INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

IMPACT OF COVID-19 ON SUPPLY CHAIN AND LOGISTICS

Dr. Aijaz Ahmad Khan[1], Mohit Kumar[2]

Guide: MBA, Galgotias University, India.

student: MBA, Galgotias University, India.

ABSTRACT

Covid-19 pandemic affected multiple disciplines. Almost all industries suffered owing to economic stress and Government regulations. Handling and transportation of goods became more challenging. FMCG sector was significantly affected by the pandemic and organizations adopted multiple strategies to keep themselves afloat. Multiple trade-offs were considered by organizations including partial closure, limited operational hours, and restructuring of the supply chain. Multiple reports across different industries were studied and supplemented with in-depth interviews from the industry experts. The study revealed the use of innovative ways to reach customers. Organizations tried adopting lean practices in-order to support stressed-out logistics handlers.

1. INTRODUCTION

The swift spread of COVID-19 in China, which subsequently evolved into a pandemic. Every nation on the planet experienced disruptions, affecting everything from minor to major sectors, including global supply chains. In a few of weeks or even months, COVID-19 has completely altered the global landscape. One of the key components needed to make the product available to consumers is the supply chain. FMCG business meets people's daily requirements and supplies the necessities for life. Since COVID-19 originated in China, the world's largest manufacturer with sophisticated supply networks, it has disrupted every industry, and as a result, other countries are still unwilling to cope with it. The global supply chain is affected by the disruption that starts, and the FMCG industry abruptly comes to a standstill. Supply networks are encountering particular problems and are firmly in the public view as the world struggles with the unfolding human and economic catastrophe. With COVID-19 taking its toll on China at the beginning of the year, experts have been talking about "supply shocks" for weeks. The flow of products from China, including both finished goods for retail sales and supplies for market manufacturing, was disrupted. With COVID-19 taking its toll on China at the beginning of the year, experts have been talking about "supply shocks" for weeks. The flow of products from China, including both finished goods for retail sales and supplies for market manufacturing, was disrupted. Businesses found it difficult to determine what level of performance was feasible and what demands could be met. At that point, it seemed sensible to consider supply chain resilience. Companies should implement the five supply chain resilience levers. The lessons learnt on resilience for global value chains under pressure have been covered earlier. While some companies have already applied these lessons, others have ruthlessly reduced costs by increasing procurement and streamlining manufacturing at the expense of agility and resilience.

The FMCG is a fast-moving consumer goods industry in India that has been dynamic and was the significant, changes in the year leading up to the pandemic. FMCG is having the largest fourth position in the National economy. The major segments of their sector are Food & beverages (19%), Households and personal care (50%), and Healthcare products (31%). FMCG has been growing in a good manner since 2018. The situation moreover changed now. Due to the pandemic, their growth rate went rapidly downwards. The major sector had been seeing a slow down since mid-2019 with the growth rate declining from the past 12 to 15 months from the mid-teens to around half of that by January/February. In the scenario, FMCG is fast-moving consumer goods and players compete by way of price cuts and greater offers to consumers or customers in the hope of gaining market share. This is especially true for urban areas. The FMCG sector in rural areas has grown up faster pill pace than its urban counterpart with FMCG product accounting for about half of total ruler spending. There is the semi-urban and rural segment contributes over 40% of the overall revenue of the FMCG sector in India and with about 12% of the world population livelihood in the villages of India also the India ruler FMCG market is said to be driven Force for the industry at large scale. Now Global supply chains under the FMCG sector have faced so much in the past few months and due to this pandemic, every country has faced a lot and since the disruption of traditional supply chains has made humans suffer along with the sufferings to the businesses.

So, the continuous impact on supply chains due to this pandemic enforces the organizations to bring sustainable measures which can last even when there is any misfortune or complex situation in the future. As the pandemic crisis deepened and nations started to institute lockdowns, something entirely different has been encountered by supply chains: systemic demand shocks, where consumers stock up on consumer staples to comply with limits on movements, often purchasing supplies for months in a single day. There seemed to be a fear that food supply chains would not be

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

able to respond to this huge, unprecedented demand spike. Consumer staple supply chains have replied to the call, with a few exceptions. Store shelves have been replenished and this has offered a measureof reassurance in a distressing time for individuals. But with a herculean outstanding effort, the supply chain experts behind the scenes have achieved this, as the classic planning models are not constructed to meet such extreme demand peaks. It can be notoriously manual and lacking in complexity for replenishment models that dictate orders from supermarket chain fulfilment centers to stores. They are ideally suited to continuous demandsthat are relatively smooth.

There was a scramble to redirect inventories, determine goals and override IT supply proposals with pipelines being emptied. Effective replenishment, on the supply side, is the outcome of optimizing production with all surplus capacity in use. The complete pipeline has probably not yet been restored, because food supply chains are typically finely tuned for steady demands. However, in production systems, the supply chain has not seen the end of manual interventions.

To measure store-level specifications, many replenishment systems use simple moving averages. Supply chain planners would have to change supply amounts manually and scramble to change their planning processes for such an enormous demand surge polluting these moving averages. This research paper designed is based upon thereviews from prominent writers and included their research and put a detailed study to their literature and then by taking the valuable note from all the literature we have come up with a valuable paper showing the way the COVID-19 has impacted the global supply chains. Along with that, the information which I gained from this literature regarding the future was very enlightening and I proposed the future of the Global supply chains which will include Sustainable Supply chains, more involvement of E-commerce and IOT has come as a big thing regarding future.

2. REVIEW OF LITERATURE

To help readers better grasp the ideas underlying the supply chain problems that businesses have encountered during the COVID-19 epidemic, this literature study is separated into two subsections. The analysis of previous COVID-19-related supply chain research is presented in the first subsection, and the supply chain difficulties that businesses have encountered as a result of the COVID-19 pandemic are covered in the second. In this research paper secondary data is used and with the help of various previously done researches the report is made how various industries cope with the COVID-19 what were the cause and effects and the strategies and policies adapted by the industries to run in that situation.

Research on supply chain and COVID-19

COVID-19 has created a most severe impact on supply chains in recent history and caused one of the biggest disruptions in the history of humankind (Ivanov & Dolgui, 2020). Its disruptions have propagated through entire systems of supply chains, with devastating results (de Sousa Jabbour et al., 2020). It has created a ripple effect in several supply chain areas (Govindan et al., 2020). Several studies in the past have suggested that small disruptions in supply chains create ripple effects (Scheibe & Blackhurst, 2018). However, the COVID-19 pandemic has been much more severe than any other previous outbreak, as it has disrupted the supply, demand and logistical sides (Queiroz et al., 2020; Mishra et al., 2021; Sharma & Kumar, 2021).

To analyse the various issues that have arisen due to the COVID-19 outbreak, several papers have explored different aspects, such as production recovery strategies (Paul & Chowdhury, 2020), the ripple effect (Ivanov & Das, 2020; Ivanov, 2020a, 2020b), decision support systems to manage demand (Govindan et al., 2020), mobile service operations (MSO) during the COVID-19 pandemic (Choi, 2020a) and the effect of COVID-19 on the Indian supply chain (Agrawal et al., 2020; Biswas & Das, 2020). However, none of these papers have investigated the supply chain challenges that companies are facing as well as how these challenges influence each other. Differing from previous studies, we have investigated the challenges that companies are facing due to the COVID-19 outbreak in the supply context and also investigated their relationships. Companies are facing a plethora of challenges based on their geographical conditions and the varying levels of preparedness and resilience of their supply chains (de Sousa Jabbour et al., 2020). India has been chosen as the geographical region for this study because it is one of the most prominent manufacturing hubs in the world, the second most populous country in the world, and also the third most affected by COVID-19, after the US and Brazil (The Guardian, 2020). Therefore, it is important to investigate the supply chain challenges faced by Indian companies and suggest suitable mitigation strategies. To mitigate the supply chain challenges resulting from the COVID-19 outbreak, it is important to improve supply chain resilience (Belhadia et al., 2020; Ketchen & Craighead, 2020; Queiroz et al., 2020). Craighead et al. (2020) investigate different theories and suggest how these theories can help to tackle such challenges. Remko (2020) and Golan et al. (2020) observe that during this outbreak, supply chains experienced a lack of preparedness, shortcomings in their response plans, and a need for better resilience in the supply chain. Some papers have investigated supply chain resilience under the context

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

of the agriculture supply chain, airlines and the automobile industry (Belhadia et al., 2020). Queiroz et al. (2020) carried out a systematic literature review related to pandemics and epidemic outbreaks and suggested that adaptation, the ripple effect, recovery, digitalization, preparedness and sustainability are vital aspects to be considered in designing supply chains. Belhadia et al. (2020) suggest short-term and long-term plans to improve supply chain resilience.However, the question of what mitigation strategies should be implemented as lessons learned from the challenges faced is a topic that is still missing in the current debate on global supply chains and the coronavirus outbreak. Some authors argued that it is also important to analyze and take a fresh look of current supply chain and formulate suitable strategies in order to help managers and practitioners for better preparedness to mitigate future supply chain disruptions (Choi et al., 2021; Craighead et al., 2020; Donthu & Gustafsson, 2020).

We can observe that research dealing with supply chain challenges due to COVID-19 is missing. To bridge this gap, we have investigated (a) the supply chain challenges that companies are facing, (b) how companies should prioritize their strategies to tackle these challenges and, subsequently, (c) how companies should consider mitigation strategies to improve supply chain resilience, and (d) how these strategies help to mitigate future supply chain disruptions.

Supply chain challenges within pandemic context

There are very few studies specifically discussing the barriers to the supply chains during COVID-19 pandemic; thus, other relevant articles on supply chain barrier were also investigated, from business magazines, various reports, and World Economic Forum documents. Several barriers were commonly identified in these reports. Twoof the authors of this paper independently reviewed all the articles to finalize the list of challenges to be covered in this study. Several barriers were also commonly identified across these papers. Some of the distinct barriers were categorized by considering and collating these challenges. Several authors used same approaches to identify and categorize distinct barriers in a number of other fields (Raj et al., 2020; Rajesh & Ravi, 2015). In the second step, we presented these supply chain challenges to fifteen experts to assess their relevance and uniqueness. All the experts consulted have worked in the field of supply chain and logistics for many years. All the experts agreed upon the supply chain challenges identified and confirmed that the identified challenges are relevant and distinct in the Indian context. However, they also suggested some minor changes in the description and terminology used to refer to the identified factors. We designed the final questionnaire based on this expert input.

We categorize these challenges in three different clusters as supply side, demand side and logistical side. Firms need to develop capability to mitigate such challenges in future which we demonstrate a framework to study supply chain disruptions using dynamic capabilities leading to supply chain resilience in case of a focal manufacturing firm. Supply chain resilience can help organizations manage supply chain disruptions while ensuring operational excellence (Mishra et al., 2021). This is backed by a detailed study conducted jointly by Accenture and The World Economic Forum (2013, 2020b) which emphasizes the importance of supply chain resilience and suggests that over 80% of the top global firms are now considering its importance in their supply chain network. Further, several recent COVID-19 related studies have indicated that improving supply chain resilience is paramount to mitigating supply chain related challenges (Belhadia et al., 2020; Ketchen & Craighead,2020; Queiroz et al., 2020). Supply chain resilience is based on a set of capabilities that enable firms to maintain and enhance operational and competitive position in the market (Birkie and Trucco, 2020). The novel coronavirus has brought with itself a rapidly changing environment and firms would need to adopt, respond and proactively mitigate disruptions by dynamically synergizing, integrating and rebuilding its competencies and overall capabilities. The dynamic capability view of an organization highlights its ability to adapt, amend and reconfigure its internal and external resources and capabilities in response to the rapidly changing environmental conditions (Teece, 2007). Past research has sufficiently indicated that resilience is seen to be significant dynamic capability that can assist an organization to navigate through turbulent situations (Ponomarov, 2012; Singh et al., 2020; Mishra et al., 2021). This motivates us to consider the dynamic capability view. The dynamic capability theory has been considered over other management theories such as the resource-based view of the firm because the pandemic has caused environmental changes, and it is dynamic in nature. While the resource-based view is moresuitable for static situation and not in a dynamic environment.

Uncertainty of demand

scarce in the market. Purchases of grain in the city of Mumbai itself have doubled to over 100,000 30 kg bags per day since the outbreak of the pandemic. This is because every actor across the supply chain, from wholesalers toretailers, has been hoarding, thus creating a state of artificial scarcity. It is evident that such practices will lead to supply constraints, resulting in volatile prices, which will in turn motivate inconsistency in supply, which will actas a barrier to the Hippold (2020) suggests that the COVID-19 pandemic will lead to a shift in the buying behavior of consumers, creating disruptions in demand. Outbreak of COVID-19 pandemic has triggered an all-time low demand for certain

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

commodities, leading to a significant impact on manufacturing sector companies and their upstream suppliers. For example, the dairy and poultry industry has been greatly affected due to a lack of demand.Only raw milk to be consumed by households has been considered an essential commodity. However, a large part of the demand for milk has traditionally come from its use as a raw material in sweet shops, bakeries, tea stalls, and ice cream production. The reduction in demand for these products has led to a 30% drop in milk procurement in some parts of India. A primary reason for this is fear of potential exposure to the virus through interaction with people and the consumption of certain kinds of products. Misinformation among consumers has also affected the demand for chicken and eggs. Farm-gate chicken prices have dropped by about 60% to an average of about Rs 30/kg in southern India, from Rs 72.50/kg in January, after rumours on social media linking chicken consumptionwith Covid-19 (The Economic Times, 2020). Due to future uncertainties and loss of income, many people are shifting their consumption patterns to only 3 basic meals a day with no extravagances, leading to a decrease in consumption of expensive goods. Such uncertainty and disruption in demand will act as a major challenge affecting the supply chain.

3. INCONSISTENCY OF SUPPLY

According to Razdan & Kumar (2020), supply-side capacity constraints and volatility in price and quantity constitute a major disruptor owing to the COVID-19 pandemic. Supply shortages and associated inconsistencies have been seen in the case of Micro, Small and Medium Enterprises (MSMEs), which are widely dispersed acrossIndia

(The EconomicTimes, 2020). Furthermore, the nation also saw numerous inconsistencies in the supply of essential commodities. A recent report in Business Standard (2020) suggests that essentials such as grains and pulses have become smooth operation of the supply chain. Indeed, supply chain is network of different entities. Traditionally focal firms rely on immediate suppliers. Mapping is important to maintain the visibility across a supply chain supply chain network (Sodhi et al., 2021). However, supply chain network mapping is still missing from most of the supply chain network. Poor visibility across supply chains created inconsistency of supply in supply chain.

Scarcity of material

With the advent of the pandemic and the subsequent lockdown of several nations, and India, in particular, the global market has become uncertain. The surge in demand for select essentials, owing to panic buying coupled with uncertain continuity of operations at the supply end, both during and after lockdown, is seen as a big risk tothe availability of key materials and services (Razdan & Kumar, 2020). The availability of raw materials is proving to be a huge problem for manufacturing companies, especially in the packaging industry, in trying to restart their activities. Companies are unable to obtain raw materials that were previously sourced from Mumbai and Pune, as both cities are completely locked down. Furthermore, as per a Bloomberg (2020), it is understood that imports were completely stopped during the lockdown period and have seen minimal resurgence over the course weeks, even after certain lockdown restrictions were lifted. Various sectors, such as pharmaceuticals, automobiles, electronics, and chemical products, etc. are facing a shortage of required components, since China accounts for 27% of India's automotive part imports. Around 55% of electronics are also imported from China, supplies of which have dropped dramatically. This will create additional scarcity, contributing to scarcity of material.

Delays in delivery

The biggest challenge for almost every organization is to strike a balance between the time taken to source, manufacture, and distribute products to customers and the customers' willingness to wait. Furthermore, it is usually the case that customers are not prepared to wait for long durations, especially in cases where substitute products are available in the market. Additionally, for all organizations, the time currently taken to procure raw materials is rather uncertain, because it is dependent on external suppliers and is hence beyond the control of the organization. The COVID-19 pandemic has led to restrictions in transportation and movement of goods and materials, especially through areas that are under restricted or containment categories. This, in turn, has led to higher lead times, thus impacting the delivery timelines of critical raw materials and semi-finishe d goods (Hippold, 2020). As per Entrepreneur.com, for the suppliers of Anvyl in China, lead times have increased by an average of 20 days since the end of 2019. Such delays in delivery of raw materials and semi-finished goods will have a cascade effect on the processing and delivery of goods to the end consumer, thus posing a barrier to the normal functioning of the supply chain.

Adoption of suboptimal substitutes

The advent of COVID-19 and lockdown restrictions has disrupted the continuity of operations for suppliers and vendors alike. It is during times like these that alternate vendors and product substitutes tend to be considered, with a view to mitigating sourcing risks (Deloitte, 2020; Razdan & Kumar, 2020). According to a recent article in The Hindu

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

Impact Factor: 5.725

Business Line (2020), severe supply chain disruptions in China have caused a ripple effect in global trade flow, and India is no exception. With the aim of reducing stockpiling of inventory, most organizations in India had moved toward 'just in time' delivery systems. However, certain industries in India, such as pharmaceutical, automotive, chemical and textiles, have been severely affected, with as much as over 70% of raw material components being imported from China. In times like these, most companies would need to switch to domestic suppliers as an alternative. However, it is pertinent to note that embracing poor alternatives and substitutes may lead to suboptimal product quality and could have long-term detrimental effects on the supply chain, including rework and additional costs.

Scarcity of labour

According to the latest COVID-19 pandemic report released by The International Labor Organization (2020), about 2 billion workers (approximately 25% of the world population) are employed in the unorganized sector, with most of these workers belonging to emerging economies. With regards to India, the number of such workersaffected because of the lockdown and containment measures is a staggering 400 million (over 90% of the workingpopulation). The logistics sector in India alone employs more than 40 million people and contributes more than

$200 billion to the economy. Most of these workers are unskilled, engaged in manual loading, unloading and material handling. Due to safety concerns and lockdown restrictions, workers involved in the supply chains of essential commodities are often unable to continue working. Furthermore, the World Economic Forum (2020a) indicates that approximately 139 million workers in India belong to the migrant worker category. Additionally, an article in The Economist (2020) claims that up to 80 million such migrant workers travelled back to their villages and hometowns due to lockdown restrictions and their consequent reductions in wages or loss of employment entirely. Due to this reverse migration, agriculture and logistics are likely to be among the hardest hit sectors, as these sectors are largely informal and heavily dependent on migrant labor. Azadpur Mandi, Asia'slargest fruit and vegetable wholesale market near Delhi, is currently only able to operate at 25% of its normal capacity. It is common knowledge that workers are the backbone of any manufacturing and service industry, especially in emerging economies like India, which rely hugely on the informal economy (Carnevale & Hatak, 2020). With the displacement of migrant workers in such huge numbers, scarcity of labor is a critical issue and akey challenge to the regular functioning of the supply chain.

Suboptimal manufacturing

According to a report by the World Economic Forum (2020), India ranks in the top 10 manufacturing countries in the world, with a contribution of 3% of global manufacturing output. During the COVID19 pandemic and consequent declaration of nationwide lockdown, India was classified into 3 zones by the Indian Ministry of Health and Family Welfare (MOHFW); namely, green, orange and red zones. Over 130 districts, including the most urbanized and industrial parts of India, and contributing around 41% of national economic activity, were placed in the red zone (the most restricted zone), which created a massive challenge to manufacturing activities (McKinsey, 2020). Additionally, owing to an unprecedented surge in demand for certain products and lack of demand for other products, it has been a challenge for manufacturing companies to manage their product portfolio mix, typically in cases products share resources such as equipment, infrastructure, raw material and labor (Razdan & Kumar, 2020). The aforementioned restrictions have a direct impact on manufacturing and are a major challengeto the supply chain.

Constraint in capacity (storage)

While Razdan & Kumar (2020) suggest that panic buying has been on the rise for essential commodities during the lockdown situation, India has not seen a similar trend for all types of products. Consumer optimism has declined across the country with the advent of the COVID-19 pandemic, and consumers are expected to continueto reduce their spending for a considerable period (McKinsey, 2020). This could result in overstocking of materials at warehouses and distribution facilities waiting for demand to pick up at a future date, thus creating storage and capacity constraints at warehouses and local distribution hubs (Hippold, 2020). Excess stocking of inventory for indefinite periods will, in turn, lead to potential damages, perishability issues and working capital blockages, leading to liquidity issues for organizations across supply chains. Considering the above, excess stocking, inventory pile up and blockage of working capital is a major roadblock to successful supply chain operations.

Vehicle unavailability and delays

Bloomberg's (2020) report states that, while the lockdown in India led to a huge reduction in transportation activities, the scenario did not improve significantly even after the government lifted lockdown restrictions. Out of a total capacity of 9 million commercial trucks in the country, a meager 15–20% were in action on the roads. Similarly, export operations were completely shut down during the lockdown period, and this area saw minimal resurgence for weeks, even after certain lockdown restrictions were relaxed. A contraction also occurred in air freight capacity, which

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

was constrained to accessible and operational flights carrying only cargo. Furthermore, the COVID-19 pandemic has led to restrictions in the transportation and movement of goods and materials, especially on routes that traverse restricted or containment areas. This, in turn, has led to higher lead times, thus impacting the delivery timelines of finished goods to the end customer (Hippold, 2020). Shipping vessels are nowbeing placed under quarantine for long periods of time before being permitted into ports, thereby slowing down procedures and lengthening lead times. There are also problems with transporting people to workplaces, as publictransportation hasn't yet reopened. The usual public transport are not functional, and companies often do not have enough vehicles for conveyance of all workers. The requirement of social distancing measures also means that the available vehicles cannot be utilized at full capacity. The above transportation issues have contributed to unprecedented delays in delivery of consignments to end customers and can be considered a challenge toward theharmonious functioning of the supply chain.

Last mile delivery challenges

In the wake of the pandemic, most organizations have responded to customer requirements to minimize physical touch points and are seen to be revamping their supply chains. There is a growing discussion among organizations as well as practitioners regarding how to create a resilient supply chain. Brands are either moving towards fully

captive in-house delivery services or integrating with last mile delivery partners with a view to attracting customers (Razdan & Kumar, 2020). However, with most urban areas included in the red zone and containment categories during lockdown (McKinsey, 2020), it has been a challenge for last mile delivery partners to deliver products to the customer's doorstep. Additionally, the local authorities of the worst affected cities, such as Mumbai,have different rules compared to the rest of the nation, thus affecting the delivery of products located in cross- country warehouses.

Furthermore, even if products do make it to the delivery locality, the transporter may have to navigate through a containment zone and may also have to select an alternate route, leading to delivery delays. Finally, with local bodies issuing e-passes with different rules for each state, the demands of compliance and validity also require consideration. All of the above factors have added to challenges for last mile delivery.

FMCG supply chain and logistics pre-COVID19

One of the main industries worldwide is fast-moving consumer products (FMCG). Our world spins around consumer products, from our morning showers to our breakfast to dinner, or workplace outings at a nearby pub or snacks at a street vendor. Ever-changing customer tastes and emerging innovations are continuously transforming the industry today. Customers prefer new products, which ensure that a broader variety of items is easily manufactured at higher volumes. Consumers also spend more in emerging countries, which increases the call for an extended supply chain. Global markets are expanding and re-defining the way demand and supply are handled outside borders. Markets around continents propel multinational businesses. They are forced to keep looking to set up production centres where the cost of raw materials and labour is cheap to keep the cost of manufacturing down. The sourcing of raw materials and suppliers to provide the right quality, quantity and price require a diverse country-wide procurement strategy. Supply chain management information is scattered across various domains and a systematic literature review is needed to identify the gaps in Supply chain management literature. Empirical research on supply chain flexibility has concentrated largely on one (manufacturing) company, often adding a producer, distributor, or retailer's adjoining view. The present paper argues that it is not appropriate for a dyadic perspective and that an integrated perspective is needed. In-depth case study information was gathered and analysed. In a fast-moving food supply chain for consumer products (FMCG), comprising vendors, major producers, suppliers of logistics services, and retailers. The study explored how these eight companies perceive flexibility through the supply chain, drawing on network theory and stakeholder theory. The results indicate that versatility is enforced by each chain member to meet the next-tier chain member's direct needs. Other flexibilities are prioritized by companies at various supply chain roles. No support for overall versatility in the supply chain is available. An immediate and long-lasting shift in consumer spending for FMCG companies has caused the corona virus's effect on trade. This shift is due to increasing demand for particular fast-moving consumer products, shifts in patterns in usage and stock requirements. Businesses now rely on a supply chain that is flexible and creative. Consumer goods companies need versatility, visibility, and transparency in their worldwide logistics process to be effective if current trends are to be the new standard.

Perishable goods and their distribution:

During this pandemic, everything got disrupted and the nature of the pandemic was solely responsible for this. The perishable goods had a huge impact on their supply in many regions around the world. The supply chains which were linking the products such as vegetables and fruits from producers to the retailers were disrupted and the impact was felt in many countries. The categorization was done by Richards and Bradley, (2020) into short term impacts and long term impacts and they had discussed the disruption of supply chains in Canada especially for fruits and vegetables,

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

and categorized it as short term impact whereas when the trade with Canada, USA and Mexico was taken into consideration then the impact was deep and termed as long term impact due to the impact of COVID-19 in the USA and due to which the entire trade between North American countries got disrupted because of the role USA was playing in the trade as USA was providing raw materials and even labour for smooth operations within three NAFTA countries. This disruption of supply chains was felt globally and even the developing nation with a huge population felt the deep impact of this pandemic i.e. India. Though the COVID-19

reached India late still the impact had disrupted the supply chains as mentioned by Kanika Mahajan and Shekhar Tomar, (2020). They had provided statistical data claiming a fall of 10% in the availability of vegetables and fruits, but the prices didn't fluctuate much. On the other hand, the quantity available of these perishable goods fell 20%. They had proposed a reason for this fall as disruption of supply chains. In their research, they had frequently assessed the distance between the point of cultivation to the retailers and the impact on availability and quantity and the final evidence they had obtained from this research was that the longer the distance between the producers and retailers i.e. longer supply chains had a deep impact due to this pandemic because of less welfare of urban consumers and farmers. This pandemic further impacted the logistics as well and the impact can be felt in the entire supply chain. The impact on Public Distribution System (PDS) was also felt and the research done by Sube Singh, et.al., (2020) showing the impact on logistic systems and supply chain. They had talked about difficulties that vast networks of PDS were facing in terms of supply and demand and the changing scenarios that were impacting this traditional system. They had talked about a resilient supply chain during a pandemic. They also proposed a resilient and responsive food supply chain to match the varying demand and along with that, they had proposed a rerouting of vehicles which may lead to a better and efficient logistics network post COVID too. This research carried out by these prominent experts was claimed to be very helpful in further projects which can provide more elasticity in terms of supply chains for the future. Since the impact was global so the activities needed to be more resilient and technology oriented. This research was focused to bring out a robust Global SupplyChain for the future.

In that pandemic situation, the companies or the organizations are a shift towards a demand-driven model for managing their supply chain the covid-19 has created intense pressure on the companies to provide Core and non-core services and hence they are switching to new forms of supply chain the company outsource third-party and utilize their supply chain network and collaborate with multi-tier supplier to fulfil the demand of the supply. The perishable goods had a huge impact on their supply in many regions around the country or world. The several prominent studies on risk prediction and uncertainty in the supply chain Are discussed that have been conducted during an emergency or in covid 19 pandemics. So here the researchers have introduced to some significant model-based studies to tackle covid-19 problems. This conceptual model on the spread of covid-19 in the city of China was formulated by considering that three scenarios are based on the individual reactions of government actions such as travel restriction hospitalization and self-Quarantine. So, it a multi-period stochastic programming model (stochastic programming is a framework for modelling optimization problems that involve uncertainty. Whereas deterministic optimization problems are formulated with known parameters, real-world problems almost invariably include some unknown parameters. for allocating the Inventory of ventilator in the covid-19 pandemic for The USA by generating 4 types of demand scenario Mehrotra, et.al., (2020). Be expressed the Global supply chain problem by simulating the covid-19 scenario to protect the impact on supply chain performance because of destruction at Tier 1 suppliers original equipment manufacturer. They are constructed by Ivanov and Dolgui, (2020) review they demonstrated a game-theoretic model to address the intertwined supply network for meeting the demand of society associated with food communication and Logistic researchers have also simulated supply chain problem during the pandemic covid-19.

Effect on E-COMMERCE

The Covid-19 pandemic has created impacts in our lives. The conditions of global commerce and businesses were different in pre COVID - 19, and now it has changed a lot. For physical goods, the B2B and B2C online sales have recently got a surge of demand due to the COVID - 19 pandemic. The products like hand sanitizer, facemask as well as home materials such as non-perishable goods and toilet paper were stockpiled up. There has experienced an increased demand for a wide expansion of digital services. Consumers started to prefer online shopping more. Because of this, some local store business has shifted their resources to ecommerce. However, the stimulus by

social distance and stay at home, the goods and services through ecommerce will continue to adapt to the environment. Goods and services in the E-commerce trade have been impacted by the same factors that have made disruption in supply and demand. The arrival of COVID- 19 in various parts of countries made the domestic markets face difficulties in slow consumption. Meanwhile, the number of sectors has lost their demand in a low manner. The sectors like FMCG & pharmaceutical have shown their increase in demand. But they have also faced disruption from

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

the supply-side because of resources of raw material and logistic challenges. COVID -19 had a significant change in retail also. In the initial months of the pandemic, there was a mandatory lockdown happened in various countries. That time all retail shops were asked to shut down for more than 2 months, except essential goods. So that time E-commerce increased the sales of foods due to panic buying and helped the E-commerce penetration in retail. The COVID -19 pandemic outbreak has become the reason to shut down the businesses forcefully and led to the disruption of commerce in some sectors. Brands and retails have faced many challenges which are related to supply chain logistics, marketing, demand, sales etc. Meanwhile, online communication, online shopping, online entertainment has come up with good growth. All countries were trying to spur their economies to keep as much as possible for their infrastructure intact. Still, some businesses are struggling, and some are thriving, and this case is true for digital businesses like food delivery, online shopping, online education etc. According to research, about 52 percent of consumers are hesitant to go brick and mortar stores and crowded street shopping during the pandemic. Overall, coronavirus has a role in the growth of sales in e-commerce. Currently, about 205 countries are infected with COVID -19. It's a challenging time for global trends. This can change the behaviours of humans. Trading nature and business as well. Due to the pandemic, people avoided going out, keep social distance, work at home which made 74 percent growth in Walmart grocery through e- commerce. E-commerce on goods and services has increased the buyers in developed countries as well as in developing countries such as India, Singapore, Pakistan, Thailand etc. Retail sales of E-commerce are expecting to touch their sales at 6.5 trillion dollars by 2023. According to World Trade Organization (WTO,2020) world trade has already experienced a downfall in 2019. Then after the coming of the COVID-19 pandemic in the financial crisis, they estimated that the major economies will lose around 2.4 to 3 percent of the gross domestic product in 2020. So that it became a challenge to most businesses across the world. COVID - 19 has become a threat to the innovative new startups and a high percentage of startups threw out of the market. According to the E-commerce Trends Report 2020 by anticommerce, online retails are more focused on digital platforms. As of June 2020, E-Commerce has witnessed 17 percentage of growth. The consumer buying pattern was changed in the FMCG sector with the rising number of online shoppers. There is also a rapid growth in Brand websites.

Effect on Automobile Industries

The COVID-19 epidemic has pushed the global economy and humanity into a disaster. In the attempt to control this pandemic, the governments of all the countries have imposed a nationwide lockdown. Although the lockdown may have assisted in limiting the spread of the disease, it has brutally affected the country, unsettling complete value-chains of most important industries. The epidemic is having a foremost impact on all features of industries which includes the automobile sector, with key manufactures either completely close following the orders passedby local governments or running an organization with least staff at manufacture units to remain their personnel secure. Over the last 12–18 months, the automobile field had already undergone significant delay due to structural modification openings with the goods and services tax, axle-load reforms, shift to shared mobility, liquidity crunch,and so on industries had faced major effect and has roughly been at a complete idle since 24 March due to the COVID-19's lockdown. Extended truncation of customer demand due to the lockdown is observed drastically distressing auto manufacturers. The majority of the companies are starving the support of R&D (Research and development) to maintain core functions and potentially getting back the growth made on mobility technologies as well as alternate fuels.

Some research literatures have explained the consequences of the COVID-19 on the automobile industry. Rajamohan et al. (2020) has conducted a study on how the stock market particularly the National Stock Exchange

of automobile sector has been distressed due to COVID-19. The results reveal that higher value equities have beensold at depreciation value. Moreover, lower returns have been reported for the returns of the automobile sector index. Hence, from the results it can be concluded that COVID-19 pandemic has created a significant effect on the stock exchange of the automobile industry. A hybrid model named as SEM-Logit model was proposed by Yan et al. (2020) to explore the consumer decision making as well as the factors affecting the purchase of automobileduring pandemic. The proposed model was used to investigate the effect of social-demographics, epidemic-related and psychological latent variables on the purchase decision making process of the automobiles. The results reveal that pandemic has generated an adverse effect on the purchase of the automobiles. The factors such as householdincome, travel vulnerabilities and epidemic severity in local regions have influenced the purchase decision makingprocess of individuals. Further, study is used to assist the policy makers in implementing significant measures toovercome the present crisis in the automobile purchase. The impact of COVID-19 has affected several fields and some of them are.

Auto dealers Auto dealers have faced major problems. There are presently 15,000 above auto dealers which include two, three, and four wheelers across India. They were not able to transport vehicles for the lockdown period. Auto dealers have informed 30–45 days of completed goods record, likely to be greatly low-priced prior to post lockdown.

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

In the next 6 months, it is predictable that there will be finishing off at least 8%–10% of these dealerships.

Auto suppliers Auto suppliers have a high reliance on immigrant labour, whose absence is anticipated to additional delay restoration post lockdown, ensuing in a domino consequence on the complete assessment chain. Suppliers are facing the challenges of liquidity that may yield to fading market circumstances, causing extensive trouble across the whole manufacturing network.

Finance companies These financial companies are likely to face the burden, since loan evasions are expected to increase, and new loans are likely to fall, given complexities in deciding customers' credit value. The impact of the COVID-19 is expected to put tension on used-cars, mobility solutions, and aftermarket service suppliers, whose financial support relays on violent growth projections.

Sales COVID-19 affected automobile new vehicle sales very badly especially in the month of February 2020. Like, in China new sales of vehicles have fallen by 92% in February. Also, in European countries total vehicle sales were dropped by 7.4% when compared to that of sales in last year. Also, in country like India, many automobile industries such as TVS, Mahindra have stopped their production sales due to lockdown and likewise many sectors have been affected.

Issues of the automotive sector due to COVID-19

The automotive sector is on the front line due to the interrupt caused by the epidemic to trade as usual and throws the financial position into indecision. A few major affected areas are home and key manufacturing hubs to foremost links in the total supply chain sectors. Distinctive emergency plans helped allowing functional effectiveness by following measures like power outages, cyber incidents, and natural disasters, and so on. The situation is mobbing fastly due to the widespread effects. The key areas of these issues include crisis handling and response, workforce, supply chain, finance and liquidity, tax and trade, and strategy.

Crisis management and response Cautious circumstances planning are vital. The change in the epidemic's epicentre to North America and Europe highlights the necessity for automotive companies to stay living in their responses to the disaster. Companies not only should consider the impact of the epidemic across a variety of critical fields but also should acquire the explosive economic, strategy, and financial market terrain into account.

Workforce As per the Bureau of Labor Statistics, Automakers and their suppliers have used more than one million people in the United States. This welfare of employees should be the major concern for corporate leaders. If the pandemic widens and a huge percentage of the employees get sick, it could severely reduce the capability of the manufacture. So, clear, apparent, and appropriate communications to workers are vital, predominantly when the number of detailed cases spikes due to enhanced access to testing.

Operations and supply chain The impact of COVID-19 on the supply chain of automotive may be considerable. Some countries such as Japan, China, and South Korea that have seriously been affected by the spread of this virus, accounted for a major share of inclusive auto manufacturing. Automakers with overall supply chains are expected to observe two tier as well as three tier dealers who are mostly affected by epidemic related disturbances. Some steps are considering enhancing lines of communication and chain visibility to identify the potential problems better in early and work on remediation plans.

Finance and liquidity The quick exploitation of the COVID-19 epidemic has corresponded with the final weeks of the initial quarter. For companies in Spain, Italy, and France which are in dominant regions has led to functional disturbances that deferred their capability to conclude financial statements. Moreover, a few automotive companies are gradually more distressed about the prospect that the financial impact of the epidemic may generate triggering actions for the recoverability of receivables, reform events, long-lasting quality impairments, and liquidity issues. Condensed productivity of the funding team could create a substantial rise in the amount of work to be acquired through in the imminent weeks. The majority of the suppliers, as well as multinational companies, should cautiously consider their money, liquidity, and operational capital policies in light of the epidemic's impact on the world and credit markets.

Strategy The epidemic of COVID-19 along with the resultant economic ambiguity may expect reduced customer requirements in the short term, probably leading to dampened sales of a new vehicle as well as delayed payments on additional maintenance. The interruption of the automobile supply chain may entrap cash that might be utilized to present employee relief and support functions. Because of the reasons, intent cash might be inactive in the market for an extensive era of time, new strategies can be arranged to assist in alleviating the sliding impact.

Impact on Power & Energy Industry

The COVID-19 pandemic has been continuously affecting the energy sectors like other aspect of life. Maintaining the continuity of power flow to different industry needs as well as satisfying the need of consumers viewpoint during the

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

COVID-19 crises is a severe challenge for the power and utility companies (Mylenka, 2020). The protection and distance protocols have forced for the reduction of worker in this sector; additionally, the necessities of strict hygiene have a direct effect on the field worker and operation. Moreover, the decreased demand has made its own technical challenges where the system engineers taking to achieve the supply voltage as well as reactive levels to duck the risk such as reactive shutdowns at distribution levels. Therefore, the power utility company should ensure some advanced strategies for the sudden decision making. So, it is essential for the utility companies and the governments to work coordinately to regulate the power supply affordably, sustainably and securely. One study shows that Power and energy industry has been harmfully impacted. In Italy 20% reduction in demand and values are being witnessed. In India, presently power demand has decreased by 25%– 30% (Khanna, 2020).

The following are the few literatures that present how the power sector has been affected because of the present pandemic. An analysis hourly demand of electricity for the province of Ontario was performed by Abu-Rayash and Dincer (2020) to determine the effect of the COVID-19 pandemic on the dynamics of the energy sector. The analysis shows that in the month of April, there is a decline of 14% in the overall electricity demand of the province. Mostly, huge reductions in the daily demands of electricity was noticed on weekends. Further, the analysis of hourly electricity demands displays a clear flattening curve specifically in the peak hours of morning and evening, that is, between 7 AM to 11 AM and 5 PM to 7 PM at the time of pandemic. Moreover, the reduction in the GHG emissions by 40,000 tonnes of CO2e in the month of April results in the savings of $131,844.

Finally, this analysis serves to devise the changes in the lifestyle options and choices in the short-term and long-term future electricity demands. An assessment of the power system scenarios implemented globally together with the socio-economic and technical consequences because of lockdown have been scrutinized by Senthilkumar et al. (2020). It has been noticed from the primary analysis that because of the lockdown there was a drop in the demand of the commercial load while the demand for residential load expanded to the maximum. Further, this study examined distinct issues and challenges experienced by various utilities of the power system in India. Moreover, the actions implemented by the power sector for smooth running of the power system in India was also presented in the study. Lastly, this study presents a set of suggestions that may assist the government authorities and policymakers all over the world to cope up with the present and future unpredicted crisis in the power system. Zhong et al. (2020) have presented an analytical study on the effect of COVID-19 pandemic on the power sector. Initially, an analysis of the electricity demand and supply has been performed due to the reduction in total electricity consumption because of the lockdown restrictions in different regions of the country. From the analysis, it has been noticed that the contribution of renewable energy has been raised against the reduction of the power generation. Further, an analysis of the challenges to be faced in the operation and control of power system has been presented due to the enhanced uncertainty of load, altered power balance and issues of voltage violation. Next, an investigation of market price performance has been carried out to cope up the challenges of the deterioration of electricity prices in major markets and financial problems. Finally, the external factors occurred due to pandemic such as diminished emissions and recovery of environmental conditions temporarily has been explained. Aruga et al. (2020) have suggested an autoregressive distributed lag (ARDL) model to analyse the consequences of COVID- 19 pandemic on energy consumption in India during the lockdown.

The proposed model was basically used to determine whether the COVID-19 infection produces a positive impact on consumption of energy during lockdown period and whether this positive impact remains same or vary among distinct average income levels. From the analysis, it is noticed that higher income levels have a quick restore from COVID-19 crisis when compared with poor income regions such as Eastern and North-Eastern part. Further, this study recommends the significance of implementing special economic aid and measures for the poorer income regions to overcome the damage during COVID-19 crisis and to restore their energy consumption levels to the levels prior to COVID-19 crisis.

Development of new power infrastructure and energy facilities

The 'Expanding the infrastructure' is very common to each and every industry, and the energy industry is one of them. However, as the impact of pandemic is spread all over the world, the source of capital investment has been highly affected, and therefore, many power companies have decided to stop or reduce their capital outflow where possible. For example, DSOs (the 'Distribution System Operator', whose role is to transformed the power sector to make it more flexible, reduced the load on the network through penetrating new renewable sources, leverage data to increase re-penetration) are postponing the majority of opened projects, due to a significant reduction in the purchasing of goods and services. Moreover, the less-critical investments have been postponed. Therefore, the accomplishment of investment schedules by transmission system operators (TSOs) and DSOs is similar in jeopardy (Mylenka, 2020).

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

Default of payment

The defaulters of bill payment have been increasing with a cascaded manner. In many countries, the customers have been informed by their respective energy regulators and government authorities to prolong the payment of energy utility bills. Even if there is extensive lenience of non-payment by end-users, legislators did not openly describe if indulgence regarding disbursement would be approved further along with the supply-chain'. Up to now, not a single official of the Energy Community have clearly sharp who will endure the outlays of sponsoring this debit. The waiving of interest, lockdown and prohibitions on cutting off will most likely enhance costs for DSOs. In addition to this, their profits will be reduced and, if the disaster remains, their economic position will be worsened. As a result, the negative impact of cash flow and short-term liquidity of DSOs will be unavoidable. If the situation persists than the maintenance cost for regular operation will also be affected within a couple of months (Mylenka, 2020).

Impact on renewable energy sector

The renewable energy sector is currently the heart of power and energy industry. This sector has been badly affected due to the current pandemic. For example, India imports approximately 80% of its solar-photovoltaic (SPV) cells necessity from the China. In this regards, Indian companies are facing indecisively concerning the receiving of SPV panels from China. Moreover, India imports other clean energy equipment's such as wind turbines and batteries from China and Europe. The delay in supply of these clean energy utensils ahead of the existing inventory with the productions is impacting well-timed completion of renewable energy project give rise to in adverse situation. India single-handedly 3000 MW of SPV and wind energy projects encounter suspensions,owing to the CIVID-19 lockdown. Moreover, the planet's top manufacturer of rechargeable batteries was incompetent to accomplish the experiments of new-fangled prototypes of rechargeable batteries because of the COVID-19, and this has led to a deduction in the supply capacities of rechargeable batteries for the European market (Khanna, 2020).

Maintenance

Maintenance of energy and power sector is being too difficult in this pandemic situation, as the systematic maintenance deeds and field-worker/technicians are constrained to a least, with mended and restoration being prioritized. Portable mediation crews have been started as a standby for field workers. The QoS, in spite of this, may be at danger if scheduled cares and maintenance facility are suspended for too long. However, a few documents have analysed that the availability of vital parts, tools, and equipment used for the maintenance workers are not a worry situation in the current timing, but there is a peril to network and staff safety if supplies are not restored in time.

Response of policymakers, regulators, and market participants

Role of policy-makers and energy regulators have to ensure the energy security in this pandemic period. They need to address all the challenges associated to provide all the necessary services reliably. For instance, Europe's energy regulators have taken some exceptional actions to guarantee a secure and consistent energy supply by assuring vital amenity (e.g., gas, heating and power).

In addition to this, they have taken some measures intended to ease financial needs of customers who face monetary difficulties during lock-down (Mylenka, 2020). Some other countries have also taken several measures to backing the renewable energy sectors. For example, Poland's administration has formed an act named as Anti-Crisis Shield Act, which offers the President of the Energy Regulatory Authority with the right to increase time limit for renewable energy manufacturers for initiation of trades inside the auction system. Similarly, the DSOs have employed numerous administrative actions associated with the security of workforces, guaranteeing maintenance deeds, acquiring supplies, and so on. The safety and security of report centres is safeguarded through: (i) remote units in report centres with sufficient back-up squads on stand-by; (ii) limited admission to report centres and to stand-by parts; (iii) engaging the retired staff as standby units owing to decreasethe load on key staff.

4. RESEARCH METHODOLOGY

To provide a better and reliable research outcome we decided to use both primary and secondary data to prove the impact on Global Supply Chains of FMCG sector, Automobile sector, Electronic sector, Power & Energy sector and Publishing sector due to Covid-19 and the change in supply chains post covid-19. Primary data is more reliableand has a high confidence level too. We decided to approach this method because of its value during the analysis. Primary data will be beneficial and industrial experts as well as employees will provide the respective information which will help in meeting the research outcome. Secondary data is also helpful in our research because our project is targeted towards global supply chains and the information from reputable journals, books, different articles, periodicals, proceedings, magazines, newsletters, newspapers, websites, and other sources will provide the necessary claims which will help us in achieving the outcome of the research.

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

e-ISSN : 2583-1062

Impact Factor: 5.725

www.ijprems.com
editor@ijprems.com

Vol. 04, Issue 04, April 2024, pp: 1822-1834

5. ANALYSIS

Managing logistics of essential commodities over the last 9 months: As per the interview, many said that they had to face many challenges to manage the logistics. When companies started resuming work in different areas, amid ongoing disease prevention and control initiatives, they consider how to resume business operations and ensure that they can return to a normal, safe work routine as soon as possible. Restarting operations after the Lunar New Year has often raised some problems as staff return to the factories gradually. Quarantines and travel restrictions, however, mean that for many facilities, the time to ramp back up to full capacity will be much longer than usual. This would not only entail additional attention to labour preparation but also extra attention to the quality of the product as plants operate with less than a full complement of staff.

Containment zone impact on supply chain: The companies had stopped working because most of the areas were zoned as containment zones. Since the containment zone areas are varied and range from individual residential complexes to entire districts, the supplies of daily essentials and grocery should be addressed at the local state and district levels. This is because state-level authorities are best equipped to understand the complexity of containment zones," secretary of consumer affairs ministry Identifying and appreciating the company's main direct suppliers. The capacity to meet the requirements of supply and possible risks.

Work to add attention to the inventory, production, and purchase order fulfilment status of Tier 1 suppliers. So, started working with main suppliers to appreciate the flexibility of moving manufacturing and order fulfilment to other locations. In the event of inventory and capability constraints, we also understood how we will be handling from an allocation viewpoint, since we are not likely to be their only customer.

To minimize the supply chain effect on the business, active communication and formulating alternative strategies will be important an innovative method to manage the supply chain during this period: Referring to the interview we can say that they faced many challenges. Containment zones have arisen throughout the world, in areas with a high incidence of Covid-19, with restricted access to individuals within them. Shipments to be shipped here could be delayed at the last mile because they would require the consignee to come to the access points to receive their shipments at the edge of the containment zones. The ability to classify shipments planned for these zones in advance was essential to controlling our operations and to provide shippers and consignees with accurate information. For essential goods Police had started services on two dedicated WhatsApp numbers down south in Kerala's Kasargod, a district with seven containment zones. To have critical goods shipped, residents should call or post these numbers. 500 mobile stores across the state have been set up by the government of Tamil Nadu to sell vegetables and fruit. Permanent changesexpected in the supply chain.

Post COVID-19 period: Organizations have mentioned starting new depots which will help them to store goods in many places as per availability that will make their work easier and transporting good in a safer and more secured way globalized supply chain network of today has been optimized to determine minimum lead times at the lowest price possible. Supply chain stress tests will become a new standard in a post-COVID-19 environment.The distributed global business model is over, designed for the lowest cost.

In optimization, tomorrow's paradigm needs new goals. Supply chains need to become more resilient as volumes become more complex, especially if, as predictions indicate, large suppliers and logistics operators in the supply chain industry need to plan for major catastrophic events such as weather events (fires, floods, tsunamis), lethal outbreaks of pandemics, strikes, civil instability, and related disruptions. As a result, the transition to more versatility and multi-level procurement thathas already started will accelerate tremendously. We expect a large redesign of the supply chain system over the next few years and a new order focused on three main dimensions.

6. CONCLUSION

As the impact of COVID-19 spirals across the Global economy, the supply chain industry is impacted by the associated challenges. Manufacturers of finished goods that are usually distributed across the value chain are unable to source for raw materials from international suppliers. COVID-19 also resulted in a local lockdown that impacted wholesale, retail, and distribution operations. Consequently, COVID-19 has impacted the supply chain sector, and as a result, led to increased inflation and reduced volume of goods distributed across the valuechain.

Reacting to the effect of COVID-19 on the supply chain industry, participants across the value-chain have adopted efficient measures geared at sustaining production and delivery to final consumers. Some of the innovative measures include the use of technology to take up orders from customers, strategic partnerships between producers, intermediaries and delivery companies, innovative management of inventory to avoid stock-out, etc. Most of these measures have proved to be effective and should be maintained going forward.

With a huge loss impact by COVID-19 on the supply chain - a minimum of N6 trillion loss in global GDP, critical recommendations are necessary to mitigate these effects. First, the supply chain must be integrated to ensure a seamless transfer of goods from producers to consumers. Also, technological adoption in supply chain processes is indispensable to the survival of the supply chain industry. Lastly, upskilling of supply chain participants is critical at a time like this. For technological adoption to aid risk absorption in the supply chain industry, the people involved must be upskilled and equipped technology-wise.

7. REFERENCE

[1] https://iap.unido.org/articles/managing-covid-19-how-pandemic-disrupts-global-value-chains

[2] https://coronavirus.jhu.edu/map.html

[3] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen

[4] https://www.imf.org/en/News/Articles/2020/04/24/pr20187-wto-and-imf-joint-statement-on-trade-and-the-covid-19-response

[5] https://www.pwc.com/ng/en/assets/pdf/afcfta-2019.pdf6.

[6] https://www.researchgate.net/publication/341055496_Impacts_of_COVID_19_on_supply_chain_operations_in _Nigeria

[7] https://ru.reuters.com/article/topNews/idAFKCN2260UJ-OZATP

[8] https://www.sogeti.com/globalassets/reports/covid-19-supply-chain.pdf

[9] https://www.publicissapient.com/insights/coronavirus_and_managing_the_supply_chain_amid_a_crisis

[10] https://www.bloomberg.com/news/articles/2020-05-05/nigeria-cocoa-exports-stalled-over-covid-19-safety-protocols

[11] https://guardian.ng/news/flight-restrictions-cost-aviation-sector-n180b-in-job-losses-passenger-traffic- revenue/

[12] https://en.wikipedia.org/wiki/COVID-19_pandemic_lockdowns

[13] https://www.isl.org/en/containerindex/may-2020

[14] https://www.iata.org/en/iata-repository/publications/economic-reports/cargo-chartbook---q2-20202/

[15] https://www.un.org/development/desa/en/news/policy/wesp-mid-2020-report.html