

Supply Chain Management in Crisis: Agile Planning to Avoid Supply Chain Disasters

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ABSTRACT

An outbreak of the deadliest disease is not a new misery for humans residing on Earth. Many epidemics have constantly challenged people in the past. The substantial negative consequences of pandemics on the global financial system are similar. The spread of the world's deadliest virus, COVID-19, killed individuals and badly harmed the economy. The supply chain is one of the most crucial aspects of our economy. However, there has been a shortage of various products due to COVID19's negative consequences. COVID-19's effects are widely acknowledged across all component kinds and industries. In times of lethal disease, the paper underscores the importance of a reliable supply system. Moreover, conflicting wars and other factors affect the world's supply chain. The mentioned factors affect the supply chain, logistic network and commodity markets (especially food products and energy). Thus, this document summarizes significant highlights of an efficient and effective supply chain and suggestions for future study to establish a more robust supply chain network.

Keywords: Flexibility; COVID-19; Supply Chain Management in crisis; Agility in Supply Chain; Supply Chain Resilience, Supply Chain Performance.

1. INTRODUCTION

Supply chain management is controlling the movement of goods and services from the point of origin to the point of consumption. It also includes storing raw material used in work-in-progress, transportation, inventories, and fully embellishing goods (Cox & Ireland, 2002). Furthermore, the predominant intention of supply chain management is to keep in tune with and join the manufacturing, distribution and transportation of products and offerings. Companies having a terrific and tight grip over internal stock, manufacturing, internal productions, distribution and sales can try this better (Khokhar, 2019) .

The flow of commodities, services, and information from the producer to the consumer is depicted in the diagram above (HOU et al., 2021). The illustration figure 1 demonstrates the flow of a product from the supplier to the manufacturer, who then sends it to the distributor for distribution. The distributor then sends it to the wholesaler, who then hands out the items to various retail stores from where customers can easily obtain them.



Figure 1: Supply chain process

More significantly, a supply chain executive consolidates the demand and supply. It utilizes an assortment of strategies and ways to deal with the total chain and perform meritoriously at every step engaged in supply chain management. The facts confirm that each unit associated with the course of production network endeavors to decrease costs and help associations overhaul their drawn-out presentation while enhancing their purchasers and partners (Maloni & Brown, 2006). This strategy can assist with diminishing rates by disposing of superfluous expenses, taking care of and delivering.

In this period of globalization, organizations compete to develop the best quality products and deliver them to the consumers, thus satisfying their needs or demands. More importantly, the supply chain is a core process on which all the organizations are highly dependent as it helps organizations in creating a more efficient distribution mechanism for in-demand items and services, enhances productivity and business processes, helps in reducing both indirect and direct costs and the cost of transportation and storage (“Considering the Patient Satisfaction and Staffing Skill the Optimization of Surgical Scheduling by Particle Swarm and Genetic

Algorithm,” n.d.). Moreover, organizations are dependent on the supply chain as it assists them in the timely delivery of the correct products to the correct location and supports the successful execution of just-in-time stock models by improving inventory management, adjusting organizations to economic instability, growing consumer demands, globalization, and other differences that lead to better services and customer relationships (Azevedo et al., 2012).

As we know how vital the supply chain is for organizations or any country because it is a source of finance and other means. This paper demonstrates the events or the dangers that can affect the supply chain, thus highlighting the solutions to overcome these dangers or obstacles in order to develop a smooth supply chain in future.

When we talk about the dangers that may affect the supply chain, we include many factors such as technology, environmental uncertainty, supply chain performance, natural disasters etc. These are a few factors that may disrupt a supply chain, but how can we not include the most recent factors that drastically affected the global supply chain (Hou et al., 2019). These events include the pandemic (COVID-19), due to which the world faced difficulties, whether financial or shortage of necessities, unemployment or the world supply chain. The global economy was sinking into the dark. In the coming months, the government tried to overcome the causes that greatly influenced the supply chain, but that was not it. Another major event that hit the supply chain that is the war between Russia and Ukraine: Not only this but the rapid increase in the US dollar affected the supply chain or the imports more severely in Pakistan (Khokhar et al., 2020).

Therefore, this report examines the global economic impact of the war and the global consequences of the pandemic (COVID-19) and other events that influenced the supply chain during the period as figure 2 shown the flow chart diagram of the Study. Understanding and recognizing how the intrusion, pandemic and different occasions influence worldwide business movement and costs, as well as the ramifications for what is to come, is essential. In other words, this paper discusses crisis management in the supply chain, emergency protocols, strategic planning and management to avoid future inconsistencies.

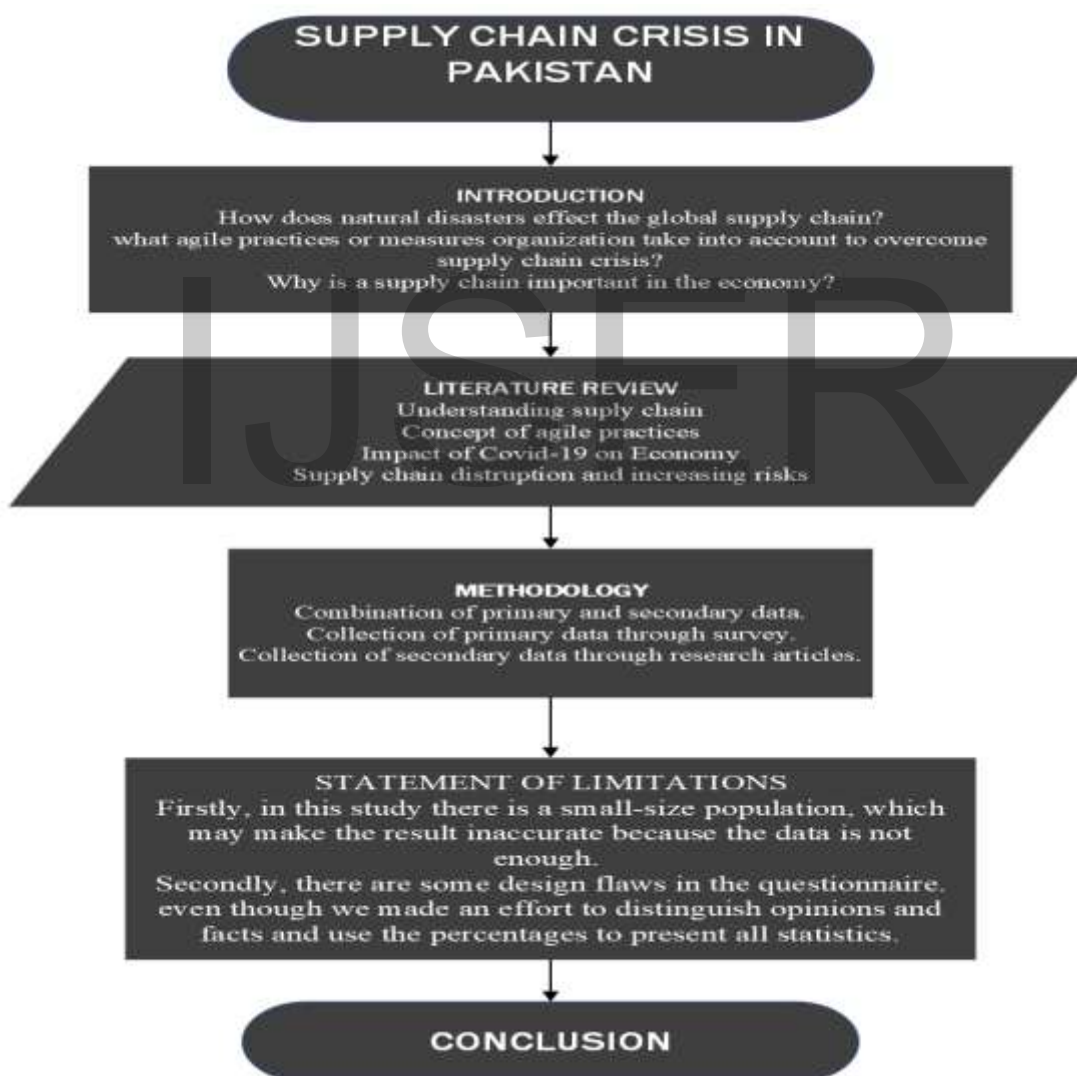


Figure 2: The flow chart diagram of the Study

The rest of the article is structured as follow: Section 2 represents Literature Review. Section 3 presents Methodology which demonstrates how the data was collected. Section 4 presents Discussion of factors that affects the supply chain. It discusses how war, pandemic and natural disasters affect the global supply chain of an economy and what contingency plans are created to overcome the impacts arising due to these factors mentioned. Section 5 concludes the research.

2. LITERATURE REVIEW

In this section, earlier literature is observed to facilitate research based on the supply chain crisis, including the impact of COVID-19 and other events disrupting the supply chain management and agile practices to avoid supply chain disasters. Numerous protruding studies for the identification of supply chain crises were studied. Before exploring deeper, let us understand what the supply chain is all about. (Hou et al., 2019) A supply chain is a complicated network of networks that connects a firm and its suppliers to make and transport a specific manufactured product to the buyer or final customer. Various information acts, authorities, objects, and resources are all part of this network of channels. The supply chain comprises stages, each of which outlines how produced goods or services get from the raw material stage to the customer. Companies are developing their supply chains to cut costs and stay competitive in the marketplace. Supply chain management is a systematic procedure that results in cheaper costs and a faster production cycle when the supply chain is efficient (Patel, 2021). The supply chain process encompasses everything from product development through procurement and logistics, as well as the database structure required to organize these activities (Lopes et al., 2022).

Researchers recently completed significant research to overcome the COVID-19 conundrum. Additionally, different studies based on impact and government responses such as travel restrictions, hospitalization, and self-quarantine were used to conduct a theoretical study on the onslaught of COVID-19 from Wuhan, China (Ozdemir et al., 2022). Border control plans were also created on a war footing, restricting movement in the affected area in an appropriate manner by the concerned authorities.

According to a literature review, the epidemic significantly impacts production and logistical operations. However, several studies have supported the idea of supply chain alternatives amid epidemic constraints, although the deadliest disease necessitates quick implementations to restore the economy (Alzoubi et al., n.d.). As a result, a compilation of the current reports was created, and new plans were developed with important tactics to handle the hazards of infectious pandemics.

2.1 IMPACT OF COVID-19 ON ECONOMY

The global spread of this fatal disease is wreaking havoc on human health and the global economy. The actual impact of this pandemic is becoming increasingly difficult to estimate. Because of the high pace of case increase, incidence, and death, control measures are constantly changing. Lockdowns are not a perfect remedy for the deadliest disease in an unstable economy in the long run because most people rely on daily living income (Akhtar et al., 2020). Pakistan has faced numerous challenges due to the economic slump, and its unemployment rate has remained unchanged (Khokhar, Iqbal, et al., n.d.). According to the United Nations, an estimated 20 million people will lose their jobs as a result of the effects of this deadly epidemic, with the number likely to rise to 40 million (O'Neill et al., 2022).

Projections, the global cost of Coronavirus could reach \$4.1 trillion. The impact of this epidemic on the global monetary system, according to the Universal Monetary Fund, will be more significant than the anguish of 1929. The global GDP is expected to grow at a rate of 3%, far less than the 0.1 percent growth experienced in 2009 due to the financial crisis. Around 70% of Pakistan's population relies on agriculture and allied sectors, which account for about 15% of the country's GDP. Because of the futility of trucks and labourers, the food supply system was greatly influenced by solitary confinement (“Considering the Patient Satisfaction and Staffing Skill the Optimization of Surgical Scheduling by Particle Swarm and Genetic Algorithm,” n.d.).

Moreover, all supplementary domestic and global travel was forbidden worldwide during lockdown to avert coronavirus infection, but on the other side, it overwhelmed the economy. The other significant issues raised during this epidemic were the variation in the demand for food items which led to the unavailability of certain foodstuffs. Earlier, massive development of more than 10 percent in the economy was observed as many shareholders invested considerable money

in the food industry. More foreign investment is being seen as a result of the establishment of these shareholders' food industries. These food industries employ approximately 0.7 million people and contribute roughly USD 70 billion to the GDP. As a result, severe influences in various segments of the outlook have been detected, resulting in employee downsizing. It causes a financial crisis in a country, which impacts the economy. In this challenging period of the crisis, there is a need to develop solid strategies for making the supply chain more resilient and robust in order to meet customer demand (Khokhar, Zia, et al., n.d.).

2.2 SUPPLY CHAIN DISRUPTIONS AND INCREASING RISKS

A significant failure in a production node or distribution link part of a supply chain is known as a supply chain disruption. Various factors, including natural disasters, cause supply chain interruptions. They frequently cause widespread damage to several businesses and infrastructures all at once (Kundu & Santhanam, 2021). This has a tremendous influence on an industry, and recovery from natural disasters frequently takes a long period.

Due to the globalization of supply lines, businesses are now exposed to disaster risks beyond national borders, as a natural disaster in one location can damage businesses in other regions (Paiva et al., 2014). Furthermore, the dependency among enterprises has increased due to offshore and outsourcing activities, which has exacerbated vulnerability because the collapse of one section of the global supply chain can fail the others (Martínez-Jurado & Moyano-Fuentes, 2014). Although the central business might have the option to recognize some calamity-inclined hubs or connections in the store network, divided creation has decreased the central association's administration and checking of creation hubs and circulation linkages ((Kimura and Ando).

Simultaneously, as a result of supplier consolidation and production agglomeration, which has resulted in a large density of production assets and economic activity in particular areas, the risks have been centred in those areas (Oliveira et al., 2019). When calamities hit places with a high convergence of assembling offices (particularly those close to streams or regions inclined to tempests and flooding), supply chains are interfered with, bringing about tremendous underlying misfortunes across the entire presentation organization and, surprisingly, united organizations. Different ventures in the production network might experience issues finding proper substitute providers or clients throughout the emergency and recuperation stage, broadening the fiasco's

effect. Moreover, dependence on global dispersion offices has expanded debacle weakness, as harm to these offices can upset supply chains without much of a stretch.

Some broadly utilized store network the board systems improve the probability of issues in catastrophic event circumstances. The "just in time" practice and lean production network the board are two instances of practices that require more regular conveyances of provisions while limiting non-esteem added time and stock. These business proficiency boost approaches hoist the degree of relationship among endeavours and, subsequently, the gamble of store network interference (Thunberg, 2016). Moreover, the pressure of non-esteem added time in the stock exchange and capacity might decrease the essential gamble support between creation hubs, demolishing the effect of catastrophic events in the worldwide production network. (Ivanov & Dolgui, 2021). When a disaster strikes a provider, or dispersion connects, for instance, the principal firm that purposes "in the nick of time" procedures will be compelled to end creation inferable from supply imperatives, and the adverse consequence will quickly spread down the downstream production network.

Regular disasters might produce income issues in an exciting endeavour if production network accomplices cannot clear their payables on time, representing a threat to a company's monetary status (Shareef et al., 2020). Monetary foundations might be worried about bad monetary standpoints, and endeavours might find it challenging to get outer monetary assets through the recuperation stage. Moreover, if the organization is public, a store network disturbance could hurt its image and result in market underperformance.

Regular fiascos can likewise interfere with the production network, harming monetary foundations (Mishra et al., 2022). On top of the misfortunes to the insurance agency, monetary challenges looked at by client firms because of calamities and the subsequent store network interferences might create unexpected issues in advance reimbursement, imperilling monetary organization dependability.

Global supply networks are increasingly including small and medium-sized businesses (SMEs). Small businesses are typically subcontracted suppliers of labour-intensive materials and components or providers of other essential services. More significant global supply chain partners frequently take advantage of SMEs' increased flexibility, adaptation to local economic

situations, and capacity (Pujawan & Bah, 2022)As a result of this lack of planning, recovering from disasters and the resulting supply chain interruptions becomes more challenging.

2.3 THE ECONOMIC EFFECTS OF WAR

Studies on the economic repercussions of war demonstrate that they do have an economic impact (SSRN & 2022, n.d.) For example, demonstrated that there are two schools of thinking on the effects of conflict. The 'war renewal' school of thinking is the first, whereas the 'war ruin' school of thought is the second. The 'war renewal' school of thinking contends that war forces create beneficial consequences; for example, it lowers the influence of special interests, brings technical innovation, and boosts human capital, whereas the 'war ruin' school of thought regards wars as destructive occurrences with little economic gain. Research claims that many people believe the Great Depression caused the collapse of parliamentary democracy in many countries. The civil wars in the Middle East, according to (SSRN & 2022, n.d.), have not generated conditions favourable to re-conceptualizing sovereignty or decoupling sovereignty and governance. Instead, disputing parties vie for control of the benefits that come with worldwide recognition. Civil wars in the Middle East will not quickly surrender to peaceful settlements under these circumstances. According to some researchers, developing countries are more likely to experience civil war, especially when they experience adverse income shocks.

A few investigations observationally gauged the economic impacts of wars and examined the outcomes of highway battles for financial development in an enormous cross-segment of nations from 1960 to 1989. The investigation discovered that cross-country contrasts in financial development are methodically connected with the event and the attributes of war. The review saw that post-war financial execution is emphatically connected with the war's seriousness and length. However, the development improving impacts differ adversely with a nation's degree of financial turn of events, inspected the impacts of nationwide conflicts on numerous economies from 1960 to 2002. They track down those conflicts adversely affecting financial basics and that the reactions by the global-local area to nationwide conflicts apply substantial consequences for financial development. Thunberg, (2016) fostered a model to test for the financial impacts of all respectful conflicts beginning around 1960. He saw that after lengthy nationwide conflicts, the economy recuperates quickly, though, after short conflicts, the economy declines.

2.4 OTHER FACTORS DISRUPTING SUPPLY CHAIN NETWORK

The article above discussed the obstacles that can hinder the supply chain. Moreover, the supply chain serves practically every individual on the planet. Therefore, it is a problematic cautious exercise to guarantee that the perfect items are accessible at the ideal time, cost, and area. Moreover, bearing in mind that supply network choices can influence at a greater level. Significant elements, like client inclinations, rivalry, climate and cataclysmic events, episodes, international occasions, and guidelines, are beyond the undertaking's control. They can prompt some frightening "what if" situations.

Here is a closer look on other factors that may disrupt supply chain resiliency:

i. EXTERNAL FACTORS

Fuel scarcity, fire, floods or natural disasters are everything that can crush supply chains to an end. However, no occasion in present-day times has shown the effect of external store network disturbance more obviously than Coronavirus. However, despite the abrupt change, it has featured the blemishes of conventional production network models.

Most stockpile chains have been planned considering cost-effectiveness. Nevertheless, in the nick of time and lean stock administration, enhancement systems have brought about associations attempting to adjust as disturbances become more regular and robust (Mishra et al., 2022). This pattern will probably speed up because of the proceeded unfavourable human impression in the world, developing asset shortage, and the relationship between our cycles and our dependence on digitization.

ii. INNOVATION

Innovation has forever been a disturbance in our reality. Innovation can change things quickly, from creating black powder upsetting conflict to how the vehicle changed our reality. For supply chains, it is not unexpected a blended gift (Paiva et al., 2014). As per McKinsey, some landmark innovations are sure to impact how we think about supply chains and store network arranging. They include:

- Drones and Robotic innovation.
- Artificial intelligence
- End to end performance management software

- On demand delivery.
- Innovative supply chain analytics
- Electric vehicles and much more.

The majority of these innovations for building a computerized inventory network are planned to make our lives simpler, more proficient, and more feasible — it requires investment, ability, and hierarchical realignment to execute new advances across complex supply networks. Assuming that sounds like a test is because it is. Finding some harmony of chance between embracing and not taking on innovations is a constant, unnerving battle. However, supply chains should continually be evaluated and developed to remain current and viable.

iii. DEMAND UNCERTAINTY

Getting requests right is vital for inventory network endurance. Wrong interest determining can bring about deficiencies, overloads, and squandered capital. However, exact interest forecasts appear to require divination (or an artificial intelligence-fuelled request demonstrating instrument). Most production network organizations are left to bet as they peer at estimates. More often than not, they take care of business (Pham et al., 2021), (Marčinko et al., 2020). In some cases, they don't. To make things more frightening, different variables than debacles can impact interest such as:

- Market trends
- Customization
- Customer expectations
- Product cannibalization
- Season

These are a few elements that may hinder the supply network of a country or an organization. Therefore, to make the supply chain sustainable and overcome these obstacles in future, it is better to make contingency plans beforehand and make a resilient or flexible supply chain.

2.5 AGILE PRACTICES

An agile method can be well-defined by various approaches; one specific method is related to supply chain management and is used to respond quickly and meet market demands. This method employs sprints, which are gradual, iterative work sequences (Kumar et al., 2008). This method is especially useful for teams responding to the contingency of building software. People, quality, functionality, tools, time, process, value, and concept are all important variables in agile practice. All of these variables are regarded as the pillars of agile practice.

3. METHODOLOGY

This study reviews several disaster events that have occurred and impacted the supply chain over the years in Pakistan. It also analyses the ability of the existing supply chain network for its sustainability and effectiveness of operations in a crisis. The research presented in this article is based on the assumption that all types of supply chain crises can provide an understanding of the comeback actions of a supply chain aftermath. These strategies may assist the firm in quick recovery after a crisis or make things worse if not dealt with consciously.

Supplementary information was examined from logical and perceived distributions and documentation from reports and news, portraying the occurrence, the working climate, and the company's system during the emergency. The optional information was generally founded on logical distributions, and on account of missing data, sites and websites were inspected to convey a total and comprehensive image of the review.

Since the examination introduced in this paper is exploratory, optional information was fundamentally obtained. The data accomplished from the investigations are gathered in the accompanying classes to dissect the procedures that might be utilized to make the store network versatile and lithe in an emergency:

- (a) Effect of the emergency and the ultimate result
- (b) The technique and practices to cater to emergency
- (c) The primary cycles that prompted the ultimate result and effect of the emergency.

4. DISCUSSION

Pioneers of the supply network, executives have many errands/commissions and obligations. The details of day-to-day activities, planned operations, and the presentation assessment of assorted and scattered providers should be overseen close by executing innovative methodologies that address patterns, dangers, and unique open doors in high-speed and complex commercial centres. Until the disturbance of the COVID pandemic, supply anchors appeared to run at full proficiency by and large. Scattered providers around the world furnished B2B and B2C purchasers with merchandise across all businesses and at speed.

Moreover, proficiency has been a foundation for the industry for quite a long time. However, the actual design of the effectiveness-driven industry model added to supply network disappointments during the pandemic, during which Coronavirus limitations were just one of a few essential variables. International affairs, Brexit-related administrative limitations, the Suez Waterway obstacle, Storm Ida and energy deficiencies - these emergencies disabled supply and made enormous hindrances to satisfying needs.

4.1 CAUSE AND EFFECTS OF SUPPLY CHAIN DELICACY

What makers and specialist co-ops across businesses found out about supply chains during the pandemic is that provisions are in many cases excessively far, into a couple of spots, and too little stock to meet eccentric and exceptionally factor interest.

- i. **TOO FEW:** Zeroing in on a solitary geographic locale or country for provisions has; additionally assisted a few makers with driving down costs because of economies of scale and expanded specialization. Be that as it may, as different producers realized, this can mean openness to explicit weaknesses in supply while choices are generally missing. For example, semiconductor creation in Taiwan and South Korea makes up 70% of the chip-producing market, a reality that - under Coronavirus limitations in Asia - implied deficiencies for auto and hardware makers depending on chips.
- ii. **TOO LITTLE:** The just-in-time inventory, spearheaded by Toyota during the 1970s, has long overwhelmed production. However, on the other hand, the monetary benefits of having less standing stock - addressing the necessities of the following activity - are impressive. In any case, as the pandemic showed, only one significant

unfavourable occasion implied there was little stock to take advantage of to retain the shock. Moreover, the shocks resounded further through the stock chains making a bullwhip impact.

- iii. **TOO FAR:** Obtaining supplies in remote have been a go-to answer for makers hoping to bring down their expenses. Nevertheless, this requires long transportation chains and expanded openness to unfriendly occasions. For example, when the compartment transport at any point obstructed the Suez Channel for almost seven days in spring, the subsequent gridlock impacted roughly 12% of worldwide exchange at an expense assessed at almost \$10 billion every day. Transporting rates likewise soar - costs that mainly were given to clients used to bring down costs on quicker conveyances.

Thus, no specific way exists to beat every such gamble, given the shortfall of authentic information that precludes using evidence-based foresight to help control these hazards.

Nonetheless, a couple of affiliations adjust far superior to others with the chance and the indication of an unquantifiable bet. They do not share for all expectations and reason a puzzling condition or even an impressive parcel of comparable cycles for overseeing risk, but they share an essential quality: strength.

The possibility of various levelled strengths is not new: the limit of a relationship to successfully resist the unforeseen has everlastingly been a middle part of progress. In any case, since the numbers and kinds of risks that can disrupt a creation network are by and by more unmistakable than at some other time, adaptability has taken on considerably more significance underway organization the load up. Like this, trailblazers in the discipline have endeavoured to all the more probable fathom what makes a particular undertaking flexible, and subsequently, there is a flourishing gathering of data from which various associations stand to benefit.

4.2 MAKING A RESILIENT SUPPLY CHAIN NETWORK

Thus, producing chiefs can alleviate the impacts of the effectiveness ideal models to make supply chains versatile despite basic dangers. The following solutions to make supply chain resilient are as follow:

i. OVERT REPETITIVENESS

Speculatively, a flexible endeavour can be worked by making redundancies through the store organization. For example, the affiliation could hold extra stock, stay aware of low breaking point use, have various suppliers, etc. In any case, despite the way that absolute tedium can give a breathing room to continue to work after interference, routinely, it is a temporary and lavish measure.

An association ought to pay for the dreary stock, cut-off, and workers; plus, such excesses will presumably provoke chaotic assignments, diminished quality, and substantial cost increases.

Regarded and imitated store network systems, for instance, the Toyota Creation Structure, lean creation cycles, and Six Sigma practices hope to make hyper-proficient organizations that work with little stock ship enormous things in a lucky style. An accentuation on plain dullness controls an affiliation's ability to achieve such capability.

ii. RESHORE CREATION:

Rather than offshoring, move creation nearer to home. Portage as of late did this - sending off another battery improvement focus in southeast Michigan to fulfil developing need for electric vehicles without expanding dependence on abroad providers.

iii. ADAPTABILITY

Interestingly, when an organization augments production network adaptability, it can both endure huge interruptions and better answer request variances. To accomplish worked in adaptability, an organization ought to make the accompanying moves:

- **Take on normalized processes:** Pro the ability to move creation among plants by including viable and nonexclusive parts in various things, contingent upon similar and undefined plant plans and cycles across the association, and comprehensively teaching labourers. Viable parts, the creation of workplaces, and people grant an association to answer quickly to interference by rearranging resources where the need is generally conspicuous. Intel, for example, gathers semiconductor fabricate modern offices with vague plans for equipment and creation processes. However, because of its standard production plan, Intel can switch creation among workplaces if the need arises.

• **Utilize simultaneous rather than successive cycles:** Using simultaneous rather than progressive cycles in such key locales as thing headway and creation/movement speeds up the recuperation stage after an ailment and offers wellbeing benefits in market unrivalled responses. Splendid Developments achieves synchronization through a concentrated store network affiliation that crosses different association limits, including planning and arrangements. By changing these activities to the creation organization, the association can see each useful district simultaneously — and quickly overview the circumstance with the activity in each expecting that an emergency arises.

• **Plan to defer:** Plan things and cycles for the most noteworthy postponement of numerous exercises and decisions that could sensibly be anticipated in the store organization. Keeping things in a semi-completed structure bears the expense of flexibility to move things from surplus to lack areas. It is like manner increases fill rates and further creates client help without extending stock conveying costs, considering that things can be finished when more exact or explicit information about what the client needs opens up. Italian clothing maker and retailer Benetton updated its collecting processes so that selected things, mainly those least important, are made as nonexclusive, undyed things to be done later when the association gets more exact interest information.

• **Adjust acquisition methodology to provider connections:** If an association relies upon a bit of assembling of critical suppliers, it ought to keep a significant relationship with each. Such suppliers are so essential to an endeavour that any failure among them can devastatingly influence that undertaking. Moreover, by understanding each trading assistant side by side, an association can more promptly screen the get-together to distinguish anticipated issues and rely upon them to help deal with unforeseen circumstances.

iv. **BROADEN PROVIDERS:**

More stock is still to a couple of spots will not be sufficient to relieve the dangers of critical disturbances. Therefore, producing chiefs should expand the providers they attract to support worldwide production network risk.

To finish up this piece of an article, we can say that they pay for building a flexible affiliation is critical. The "hardened" attempt will need to persevere through each sort of

interference and its earnestness. Unforeseen aggravations can make lacks that are much the same as the interest spikes achieved by supply/demand disproportionate qualities; solid endeavours can subsequently answer changing business area interest before their opponents.

Furthermore, as these procedures come at huge expense, store network delicacy should be addressed to fulfil need and re-establish buyer certainty. We should recognize that the previous additions in proficiency subvert versatility. Practical business prospects need proficiency and versatility, as well as visionary pioneers prepared to learn and apply the illustrations on the worth of strength.

5. CONCLUSION

This research explores the consequences of a pandemic, natural disasters and other events that disrupt the supply chain network. It can be said that the supply chain is the backbone of an organization or any country as it plays a competitive role in financial success. In this article, we highlighted the importance of the supply chain; it is a system that connects a company to suppliers of raw materials. It can also be used to transport goods to customers. The better the supply chain, the greater the firm's competitive advantage. In addition, the procedures required to move raw materials, products, or services from their initial condition to the client and improve customer relations are known as supply chains. Large firms and projects may have many supply chains referred to as supply networks. Supply chain managers and management are essential for delivering customer value and optimizing supply network efficiency.

Moreover, this research emphasized events that can disrupt the supply chain network. For example, in a recent year's supply chain was globally affected due to Coronavirus, which led to a shortage in supplies (whether it was food, necessities, or employment); everything was greatly influenced, including businesses. Other recent events, such as the war between Ukraine and Russia, also affected the global supply chain. Not only are this, but environmental factors, technology, talent shortage, globalization and demand uncertainty also playing a vital role in disrupting the supply chain network.

So to conclude, we can say that this is the nature of the universe; everyone has to face difficulties, whether financial, business or geopolitical tension; one can create contingency plans and practice agile methods to overcome the obstacles. Similarly, in case of supply chain

disruptions, businesses can practise making the supply chain more resilient, agile, efficient, well-regulated, logical and digitally networked for ameliorating visibility.

REFERENCES:

- Akhtar, N., Akhtar, M. N., Usman, M., Ali, M., & Siddiqi, U. I. (2020). COVID-19 restrictions and consumers' psychological reactance toward offline shopping freedom restoration. *Https://Doi.Org/10.1080/02642069.2020.1790535*, 40(13–14), 891–913.
<https://doi.org/10.1080/02642069.2020.1790535>
- Alzoubi, H., Elrehail, H., ... J. H.-I. J. of, & 2022, undefined. (n.d.). The Role of Supply Chain Integration and Agile Practices in Improving Lead Time During the COVID-19 Crisis. *Igi-Global.Com*. Retrieved June 20, 2022, from <https://www.igi-global.com/article/the-role-of-supply-chain-integration-and-agile-practices-in-improving-lead-time-during-the-covid-19-crisis/290348>
- Azevedo, S. G., Carvalho, H., Duarte, S., & Cruz-Machado, V. (2012). Influence of Green and Lean Upstream Supply Chain Management Practices on Business Sustainability. *IEEE Transactions on Engineering Management*, 59(4), 753–765.
<https://doi.org/10.1109/TEM.2012.2189108>
- Considering the patient satisfaction and staffing skill the optimization of surgical scheduling by particle swarm and genetic Algorithm. (n.d.). *Solidstatetechnology.Us*.
- Cox, A., & Ireland, P. (2002). Managing construction supply chains: the common sense approach. *Engineering Construction and Architectural Management*, 9(5–6), 409–418.
<https://doi.org/10.1046/J.1365-232X.2002.00273.X>
- Hou, Y., Iqbal, W., Muhammad Shaikh, G., Iqbal, N., Ahmad Solangi, Y., & Fatima, A. (2019). Measuring Energy Efficiency and Environmental Performance: A Case of South Asia. *Processes*, 7(6), 325. <https://doi.org/10.3390/pr7060325>
- HOU, Y., Khokhar, M., Khan, M., Islam, T., & Haider, I. (2021). Put Safety First: Exploring the Role of Health and Safety Practices in Improving the Performance of SMEs: *Https://Doi.Org/10.1177/21582440211032173*, 11(3), 215824402110321.
<https://doi.org/10.1177/21582440211032173>
- Ivanov, D., & Dolgui, A. (2021). A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0. *Production Planning and Control*, 32(9), 775–788.
<https://doi.org/10.1080/09537287.2020.1768450>
- Khokhar, M. (2019). *OCCUPATIONAL HEALTH & SAFETY IMPLEMENTATION FRAMEWORK FOR PAKISTANI CONSTRUCTION INDUSTRY IN*. November, 253–285.
- Khokhar, M., Hou, Y., Rafique, M. A., & Iqbal, W. (2020). Evaluating the Social Sustainability Criteria of Supply Chain Management in Manufacturing Industries: A Role of BWM in MCDM. *Problemy Ekorozwoju, Vol. 15(nr 2)*.
- Khokhar, M., Iqbal, W., Hou, Y., Abbas, M., Processes, A. F.-, & 2020, undefined. (n.d.).

- Assessing supply chain performance from the perspective of Pakistan's manufacturing industry through social sustainability. *Mdpi.Com*. <https://doi.org/10.3390/pr8091064>
- Khokhar, M., Zia, S., Islam, T., Sharma, A., Iqbal, W., & Irshad, M. (n.d.). Going Green Supply Chain Management During COVID-19, Assessing the Best Supplier Selection Criteria: A Triple Bottom Line (TBL) Approach W kierunku zrównoważonego zarządzania łańcuchami dostaw podczas pandemii COVID-19, ocena kryteriów wyboru najlepszych . *DEVELOPMENT*, 2022(1), 36–51. <https://doi.org/10.35784/pe.2022.1.04>
- Kumar, R., Mishra, R. S., Www, W. ., & Mishra, R. S. (2008). COVID-19 global pandemic: impact on management of supply chain. *Researchgate.Net*, 9001(04). <https://doi.org/10.46338/IJETAE0416>
- Kundu, S. K., & Santhanam, H. (2021). All pain and no gain: Factors impacting local and regional sustainability due to COVID-19 pandemic with respect to the Indian marine fisheries. *Current Research in Environmental Sustainability*, 3. <https://doi.org/10.1016/J.CRSUST.2021.100086>
- Lopes, J., Gomes, S., Logistics, L. M.-, & 2022, undefined. (2022). Developing knowledge of supply chain resilience in less-developed countries in the pandemic age. *Mdpi.Com*. <https://doi.org/10.3390/logistics6010003>
- Maloni, M. J., & Brown, M. E. (2006). Corporate social responsibility in the supply chain: An application in the food industry. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-006-9038-0>
- Marčinko, D., Jakovljević, M., Jakšić, N., Bjedov, S., & Drakulić, A. M. (2020). THE IMPORTANCE OF PSYCHODYNAMIC APPROACH DURING COVID-19 PANDEMIC. *Psychiatria Danubina*, 32(1), 15–21. <https://doi.org/10.24869/PSYD.2020.15>
- Martínez-Jurado, P. J., & Moyano-Fuentes, J. (2014). Lean Management, Supply Chain Management and Sustainability: A Literature Review. *Journal of Cleaner Production*, 85, 134–150. <https://doi.org/10.1016/J.JCLEPRO.2013.09.042>
- Mishra, R., Singh, R. K., & Rana, N. P. (2022). Developing environmental collaboration among supply chain partners for sustainable consumption & production: Insights from an auto sector supply chain. *Journal of Cleaner Production*, 338, 130619. <https://doi.org/10.1016/J.JCLEPRO.2022.130619>
- O'Neill, E. A., Morse, A. P., & Rowan, N. J. (2022). Effects of climate and environmental variance on the performance of a novel peatland-based integrated multi-trophic aquaculture (IMTA) system: Implications and opportunities for advancing research and disruptive innovation post COVID-19 era. *Science of The Total Environment*, 819, 153073. <https://doi.org/10.1016/J.SCITOTENV.2022.153073>
- Oliveira, F. N. de, Leiras, A., & Ceryno, P. (2019). Environmental risk management in supply chains: A taxonomy, a framework and future research avenues. In *Journal of Cleaner Production* (Vol. 232, pp. 1257–1271). Elsevier Ltd. <https://doi.org/10.1016/j.jclepro.2019.06.032>

- Ozdemir, D., Sharma, M., Dhir, A., & Daim, T. (2022). Supply chain resilience during the COVID-19 pandemic. *Technology in Society*, 68, 101847.
<https://doi.org/10.1016/J.TECHSOC.2021.101847>
- Paiva, E. L., Teixeira, R., Vieira, L. M., & Finger, A. B. (2014). Supply chain planning and trust: Two sides of the same coin. *Industrial Management and Data Systems*, 114(3), 405–420.
<https://doi.org/10.1108/IMDS-07-2013-0324>
- Patel, M. (2021). IMPACT OF COVID-19 A Case of Food Supply Chain in Pakistan. *Researchgate.Net*. <https://doi.org/10.23451/mjls.v1i1.8>
- Pham, T. D., Dwyer, L., Su, J.-J., & Ngo, T. (2021). COVID-19 impacts of inbound tourism on Australian economy. *Annals of Tourism Research*, 88, 103179.
<https://doi.org/https://doi.org/10.1016/j.annals.2021.103179>
- Pujawan, I. N., & Bah, A. U. (2022). Supply chains under COVID-19 disruptions: literature review and research agenda. *Supply Chain Forum*, 23(1), 81–95.
<https://doi.org/10.1080/16258312.2021.1932568>
- Shareef, M. A., Dwivedi, Y. K., Kumar, V., Hughes, D. L., & Raman, R. (2020). Sustainable supply chain for disaster management: structural dynamics and disruptive risks. *Annals of Operations Research*. <https://doi.org/10.1007/S10479-020-03708-3>
- SSRN, P. O.-A. at, & 2022, undefined. (n.d.). Global economic consequence of Russian invasion of Ukraine. *Papers.Ssrn.Com*. <https://doi.org/10.2139/ssrn.4064770>
- Thunberg, M. (2016). *Developing a Framework for Supply Chain Planning in Construction*. 1782. <https://doi.org/10.3384/DISS.DIVA-131617>