *29*(1), pp.5-21.

Malik, S., Dedeoglu, V., Kanhere, S.S. and Jurdak, R., 2019, July. Trustchain: Trust management in blockchain and iot supported supply chains. In *2019 IEEE International Conference on Blockchain (Blockchain)* (pp. 184-193). IEEE.

Mvubu, M., 2015. *Green supply chain management challenges in the South African fast-moving consumer goods industry: a case of Unilever* (Doctoral dissertation).

Nassaji, H., 2015. Qualitative and descriptive research: Data type versus data analysis. *Language teaching research*, *19*(2), pp.129-132.

Nguyen, X.P., Hoang, A.T., Ölçer, A.I. and Huynh, T.T., 2021. Record decline in global CO2 emissions prompted by COVID-19 pandemic and its implications on future climate change policies. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, pp.1-4.

Paddock, L. and Rao, N., 2018. Green Supply Chain Management: A Perspective on Best Practices in GSCM Design. *Ark. L. Rev.*, *71*, p.487.

Pandey, R., Massand, A., Mulya, V.T., Sin, L.G., Naresh, V.P., Zamara, F.B., Kee, D.M.H., Zamri, S.K.B., Azmi, N.A.S.B., Hamdan, N.N.B.M. and Aditi, A., 2021. The Impacts of Covid-19 on Unilever. *Journal of The Community Development in Asia*, *4*(1), pp.34-43.

Rahman, S., Ahsan, K., Sohal, A. and Oloruntoba, R., 2022. Guest editorial: The “new normal”: rethinking supply chains during and post-COVID-19 global business environment. *International Journal of Physical Distribution & Logistics Management*, *52*(7), pp.481-490.

Sen, A., 2017. Pathways to deforestation-free food: Developing supply chains free of deforestation and exploitation in the food and beverage sector.

Shakeri, M., Low, M.Y.H. and Li, Z., 2008. A generic model for crossdock truck scheduling and truck-to-door assignment problems. In *2008 6th IEEE International Conference on Industrial Informatics* (pp. 857-864). IEEE.

Shen, Z.M. and Sun, Y., 2023. Strengthening supply chain resilience during COVID 19: A case study of JD. com. *Journal of Operations Management*, *69*(3), pp.359-383.

Stadtler, H., 2014. Supply chain management: An overview. *Supply chain management and advanced planning: Concepts, models, software, and case studies*, pp.3-28.

Varpio, L., Paradis, E., Uijtdehaage, S. and Young, M., 2020. The distinctions between theory, theoretical framework, and conceptual framework. *Academic Medicine*, *95*(7), pp.989-994.

Venkatesh, V.G., Kang, K., Wang, B., Zhong, R.Y. and Zhang, A., 2020. System architecture for blockchain based transparency of supply chain social sustainability. *Robotics and Computer-Integrated Manufacturing*, *63*, p.101896.

Vo, T.D. and Tran, M.D., 2021. The impact of covid-19 pandemic on the global trade. *International Journal of Social Science and Economics Invention*, *7*(1), pp.1-7.

Wilshaw, R., Unger, L., Do Quynh, C. and Thu, T.P., 2013. *Labour Rights in Unilever's Supply Chain: From compliance to good pracitce. An Oxfam study of labour issues in Unilever's Viet Nam operations and supply chain*. Oxfam.